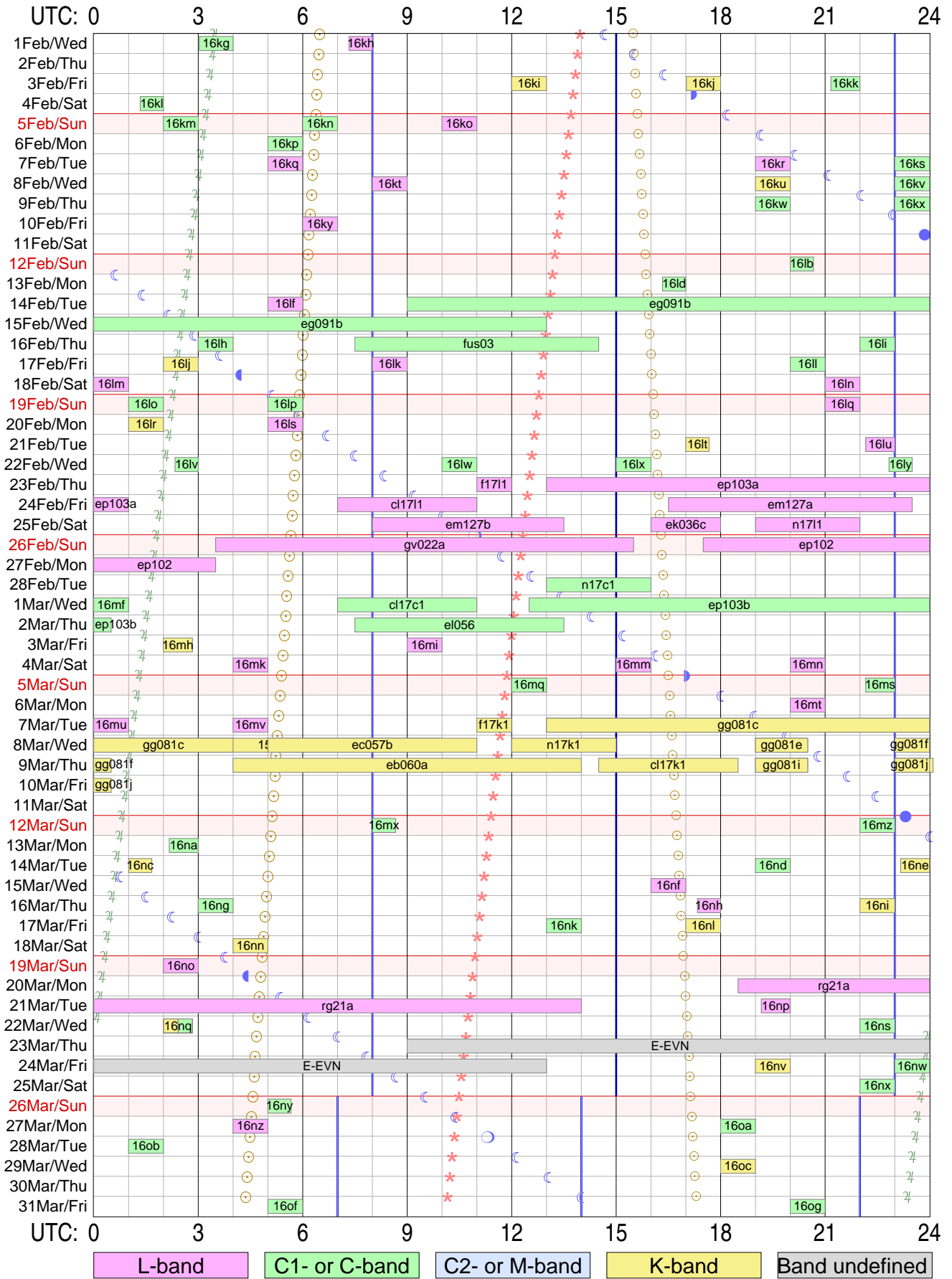


# Tr VLBI plan for Feb/Mar 2017



Version: 2017.02.27

Sky events at Tr: ○ Sunrise & sunset    ●●●● Transit of Moon    ♃ Transit of Jupiter    ★ Transit of Aries (0h ST)

Vertical lines in blue mark operator shift times at Tr

Total observing time: 307.0 hours in 109 experiments scheduled

Initial characters 'rk' are omitted from RA experiment names!

Strona zostawiona celowo pusta

# RadioAstron & EVN Experiments

## Feb 2017

Uytownik ftp dla logw i schedulw RA: grt

ftp://webinet.asc.rssi.ru

Przykad dla log files: cd GRT\_log\_files/2014\_09/2014\_09\_01\_raks08ak

Przykad dla sched files: cd schedule/grtsched/RAKS/rk08ak

54	23	02	Czw	11	00	12	00	f1711	"L"	1-	EVN3	0.23
54	23	02	Czw	13	00	24	00	ep103a	"L"			
55	24	02	Pia	0	00	1	00	ep103a	"L"	2-	EVN2	5.99
55	24	02	Pia	7	00	11	00	cl1711	"L"	3-	---0	0.00
55	24	02	Pia	16	30	23	30	em127a	"L"	4-	EVN3	3.26
56	25	02	Sob	8	00	13	30	em127b	"L"	5-	EVN7	2.53
56	25	02	Sob	16	00	18	00	ek036c	"L"	6-	EVN6	0.92
56	25	02	Sob	19	00	22	00	n1711	"L"	7-	EVN9	0.69
57	26	02	Nie	3	30	15	30	gv022a	"L"	8-	EVN6	11.06
57	26	02	Nie	17	30	24	00	ep102	"L"			
58	27	02	Pon	0	00	3	30	ep102	"L"	9R	EVN7	4.61
59	28	02	Wto	13	00	16	00	n17c1	"C"	10-	EVN7	0.69
60	1	03	Sro	7	00	11	00	cl17c1	"C"	11-	---0	0.00
60	1	03	Sro	12	30	24	00	ep103b	"C"			
61	2	03	Czw	0	00	0	30	ep103b	"C"	12-	EVN9	11.06
61	2	03	Czw	7	30	13	30	el056	"C"	13-	EVN1	5.53
66	7	03	Wto	11	00	12	00	f17k1	"K"	14-	EVN7	0.46
66	7	03	Wto	13	00	24	00	gg081c	"K"			
67	8	03	Sro	0	00	4	00	gg081c	"K"	15-	Bon3	6.91
67	8	03	Sro	5	00	11	00	ec057b	"K"	16-	EVN3	0.35
67	8	03	Sro	12	00	15	00	n17k1	"K"	17-	EVN2	1.38
67	8	03	Sro	19	00	20	30	gg081e	"K"	18-	Bon8	0.69
67	8	03	Sro	23	00	24	00	gg081f	"K"			
68	9	03	Czw	0	00	0	30	gg081f	"K"	19-	Bon9	0.69
68	9	03	Czw	4	00	14	00	eb060a	"K"	20-	EVN2	4.61
68	9	03	Czw	14	30	18	30	cl17k1	"K"	21-	---0	0.00
68	9	03	Czw	19	00	20	30	gg081i	"K"	22-	Bon9	0.69
68	9	03	Czw	23	00	24	00	gg081j	"K"			
69	10	03	Pia	0	00	0	30	gg081j	"K"	23-	Bon9	0.69

32	1	02	Sro	3	02	4	00	rk16kg	"C"		"	
32	1	02	Sro	7	20	8	00	rk16kh	"L"		"	
34	3	02	Pia	12	00	13	00	rk16ki	"K"		"	
34	3	02	Pia	17	01	18	00	rk16kj	"K"		"	
34	3	02	Pia	21	10	22	00	rk16kk	"C"		"	
35	4	02	Sob	1	20	2	00	rk16kl	"C"		"	

36	5	02	Nie	2	00	3	00	rk16km	"C	"
36	5	02	Nie	6	00	7	00	rk16kn	"C	"
36	5	02	Nie	10	00	11	00	rk16ko	"L	"
37	6	02	Pon	5	00	6	00	rk16kp	"C	"
38	7	02	Wto	5	00	6	00	rk16kq	"L	"
38	7	02	Wto	19	00	20	00	rk16kr	"L	"
38	7	02	Wto	23	00	24	00	rk16ks	"C	"
39	8	02	Sro	8	00	9	00	rk16kt	"L	"
39	8	02	Sro	19	00	20	00	rk16ku	"K	"
39	8	02	Sro	23	00	24	00	rk16kv	"C	"
40	9	02	Czw	19	00	20	00	rk16kw	"C	"
40	9	02	Czw	23	00	24	00	rk16kx	"C	"
41	10	02	Pia	6	00	7	00	rk16ky	"L	"
43	12	02	Nie	20	00	20	40	rk16lb	"C	"
44	13	02	Pon	16	20	17	00	rk16ld	"C	"
45	14	02	Wto	5	00	6	00	rk16lf	"L	"
46	15	02	Sro	0	00	1	00	rk16lg	"L	"
47	16	02	Czw	3	00	4	00	rk16lh	"C	"
47	16	02	Czw	22	00	23	00	rk16li	"C	"
48	17	02	Pia	2	00	3	00	rk16lj	"K	"
48	17	02	Pia	8	00	9	00	rk16lk	"L	"
48	17	02	Pia	20	00	21	00	rk16ll	"C	"
49	18	02	Sob	0	00	1	00	rk16lm	"L	"
49	18	02	Sob	21	00	22	00	rk16ln	"L	"
50	19	02	Nie	1	00	2	00	rk16lo	"C	"
50	19	02	Nie	5	00	6	00	rk16lp	"C	"
50	19	02	Nie	21	00	22	00	rk16lq	"L	"
51	20	02	Pon	1	00	2	00	rk16lr	"K	"
51	20	02	Pon	5	00	6	00	rk16ls	"L	"
52	21	02	Wto	17	00	17	40	rk16lt	"K	"
52	21	02	Wto	22	10	23	00	rk16lu	"L	"
53	22	02	Sro	2	20	3	00	rk16lv	"C	"
53	22	02	Sro	10	00	11	00	rk16lw	"C	"
53	22	02	Sro	15	00	16	00	rk16lx	"C	"
53	22	02	Sro	22	50	23	30	rk16ly	"C	"
00	14	02	Wto	09	00	113	00	"eEVN"	"	"

Plik pdf tego dokumentu jest dost/epny w sieci pod adresem:

<http://paulo.astro.uni.torun.pl/~pw/VLBI/schedules/feb17.pdf>

rk16kgtr

RADIOASTRON AGN MONITORING

PI: Yuri Kovalev

Address: ASC Lebedev                                    Profsoyuznaya 84/32                                    117997 Moscow, Russia  
 Phone:    +7-495-3332512                                    EMAIL:    kirx@scan.sai.msu.ru  
 Fax:      +7-495-3332378                                    Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN            (Code Tr )                                    Page    2

                                  RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
 Early: Seconds between end of slew and start.    Dwell: On source seconds.  
 Disk: GBytes recorded to this point.  
 TPStart: Recording start time. Frequencies are L0 sum (band edge).  
 SYNC: Time correlator is expected to sync up.

---

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

---

--- Wed    1 Feb 2017    Day   32 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00  
 Next BBC frequencies:    736.00    736.00    736.00    736.00  
 Next scan bandwidths:    16.00    16.00    16.00    16.00

03 02 00	1101+384	13 02 20	64.9	245.1	1.9	43.8	0	0	03 02 00
03 21 30	---	13 21 53	62.2	251.2	2.3	46.3	1170	37	03 02 01
03 22 00	1101+384	13 22 23	62.1	251.3	2.3	46.3	24	37	03 22 00
03 41 30	---	13 41 56	59.3	256.7	2.6	48.0	1170	75	03 22 01
03 42 00	1101+384	13 42 26	59.2	256.8	2.6	48.0	24	75	03 42 00
04 00 00	---	14 00 29	56.6	261.3	2.9	49.0	1080	109	03 42 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group:    2	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=           L           L           U           U
IF SB =           U           U           U           U
Pol.  =          RCP          LCP          RCP          LCP
BBC   =           1           2           1           2
BBC SB=           L           L           U           U
IF    =           C           A           C           A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  3

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(Date)	Error (mas)
* FAKERA	11 57 21.769299 * 12 00 00.000000	12 00 54.967506	0.00
	85 16 41.77889 * 85 00 00.000000	84 54 04.14128	0.00
	fake circumpolar target for a TS to look at		
* 1101+384	11 01 40.567856 * 11 04 27.313945	11 05 24.646518	0.00
J1104+3812	38 28 42.95187 * 38 12 31.79894	38 06 47.88070	0.00
MRK421	./rk16kg_sources.radioastron AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 17168 observations, RA-A04-07, R		

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source          Sun distance (deg)
1101+384        145.4

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz        45. deg
2.3 GHz        36. deg
5.0 GHz        23. deg
8.4 GHz        17. deg
15.0 GHz       12. deg
22.0 GHz        9. deg

```



```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=           L           L           U           U
IF SB =           L           L           L           L
Pol.  =          RCP          LCP          RCP          LCP
BBC   =           1           2           1           2
BBC SB=           U           U           L           L
IF    =           C           A           C           A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  3

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 55.004168	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 04.18072	0.00
	fake circumpolar target for a TS to look at			
* 1222+216	12 22 23.408709	* 12 24 54.458394	12 25 46.211641	0.00
J1224+2122	21 39 23.03696	* 21 22 46.38857	21 16 58.19258	0.00
	./rk16kh_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 406 observations, RA-A04-07, RA-A03-04,			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1222+216	131.5

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg



**rk16kitr**

RADIOASTRON AGN MONITORING  
PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/K-band, dual-pol

Schedule for TORUN              (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Fri	3 Feb 2017	Day	34	---					
-----										
----- K-band VLBI scans -----										
-----										
Next scan frequencies: 22236.00 22236.00 22236.00 22236.00										
Next BBC frequencies: 736.00 736.00 736.00 736.00										
Next scan bandwidths: 16.00 16.00 16.00 16.00										
-----										
12 00 00	0234+285	22 09 41	36.1	88.6	-4.5		-43.3	0	0	12 00 00
12 14 30	---	22 24 13	38.3	91.5	-4.2		-43.3	870	28	12 00 01
-----										
12 15 00	0234+285	22 24 44	38.3	91.6	-4.2		-43.3	24	28	12 15 00
12 29 30	---	22 39 16	40.5	94.6	-4.0		-43.1	870	56	12 15 01
-----										
12 30 00	0234+285	22 39 46	40.6	94.7	-4.0		-43.1	24	56	12 30 00
12 44 30	---	22 54 18	42.8	97.8	-3.7		-42.8	870	84	12 30 01
-----										
12 45 00	0234+285	22 54 48	42.8	98.0	-3.7		-42.8	24	84	12 45 00
13 00 00	---	23 09 51	45.1	101.3	-3.5		-42.3	900	112	12 45 01
-----										

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
Setup file: ra1cm2.set

Matching groups in ./rk16ki\_freq.dat:

tr1cm

Setup group:    5                      Station: TORUN                      Total bit rate:    256  
Format: MKIV1:4                      Bits per sample: 2                      Sample rate: 32.000  
Number of channels: 4                      DBE type:                      Speedup factor:    1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr=  736.00  736.00  736.00  736.00
Bandwd=  16.00  16.00  16.00  16.00
Matching frequency sets:  2

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 55.414733	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 04.66139	0.00
	fake circumpolar target for a TS to look at			
* 0234+285	02 34 55.589591	* 02 37 52.405678	02 38 52.704770	0.00
J0237+2848	28 35 11.40774	* 28 48 08.98999	28 52 30.23826	0.00
	./rk16ki_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 57147 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
0234+285    91.4

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz      9. deg

```

**rk16kjtr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/K-band, dual-pol

Schedule for TORUN              (Code Tr )                                      Page    2  
                                        RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time.    Frequencies are L0 sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                                  Start / Stop                          Early      Disk    TPStart  
Stop UT                                  LST            EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Fri    3 Feb 2017    Day 34 ---

----- K-band VLBI scans -----

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00  
Next BBC frequencies:    736.00    736.00    736.00    736.00  
Next scan bandwidths:    16.00    16.00    16.00    16.00

17 01 00	0716+714	03 11 31	57.6	32.3	-4.2		-90.1	0	0	17 01 00
17 20 30	---	03 31 04	59.2	32.1	-3.9		-94.9	1170	37	17 01 01
17 21 00	0716+714	03 31 34	59.2	32.1	-3.9		-95.0	24	37	17 21 00
17 40 30	---	03 51 07	60.8	31.7	-3.5		-100.0	1170	75	17 21 01
17 41 00	0716+714	03 51 37	60.8	31.7	-3.5		-100.1	24	75	17 41 00
18 00 00	---	04 10 40	62.3	31.0	-3.2		-105.2	1140	111	17 41 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
Setup file: ra1cm2.set  
Matching groups in ./rk16kj\_freq.dat:  
tr1cm

Setup group:    4	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor:    1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr=  736.00  736.00  736.00  736.00
Bandwd=  16.00  16.00  16.00  16.00
Matching frequency sets:  2

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 55.451366	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 04.70554	0.00
	fake circumpolar target for a TS to look at			
* 0716+714	07 16 13.029739	* 07 21 53.448474	07 23 51.636997	0.00
J0721+7120	71 26 15.17406	* 71 20 36.36340	71 18 33.28508	0.00
	./rk16kj_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 42370 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
0716+714    122.8

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

**rk16ktr**

RADIOASTRON AGN MONITORING  
PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

```

-----
Start UT    Source                      Start / Stop                      Early    Disk    TPStart
Stop UT                                      LST       EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC
-----

```

--- Fri    3 Feb 2017    Day 34 ---

----- L-band VLBI scans -----

```

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies:  732.00  732.00  732.00  732.00
Next scan bandwidths:  16.00  16.00  16.00  16.00

21 10 00 0234+285    07 21 11 34.1 274.0 4.7            43.2    0            0    21 10 00
21 29 30 ---            07 40 45 31.2 277.7 5.0            42.8 1170            37    21 10 01

21 30 00 0234+285    07 41 15 31.1 277.8 5.0            42.8    24            37    21 30 00
21 44 30 ---            07 55 47 29.0 280.5 5.3            42.4    870            65    21 30 01

21 45 00 0234+285    07 56 17 28.9 280.6 5.3            42.4    24            65    21 45 00
22 00 00 ---            08 11 20 26.7 283.3 5.5            41.9    900            94    21 45 01

```

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

```

Setup group:    5                      Station: TORUN                      Total bit rate:    256
Format: MKIV1:4                      Bits per sample: 2                      Sample rate: 32.000
Number of channels: 4                      DBE type:                                      Speedup factor:    1.00

```

Disk used to record data.

```

1st LO= 2400.00 2400.00 2400.00 2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 2 Setup file default. Used with PCAL = 1MHz
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 732.00 732.00 732.00 732.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 2

```

Track assignments are:

```

track1= 2, 18, 3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 55.480976	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 04.74101	0.00
	fake circumpolar target for a TS to look at			
* 0234+285	02 34 55.589591	* 02 37 52.405678	02 38 52.697586	0.00
J0237+2848	28 35 11.40774	* 28 48 08.98999	28 52 30.20347	0.00
	./rk16kk_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 57147 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
0234+285    91.0

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

**rk16kltr**

RADIOASTRON AGN MONITORING

PI: Yuri Kovalev

Address: ASC Lebedev                    Profsoyuznaya 84/32                    117997 Moscow, Russia  
Phone:    +7-495-3332512                    EMAIL:   kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                    Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN        (Code Tr )                    Page 2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

```
-----
Start UT    Source                             Start / Stop                             Early    Disk    TPStart
Stop UT                                     LST    EL    AZ    HA    UP    ParA Dwell    GBytes    SYNC
-----
```

--- Sat 4 Feb 2017 Day 35 ---

----- L-band VLBI scans -----

```
Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies:    732.00    732.00    732.00    732.00
Next scan bandwidths:    16.00     16.00     16.00     16.00
```

```
01 20 00 0814+425        11 31 53 56.6 271.0 3.2        54.3    0        0    01 20 00
01 39 30 ---              11 51 26 53.7 274.7 3.5        54.0 1170        37    01 20 01

01 40 00 0814+425        11 51 56 53.6 274.8 3.5        54.0    24        37    01 40 00
02 00 00 ---              12 11 59 50.6 278.4 3.9        53.5 1200        76    01 40 01
```

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

===== Setup file: ra18cm2.set

```
Setup group:    5                             Station: TORUN                             Total bit rate:    256
Format: MKIV1:4                             Bits per sample: 2                             Sample rate: 32.000
Number of channels: 4                             DBE type:                                     Speedup factor:    1.00
```

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 5 Setup file default. Used with PCAL = 1MHz  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 732.00 732.00 732.00 732.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 5

Track assignments are:

track1= 2, 18, 3, 19  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(Date)	Error (mas)
* FAKERA	11 57 21.769299 * 12 00 00.000000	12 00 55.508264	0.00
	85 16 41.77889 * 85 00 00.000000	84 54 04.77347	0.00
	fake circumpolar target for a TS to look at		
* 0814+425	08 14 51.669840 * 08 18 15.999600	08 19 26.649798	0.00
J0818+4222	42 32 07.73231 * 42 22 45.41481	42 19 22.40280	0.00
	./rk16kl_sources.radioastron AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 3620 observations, RA-A04-07, RA		

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
0814+425	151.6

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg



**rk16kmtr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/K-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Sun    5 Feb 2017    Day 36 ---

----- K-band VLBI scans -----

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00  
Next BBC frequencies:    736.00    736.00    736.00    736.00  
Next scan bandwidths:    16.00    16.00    16.00    16.00

02 00 00	0814+425	12 15 56	50.0	279.0	3.9		53.3	0	0	02 00 00
02 14 30	---	12 30 28	47.9	281.5	4.2		52.7	870	28	02 00 01
02 15 00	0814+425	12 30 58	47.8	281.6	4.2		52.7	24	28	02 15 00
02 29 30	---	12 45 30	45.7	284.0	4.4		52.0	870	56	02 15 01
02 30 00	0814+425	12 46 01	45.6	284.1	4.4		52.0	24	56	02 30 00
02 44 30	---	13 00 33	43.5	286.4	4.7		51.2	870	84	02 30 01
02 45 00	0814+425	13 01 03	43.4	286.5	4.7		51.2	24	84	02 45 00
03 00 00	---	13 16 05	41.3	288.9	4.9		50.2	900	112	02 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra1cm2.set

Matching groups in ./rk16km\_freq.dat:

tr1cm

Setup group:    5	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor:    1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=          L          L          U          U
IF SB =          U          U          U          U
Pol.  =          RCP         LCP         RCP         LCP
BBC   =           1          2          1          2
BBC SB=          L          L          U          U
IF    =           C          A          C          A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr=  736.00  736.00  736.00  736.00
Bandwd=  16.00  16.00  16.00  16.00
Matching frequency sets:  2

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 55.684502	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 04.97467	0.00
	fake circumpolar target for a TS to look at			
* 0814+425	08 14 51.669840	* 08 18 15.999600	08 19 26.653486	0.00
J0818+4222	42 32 07.73231	* 42 22 45.41481	42 19 22.51493	0.00
	./rk16km_sources.radioastron			
	AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 3620 observations, RA-A04-07, RA			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source          Sun distance (deg)
0814+425        150.9

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz        45. deg
2.3 GHz        36. deg
5.0 GHz        23. deg
8.4 GHz        17. deg
15.0 GHz       12. deg
22.0 GHz        9. deg

```

**rk16kntr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
 Phone: +7-495-3332512                      EMAIL: kirx@scan.sai.msu.ru  
 Fax: +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/K-band, dual-pol

Schedule for TORUN (Code Tr ) Page 2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

```

-----
Start UT  Source             Start / Stop           Early  Disk  TPStart
Stop UT                   LST   EL   AZ   HA  UP   ParA Dwell  GBytes  SYNC
-----

```

--- Sun 5 Feb 2017 Day 36 ---

----- K-band VLBI scans -----

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00  
 Next BBC frequencies: 736.00 736.00 736.00 736.00  
 Next scan bandwidths: 16.00 16.00 16.00 16.00

06 00 00	1253-055	16 16 35	17.6	233.0	3.3		28.8	0	0	06 00 00
06 14 30	---	16 31 07	15.9	236.2	3.6		30.1	870	28	06 00 01
06 15 00	1253-055	16 31 38	15.8	236.4	3.6		30.2	24	28	06 15 00
06 29 30	---	16 46 10	13.9	239.6	3.8		31.4	870	56	06 15 01
06 30 00	1253-055	16 46 40	13.9	239.7	3.8		31.4	24	56	06 30 00
06 44 30	---	17 01 12	12.0	242.8	4.1		32.5	870	84	06 30 01
06 45 00	1253-055	17 01 42	11.9	242.9	4.1		32.5	24	84	06 45 00
07 00 00	---	17 16 45	9.9	246.1	4.3		33.5	900	112	06 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

===== Setup file: ra1cm2.set

Matching groups in ./rk16kn\_freq.dat:

tr1cm

Setup group: 6                      Station: TORUN                      Total bit rate: 256  
 Format: MKIV1:4                      Bits per sample: 2                      Sample rate: 32.000  
 Number of channels: 4                      DBE type:                      Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr=  736.00  736.00  736.00  736.00
Bandwd=  16.00  16.00  16.00  16.00
Matching frequency sets:  2

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 55.713038	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 05.00550	0.00
	fake circumpolar target for a TS to look at			
* 1253-055	12 53 35.831289	* 12 56 11.166557	12 57 04.623997	0.00
J1256-0547	-05 31 07.99603	*-05 47 21.52489	-05 52 53.38001	0.00
3C279	./rk16kn_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 7924 observations, RA-A04-07, RA-A03-04			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1253-055    121.2

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz     45. deg
2.3 GHz     36. deg
5.0 GHz     23. deg
8.4 GHz     17. deg
15.0 GHz    12. deg
22.0 GHz     9. deg

```

**rk16kotr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST       EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Sun    5 Feb 2017    Day 36 ---

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies:    732.00    732.00    732.00    732.00  
Next scan bandwidths:    16.00    16.00    16.00    16.00

10 00 00	0716+714	20 17 14	34.8	5.2-11.1	-9.7	0	0	10 00 00
10 19 30	---	20 36 48	35.1	7.0-10.8	-13.3	1170	37	10 00 01
10 20 00	0716+714	20 37 18	35.1	7.1-10.8	-13.4	25	37	10 20 00
10 39 30	---	20 56 51	35.5	8.9-10.5	-16.9	1170	75	10 20 01
10 40 00	0716+714	20 57 21	35.5	9.0-10.4	-17.0	25	75	10 40 00
11 00 00	---	21 17 24	36.0	10.9-10.1	-20.7	1200	113	10 40 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
Setup file: ra18cm2.set

Setup group:    6	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor:    1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 5 Setup file default. Used with PCAL = 1MHz  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 732.00 732.00 732.00 732.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 5

Track assignments are:

track1= 2, 18, 3, 19  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 55.739990	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 05.03413	0.00
	fake circumpolar target for a TS to look at			
* 0716+714	07 16 13.029739	* 07 21 53.448474	07 23 51.610636	0.00
J0721+7120	71 26 15.17406	* 71 20 36.36340	71 18 33.66682	0.00
	./rk16ko_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 42370 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
0716+714	122.0

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**rk16kptr**

RADIOASTRON AGN MONITORING  
PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/K-band, dual-pol

Schedule for TORUN              (Code Tr )                                      Page    2  
                                    RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.      Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

---

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

---

--- Mon   6 Feb 2017   Day   37 ---

----- K-band VLBI scans -----

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00  
Next BBC frequencies:    736.00    736.00    736.00    736.00  
Next scan bandwidths:    16.00    16.00    16.00    16.00

05 00 00	0716+714	15 20 22	41.6 -22.0	7.9			44.5	0	0	05 00 00
05 14 30	---	15 34 54	40.8 -20.9	8.2			41.8	870	28	05 00 01
05 15 00	0716+714	15 35 24	40.8 -20.8	8.2			41.7	25	28	05 15 00
05 29 30	---	15 49 57	40.0 -19.6	8.4			39.1	870	56	05 15 01
05 30 00	0716+714	15 50 27	40.0 -19.6	8.4			39.0	25	56	05 30 00
05 44 30	---	16 04 59	39.3 -18.4	8.7			36.3	870	84	05 30 01
05 45 00	0716+714	16 05 29	39.3 -18.4	8.7			36.2	25	84	05 45 00
06 00 00	---	16 20 32	38.6 -17.1	8.9			33.4	900	112	05 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

===== Setup file: ra1cm2.set  
Matching groups in ./rk16kp\_freq.dat:  
tr1cm

Setup group:	4	Station:	TORUN	Total bit rate:	256
Format:	MKIV1:4	Bits per sample:	2	Sample rate:	32.000
Number of channels:	4	DBE type:		Speedup factor:	1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=          L          L          U          U
IF SB =          U          U          U          U
Pol.  =          RCP         LCP         RCP         LCP
BBC   =           1          2          1          2
BBC SB=          L          L          U          U
IF    =           C          A          C          A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr=  736.00  736.00  736.00  736.00
Bandwd=  16.00  16.00  16.00  16.00
Matching frequency sets:  2

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 55.880987	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 05.17621	0.00
	fake circumpolar target for a TS to look at			
* 0716+714	07 16 13.029739	* 07 21 53.448474	07 23 51.603458	0.00
J0721+7120	71 26 15.17406	* 71 20 36.36340	71 18 33.84562	0.00
	./rk16kp_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 42370 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source          Sun distance (deg)
0716+714        121.6

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz        45. deg
2.3 GHz        36. deg
5.0 GHz        23. deg
8.4 GHz        17. deg
15.0 GHz       12. deg
22.0 GHz        9. deg

```





```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  3

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 56.067136	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 05.34775	0.00
	fake circumpolar target for a TS to look at			
* 1253-055	12 53 35.831289	* 12 56 11.166557	12 57 04.686382	0.00
J1256-0547	-05 31 07.99603	*-05 47 21.52489	-05 52 53.76831	0.00
3C279	./rk16kq_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 7924 observations, RA-A04-07, RA-A03-04			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1253-055    123.2

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz     45. deg
2.3 GHz     36. deg
5.0 GHz     23. deg
8.4 GHz     17. deg
15.0 GHz    12. deg
22.0 GHz     9. deg

```

**rk16krtr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST            EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Tue    7 Feb 2017    Day 38 ---

----- L-band VLBI scans -----

Next scan frequencies:	1668.00	1668.00	1668.00	1668.00							
Next BBC frequencies:	732.00	732.00	732.00	732.00							
Next scan bandwidths:	16.00	16.00	16.00	16.00							
19 00 00	0727-115	05 26 36	19.9	147.4	-2.1		-19.3	0	0	19 00 00	
19 19 30	---	05 46 10	21.4	152.3	-1.7		-16.6	1170	37	19 00 01	
19 20 00	0727-115	05 46 40	21.4	152.4	-1.7		-16.5	24	37	19 20 00	
19 39 30	---	06 06 13	22.7	157.4	-1.4		-13.6	1170	75	19 20 01	
19 40 00	0727-115	06 06 43	22.7	157.5	-1.4		-13.6	24	75	19 40 00	
20 00 00	---	06 26 46	23.7	162.8	-1.1		-10.5	1200	113	19 40 01	

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

===== Setup file: ra18cm2.set

Setup group:    3	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor:    1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 3 Setup file default. Used with PCAL = 1MHz  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 732.00 732.00 732.00 732.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 3

Track assignments are:

track1= 2, 18, 3, 19  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 56.180994	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 05.44766	0.00
	fake circumpolar target for a TS to look at			
* 0727-115	07 27 58.097813	* 07 30 19.112473	07 31 08.272313	0.00
J0730-1141	-11 34 52.58107	*-11 41 12.60063	-11 43 39.18481	0.00
	./rk16kr_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 155894 observations, RA-A04-07, RA-A03-			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
0727-115	140.8

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**rk16kstr**

RADIOASTRON AGN MONITORING  
PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

```
-----
Start UT    Source                      Start / Stop                      Early    Disk    TPStart
Stop UT                      LST        EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC
-----
```

--- Tue    7 Feb 2017    Day 38 ---

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies:    732.00    732.00    732.00    732.00  
Next scan bandwidths:    16.00    16.00    16.00    16.00

23 00 00	0430+052	09 27 16	14.3	259.7	4.9		36.4	0	0	23 00 00
23 14 30	---	09 41 48	12.1	262.7	5.1		36.7	870	28	23 00 01
23 15 00	0430+052	09 42 18	12.1	262.8	5.1		36.8	24	28	23 15 00
23 29 30	---	09 56 51	9.9	265.8	5.4		37.0	870	56	23 15 01
23 30 00	0430+052	09 57 21	9.8	265.9	5.4		37.0	24	56	23 30 00
23 44 30	---	10 11 53	7.6	268.8	5.6		37.1	870	84	23 30 01
23 45 00	0430+052	10 12 23	7.6	268.9	5.6		37.1	24	84	23 45 00
23 59 59	---	10 27 26	5.3	271.9	5.9		37.1	899	112	23 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group:    7	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor:    1.00

Disk used to record data.

```

1st LO= 2400.00 2400.00 2400.00 2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 3 Setup file default. Used with PCAL = 1MHz
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 732.00 732.00 732.00 732.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 3

```

Track assignments are:

```

track1= 2, 18, 3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(Date)	Error (mas)
* FAKERA	11 57 21.769299 * 12 00 00.000000	12 00 56.213563	0.00
	85 16 41.77889 * 85 00 00.000000	84 54 05.47600	0.00
	fake circumpolar target for a TS to look at		
* 0430+052	04 30 31.602064 * 04 33 11.095533	04 34 05.815295	0.00
J0433+0521	05 14 59.61638 * 05 21 15.61916	05 23 08.62376	0.00
3C120	./rk16ks_sources.radioastron AGN, rfc_2013d Petrov, 2013, unpublished 9633 observations, RA-A04-07, RA-A03-04		

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
0430+052    107.5

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

**rk16kttr**

RADIOASTRON AGN MONITORING  
PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia  
Phone: +7-495-3332512 EMAIL: kirx@scan.sai.msu.ru  
Fax: +7-495-3332378 Phone during observation: +7-903-6614865

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr ) Page 2  
RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start. Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Wed 8 Feb 2017 Day 39 ---

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies: 732.00 732.00 732.00 732.00  
Next scan bandwidths: 16.00 16.00 16.00 16.00

08 00 00	1044+719	18 28 44	42.8	-23.0	7.7		48.0	0	0	08 00 00
08 19 30	---	18 48 18	41.7	-21.5	8.0		44.4	1170	37	08 00 01
08 20 00	1044+719	18 48 48	41.7	-21.5	8.0		44.3	25	37	08 20 00
08 39 30	---	19 08 21	40.6	-20.0	8.3		40.6	1170	75	08 20 01
08 40 00	1044+719	19 08 51	40.6	-19.9	8.3		40.5	25	75	08 40 00
09 00 00	---	19 28 54	39.6	-18.3	8.7		36.8	1200	113	08 40 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

===== Setup file: ra18cm2.set

Setup group: 2 Station: TORUN Total bit rate: 256  
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000  
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 3 Setup file default. Used with PCAL = 1MHz  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 732.00 732.00 732.00 732.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 3

Track assignments are:

track1= 2, 18, 3, 19  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 56.287414	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 05.54036	0.00
	fake circumpolar target for a TS to look at			
* 1044+719	10 44 49.735111	* 10 48 27.619927	10 49 42.895626	0.00
J1048+7143	71 59 26.88535	* 71 43 35.93838	71 37 59.11371	0.00
	./rk16kt_sources.radioastron AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 141793 observations, RA-A04-07,			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1044+719	122.0

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg



**rk16kutr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/K-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST        EL     AZ    HA    UP     ParA    Dwell    GBytes    SYNC  
-----

--- Wed    8 Feb 2017    Day 39 ---

----- K-band VLBI scans -----

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00  
Next BBC frequencies:    736.00    736.00    736.00    736.00  
Next scan bandwidths:    16.00    16.00    16.00    16.00

19 00 00	0454-234	05 30 33	13.2	187.7	0.5		5.0	0	0	19 00 00
19 14 30	---	05 45 05	12.8	191.1	0.8		7.3	870	28	19 00 01
19 15 00	0454-234	05 45 35	12.8	191.2	0.8		7.3	24	28	19 15 00
19 29 30	---	06 00 08	12.3	194.6	1.0		9.5	870	56	19 15 01
19 30 00	0454-234	06 00 38	12.3	194.7	1.0		9.6	24	56	19 30 00
19 44 30	---	06 15 10	11.7	198.1	1.3		11.7	870	84	19 30 01
19 45 00	0454-234	06 15 40	11.7	198.2	1.3		11.8	24	84	19 45 00
20 00 00	---	06 30 43	10.9	201.6	1.5		14.0	900	112	19 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra1cm2.set

Matching groups in ./rk16ku\_freq.dat:

tr1cm

Setup group:    5                      Station: TORUN                      Total bit rate:    256  
Format: MKIV1:4                      Bits per sample: 2                      Sample rate: 32.000  
Number of channels: 4                      DBE type:                      Speedup factor:    1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 3 Setup file default. Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 3

```

Track assignments are:

```

track1= 2, 18, 3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(Date)	Error (mas)	
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 56.383985	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 05.62558	0.00
	fake circumpolar target for a TS to look at			
* 0454-234	04 54 57.297216	* 04 57 03.179228	04 57 46.543094	0.00
J0457-2324	-23 29 28.31965	*-23 24 52.02024	-23 23 40.96728	0.00
	./rk16ku_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 69420 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
0454-234	103.2

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**rk16kvtr**

**RADIOASTRON AGN MONITORING**

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN              (Code Tr )                                      Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time.    Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

```
-----
Start UT  Source            Start / Stop            Early   Disk  TPStart
Stop UT                               LST   EL   AZ   HA  UP   ParA Dwell  GBytes  SYNC
-----
```

--- Wed    8 Feb 2017    Day 39 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00  
Next BBC frequencies:    736.00    736.00    736.00    736.00  
Next scan bandwidths:    16.00    16.00    16.00    16.00

23 00 00	0430+052	09 31 12	13.7	260.6	5.0	36.5	0	0	23 00 00
23 19 30	---	09 50 45	10.8	264.6	5.3	36.9	1170	37	23 00 01
23 20 00	0430+052	09 51 16	10.7	264.7	5.3	36.9	24	37	23 20 00
23 39 30	---	10 10 49	7.8	268.6	5.6	37.1	1170	75	23 20 01
23 40 00	0430+052	10 11 19	7.7	268.7	5.6	37.1	24	75	23 40 00
23 59 59	---	10 31 22	4.7	272.7	6.0	37.0	1199	113	23 40 01

**SETUP FILE INFORMATION:**

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

===== Setup file: ra6cm2.set

```
Setup group:    3                      Station: TORUN                      Total bit rate:    256
Format: MKIV1:4                      Bits per sample: 2                      Sample rate:    32.000
Number of channels: 4                      DBE type:                              Speedup factor:    1.00
```

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=           L           L           U           U
IF SB =           U           U           U           U
Pol.  =          RCP          LCP          RCP          LCP
BBC   =           1           2           1           2
BBC SB=          L           L           U           U
IF    =           C           A           C           A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  3

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 56.419457	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 05.65742	0.00
	fake circumpolar target for a TS to look at			
* 0430+052	04 30 31.602064	* 04 33 11.095533	04 34 05.806335	0.00
J0433+0521	05 14 59.61638	* 05 21 15.61916	05 23 08.61246	0.00
3C120	./rk16kv_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 9633 observations, RA-A04-07, RA-A03-04			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
0430+052    106.5

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

**rk16kwtr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/K-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start.    Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST       EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Thu    9 Feb 2017    Day 40 ---

----- C-band VLBI scans -----

Next scan frequencies:	4836.00	4836.00	4836.00	4836.00							
Next BBC frequencies:	736.00	736.00	736.00	736.00							
Next scan bandwidths:	16.00	16.00	16.00	16.00							
19 00 00	0727-115	05 34 29	20.5	149.4	-1.9		-18.2	0	0	19 00 00	
19 14 30	---	05 49 02	21.6	153.0	-1.7		-16.2	870	28	19 00 01	
19 15 00	0727-115	05 49 32	21.6	153.1	-1.7		-16.1	24	28	19 15 00	
19 29 30	---	06 04 04	22.6	156.8	-1.5		-14.0	870	56	19 15 01	
19 30 00	0727-115	06 04 34	22.6	157.0	-1.4		-13.9	24	56	19 30 00	
19 44 30	---	06 19 07	23.4	160.7	-1.2		-11.7	870	84	19 30 01	
19 45 00	0727-115	06 19 37	23.4	160.9	-1.2		-11.6	24	84	19 45 00	
20 00 00	---	06 34 39	24.1	164.8	-0.9		-9.2	900	112	19 45 01	

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
Setup file: ra6cm2.set

Setup group:	4	Station:	TORUN	Total bit rate:	256
Format:	MKIV1:4	Bits per sample:	2	Sample rate:	32.000
Number of channels:	4	DBE type:		Speedup factor:	1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=           L           L           U           U
IF SB =           U           U           U           U
Pol.  =          RCP          LCP          RCP          LCP
BBC   =           1           2           1           2
BBC SB=           L           L           U           U
IF    =           C           A           C           A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  1  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  1

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 56.594141	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 05.82092	0.00
	fake circumpolar target for a TS to look at			
* 0727-115	07 27 58.097813	* 07 30 19.112473	07 31 08.270684	0.00
J0730-1141	-11 34 52.58107	*-11 41 12.60063	-11 43 39.45989	0.00
	./rk16kw_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 155894 observations, RA-A04-07, RA-A03-			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
0727-115    139.8

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

RADIOASTRON AGN MONITORING  
PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN            (Code Tr )                                      Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start. Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are L0 sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----

Start UT	Source	Start / Stop	Early	Disk	TPStart
Stop UT		LST     EL    AZ    HA   UP    ParA	Dwell	GBytes	SYNC
-----					
--- Thu 9 Feb 2017 Day 40 ---					
----- C-band VLBI scans -----					
Next scan frequencies: 4836.00 4836.00 4836.00 4836.00					
Next BBC frequencies: 736.00 736.00 736.00 736.00					
Next scan bandwidths: 16.00 16.00 16.00 16.00					
23 00 00	0430+052	09 35 09 13.1 261.4 5.0	36.6	0	23 00 00
23 19 30	---	09 54 42 10.2 265.3 5.3	37.0 1170	37	23 00 01
23 20 00	0430+052	09 55 12 10.1 265.4 5.4	37.0	24	23 20 00
23 39 30	---	10 14 45 7.2 269.4 5.7	37.1 1170	75	23 20 01
23 40 00	0430+052	10 15 15 7.1 269.5 5.7	37.1	24	23 40 00
23 59 59	---	10 35 19 4.1 273.5 6.0	37.0 1199	113	23 40 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group:    3                                      Station: TORUN                                      Total bit rate:    256  
Format: MKIV1:4                                      Bits per sample: 2                                      Sample rate: 32.000  
Number of channels: 4                                      DBE type:    Speedup factor:    1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=           L           L           U           U
IF SB =           U           U           U           U
Pol.  =          RCP          LCP          RCP          LCP
BBC   =           1           2           1           2
BBC SB=           L           L           U           U
IF    =           C           A           C           A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  4

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 56.630053	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 05.85630	0.00
	fake circumpolar target for a TS to look at			
* 0430+052	04 30 31.602064	* 04 33 11.095533	04 34 05.794953	0.00
J0433+0521	05 14 59.61638	* 05 21 15.61916	05 23 08.61084	0.00
3C120	./rk16kx_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 9633 observations, RA-A04-07, RA-A03-04			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
0430+052    105.6

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```



**rk16kytr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:        +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: L-band, dual-pol

Schedule for TORUN            (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are L0 sum (band edge).  
SYNC: Time correlator is expected to sync up.

---

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

---

--- Fri 10 Feb 2017    Day 41 ---

----- L-band VLBI scans -----

Next scan frequencies:	1668.00	1668.00	1668.00	1668.00						
Next BBC frequencies:	732.00	732.00	732.00	732.00						
Next scan bandwidths:	16.00	16.00	16.00	16.00						
06 00 00	1253-055	16 36 18	15.2	237.4	3.7		30.6	0	0	06 00 00
06 19 30	---	16 55 51	12.7	241.7	4.0		32.1	1170	37	06 00 01
06 20 00	1253-055	16 56 21	12.6	241.8	4.0		32.1	24	37	06 20 00
06 39 30	---	17 15 54	10.0	245.9	4.3		33.5	1170	75	06 20 01
06 40 00	1253-055	17 16 24	9.9	246.1	4.3		33.5	24	75	06 40 00
07 00 00	---	17 36 28	7.1	250.2	4.7		34.6	1200	113	06 40 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

===== Setup file: ra18cm2.set

Setup group:        5	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor:    1.00

Disk used to record data.

```

1st LO= 2400.00 2400.00 2400.00 2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 4 Setup file default. Used with PCAL = 1MHz
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 732.00 732.00 732.00 732.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 4

```

Track assignments are:

```

track1= 2, 18, 3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 56.688626	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 05.91558	0.00
	fake circumpolar target for a TS to look at			
* 1253-055	12 53 35.831289	* 12 56 11.166557	12 57 04.778230	0.00
J1256-0547	-05 31 07.99603	*-05 47 21.52489	-05 52 54.37893	0.00
3C279	./rk16ky_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 7924 observations, RA-A04-07, RA-A03-04			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1253-055    126.3

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz     45. deg
2.3 GHz     36. deg
5.0 GHz     23. deg
8.4 GHz     17. deg
15.0 GHz    12. deg
22.0 GHz     9. deg

```

**rk16lbtr**

RADIOASTRON AGN MONITORING  
PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:        +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/K-band, dual-pol

Schedule for TORUN            (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                                      Start / Stop                                      Early    Disk    TPStart  
Stop UT                                      LST       EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Sun 12 Feb 2017    Day 43 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00  
Next BBC frequencies:    736.00    736.00    736.00    736.00  
Next scan bandwidths:    16.00    16.00    16.00    16.00

20 00 00	0648-165	06 46 29	20.2	178.8	-0.1	-0.8	0	0	20 00 00
20 09 30	---	06 56 00	20.2	181.2	0.1	0.8	570	18	20 00 01
20 10 00	0648-165	06 56 31	20.2	181.4	0.1	0.9	24	18	20 10 00
20 19 30	---	07 06 02	20.2	183.8	0.2	2.4	570	36	20 10 01
20 20 00	0648-165	07 06 32	20.2	183.9	0.3	2.5	24	36	20 20 00
20 29 30	---	07 16 04	20.0	186.3	0.4	4.0	570	55	20 20 01
20 30 00	0648-165	07 16 34	20.0	186.5	0.4	4.0	24	55	20 30 00
20 40 00	---	07 26 36	19.8	189.0	0.6	5.6	600	74	20 30 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
Setup file: ra6cm2.set

Setup group:    3	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor:    1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=           L           L           U           U
IF SB =          U           U           U           U
Pol.  =          RCP          LCP          RCP          LCP
BBC   =           1           2           1           2
BBC SB=          L           L           U           U
IF    =           C           A           C           A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  1  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  1

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 57.201199	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 06.54999	0.00
	fake circumpolar target for a TS to look at			
* 0648-165	06 48 10.295571	* 06 50 24.581861	06 51 11.324148	0.00
J0650-1637	-16 34 05.88130	*-16 37 39.72548	-16 39 12.33289	0.00
	./rk16lb_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 10699 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source          Sun distance (deg)
0648-165        127.3

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz        45. deg
2.3 GHz        36. deg
5.0 GHz        23. deg
8.4 GHz        17. deg
15.0 GHz       12. deg
22.0 GHz        9. deg

```

**rk16ldtr**

RADIOASTRON AGN MONITORING  
PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/K-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST       EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Mon 13 Feb 2017    Day 44 ---

----- C-band VLBI scans -----

Next scan frequencies:	4836.00	4836.00	4836.00	4836.00							
Next BBC frequencies:	736.00	736.00	736.00	736.00							
Next scan bandwidths:	16.00	16.00	16.00	16.00							
16 20 00	0430+052	03 09 49	39.3	152.5	-1.4		-16.2	0	0	16 20 00	
16 39 30	---	03 29 23	40.5	158.6	-1.1		-12.7	1170	37	16 20 01	
16 40 30	0430+052	03 30 23	40.5	158.9	-1.1		-12.5	54	37	16 40 30	
17 00 00	---	03 49 56	41.4	165.3	-0.7		-8.8	1170	75	16 40 31	

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group:    4	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor:    1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=           L           L           U           U
IF SB =           U           U           U           U
Pol.  =          RCP          LCP          RCP          LCP
BBC   =           1           2           1           2
BBC SB=           L           L           U           U
IF    =           C           A           C           A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  1  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00  736.00  736.00  736.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  1

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 57.349280	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 06.78342	0.00
	fake circumpolar target for a TS to look at			
* 0430+052	04 30 31.602064	* 04 33 11.095533	04 34 05.726993	0.00
J0433+0521	05 14 59.61638	* 05 21 15.61916	05 23 08.54465	0.00
3C120	./rk16ld_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 9633 observations, RA-A04-07, RA-A03-04			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
0430+052	102.0

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**rk16lfr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST       EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Tue 14 Feb 2017    Day 45 ---

----- L-band VLBI scans -----

Next scan frequencies:	1668.00	1668.00	1668.00	1668.00						
Next BBC frequencies:	732.00	732.00	732.00	732.00						
Next scan bandwidths:	16.00	16.00	16.00	16.00						
05 00 00	0529+483	15 51 54	13.8	-17.2	10.3		15.5	0	0	05 00 00
05 19 30	---	16 11 27	13.0	-14.0	10.6		12.6	1170	37	05 00 01
05 20 00	0529+483	16 11 57	13.0	-13.9	10.6		12.6	24	37	05 20 00
05 39 30	---	16 31 31	12.4	-10.6	10.9		9.6	1170	75	05 20 01
05 40 00	0529+483	16 32 01	12.4	-10.6	11.0		9.5	24	75	05 40 00
06 00 00	---	16 52 04	11.9	-7.2	11.3		6.5	1200	113	05 40 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
Setup file: ra18cm2.set

Setup group:    1	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor:    1.00

Disk used to record data.

```

1st LO= 2400.00 2400.00 2400.00 2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  1  Setup file default.  Used with PCAL = 1MHz
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr=  732.00 732.00 732.00 732.00
Bandwd=  16.00 16.00 16.00 16.00
Matching frequency sets:  1

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 57.434934	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 06.93045	0.00
	fake circumpolar target for a TS to look at			
* 0529+483	05 29 27.565384	* 05 33 15.865793	05 34 34.600649	0.00
J0533+4822	48 20 47.97038	* 48 22 52.80771	48 23 31.59483	0.00
	./rk16lf_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 19801 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
0529+483	116.6

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg



eg091btr

E-EVN: EG091B,EG096A,EL058A

PI: Ghirlanda,Gawronski,Lobanov/Yang

Address: JIVE  
 EMAIL: zparagi@jive.eu  
 Observing mode: realtime e-vlbi

Schedule for TORUN (Code Tr ) Page 2  
 e-EVN: eg091b,eg096a,el058a

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
 Early: Seconds between end of slew and start. Dwell: On source seconds.  
 Disk: GBytes recorded to this point.  
 TPStart: Recording start time. Frequencies are L0 sum (band edge).  
 SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Tue 14 Feb 2017 Day 45 ---										
Next scan frequencies:		4958.49	4958.49	4958.49	4958.49	5022.49	5022.49	5022.49	5022.49	5022.49
Next BBC frequencies:		758.49	758.49	758.49	758.49	822.49	822.49	822.49	822.49	822.49
Next scan bandwidths:		32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00
09 00 00	3C454.3	19 52 34	38.9	118.3	-3.0	-33.4	0	0	09 00 00	
09 15 00	---	20 07 36	40.8	122.3	-2.8	-31.9	900	115	09 00 01	
09 15 40	3C454.3	20 08 16	40.9	122.5	-2.8	-31.8	34	115	09 15 40	
09 30 00	---	20 22 39	42.7	126.4	-2.5	-30.2	860	226	09 15 41	
09 30 40	3C454.3	20 23 19	42.7	126.6	-2.5	-30.1	34	226	09 30 40	
09 45 00	---	20 37 41	44.4	130.8	-2.3	-28.3	860	336	09 30 41	
09 45 40	3C454.3	20 38 21	44.5	131.0	-2.3	-28.2	34	336	09 45 40	
10 00 00	---	20 52 43	46.1	135.3	-2.0	-26.1	860	446	09 45 41	
10 00 40	3C454.3	20 53 24	46.1	135.6	-2.0	-26.0	34	446	10 00 40	
10 15 00	---	21 07 46	47.6	140.1	-1.8	-23.6	860	556	10 00 41	
10 15 40	3C454.3	21 08 26	47.7	140.4	-1.8	-23.5	34	556	10 15 40	
10 30 00	---	21 22 48	49.0	145.2	-1.5	-20.9	860	667	10 15 41	
10 30 40	3C454.3	21 23 29	49.0	145.4	-1.5	-20.8	34	667	10 30 40	
10 45 00	---	21 37 51	50.2	150.4	-1.3	-18.0	860	777	10 30 41	
10 45 40	3C454.3	21 38 31	50.2	150.6	-1.3	-17.9	34	777	10 45 40	
11 00 00	---	21 52 53	51.2	155.9	-1.0	-14.8	860	887	10 45 41	
11 03 00	0234+285	21 55 54	34.0	85.9	-4.7	-43.2	25	887	11 03 00	
11 15 00	---	22 07 56	35.8	88.3	-4.5	-43.3	720	979	11 03 01	
11 15 40	0234+285	22 08 36	35.9	88.4	-4.5	-43.3	34	979	11 15 40	
11 30 00	---	22 22 58	38.1	91.3	-4.3	-43.3	860	1090	11 15 41	
11 30 40	0234+285	22 23 38	38.2	91.4	-4.3	-43.3	34	1090	11 30 40	
11 45 00	---	22 38 01	40.3	94.4	-4.0	-43.1	860	1200	11 30 41	
11 45 40	0234+285	22 38 41	40.4	94.5	-4.0	-43.1	34	1200	11 45 40	
12 00 00	---	22 53 03	42.6	97.6	-3.8	-42.8	860	1310	11 45 41	
12 00 40	0234+285	22 53 43	42.7	97.7	-3.8	-42.8	34	1310	12 00 40	
12 15 00	---	23 08 06	44.8	100.9	-3.5	-42.3	860	1421	12 00 41	

Schedule for TORUN (Code Tr )

Page 3

e-EVN: eg091b, eg096a, el058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Tue 14 Feb 2017	Day	45	---						
12 15 40	0234+285	23 08 46	44.9	101.1	-3.5		-42.3	34	1421	12 15 40
12 30 00	---	23 23 08	47.0	104.4	-3.3		-41.6	860	1531	12 15 41
12 30 40	0234+285	23 23 48	47.1	104.6	-3.3		-41.6	34	1531	12 30 40
12 45 00	---	23 38 11	49.2	108.2	-3.0		-40.7	860	1641	12 30 41
12 45 40	0234+285	23 38 51	49.3	108.3	-3.0		-40.6	34	1641	12 45 40
13 00 00	---	23 53 13	51.3	112.1	-2.8		-39.4	860	1751	12 45 41
13 00 40	0234+285	23 53 53	51.4	112.3	-2.7		-39.4	34	1751	13 00 40
13 15 00	---	00 08 16	53.4	116.3	-2.5		-37.9	860	1862	13 00 41
13 15 40	0234+285	00 08 56	53.5	116.5	-2.5		-37.9	34	1862	13 15 40
13 30 00	---	00 23 18	55.3	120.8	-2.3		-36.1	860	1972	13 15 41
13 30 40	0234+285	00 23 58	55.4	121.0	-2.2		-36.0	34	1972	13 30 40
13 45 00	---	00 38 20	57.2	125.7	-2.0		-33.9	860	2082	13 30 41
13 45 40	0234+285	00 39 01	57.3	125.9	-2.0		-33.7	34	2082	13 45 40
14 00 00	---	00 53 23	59.0	130.9	-1.8		-31.2	860	2192	13 45 41
14 00 40	0234+285	00 54 03	59.1	131.2	-1.7		-31.1	34	2192	14 00 40
14 15 00	---	01 08 25	60.6	136.6	-1.5		-28.1	860	2303	14 00 41
14 15 40	0234+285	01 09 05	60.7	136.9	-1.5		-27.9	33	2303	14 15 40
14 30 00	---	01 23 28	62.1	142.8	-1.3		-24.5	860	2413	14 15 41
14 30 40	0234+285	01 24 08	62.2	143.1	-1.2		-24.3	33	2413	14 30 40
14 45 00	---	01 38 30	63.4	149.4	-1.0		-20.4	860	2523	14 30 41
14 45 40	0234+285	01 39 10	63.4	149.7	-1.0		-20.2	33	2523	14 45 40
15 00 00	---	01 53 33	64.4	156.5	-0.8		-15.8	860	2633	14 45 41
15 03 00	0528+134	01 56 33	32.1	112.1	-3.6		-34.9	45	2633	15 03 00
15 15 00	---	02 08 35	33.8	114.9	-3.4		-34.1	720	2726	15 03 01
15 15 40	0528+134	02 09 15	33.9	115.1	-3.4		-34.0	34	2726	15 15 40
15 30 00	---	02 23 38	35.8	118.6	-3.1		-32.8	860	2836	15 15 41
15 30 40	0528+134	02 24 18	35.9	118.8	-3.1		-32.8	34	2836	15 30 40
15 45 00	---	02 38 40	37.7	122.5	-2.9		-31.4	860	2946	15 30 41
15 45 40	0528+134	02 39 20	37.8	122.7	-2.9		-31.3	34	2946	15 45 40
16 00 00	---	02 53 43	39.6	126.5	-2.6		-29.7	860	3056	15 45 41
16 00 40	0528+134	02 54 23	39.7	126.7	-2.6		-29.7	34	3056	16 00 40
16 15 00	---	03 08 45	41.4	130.8	-2.4		-27.9	860	3167	16 00 41

Schedule for TORUN (Code Tr )

Page 4

e-EVN: eg091b, eg096a, el058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Tue 14 Feb 2017 Day 45 ---										
16 15 40	0528+134	03 09 25	41.4	130.9	-2.4		-27.8	34	3167	16 15 40
16 30 00	---	03 23 48	43.0	135.2	-2.1		-25.8	860	3277	16 15 41
16 30 40	0528+134	03 24 28	43.1	135.4	-2.1		-25.7	34	3277	16 30 40
16 45 00	---	03 38 50	44.5	139.8	-1.9		-23.5	860	3387	16 30 41
16 45 40	0528+134	03 39 30	44.6	140.0	-1.9		-23.4	34	3387	16 45 40
17 00 00	---	03 53 52	45.9	144.6	-1.6		-21.0	860	3497	16 45 41
17 00 40	0528+134	03 54 33	46.0	144.8	-1.6		-20.9	34	3497	17 00 40
17 15 00	---	04 08 55	47.2	149.6	-1.4		-18.2	860	3608	17 00 41
17 15 40	0528+134	04 09 35	47.2	149.8	-1.4		-18.1	34	3608	17 15 40
17 30 00	---	04 23 57	48.2	154.8	-1.1		-15.3	860	3718	17 15 41
17 30 40	0528+134	04 24 38	48.2	155.0	-1.1		-15.1	34	3718	17 30 40
17 45 00	---	04 39 00	49.1	160.1	-0.9		-12.1	860	3828	17 30 41
17 48 00	J0608-2717	04 42 00	7.4	160.5	-1.5		-13.0	10	3828	17 48 00
17 53 00	=0606-272	04 47 01	7.6	161.6	-1.4		-12.3	300	3867	17 48 01
17 53 20	GRB	04 47 21	8.2	162.0	-1.3		-12.0	6	3867	17 53 20
17 55 50	---	04 49 52	8.3	162.5	-1.3		-11.6	150	3886	17 53 21
17 56 10	J0608-2717	04 50 12	7.8	162.3	-1.3		-11.9	6	3886	17 56 10
17 57 30	=0606-272	04 51 32	7.8	162.6	-1.3		-11.7	80	3896	17 56 11
17 57 50	GRB	04 51 52	8.4	163.0	-1.3		-11.4	6	3896	17 57 50
18 00 20	---	04 54 22	8.5	163.5	-1.2		-11.0	150	3915	17 57 51
18 00 40	J0608-2717	04 54 42	8.0	163.3	-1.2		-11.2	6	3915	18 00 40
18 02 00	=0606-272	04 56 03	8.0	163.6	-1.2		-11.0	80	3926	18 00 41
18 02 20	GRB	04 56 23	8.6	164.0	-1.2		-10.7	6	3926	18 02 20
18 04 50	---	04 58 53	8.7	164.5	-1.1		-10.3	150	3945	18 02 21
18 05 10	J0608-2717	04 59 13	8.2	164.3	-1.2		-10.5	6	3945	18 05 10
18 06 30	=0606-272	05 00 33	8.2	164.6	-1.1		-10.3	80	3955	18 05 11
18 06 50	GRB	05 00 53	8.8	165.0	-1.1		-10.0	6	3955	18 06 50
18 09 20	---	05 03 24	8.9	165.5	-1.1		-9.7	150	3974	18 06 51
18 09 40	J0608-2717	05 03 44	8.3	165.3	-1.1		-9.9	6	3974	18 09 40
18 11 00	=0606-272	05 05 04	8.4	165.6	-1.1		-9.7	80	3985	18 09 41

Schedule for TORUN (Code Tr )

Page 5

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Tue 14 Feb 2017 Day 45 ---										
18 11 20	GRB	05 05 24	9.0	166.0	-1.0		-9.4	6	3985	18 11 20
18 13 50	---	05 07 55	9.1	166.6	-1.0		-9.0	150	4004	18 11 21
18 14 10	J0608-2717	05 08 15	8.5	166.3	-1.0		-9.2	6	4004	18 14 10
18 15 30	=0606-272	05 09 35	8.6	166.6	-1.0		-9.0	80	4014	18 14 11
18 15 50	GRB	05 09 55	9.1	167.0	-1.0		-8.7	6	4014	18 15 50
18 18 20	---	05 12 25	9.2	167.6	-0.9		-8.3	150	4033	18 15 51
18 18 40	J0608-2717	05 12 45	8.7	167.3	-0.9		-8.6	6	4033	18 18 40
18 20 00	=0606-272	05 14 06	8.7	167.6	-0.9		-8.4	80	4044	18 18 41
18 20 20	GRB	05 14 26	9.3	168.0	-0.9		-8.0	6	4044	18 20 20
18 22 50	---	05 16 56	9.3	168.6	-0.8		-7.7	150	4063	18 20 21
18 23 10	J0608-2717	05 17 16	8.8	168.3	-0.9		-7.9	6	4063	18 23 10
18 24 30	=0606-272	05 18 36	8.8	168.6	-0.8		-7.7	80	4073	18 23 11
18 24 50	GRB	05 18 56	9.4	169.0	-0.8		-7.4	6	4073	18 24 50
18 27 20	---	05 21 27	9.5	169.6	-0.8		-7.0	150	4092	18 24 51
18 27 40	J0608-2717	05 21 47	8.9	169.3	-0.8		-7.2	7	4092	18 27 40
18 29 00	=0606-272	05 23 07	9.0	169.6	-0.8		-7.0	80	4103	18 27 41
18 29 20	GRB	05 23 27	9.5	170.0	-0.7		-6.7	6	4103	18 29 20
18 31 50	---	05 25 58	9.6	170.6	-0.7		-6.3	150	4122	18 29 21
18 32 10	J0608-2717	05 26 18	9.1	170.3	-0.7		-6.5	7	4122	18 32 10
18 33 30	=0606-272	05 27 38	9.1	170.6	-0.7		-6.3	80	4132	18 32 11
18 33 50	GRB	05 27 58	9.6	171.0	-0.7		-6.0	7	4132	18 33 50
18 36 20	---	05 30 28	9.7	171.6	-0.6		-5.6	150	4151	18 33 51
18 36 40	J0608-2717	05 30 48	9.2	171.3	-0.6		-5.9	7	4151	18 36 40
18 38 00	=0606-272	05 32 09	9.2	171.6	-0.6		-5.7	80	4162	18 36 41
18 38 20	GRB	05 32 29	9.7	172.1	-0.6		-5.3	7	4162	18 38 20
18 40 50	---	05 34 59	9.8	172.6	-0.5		-5.0	150	4181	18 38 21
18 41 10	J0608-2717	05 35 19	9.3	172.3	-0.6		-5.2	7	4181	18 41 10
18 42 30	=0606-272	05 36 39	9.3	172.6	-0.5		-5.0	80	4191	18 41 11
18 42 50	GRB	05 36 59	9.8	173.1	-0.5		-4.6	7	4191	18 42 50
18 45 20	---	05 39 30	9.9	173.6	-0.5		-4.3	150	4210	18 42 51

Schedule for TORUN (Code Tr )

Page 6

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Tue 14 Feb 2017 Day 45 ---										
18 45 40	J0608-2717	05 39 50	9.4	173.3	-0.5		-4.5	7	4210	18 45 40
18 47 00	=0606-272	05 41 10	9.4	173.6	-0.5		-4.3	80	4221	18 45 41
18 47 20	GRB	05 41 30	9.9	174.1	-0.4		-4.0	7	4221	18 47 20
18 49 50	---	05 44 01	9.9	174.7	-0.4		-3.6	150	4240	18 47 21
18 50 10	J0608-2717	05 44 21	9.4	174.3	-0.4		-3.8	7	4240	18 50 10
18 51 30	=0606-272	05 45 41	9.4	174.6	-0.4		-3.6	80	4250	18 50 11
18 51 50	GRB	05 46 01	10.0	175.1	-0.4		-3.3	7	4250	18 51 50
18 54 20	---	05 48 31	10.0	175.7	-0.3		-2.9	150	4269	18 51 51
18 54 40	J0608-2717	05 48 51	9.5	175.4	-0.3		-3.1	7	4269	18 54 40
18 56 00	=0606-272	05 50 12	9.5	175.7	-0.3		-2.9	80	4279	18 54 41
18 56 20	GRB	05 50 32	10.0	176.1	-0.3		-2.6	7	4279	18 56 20
18 58 50	---	05 53 02	10.0	176.7	-0.2		-2.2	150	4299	18 56 21
18 59 10	J0608-2717	05 53 22	9.5	176.4	-0.3		-2.4	7	4299	18 59 10
19 00 30	=0606-272	05 54 42	9.5	176.7	-0.2		-2.2	80	4309	18 59 11
19 00 50	GRB	05 55 02	10.1	177.2	-0.2		-1.9	7	4309	19 00 50
19 03 20	---	05 57 33	10.1	177.7	-0.2		-1.5	150	4328	19 00 51
19 03 40	J0608-2717	05 57 53	9.6	177.4	-0.2		-1.8	7	4328	19 03 40
19 05 00	=0606-272	05 59 13	9.6	177.7	-0.2		-1.6	80	4338	19 03 41
19 05 20	GRB	05 59 33	10.1	178.2	-0.1		-1.2	7	4338	19 05 20
19 07 50	---	06 02 03	10.1	178.8	-0.1		-0.8	150	4358	19 05 21
19 08 10	J0608-2717	06 02 24	9.6	178.4	-0.1		-1.1	7	4358	19 08 10
19 09 30	=0606-272	06 03 44	9.6	178.7	-0.1		-0.9	80	4368	19 08 11
19 09 50	GRB	06 04 04	10.1	179.2	-0.1		-0.5	7	4368	19 09 50
19 12 20	---	06 06 34	10.1	179.8	-0.0		-0.1	150	4387	19 09 51
19 12 40	J0608-2717	06 06 54	9.6	179.4	-0.0		-0.4	7	4387	19 12 40
19 14 00	=0606-272	06 08 14	9.6	179.7	-0.0		-0.2	80	4397	19 12 41
19 14 20	GRB	06 08 35	10.1	180.2	0.0		0.2	7	4397	19 14 20
19 16 50	---	06 11 05	10.1	180.8	0.1		0.5	150	4417	19 14 21
19 17 10	J0608-2717	06 11 25	9.6	180.4	0.0		0.3	7	4417	19 17 10
19 18 30	=0606-272	06 12 45	9.6	180.7	0.1		0.5	80	4427	19 17 11

Schedule for TORUN (Code Tr )

Page 7

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Tue 14 Feb 2017 Day 45 ---										
19 18 50	GRB	06 13 05	10.1	181.3	0.1		0.8	7	4427	19 18 50
19 21 20	---	06 15 36	10.1	181.8	0.1		1.2	150	4446	19 18 51
19 21 40	J0608-2717	06 15 56	9.6	181.5	0.1		1.0	7	4446	19 21 40
19 23 00	=0606-272	06 17 16	9.6	181.8	0.1		1.2	80	4456	19 21 41
19 23 20	GRB	06 17 36	10.1	182.3	0.2		1.5	7	4456	19 23 20
19 25 50	---	06 20 06	10.1	182.8	0.2		1.9	150	4476	19 23 21
19 26 10	J0608-2717	06 20 26	9.6	182.5	0.2		1.7	7	4476	19 26 10
19 27 30	=0606-272	06 21 47	9.6	182.8	0.2		1.9	80	4486	19 26 11
19 27 50	GRB	06 22 07	10.0	183.3	0.2		2.2	7	4486	19 27 50
19 30 20	---	06 24 37	10.0	183.9	0.3		2.6	150	4505	19 27 51
19 30 40	J0608-2717	06 24 57	9.5	183.5	0.3		2.4	7	4505	19 30 40
19 32 00	=0606-272	06 26 17	9.5	183.8	0.3		2.6	80	4515	19 30 41
19 32 20	GRB	06 26 38	10.0	184.3	0.3		2.9	7	4515	19 32 20
19 34 50	---	06 29 08	10.0	184.9	0.4		3.3	150	4535	19 32 21
19 35 10	J0608-2717	06 29 28	9.5	184.5	0.3		3.0	7	4535	19 35 10
19 36 30	=0606-272	06 30 48	9.5	184.8	0.4		3.2	80	4545	19 35 11
19 36 50	GRB	06 31 08	9.9	185.3	0.4		3.6	7	4545	19 36 50
19 39 20	---	06 33 39	9.9	185.9	0.4		4.0	150	4564	19 36 51
19 39 40	J0608-2717	06 33 59	9.4	185.5	0.4		3.7	7	4564	19 39 40
19 41 00	=0606-272	06 35 19	9.4	185.8	0.4		3.9	80	4574	19 39 41
19 41 20	GRB	06 35 39	9.9	186.4	0.5		4.3	7	4574	19 41 20
19 43 50	---	06 38 09	9.8	186.9	0.5		4.7	150	4594	19 41 21
19 44 10	J0608-2717	06 38 29	9.4	186.5	0.5		4.4	7	4594	19 44 10
19 45 30	=0606-272	06 39 50	9.3	186.8	0.5		4.6	80	4604	19 44 11
19 45 50	GRB	06 40 10	9.8	187.4	0.5		5.0	7	4604	19 45 50
19 48 20	---	06 42 40	9.7	187.9	0.6		5.3	150	4623	19 45 51
19 48 40	J0608-2717	06 43 00	9.3	187.5	0.6		5.1	7	4623	19 48 40
19 50 00	=0606-272	06 44 20	9.3	187.8	0.6		5.3	80	4633	19 48 41
19 50 20	GRB	06 44 40	9.7	188.4	0.6		5.6	7	4633	19 50 20
19 52 50	---	06 47 11	9.6	189.0	0.7		6.0	150	4653	19 50 21

Schedule for TORUN (Code Tr )

Page 8

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Tue 14 Feb 2017	Day	45	---						
19 53 10	J0608-2717	06 47 31	9.2	188.6	0.6		5.8	7	4653	19 53 10
19 54 30	=0606-272	06 48 51	9.2	188.9	0.7		6.0	80	4663	19 53 11
19 54 50	GRB	06 49 11	9.6	189.4	0.7		6.3	7	4663	19 54 50
19 57 20	---	06 51 42	9.5	190.0	0.7		6.7	150	4682	19 54 51
19 57 40	J0608-2717	06 52 02	9.1	189.6	0.7		6.4	7	4682	19 57 40
19 59 00	=0606-272	06 53 22	9.0	189.9	0.7		6.7	80	4692	19 57 41
19 59 20	GRB	06 53 42	9.5	190.4	0.8		7.0	7	4692	19 59 20
20 01 50	---	06 56 12	9.4	191.0	0.8		7.4	150	4712	19 59 21
20 02 10	J0608-2717	06 56 32	9.0	190.6	0.8		7.1	7	4712	20 02 10
20 03 30	=0606-272	06 57 53	8.9	190.9	0.8		7.3	80	4722	20 02 11
20 03 50	GRB	06 58 13	9.3	191.4	0.8		7.7	7	4722	20 03 50
20 06 20	---	07 00 43	9.3	192.0	0.9		8.0	150	4741	20 03 51
20 06 40	J0608-2717	07 01 03	8.8	191.6	0.9		7.8	7	4741	20 06 40
20 08 00	=0606-272	07 02 23	8.8	191.9	0.9		8.0	80	4751	20 06 41
20 08 20	GRB	07 02 43	9.2	192.4	0.9		8.3	7	4751	20 08 20
20 10 50	---	07 05 14	9.1	193.0	1.0		8.7	150	4771	20 08 21
20 11 10	J0608-2717	07 05 34	8.7	192.6	0.9		8.5	7	4771	20 11 10
20 12 30	=0606-272	07 06 54	8.6	192.9	1.0		8.7	80	4781	20 11 11
20 12 50	GRB	07 07 14	9.1	193.5	1.0		9.0	8	4781	20 12 50
20 15 20	---	07 09 45	9.0	194.0	1.0		9.4	150	4800	20 12 51
20 15 40	J0608-2717	07 10 05	8.5	193.6	1.0		9.1	7	4800	20 15 40
20 17 00	=0606-272	07 11 25	8.5	193.9	1.0		9.3	80	4810	20 15 41
20 17 20	GRB	07 11 45	8.9	194.5	1.1		9.7	8	4810	20 17 20
20 19 50	---	07 14 15	8.8	195.0	1.1		10.0	150	4829	20 17 21
20 20 10	J0608-2717	07 14 35	8.4	194.6	1.1		9.8	8	4829	20 20 10
20 21 30	=0606-272	07 15 56	8.3	194.9	1.1		10.0	80	4840	20 20 11
20 21 50	GRB	07 16 16	8.7	195.5	1.1		10.3	8	4840	20 21 50
20 24 20	---	07 18 46	8.6	196.0	1.2		10.7	150	4859	20 21 51
20 24 40	J0608-2717	07 19 06	8.2	195.6	1.2		10.5	8	4859	20 24 40
20 26 00	=0606-272	07 20 26	8.1	195.9	1.2		10.7	80	4869	20 24 41

Schedule for TORUN (Code Tr )

Page 9

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Tue 14 Feb 2017 Day 45 ---										
20 26 20	GRB	07 20 46	8.5	196.5	1.2		11.0	8	4869	20 26 20
20 28 50	---	07 23 17	8.4	197.0	1.3		11.4	150	4888	20 26 21
20 29 10	J0608-2717	07 23 37	8.0	196.6	1.2		11.1	8	4888	20 29 10
20 30 30	=0606-272	07 24 57	7.9	196.9	1.3		11.3	80	4899	20 29 11
20 30 50	GRB	07 25 17	8.3	197.5	1.3		11.6	8	4899	20 30 50
20 33 20	---	07 27 48	8.2	198.0	1.3		12.0	150	4918	20 30 51
20 33 40	J0608-2717	07 28 08	7.8	197.6	1.3		11.8	8	4918	20 33 40
20 35 00	=0606-272	07 29 28	7.7	197.9	1.3		12.0	80	4928	20 33 41
20 35 20	GRB	07 29 48	8.1	198.5	1.4		12.3	8	4928	20 35 20
20 37 50	---	07 32 18	8.0	199.0	1.4		12.7	150	4947	20 35 21
20 38 10	J0608-2717	07 32 38	7.6	198.6	1.4		12.4	8	4947	20 38 10
20 39 30	=0606-272	07 33 59	7.5	198.9	1.4		12.6	80	4958	20 38 11
20 39 50	GRB	07 34 19	7.9	199.5	1.4		12.9	8	4958	20 39 50
20 42 20	---	07 36 49	7.8	200.0	1.5		13.3	150	4977	20 39 51
20 42 40	J0608-2717	07 37 09	7.4	199.5	1.5		13.1	8	4977	20 42 40
20 44 00	=0606-272	07 38 29	7.3	199.8	1.5		13.3	80	4987	20 42 41
----- fringe finder -----										
20 49 00	J0927+3902	07 43 30	67.2	117.8	-1.7		-43.1	62	4987	20 49 00
20 53 00	=4C39.25	07 47 31	67.7	119.3	-1.7		-42.4	240	5018	20 49 01
20 55 00	J1108+4330	07 49 31	56.1	86.0	-3.3		-55.6	38	5018	20 55 00
20 56 00	=1105+437	07 50 31	56.3	86.2	-3.3		-55.6	60	5026	20 55 01
20 56 40	J1108+4330	07 51 11	56.4	86.3	-3.3		-55.6	34	5026	20 56 40
20 57 40	=1105+437	07 52 12	56.5	86.5	-3.3		-55.6	60	5033	20 56 41
20 57 40	J1112+4301	07 52 12	55.6	86.4	-3.4		-54.9	-16	5033	No stop
21 01 10	---	07 55 42	56.1	87.1	-3.3		-55.0	194	5060	20 57 41
21 01 10	J1108+4330	07 55 42	57.0	87.1	-3.2		-55.7	-16	5060	No stop
21 02 40	=1105+437	07 57 12	57.3	87.4	-3.2		-55.7	74	5072	21 01 11
21 02 40	ARUMA	07 57 12	55.9	86.8	-3.3		-54.9	-19	5072	No stop
21 06 10	---	08 00 43	56.4	87.5	-3.3		-54.9	191	5099	21 02 41



Schedule for TORUN (Code Tr )

Page 10

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Tue 14 Feb 2017 Day 45 ---										
21 06 50	J1108+4330	08 01 23	57.9	88.2	-3.1		-55.7	21	5099	21 06 50
21 07 50	=1105+437	08 02 23	58.0	88.4	-3.1		-55.7	60	5106	21 06 51
21 07 50	ARUMA	08 02 23	56.6	87.8	-3.2		-55.0	-19	5106	No stop
21 11 20	---	08 05 54	57.2	88.5	-3.2		-55.0	191	5133	21 07 51
21 11 20	J1108+4330	08 05 54	58.6	89.1	-3.1		-55.8	-19	5133	No stop
21 12 50	=1105+437	08 07 24	58.8	89.4	-3.0		-55.8	71	5145	21 11 21
21 12 50	ARUMA	08 07 24	57.4	88.8	-3.2		-55.0	-19	5145	No stop
21 16 20	---	08 10 55	57.9	89.5	-3.1		-55.0	191	5172	21 12 51
21 17 00	J1108+4330	08 11 35	59.4	90.2	-3.0		-55.8	21	5172	21 17 00
21 18 00	=1105+437	08 12 35	59.6	90.4	-2.9		-55.8	60	5179	21 17 01
21 18 00	ARUMA	08 12 35	58.2	89.8	-3.1		-55.0	-19	5179	No stop
21 21 30	---	08 16 05	58.7	90.5	-3.0		-55.0	191	5206	21 18 01
21 21 30	J1108+4330	08 16 05	60.1	91.1	-2.9		-55.7	-19	5206	No stop
21 23 00	=1105+437	08 17 36	60.3	91.4	-2.9		-55.7	71	5218	21 21 31
21 23 00	ARUMA	08 17 36	58.9	90.8	-3.0		-55.0	-19	5218	No stop
21 26 30	---	08 21 06	59.4	91.5	-2.9		-55.0	191	5245	21 23 01
21 27 10	J1108+4330	08 21 46	61.0	92.3	-2.8		-55.7	21	5245	21 27 10
21 28 10	=1105+437	08 22 47	61.1	92.5	-2.8		-55.7	60	5253	21 27 11
21 28 10	J1112+4301	08 22 47	60.2	92.5	-2.8		-55.0	-16	5253	No stop
21 31 40	---	08 26 17	60.7	93.2	-2.8		-55.0	194	5279	21 28 11
21 31 40	J1108+4330	08 26 17	61.6	93.3	-2.7		-55.6	-16	5279	No stop
21 33 10	=1105+437	08 27 47	61.9	93.6	-2.7		-55.6	74	5291	21 31 41
21 33 10	ARUMA	08 27 47	60.5	92.9	-2.8		-54.9	-19	5291	No stop
21 36 40	---	08 31 18	61.0	93.7	-2.8		-54.9	191	5318	21 33 11
21 37 20	J1108+4330	08 31 58	62.5	94.5	-2.6		-55.5	21	5318	21 37 20
21 38 20	=1105+437	08 32 58	62.6	94.7	-2.6		-55.5	60	5326	21 37 21
21 38 20	ARUMA	08 32 58	61.2	94.1	-2.7		-54.8	-19	5326	No stop
21 41 50	---	08 36 29	61.8	94.8	-2.7		-54.7	191	5353	21 38 21
21 41 50	J1108+4330	08 36 29	63.2	95.5	-2.5		-55.4	-19	5353	No stop
21 43 20	=1105+437	08 37 59	63.4	95.9	-2.5		-55.3	71	5364	21 41 51

Schedule for TORUN (Code Tr )

Page 11

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Tue 14 Feb 2017 Day 45 ---										
21 43 20	ARUMA	08 37 59	62.0	95.2	-2.6		-54.7	-19	5364	No stop
21 46 50	---	08 41 30	62.5	96.0	-2.6		-54.6	191	5391	21 43 21
21 47 30	J1108+4330	08 42 10	64.0	96.9	-2.5		-55.2	21	5391	21 47 30
21 48 30	=1105+437	08 43 10	64.2	97.1	-2.4		-55.1	60	5399	21 47 31
21 48 30	ARUMA	08 43 10	62.8	96.4	-2.6		-54.5	-19	5399	No stop
21 52 00	---	08 46 40	63.3	97.2	-2.5		-54.4	191	5426	21 48 31
21 52 00	J1108+4330	08 46 40	64.7	97.9	-2.4		-55.0	-19	5426	No stop
21 53 30	=1105+437	08 48 11	64.9	98.3	-2.4		-54.9	71	5437	21 52 01
21 53 30	ARUMA	08 48 11	63.5	97.5	-2.5		-54.3	-19	5437	No stop
21 57 00	---	08 51 41	64.0	98.4	-2.4		-54.2	191	5464	21 53 31
21 57 40	J1108+4330	08 52 21	65.5	99.4	-2.3		-54.7	21	5464	21 57 40
21 58 40	=1105+437	08 53 22	65.7	99.6	-2.3		-54.6	60	5472	21 57 41
21 58 40	J1112+4301	08 53 22	64.8	99.5	-2.3		-54.0	-16	5472	No stop
22 02 10	---	08 56 52	65.3	100.4	-2.3		-53.8	194	5499	21 58 41
22 02 10	J1108+4330	08 56 52	66.2	100.5	-2.2		-54.4	-16	5499	No stop
22 03 40	=1105+437	08 58 22	66.4	100.9	-2.2		-54.3	74	5510	22 02 11
22 03 40	ARUMA	08 58 22	65.0	100.1	-2.3		-53.8	-19	5510	No stop
22 07 10	---	09 01 53	65.5	101.0	-2.2		-53.6	191	5537	22 03 41
22 07 50	J1108+4330	09 02 33	67.0	102.0	-2.1		-54.0	21	5537	22 07 50
22 08 50	=1105+437	09 03 33	67.2	102.3	-2.1		-53.9	60	5545	22 07 51
22 08 50	ARUMA	09 03 33	65.8	101.4	-2.2		-53.4	-18	5545	No stop
22 12 20	---	09 07 04	66.3	102.4	-2.2		-53.2	192	5572	22 08 51
22 12 20	J1108+4330	09 07 04	67.7	103.3	-2.0		-53.6	-19	5572	No stop
22 13 50	=1105+437	09 08 34	67.9	103.7	-2.0		-53.4	71	5583	22 12 21
22 13 50	ARUMA	09 08 34	66.5	102.8	-2.1		-53.0	-18	5583	No stop
22 17 20	---	09 12 05	67.0	103.8	-2.1		-52.7	192	5610	22 13 51
22 18 00	J1108+4330	09 12 45	68.5	105.0	-1.9		-53.0	21	5610	22 18 00
22 19 00	=1105+437	09 13 45	68.7	105.3	-1.9		-52.9	60	5618	22 18 01
22 19 00	ARUMA	09 13 45	67.3	104.2	-2.0		-52.6	-18	5618	No stop
22 22 30	---	09 17 15	67.8	105.3	-2.0		-52.2	192	5645	22 19 01

Schedule for TORUN (Code Tr )

Page 12

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Tue 14 Feb 2017 Day 45 ---										
22 22 30	J1108+4330	09 17 15	69.2	106.3	-1.9		-52.5	-19	5645	No stop
22 24 00	=1105+437	09 18 46	69.4	106.8	-1.8		-52.3	71	5656	22 22 31
22 24 00	ARUMA	09 18 46	68.0	105.7	-2.0		-52.1	-18	5656	No stop
22 27 30	---	09 22 16	68.5	106.8	-1.9		-51.7	192	5683	22 24 01
22 28 10	J1108+4330	09 22 56	70.0	108.1	-1.8		-51.8	21	5683	22 28 10
22 29 10	=1105+437	09 23 57	70.1	108.5	-1.8		-51.6	60	5691	22 28 11
22 29 10	J1112+4301	09 23 57	69.2	108.2	-1.8		-51.2	-16	5691	No stop
22 32 40	---	09 27 27	69.7	109.4	-1.8		-50.7	194	5718	22 29 11
22 32 40	J1108+4330	09 27 27	70.6	109.7	-1.7		-51.1	-16	5718	No stop
22 34 10	=1105+437	09 28 57	70.8	110.2	-1.7		-50.9	74	5729	22 32 41
22 34 10	ARUMA	09 28 57	69.5	108.9	-1.8		-50.8	-18	5729	No stop
22 37 40	---	09 32 28	70.0	110.1	-1.7		-50.3	192	5756	22 34 11
22 38 20	J1108+4330	09 33 08	71.4	111.7	-1.6		-50.2	21	5756	22 38 20
22 39 20	=1105+437	09 34 08	71.6	112.0	-1.6		-50.0	60	5764	22 38 21
22 39 20	ARUMA	09 34 08	70.2	110.7	-1.7		-50.1	-18	5764	No stop
22 42 50	---	09 37 39	70.7	111.9	-1.7		-49.5	192	5791	22 39 21
22 42 50	J1108+4330	09 37 39	72.0	113.4	-1.5		-49.4	-19	5791	No stop
22 44 20	=1105+437	09 39 09	72.3	113.9	-1.5		-49.1	71	5803	22 42 51
22 44 20	ARUMA	09 39 09	70.9	112.5	-1.6		-49.2	-18	5803	No stop
22 47 50	---	09 42 40	71.4	113.8	-1.6		-48.6	192	5829	22 44 21
22 48 30	J1108+4330	09 43 20	72.8	115.6	-1.4		-48.2	21	5829	22 48 30
22 49 30	=1105+437	09 44 20	73.0	116.0	-1.4		-48.0	60	5837	22 48 31
22 49 30	ARUMA	09 44 20	71.6	114.4	-1.5		-48.3	-18	5837	No stop
22 53 00	---	09 47 50	72.1	115.8	-1.5		-47.5	192	5864	22 49 31
22 53 00	J1108+4330	09 47 50	73.4	117.5	-1.4		-47.2	-19	5864	No stop
22 54 30	=1105+437	09 49 21	73.6	118.2	-1.3		-46.8	71	5876	22 53 01
22 54 30	ARUMA	09 49 21	72.3	116.4	-1.5		-47.2	-18	5876	No stop
22 58 00	---	09 52 51	72.7	117.9	-1.4		-46.4	192	5903	22 54 31
22 58 40	J1108+4330	09 53 31	74.2	120.1	-1.3		-45.7	21	5903	22 58 40
22 59 40	=1105+437	09 54 32	74.3	120.5	-1.2		-45.4	60	5910	22 58 41

Schedule for TORUN (Code Tr )

Page 13

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Tue 14 Feb 2017 Day 45 ---										
22 59 40	J1112+4301	09 54 32	73.4	119.9	-1.3		-45.3	-16	5910	No stop
23 03 10	---	09 58 02	73.9	121.5	-1.3		-44.4	194	5937	22 59 41
23 03 10	J1108+4330	09 58 02	74.8	122.2	-1.2		-44.4	-16	5937	No stop
23 04 40	=1105+437	09 59 32	74.9	123.0	-1.2		-43.9	74	5949	23 03 11
23 04 40	ARUMA	09 59 32	73.6	120.8	-1.3		-44.7	-18	5949	No stop
23 08 10	---	10 03 03	74.1	122.5	-1.2		-43.7	192	5976	23 04 41
23 08 50	J1108+4330	10 03 43	75.5	125.1	-1.1		-42.5	21	5976	23 08 50
23 09 50	=1105+437	10 04 43	75.6	125.7	-1.1		-42.2	60	5983	23 08 51
23 09 50	ARUMA	10 04 43	74.3	123.3	-1.2		-43.2	-18	5983	No stop
23 13 20	---	10 08 14	74.7	125.1	-1.1		-42.1	192	6010	23 09 51
23 13 20	J1108+4330	10 08 14	76.0	127.6	-1.0		-40.9	-20	6010	No stop
23 14 50	=1105+437	10 09 44	76.2	128.5	-1.0		-40.3	70	6022	23 13 21
23 14 50	ARUMA	10 09 44	74.9	125.9	-1.1		-41.6	-19	6022	No stop
23 18 20	---	10 13 15	75.3	127.7	-1.1		-40.4	191	6049	23 14 51
23 19 00	J1108+4330	10 13 55	76.7	131.0	-0.9		-38.6	20	6049	23 19 00
23 20 00	=1105+437	10 14 55	76.8	131.6	-0.9		-38.2	60	6056	23 19 01
23 20 00	ARUMA	10 14 55	75.5	128.7	-1.0		-39.8	-20	6056	No stop
23 23 30	---	10 18 25	75.9	130.7	-1.0		-38.4	190	6083	23 20 01
23 23 30	J1108+4330	10 18 25	77.2	133.8	-0.8		-36.6	-21	6083	No stop
23 25 00	=1105+437	10 19 56	77.3	134.8	-0.8		-35.9	69	6095	23 23 31
23 25 00	ARUMA	10 19 56	76.1	131.6	-0.9		-37.8	-21	6095	No stop
23 28 30	---	10 23 26	76.5	133.8	-0.9		-36.3	189	6122	23 25 01
23 29 10	J1108+4330	10 24 06	77.8	137.7	-0.8		-33.8	18	6122	23 29 10
23 30 10	=1105+437	10 25 07	77.9	138.5	-0.7		-33.2	60	6129	23 29 11
23 30 10	J1112+4301	10 25 07	77.0	136.8	-0.8		-34.1	-16	6129	No stop
23 33 40	---	10 28 37	77.4	139.2	-0.7		-32.4	194	6156	23 30 11
23 33 40	J1108+4330	10 28 37	78.2	141.1	-0.7		-31.3	-18	6156	No stop
23 35 10	=1105+437	10 30 07	78.3	142.2	-0.7		-30.4	72	6168	23 33 41
23 35 10	ARUMA	10 30 07	77.2	138.2	-0.8		-33.1	-22	6168	No stop
23 38 40	---	10 33 38	77.5	140.7	-0.7		-31.3	188	6195	23 35 11

Schedule for TORUN (Code Tr )

Page 14

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Tue 14 Feb 2017 Day 45 ---										
23 39 20	J1108+4330	10 34 18	78.7	145.5	-0.6		-27.9	16	6195	23 39 20
23 40 20	=1105+437	10 35 18	78.8	146.4	-0.6		-27.2	60	6203	23 39 21
23 40 20	ARUMA	10 35 18	77.7	141.9	-0.7		-30.4	-23	6203	No stop
23 43 50	---	10 38 49	78.0	144.6	-0.6		-28.4	187	6229	23 40 21
23 43 50	J1108+4330	10 38 49	79.1	149.4	-0.5		-24.9	-25	6229	No stop
23 45 20	=1105+437	10 40 19	79.2	150.7	-0.5		-23.9	65	6241	23 43 51
23 45 20	ARUMA	10 40 19	78.1	145.7	-0.6		-27.5	-24	6241	No stop
23 48 50	---	10 43 50	78.4	148.6	-0.5		-25.3	186	6268	23 45 21
23 49 30	J1108+4330	10 44 30	79.5	154.5	-0.4		-20.9	14	6268	23 49 30
23 50 30	=1105+437	10 45 30	79.5	155.4	-0.4		-20.1	60	6276	23 49 31
23 50 30	ARUMA	10 45 30	78.5	150.0	-0.5		-24.2	-25	6276	No stop
23 54 00	---	10 49 00	78.8	153.0	-0.5		-21.9	185	6303	23 50 31
23 54 00	J1108+4330	10 49 00	79.8	158.8	-0.3		-17.4	-27	6303	No stop
23 55 30	=1105+437	10 50 31	79.8	160.2	-0.3		-16.2	63	6314	23 54 01
23 55 30	ARUMA	10 50 31	78.9	154.3	-0.4		-20.8	-26	6314	No stop
23 59 00	---	10 54 01	79.1	157.5	-0.4		-18.3	184	6341	23 55 31
--- Start: Tue 14 Feb 2017 Day 45 -- Stop: Wed 15 Feb 2017 Day 46 ---										
23 59 40	J1108+4330	10 54 41	80.0	164.4	-0.2		-12.8	12	6341	23 59 40
00 00 40	=1105+437	10 55 42	80.1	165.5	-0.2		-12.0	60	6349	23 59 41
00 00 40	J1112+4301	10 55 42	79.4	162.0	-0.3		-14.7	-21	6349	No stop
00 04 10	---	10 59 12	79.6	165.4	-0.2		-11.9	189	6376	00 00 41
00 04 10	J1108+4330	10 59 12	80.2	169.1	-0.2		-9.0	-23	6376	No stop
00 05 40	=1105+437	11 00 42	80.2	170.7	-0.1		-7.7	67	6387	00 04 11
00 05 40	ARUMA	11 00 42	79.4	163.8	-0.3		-13.2	-28	6387	No stop
00 09 10	---	11 04 13	79.6	167.3	-0.2		-10.4	182	6414	00 05 41
00 09 50	J1108+4330	11 04 53	80.3	175.2	-0.1		-4.0	10	6414	00 09 50
00 10 50	=1105+437	11 05 53	80.3	176.3	-0.1		-3.1	60	6422	00 09 51
00 10 50	ARUMA	11 05 53	79.6	168.9	-0.2		-9.0	-29	6422	No stop
00 14 20	---	11 09 24	79.7	172.5	-0.1		-6.1	181	6449	00 10 51

Schedule for TORUN (Code Tr )

Page 15

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Wed 15 Feb 2017 Day 46 ---										
00 14 20	J1108+4330	11 09 24	80.3	180.0	0.0		0.0	-31	6449	No stop
00 15 50	=1105+437	11 10 54	80.3	181.7	0.0		1.4	59	6460	00 14 21
00 15 50	ARUMA	11 10 54	79.7	174.0	-0.1		-4.9	-29	6460	No stop
00 19 20	---	11 14 25	79.8	177.6	-0.0		-1.9	181	6487	00 15 51
00 20 00	J1108+4330	11 15 05	80.3	186.2	0.1		5.1	8	6487	00 20 00
00 21 00	=1105+437	11 16 05	80.3	187.2	0.1		6.0	60	6495	00 20 01
00 21 00	ARUMA	11 16 05	79.8	179.4	-0.0		-0.5	-30	6495	No stop
00 24 30	---	11 19 35	79.8	183.0	0.0		2.4	180	6522	00 21 01
00 24 30	J1108+4330	11 19 35	80.2	191.0	0.2		9.0	-32	6522	No stop
00 26 00	=1105+437	11 21 06	80.1	192.5	0.2		10.3	58	6533	00 24 31
00 26 00	ARUMA	11 21 06	79.8	184.5	0.1		3.7	-30	6533	No stop
00 29 30	---	11 24 36	79.7	188.1	0.1		6.7	180	6560	00 26 01
00 30 10	J1108+4330	11 25 16	80.0	196.8	0.3		13.8	8	6560	00 30 10
00 31 10	=1105+437	11 26 17	79.9	197.8	0.3		14.7	60	6568	00 30 11
00 31 10	ARUMA	11 26 17	79.7	189.8	0.2		8.0	-30	6568	No stop
00 34 40	---	11 29 47	79.6	193.3	0.2		10.9	180	6595	00 31 11
00 35 20	J1108+4330	11 30 27	79.7	202.0	0.4		18.0	8	6595	00 35 20
00 36 50	=1105+437	11 31 58	79.6	203.4	0.4		19.2	90	6606	00 35 21
00 39 50	J1310+3233	11 34 58	63.0	130.3	-1.6		-32.9	18	6606	00 39 50
00 45 00	=1308+328	11 40 09	63.6	132.3	-1.5		-31.8	310	6646	00 39 51
00 45 40	J1310+3233	11 40 49	63.7	132.6	-1.5		-31.6	33	6646	00 45 40
01 00 00	=1308+328	11 55 11	65.2	138.7	-1.3		-28.0	860	6756	00 45 41
01 00 40	J1310+3233	11 55 51	65.3	139.0	-1.3		-27.8	33	6756	01 00 40
01 15 00	=1308+328	12 10 14	66.6	145.7	-1.0		-23.7	860	6867	01 00 41
01 15 40	J1310+3233	12 10 54	66.6	146.0	-1.0		-23.4	33	6867	01 15 40
01 30 00	=1308+328	12 25 16	67.7	153.3	-0.8		-18.6	860	6977	01 15 41
01 30 40	J1310+3233	12 25 56	67.8	153.7	-0.8		-18.4	33	6977	01 30 40
01 45 00	=1308+328	12 40 19	68.6	161.5	-0.5		-13.0	860	7087	01 30 41
01 45 40	J1310+3233	12 40 59	68.6	161.9	-0.5		-12.8	33	7087	01 45 40
02 00 00	=1308+328	12 55 21	69.2	170.2	-0.3		-6.9	860	7197	01 45 41

Schedule for TORUN (Code Tr )

Page 16

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Wed 15 Feb 2017 Day 46 ---										
02 00 40	J1310+3233	12 56 01	69.2	170.6	-0.3		-6.7	33	7197	02 00 40
02 15 00	=1308+328	13 10 24	69.4	179.2	-0.0		-0.6	860	7308	02 00 41
02 15 40	J1310+3233	13 11 04	69.4	179.6	-0.0		-0.3	33	7308	02 15 40
02 30 00	=1308+328	13 25 26	69.2	188.1	0.2		5.8	860	7418	02 15 41
02 30 40	J1310+3233	13 26 06	69.2	188.5	0.2		6.1	33	7418	02 30 40
02 45 00	=1308+328	13 40 29	68.7	196.9	0.5		11.9	860	7528	02 30 41
02 45 40	J1310+3233	13 41 09	68.7	197.3	0.5		12.2	33	7528	02 45 40
03 00 00	=1308+328	13 55 31	67.9	205.2	0.7		17.6	860	7638	02 45 41
03 00 40	J1310+3233	13 56 11	67.9	205.5	0.7		17.9	33	7638	03 00 40
03 15 00	=1308+328	14 10 34	66.8	212.9	1.0		22.8	860	7749	03 00 41
03 15 40	J1310+3233	14 11 14	66.8	213.3	1.0		23.0	33	7749	03 15 40
03 30 00	=1308+328	14 25 36	65.5	220.1	1.2		27.3	860	7859	03 15 41
03 30 40	J1310+3233	14 26 16	65.4	220.4	1.2		27.4	33	7859	03 30 40
03 45 00	=1308+328	14 40 38	63.9	226.5	1.5		31.1	860	7969	03 30 41
03 45 40	J1310+3233	14 41 19	63.9	226.8	1.5		31.3	33	7969	03 45 40
04 00 00	=1308+328	14 55 41	62.2	232.4	1.7		34.3	860	8079	03 45 41
04 00 40	J1310+3233	14 56 21	62.1	232.7	1.7		34.5	34	8079	04 00 40
04 15 00	=1308+328	15 10 43	60.4	237.8	2.0		37.0	860	8190	04 00 41
04 20 00	J1625-2527	15 15 44	9.9	163.8	-1.2		-10.7	97	8190	04 20 00
04 21 00	=1622-253	15 16 44	9.9	164.0	-1.2		-10.6	60	8197	04 20 01
04 21 45	ARSCO	15 17 29	12.6	164.4	-1.1		-10.1	21	8197	04 21 45
04 25 15	---	15 21 00	12.8	165.2	-1.0		-9.6	210	8224	04 21 46
04 26 00	J1625-2527	15 21 45	10.1	165.1	-1.1		-9.8	21	8224	04 26 00
04 27 00	=1622-253	15 22 45	10.2	165.3	-1.1		-9.7	60	8232	04 26 01
04 27 45	ARSCO	15 23 30	12.9	165.8	-1.0		-9.2	21	8232	04 27 45
04 31 15	---	15 27 01	13.0	166.6	-0.9		-8.7	210	8259	04 27 46
04 32 00	J1625-2527	15 27 46	10.4	166.5	-1.0		-8.9	21	8259	04 32 00
04 33 00	=1622-253	15 28 46	10.4	166.7	-1.0		-8.8	60	8267	04 32 01
04 33 45	ARSCO	15 29 31	13.1	167.2	-0.9		-8.3	21	8267	04 33 45
04 35 15	---	15 31 02	13.1	167.5	-0.9		-8.1	90	8278	04 33 46

Schedule for TORUN (Code Tr )

Page 17

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Wed 15 Feb 2017 Day 46 ---										
04 35 45	J1621-2241	15 31 32	13.4	167.9	-0.9		-7.8	19	8278	04 35 45
04 37 15	---	15 33 02	13.4	168.3	-0.8		-7.6	90	8290	04 35 46
04 38 00	J1625-2527	15 33 47	10.6	167.8	-0.9		-8.1	20	8290	04 38 00
04 39 00	=1622-253	15 34 47	10.6	168.1	-0.9		-7.9	60	8297	04 38 01
04 39 45	ARSCO	15 35 32	13.3	168.6	-0.8		-7.4	21	8297	04 39 45
04 43 15	---	15 39 03	13.4	169.4	-0.7		-6.9	210	8324	04 39 46
04 44 00	J1625-2527	15 39 48	10.7	169.2	-0.8		-7.2	21	8324	04 44 00
04 45 00	=1622-253	15 40 48	10.8	169.4	-0.8		-7.0	60	8332	04 44 01
04 45 45	ARSCO	15 41 33	13.4	170.0	-0.7		-6.5	21	8332	04 45 45
04 49 15	---	15 45 04	13.5	170.8	-0.6		-6.0	210	8359	04 45 46
04 50 00	J1625-2527	15 45 49	10.9	170.6	-0.7		-6.2	21	8359	04 50 00
04 51 00	=1622-253	15 46 49	10.9	170.8	-0.7		-6.1	60	8367	04 50 01
04 51 45	ARSCO	15 47 34	13.6	171.4	-0.6		-5.6	21	8367	04 51 45
04 53 15	---	15 49 05	13.6	171.8	-0.6		-5.4	90	8378	04 51 46
04 53 45	J1621-2241	15 49 35	13.8	172.2	-0.5		-5.1	19	8378	04 53 45
04 55 15	---	15 51 05	13.9	172.5	-0.5		-4.9	90	8390	04 53 46
04 56 00	J1625-2527	15 51 50	11.0	172.0	-0.6		-5.3	20	8390	04 56 00
04 57 00	=1622-253	15 52 50	11.1	172.2	-0.6		-5.2	60	8397	04 56 01
04 57 45	ARSCO	15 53 35	13.7	172.8	-0.5		-4.7	21	8397	04 57 45
05 01 15	---	15 57 06	13.8	173.7	-0.4		-4.1	210	8424	04 57 46
05 02 00	J1625-2527	15 57 51	11.2	173.3	-0.5		-4.4	21	8424	05 02 00
05 03 00	=1622-253	15 58 51	11.2	173.6	-0.5		-4.3	60	8432	05 02 01
05 03 45	ARSCO	15 59 36	13.8	174.3	-0.4		-3.7	21	8432	05 03 45
05 07 15	---	16 03 07	13.8	175.1	-0.3		-3.2	210	8459	05 03 46
05 08 00	J1625-2527	16 03 52	11.3	174.7	-0.4		-3.5	21	8459	05 08 00
05 09 00	=1622-253	16 04 52	11.3	175.0	-0.4		-3.4	60	8467	05 08 01
05 09 45	ARSCO	16 05 37	13.9	175.7	-0.3		-2.8	21	8467	05 09 45
05 13 15	---	16 09 08	13.9	176.5	-0.2		-2.3	210	8494	05 09 46
05 14 00	J1625-2527	16 09 53	11.3	176.1	-0.3		-2.6	21	8494	05 14 00
05 15 00	=1622-253	16 10 53	11.3	176.3	-0.3		-2.4	60	8501	05 14 01



Schedule for TORUN (Code Tr )

Page 18

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Wed 15 Feb 2017 Day 46 ---										
05 15 45	ARSCO	16 11 38	13.9	177.1	-0.2		-1.9	21	8501	05 15 45
05 19 15	---	16 15 09	14.0	177.9	-0.1		-1.3	210	8528	05 15 46
05 20 00	J1625-2527	16 15 54	11.4	177.5	-0.2		-1.7	21	8528	05 20 00
05 21 00	=1622-253	16 16 54	11.4	177.7	-0.2		-1.5	60	8536	05 20 01
05 21 45	ARSCO	16 17 39	14.0	178.5	-0.1		-1.0	21	8536	05 21 45
05 23 15	---	16 19 10	14.0	178.9	-0.1		-0.7	90	8547	05 21 46
05 23 45	J1621-2241	16 19 40	14.2	179.3	-0.0		-0.4	20	8547	05 23 45
05 25 15	---	16 21 10	14.2	179.7	-0.0		-0.2	90	8559	05 23 46
05 26 00	J1625-2527	16 21 55	11.4	178.9	-0.1		-0.7	21	8559	05 26 00
05 27 00	=1622-253	16 22 55	11.4	179.1	-0.1		-0.6	60	8567	05 26 01
05 27 45	ARSCO	16 23 40	14.0	180.0	-0.0		-0.0	21	8567	05 27 45
05 31 15	---	16 27 11	14.0	180.8	0.1		0.5	210	8594	05 27 46
05 32 00	J1625-2527	16 27 56	11.4	180.3	0.0		0.2	21	8594	05 32 00
05 33 00	=1622-253	16 28 56	11.4	180.5	0.0		0.3	60	8601	05 32 01
05 33 45	ARSCO	16 29 41	14.0	181.4	0.1		0.9	21	8601	05 33 45
05 37 15	---	16 33 12	14.0	182.2	0.2		1.5	210	8628	05 33 46
05 38 00	J1625-2527	16 33 57	11.4	181.6	0.1		1.1	22	8628	05 38 00
05 39 00	=1622-253	16 34 57	11.4	181.9	0.1		1.2	60	8636	05 38 01
05 39 45	ARSCO	16 35 42	13.9	182.8	0.2		1.8	22	8636	05 39 45
05 41 15	---	16 37 13	13.9	183.2	0.2		2.1	90	8647	05 39 46
05 41 45	J1621-2241	16 37 43	14.1	183.6	0.3		2.3	20	8647	05 41 45
05 43 15	---	16 39 13	14.1	184.0	0.3		2.6	90	8659	05 41 46
05 44 00	J1625-2527	16 39 58	11.4	183.0	0.2		2.0	21	8659	05 44 00
05 45 00	=1622-253	16 40 58	11.3	183.3	0.2		2.2	60	8667	05 44 01
05 45 45	ARSCO	16 41 43	13.9	184.2	0.3		2.8	22	8667	05 45 45
05 49 15	---	16 45 14	13.8	185.1	0.4		3.3	210	8694	05 45 46
05 50 00	J1625-2527	16 45 59	11.3	184.4	0.3		2.9	22	8694	05 50 00
05 51 00	=1622-253	16 46 59	11.3	184.6	0.3		3.1	60	8701	05 50 01
05 51 45	ARSCO	16 47 44	13.8	185.7	0.4		3.7	22	8701	05 51 45
05 55 15	---	16 51 15	13.7	186.5	0.5		4.2	210	8728	05 51 46

Schedule for TORUN (Code Tr )

Page 19

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Wed 15 Feb 2017 Day 46 ---										
05 56 00	J1625-2527	16 52 00	11.2	185.8	0.4		3.8	22	8728	05 56 00
05 57 00	=1622-253	16 53 00	11.2	186.0	0.4		4.0	60	8736	05 56 01
05 57 45	ARSCO	16 53 45	13.7	187.1	0.5		4.6	22	8736	05 57 45
05 59 15	---	16 55 15	13.7	187.5	0.5		4.9	90	8747	05 57 46
05 59 45	J1621-2241	16 55 46	13.8	187.9	0.6		5.1	20	8747	05 59 45
06 01 15	---	16 57 16	13.8	188.2	0.6		5.4	90	8759	05 59 46
06 02 00	J1625-2527	16 58 01	11.1	187.2	0.5		4.8	21	8759	06 02 00
06 03 00	=1622-253	16 59 01	11.1	187.4	0.5		4.9	60	8767	06 02 01
06 03 45	ARSCO	16 59 46	13.6	188.5	0.6		5.5	22	8767	06 03 45
06 07 15	---	17 03 17	13.5	189.3	0.7		6.1	210	8794	06 03 46
06 08 00	J1625-2527	17 04 02	11.0	188.5	0.6		5.7	22	8794	06 08 00
06 09 00	=1622-253	17 05 02	11.0	188.8	0.6		5.8	60	8801	06 08 01
06 09 45	ARSCO	17 05 47	13.4	189.9	0.7		6.5	22	8801	06 09 45
06 13 15	---	17 09 18	13.3	190.8	0.8		7.0	210	8828	06 09 46
06 14 00	J1625-2527	17 10 03	10.8	189.9	0.7		6.6	22	8828	06 14 00
06 15 00	=1622-253	17 11 03	10.8	190.2	0.7		6.7	60	8836	06 14 01
06 15 45	ARSCO	17 11 48	13.3	191.3	0.8		7.4	22	8836	06 15 45
06 19 15	---	17 15 19	13.2	192.2	0.9		7.9	210	8863	06 15 46
06 20 00	J1625-2527	17 16 04	10.7	191.3	0.8		7.5	22	8863	06 20 00
06 21 00	=1622-253	17 17 04	10.7	191.5	0.8		7.6	60	8870	06 20 01
06 21 45	ARSCO	17 17 49	13.1	192.8	0.9		8.3	22	8870	06 21 45
06 23 15	---	17 19 19	13.0	193.1	0.9		8.5	90	8882	06 21 46
06 23 45	J1621-2241	17 19 50	13.2	193.5	1.0		8.8	20	8882	06 23 45
06 25 15	---	17 21 20	13.1	193.9	1.0		9.0	90	8894	06 23 46
06 26 00	J1625-2527	17 22 05	10.5	192.7	0.9		8.4	21	8894	06 26 00
06 27 00	=1622-253	17 23 05	10.5	192.9	0.9		8.5	60	8901	06 26 01
06 27 45	ARSCO	17 23 50	12.9	194.2	1.0		9.2	22	8901	06 27 45
06 31 15	---	17 27 21	12.7	195.0	1.1		9.7	210	8928	06 27 46
06 32 00	J1625-2527	17 28 06	10.3	194.0	1.0		9.3	22	8928	06 32 00
06 33 00	=1622-253	17 29 06	10.2	194.3	1.0		9.4	60	8936	06 32 01

Schedule for TORUN (Code Tr )

Page 20

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Wed 15 Feb 2017 Day 46 ---										
06 33 45	ARSCO	17 29 51	12.6	195.6	1.1		10.1	22	8936	06 33 45
06 37 15	---	17 33 22	12.5	196.4	1.2		10.6	210	8963	06 33 46
06 38 00	J1625-2527	17 34 07	10.1	195.4	1.1		10.2	22	8963	06 38 00
06 39 00	=1622-253	17 35 07	10.0	195.6	1.1		10.3	60	8970	06 38 01
06 39 45	ARSCO	17 35 52	12.4	197.0	1.2		11.0	22	8970	06 39 45
06 41 15	---	17 37 22	12.3	197.3	1.2		11.2	90	8982	06 39 46
06 41 45	J1621-2241	17 37 52	12.4	197.8	1.3		11.4	20	8982	06 41 45
06 43 15	---	17 39 23	12.4	198.1	1.3		11.7	90	8994	06 41 46
06 44 00	J1625-2527	17 40 08	9.8	196.7	1.2		11.0	22	8994	06 44 00
06 45 00	=1622-253	17 41 08	9.8	197.0	1.2		11.2	60	9001	06 44 01
06 45 45	ARSCO	17 41 53	12.1	198.3	1.3		11.8	22	9001	06 45 45
06 49 15	---	17 45 24	11.9	199.2	1.4		12.4	210	9028	06 45 46
06 50 00	J1625-2527	17 46 09	9.5	198.1	1.3		11.9	22	9028	06 50 00
06 51 00	=1622-253	17 47 09	9.5	198.3	1.3		12.1	60	9036	06 50 01
06 51 45	ARSCO	17 47 54	11.8	199.7	1.4		12.7	22	9036	06 51 45
06 55 15	---	17 51 25	11.6	200.5	1.5		13.2	210	9063	06 51 46
06 56 00	J1625-2527	17 52 10	9.2	199.4	1.4		12.8	22	9063	06 56 00
06 57 00	=1622-253	17 53 10	9.2	199.7	1.4		12.9	60	9070	06 56 01
06 57 45	ARSCO	17 53 55	11.5	201.1	1.5		13.6	22	9070	06 57 45
06 59 15	---	17 55 25	11.4	201.5	1.5		13.8	90	9082	06 57 46
06 59 45	J1621-2241	17 55 55	11.5	201.9	1.6		14.1	20	9082	06 59 45
07 01 15	---	17 57 26	11.4	202.2	1.6		14.3	90	9094	06 59 46
07 02 00	J1625-2527	17 58 11	8.9	200.8	1.5		13.6	22	9094	07 02 00
07 03 00	=1622-253	17 59 11	8.9	201.0	1.5		13.8	60	9101	07 02 01
07 03 45	ARSCO	17 59 56	11.2	202.5	1.6		14.4	22	9101	07 03 45
07 07 15	---	18 03 27	11.0	203.3	1.7		14.9	210	9128	07 03 46
07 08 00	J1625-2527	18 04 12	8.6	202.1	1.6		14.5	22	9128	07 08 00
07 09 00	=1622-253	18 05 12	8.5	202.3	1.6		14.6	60	9136	07 08 01
07 09 45	ARSCO	18 05 57	10.8	203.8	1.7		15.3	23	9136	07 09 45
07 13 15	---	18 09 28	10.6	204.6	1.8		15.8	210	9163	07 09 46

Schedule for TORUN (Code Tr )

Page 21

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Wed 15 Feb 2017 Day 46 ---										
07 14 00	J1625-2527	18 10 13	8.3	203.4	1.7		15.3	22	9163	07 14 00
07 15 00	=1622-253	18 11 13	8.2	203.7	1.7		15.5	60	9170	07 14 01
07 15 45	ARSCO	18 11 58	10.4	205.2	1.8		16.1	23	9170	07 15 45
07 19 15	---	18 15 29	10.2	206.0	1.9		16.6	210	9197	07 15 46
07 20 00	J1625-2527	18 16 14	7.9	204.8	1.8		16.2	23	9197	07 20 00
07 21 00	=1622-253	18 17 14	7.8	205.0	1.8		16.3	60	9205	07 20 01
07 21 45	ARSCO	18 17 59	10.0	206.5	1.9		16.9	23	9205	07 21 45
07 23 15	---	18 19 29	9.9	206.9	1.9		17.1	90	9217	07 21 46
07 23 45	J1621-2241	18 19 59	10.0	207.3	2.0		17.4	20	9217	07 23 45
07 25 15	---	18 21 30	9.9	207.7	2.0		17.6	90	9228	07 23 46
07 26 00	J1625-2527	18 22 15	7.5	206.1	1.9		17.0	22	9228	07 26 00
07 27 00	=1622-253	18 23 15	7.4	206.3	1.9		17.1	60	9236	07 26 01
07 27 45	ARSCO	18 24 00	9.6	207.9	2.0		17.8	23	9236	07 27 45
07 31 15	---	18 27 31	9.4	208.7	2.1		18.2	210	9263	07 27 46
07 32 00	J1625-2527	18 28 16	7.1	207.4	2.0		17.8	23	9263	07 32 00
07 33 00	=1622-253	18 29 16	7.0	207.6	2.0		17.9	60	9270	07 32 01
07 33 45	ARSCO	18 30 01	9.2	209.2	2.1		18.6	23	9270	07 33 45
07 37 15	---	18 33 32	8.9	210.0	2.2		19.0	210	9297	07 33 46
07 38 00	J1625-2527	18 34 17	6.7	208.7	2.1		18.6	23	9297	07 38 00
07 39 00	=1622-253	18 35 17	6.6	208.9	2.1		18.7	60	9305	07 38 01
07 39 45	ARSCO	18 36 02	8.7	210.6	2.2		19.4	23	9305	07 39 45
07 41 15	---	18 37 32	8.6	210.9	2.2		19.6	90	9317	07 39 46
07 41 45	J1621-2241	18 38 02	8.7	211.3	2.3		19.8	20	9317	07 41 45
07 43 15	---	18 39 33	8.6	211.7	2.3		20.0	90	9328	07 41 46
07 44 00	J1625-2527	18 40 18	6.2	210.0	2.2		19.4	22	9328	07 44 00
07 45 00	=1622-253	18 41 18	6.2	210.2	2.2		19.5	60	9336	07 44 01
07 45 45	ARSCO	18 42 03	8.3	211.9	2.3		20.1	23	9336	07 45 45
07 49 15	---	18 45 34	8.0	212.6	2.4		20.6	210	9363	07 45 46
07 50 00	J1625-2527	18 46 19	5.8	211.2	2.3		20.2	23	9363	07 50 00
07 51 00	=1622-253	18 47 19	5.7	211.5	2.3		20.3	60	9370	07 50 01

Schedule for TORUN (Code Tr )

Page 22

e-EVN: eg091b, eg096a, e1058a

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

```

-----
Start UT  Source          Start / Stop          Early  Disk  TPStart
Stop UT          LST    EL    AZ    HA  UP  ParA  Dwell  GBytes  SYNC
-----
--- Wed 15 Feb 2017  Day 46 ---

07 51 45  ARSCO          18 48 04   7.8 213.2  2.4    20.9   23   9370  07 51 45
07 55 15  ---             18 51 35   7.5 213.9  2.5    21.3   210   9397  07 51 46

07 56 00  J1625-2527       18 52 20   5.3 212.5  2.4    21.0   23   9397  07 56 00
07 57 00  =1622-253       18 53 20   5.2 212.7  2.4    21.1   60   9405  07 56 01

07 57 45  ARSCO          18 54 05   7.3 214.5  2.5    21.7   23   9405  07 57 45
07 59 15  ---             18 55 35   7.2 214.8  2.5    21.8   90   9417  07 57 46

07 59 45  J1621-2241       18 56 05   7.2 215.3  2.6    22.1   20   9417  07 59 45
08 01 15  ---             18 57 36   7.1 215.6  2.6    22.3   90   9428  07 59 46

08 02 00  J1625-2527       18 58 21   4.8 213.8  2.5    21.7   23   9428  08 02 00
08 03 00  =1622-253       18 59 21   4.7 214.0  2.5    21.8   60   9436  08 02 01

08 03 45  ARSCO          19 00 06   6.8 215.8  2.6    22.4   23   9436  08 03 45
08 07 15  ---             19 03 37   6.5 216.5  2.7    22.8  210   9463  08 03 46

08 08 00  J1625-2527       19 04 22   4.3 215.1  2.6    22.5   23   9463  08 08 00
08 09 00  =1622-253       19 05 22   4.2 215.3  2.6    22.6   60   9470  08 08 01

08 14 00  J1642+3948       19 10 23  61.8 256.7  2.4    49.5   69   9470  08 14 00
08 22 00  =3C345           19 18 24  60.7 258.8  2.6    50.0  480   9532  08 14 01

```

## SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: sess117.C2048e

```

Setup group:    9          Station: TORUN          Total bit rate: 1024
Format: MARK5B          Bits per sample: 2      Sample rate: 64.000
Number of channels: 8    DBE type: DBBC_DDC    Speedup factor: 1.00

```

Disk used to record data.

1st LO=	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00
Net SB=	L	L	U	U	L	L	U	U	U
IF SB =	U	U	U	U	U	U	U	U	U
Pol. =	RCP	LCP	RCP	LCP	RCP	LCP	RCP	LCP	LCP
BBC =	1	5	1	5	3	7	3	7	7
BBC SB=	L	L	U	U	L	L	U	U	U
IF =	A1	B1	A1	B1	A1	B1	A1	B1	B1

The following frequency sets based on these setups were used.

Frequency Set: 6 Setup file default. Used with PCAL = off  
 LO sum= 4958.49 4958.49 4958.49 4958.49 5022.49 5022.49 5022.49 5022.49  
 BBC fr= 758.49 758.49 758.49 758.49 822.49 822.49 822.49 822.49  
 Bandwd= 32.00 32.00 32.00 32.00 32.00 32.00 32.00 32.00  
 Matching frequency sets: 6

Track assignments are:

track1= 10, 14, 2, 6, 12, 16, 4, 8  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* GRB	06 04 51.406802 -26 47 03.96662	* 06 06 51.428000 *-26 47 29.52000	06 07 33.155942 -26 48 01.14632	0.00 0.00
* ARUMA	11 12 58.352091 43 14 44.49830	* 11 15 44.478100 * 42 58 22.41200	11 16 41.856818 42 52 35.62353	0.00 0.00
* J1112+4301	11 09 46.149123 43 17 35.70611	* 11 12 33.150600 * 43 01 16.47900	11 13 30.837123 42 55 30.67800	0.00 0.00
* ARSCO	16 19 47.963520 -22 46 13.02776	* 16 22 47.303367 *-22 53 11.46486	16 23 48.084469 -22 55 22.42370	0.00 0.00
* J1621-2241	16 18 33.253628 -22 33 58.02036	* 16 21 32.276276 *-22 41 01.40904	16 22 32.958059 -22 43 14.14250	0.00 0.00
* 0234+285 J0237+2848 J0237+28	02 34 55.589590 28 35 11.40776 /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc	* 02 37 52.405677 * 28 48 08.99001	02 38 52.520648 28 52 29.60899	0.00 0.00
	GSFC 2015a astro solution, unpublished 54650 observations.			
* 0528+134 J0530+1331 J0530+13	05 28 06.759216 13 29 42.28885 /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc	* 05 30 56.416747 * 13 31 55.14952	05 31 54.789871 13 32 26.92970	0.21 0.24
	GSFC 2015a astro solution, unpublished 135789 observations.			
0606-272 * J0608-2717	06 06 45.932536 -27 16 36.96104 /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc	* 06 08 45.236806 *-27 17 10.83185	06 09 26.736881 -27 17 45.31351	0.13 0.27
	GSFC 2015a astro solution, unpublished 103 observations.			
4C39.25 * J0927+3902 0923+392 J0927+39	09 23 55.319215 39 15 23.56645 /home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc	* 09 27 03.013936 * 39 02 20.85186	09 28 07.958653 38 57 42.80913	0.30 0.16
	GSFC 2015a astro solution, unpublished 245753 observations.			

1105+437	11 05 35.113895	* 11 08 23.476931	11 09 21.640311	0.14
* J1108+4330	43 47 08.86359	* 43 30 53.65728	43 25 09.23451	0.15
	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc			
	GSFC 2015a astro solution, unpublished 174 observations.			
1308+328	13 08 38.495362	* 13 10 59.402729	13 11 47.786664	0.01
* J1310+3233	32 49 30.23294	* 32 33 34.44962	32 27 58.36940	0.01
	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc			
	GSFC 2015a astro solution, unpublished 10702 observations.			
1622-253	16 22 44.105299	* 16 25 46.891640	16 26 48.832155	0.00
* J1625-2527	-25 20 51.69560	*-25 27 38.32680	-25 29 44.27943	0.01
J1625-25	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc			
	GSFC 2015a astro solution, unpublished 44045 observations.			
3C345	16 41 17.606228	* 16 42 58.809966	16 43 32.530432	0.76
* J1642+3948	39 54 10.81496	* 39 48 36.99402	39 46 35.53308	0.52
1641+399	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc			
J1642+39	GSFC 2015a astro solution, unpublished 53430 observations.			
* 3C454.3	22 51 29.519738	* 22 53 57.747938	22 54 47.021657	0.67
J2253+1608	15 52 54.34810	* 16 08 53.56093	16 14 18.01047	0.70
2251+158	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc			
J2253+16	GSFC 2015a astro solution, unpublished 40748 observations.			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
GRB	112.2
ARUMA	145.0
J1112+4301	145.3
ARSCO	78.4
J1621-2241	78.7
0234+285	80.2
0528+134	116.3
J0608-2717	112.4
J0927+3902	153.1
J1108+4330	145.3
J1310+3233	130.9
J1625-2527	77.3
J1642+3948	88.9
3C454.3	32.6

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**rk16lfr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST       EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Tue 14 Feb 2017    Day 45 ---

----- L-band VLBI scans -----

Next scan frequencies:	1668.00	1668.00	1668.00	1668.00						
Next BBC frequencies:	732.00	732.00	732.00	732.00						
Next scan bandwidths:	16.00	16.00	16.00	16.00						
05 00 00	0529+483	15 51 54	13.8	-17.2	10.3		15.5	0	0	05 00 00
05 19 30	---	16 11 27	13.0	-14.0	10.6		12.6	1170	37	05 00 01
05 20 00	0529+483	16 11 57	13.0	-13.9	10.6		12.6	24	37	05 20 00
05 39 30	---	16 31 31	12.4	-10.6	10.9		9.6	1170	75	05 20 01
05 40 00	0529+483	16 32 01	12.4	-10.6	11.0		9.5	24	75	05 40 00
06 00 00	---	16 52 04	11.9	-7.2	11.3		6.5	1200	113	05 40 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group:	1	Station:	TORUN	Total bit rate:	256
Format:	MKIV1:4	Bits per sample:	2	Sample rate:	32.000
Number of channels:	4	DBE type:		Speedup factor:	1.00

Disk used to record data.



```

1st LO= 2400.00 2400.00 2400.00 2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 1 Setup file default. Used with PCAL = 1MHz
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 732.00 732.00 732.00 732.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 1

```

Track assignments are:

```

track1= 2, 18, 3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 57.434934	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 06.93045	0.00
	fake circumpolar target for a TS to look at			
* 0529+483	05 29 27.565384	* 05 33 15.865793	05 34 34.600649	0.00
J0533+4822	48 20 47.97038	* 48 22 52.80771	48 23 31.59483	0.00
	./rk16lf_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 19801 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
0529+483    116.6

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```



1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 3 Setup file default. Used with PCAL = 1MHz  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 732.00 732.00 732.00 732.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 3

Track assignments are:

track1= 2, 18, 3, 19  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 57.555689	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 07.15251	0.00
	fake circumpolar target for a TS to look at			
* 1357+769	13 57 42.117007	* 13 57 55.371538	13 58 00.747529	0.00
J1357+7643	76 57 53.35418	* 76 43 21.05098	76 38 09.54249	0.00
	./rk16lg_sources.radioastron AGN, rfc_2013d Petrov, 2013, unpublished 226762 observations, RA-A04-07, RA-A03-			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1357+769	108.9

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**rk16lhr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start.    Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST       EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Thu 16 Feb 2017    Day 47 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00

Next BBC frequencies: 736.00 736.00 736.00 736.00

Next scan bandwidths: 16.00 16.00 16.00 16.00

03 00 00	1226+023	13 59 28	35.6	207.9	1.5	16.3	0	0	03 00 00
03 19 30	---	14 19 01	34.1	213.6	1.8	19.4	1170	37	03 00 01
03 20 00	1226+023	14 19 31	34.1	213.7	1.8	19.5	24	37	03 20 00
03 39 30	---	14 39 04	32.3	219.2	2.2	22.3	1170	75	03 20 01
03 40 00	1226+023	14 39 34	32.3	219.3	2.2	22.4	24	75	03 40 00
04 00 00	---	14 59 37	30.3	224.7	2.5	25.0	1200	113	03 40 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
Setup file: ra6cm2.set

Setup group:    3	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=           L           L           U           U
IF SB =           U           U           U           U
Pol.  =          RCP          LCP          RCP          LCP
BBC   =           1           2           1           2
BBC SB=           L           L           U           U
IF    =           C           A           C           A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  4

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 57.713979	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 07.46633	0.00
	fake circumpolar target for a TS to look at			
* 1226+023	12 26 33.245835	* 12 29 06.699731	12 29 59.796181	0.00
J1229+0203	02 19 43.30547	* 02 03 08.59797	01 57 24.48807	0.00
3C273B	./rk16lh_sources.radioastron			
3C273	AGN, rfc_2013d Petrov, 2013, unpublished 32011 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1226+023    141.3

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

## HUNTING THE UNIDENTIFIED GAMMA-RAY SOURCES

PI: *Marcello Giroletti*

Address: INAF IRA

EMAIL: giroletti@ira.inaf.it

Observing mode: 6cm Continuum C-dual-1024-16-2-2

Schedule for TORUN (Code Tr )

Page 2

Hunting the unidentified gamma-ray sources

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Thu 16 Feb 2017 Day 47 ---										
Next scan frequencies:		4778.49	4778.49	4778.49	4778.49	4778.49	4850.49	4850.49	4850.49	4850.49
		4922.49	4922.49	4922.49	4922.49	4922.49	4994.49	4994.49	4994.49	4994.49
Next BBC frequencies:		578.49	578.49	578.49	578.49	578.49	650.49	650.49	650.49	650.49
		722.49	722.49	722.49	722.49	722.49	794.49	794.49	794.49	794.49
Next scan bandwidths:		16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
		16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
-----										
07 30 00	J1503.3+165A	18 30 12	36.1	248.0	3.4		35.6	0	0	07 30 00
07 39 37	---	18 39 51	34.7	250.3	3.6		36.2	577	74	07 30 01
07 39 57	J1503.3+165B	18 40 11	34.7	250.4	3.6		36.2	13	74	07 39 57
07 49 34	---	18 49 49	33.3	252.6	3.8		36.8	577	148	07 39 58
07 50 34	J1517.0+263A	18 50 49	42.8	257.5	3.6		41.0	11	148	07 50 34
08 00 11	---	19 00 28	41.4	259.7	3.7		41.3	577	222	07 50 35
08 00 31	J1517.0+263B	19 00 48	41.3	259.8	3.7		41.4	14	222	08 00 31
08 10 08	---	19 10 27	39.9	261.9	3.9		41.7	577	296	08 00 32
08 11 08	J1541.7+1413	19 11 27	33.6	246.8	3.5		34.7	15	296	08 11 08
08 20 45	---	19 21 05	32.2	249.1	3.6		35.4	577	370	08 11 09
08 22 50	3C345	19 23 11	60.0	260.0	2.7		50.3	7	370	08 22 50
08 28 50	---	19 29 12	59.1	261.4	2.8		50.6	360	416	08 22 51
08 30 10	J1716.1+230A	19 30 32	50.8	233.3	2.2		31.6	9	416	08 30 10
08 39 47	---	19 40 10	49.6	236.2	2.4		32.9	577	490	08 30 11
08 40 07	J1716.1+230B	19 40 30	49.6	236.3	2.4		32.9	12	490	08 40 07
08 49 44	---	19 50 09	48.3	239.1	2.6		34.1	577	564	08 40 08
08 51 54	J1705.3+543A	19 52 19	65.7	290.4	2.8		76.2	13	564	08 51 54
09 01 31	---	20 01 58	64.4	291.2	2.9		75.0	577	638	08 51 55
09 01 51	J1705.3+543B	20 02 18	64.4	291.1	2.9		74.9	12	638	09 01 51
09 11 28	---	20 11 57	63.0	292.0	3.1		73.7	577	712	09 01 52
09 13 03	J1821.4+663A	20 13 32	70.8	325.5	1.9		121.1	13	712	09 13 03
09 22 40	---	20 23 10	70.0	324.1	2.0		117.6	577	786	09 13 04
09 23 00	J1821.4+663B	20 23 31	70.0	324.1	2.0		117.5	13	786	09 23 00
09 32 37	---	20 33 09	69.1	322.9	2.2		114.2	577	860	09 23 01

Schedule for TORUN (Code Tr )

Page 3

Hunting the unidentified gamma-ray sources

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Thu 16 Feb 2017	Day	47	---						
09 35 12	J1800+3848	20 35 45	60.0	257.3	2.6		48.7	9	860	09 35 12
09 41 12	=1758+388	20 41 46	59.2	258.8	2.7		49.1	360	906	09 35 13
09 42 22	J1808.7+2420	20 42 56	49.3	240.2	2.6		34.9	18	906	09 42 22
09 51 59	---	20 52 34	48.0	242.9	2.7		35.9	577	980	09 42 23
09 53 44	J1958.1+2437	20 54 20	59.7	205.7	0.9		16.6	15	980	09 53 44
10 03 21	---	21 03 58	59.0	209.8	1.1		19.1	577	1054	09 53 45
10 05 01	J1855.3+075A	21 05 38	37.7	222.1	2.2		24.0	6	1054	10 05 01
10 14 38	---	21 15 17	36.7	224.8	2.3		25.3	577	1128	10 05 02
10 14 58	J1855.3+075B	21 15 37	36.7	225.0	2.3		25.4	13	1128	10 14 58
10 24 35	---	21 25 16	35.7	227.6	2.5		26.6	577	1202	10 14 59
10 25 25	J1855.5+0142	21 26 06	30.0	224.6	2.5		24.9	15	1202	10 25 25
10 35 02	---	21 35 44	29.0	227.1	2.7		26.1	577	1276	10 25 26
10 35 27	J1857.0+005A	21 36 09	28.5	226.5	2.6		25.8	12	1276	10 35 27
10 45 04	---	21 45 48	27.4	228.9	2.8		26.9	577	1350	10 35 28
10 45 24	J1857.0+005B	21 46 08	27.4	229.0	2.8		26.9	13	1350	10 45 24
10 55 01	---	21 55 47	26.3	231.4	3.0		28.0	577	1424	10 45 25
10 55 51	J1907.0+0713	21 56 37	32.8	232.4	2.8		28.7	12	1424	10 55 51
11 05 28	---	22 06 15	31.7	234.9	3.0		29.7	577	1498	10 55 52
11 06 03	J1911.5+0310	22 06 50	28.6	231.7	2.9		28.2	10	1498	11 06 03
11 15 40	---	22 16 29	27.5	234.1	3.1		29.1	577	1572	11 06 04
11 16 10	J1917.9+0331	22 16 59	28.5	232.8	3.0		28.6	13	1572	11 16 10
11 25 47	---	22 26 38	27.3	235.1	3.1		29.6	577	1646	11 16 11
11 27 42	J1800+3848	22 28 33	43.2	280.4	4.5		49.3	10	1646	11 27 42
11 33 42	=1758+388	22 34 34	42.3	281.5	4.6		49.0	360	1692	11 27 43
11 35 22	J1925.3+161A	22 36 14	37.9	243.8	3.2		34.2	10	1692	11 35 22
11 44 59	---	22 45 53	36.6	246.2	3.3		34.9	577	1766	11 35 23
11 45 19	J1925.3+161B	22 46 13	36.5	246.2	3.3		34.9	14	1766	11 45 19
11 54 56	---	22 55 51	35.2	248.6	3.5		35.6	577	1840	11 45 20
11 55 16	J1925.3+161C	22 56 12	35.2	248.7	3.5		35.7	13	1840	11 55 16
12 04 53	---	23 05 50	33.8	251.0	3.7		36.3	577	1914	11 55 17
12 05 13	J1925.3+161D	23 06 10	33.7	251.0	3.7		36.3	12	1914	12 05 13
12 14 50	---	23 15 49	32.3	253.2	3.8		36.8	577	1988	12 05 14

Schedule for TORUN (Code Tr )

Page 4

Hunting the unidentified gamma-ray sources

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

```

-----
Start UT  Source          Start / Stop          Early  Disk  TPStart
Stop UT          LST      EL  AZ  HA  UP  ParA  Dwell  GBytes  SYNC
-----
--- Thu 16 Feb 2017  Day 47 ---

12 15 10 J1925.3+161E 23 16 09 32.3 253.3 3.8      36.8   13   1988 12 15 10
12 24 47 ---          23 25 47 30.9 255.4 4.0      37.3  577   2062 12 15 11

12 25 57 J1927.5+0153 23 26 58 19.3 246.0 4.0      33.3   13   2062 12 25 57
12 35 34 ---          23 36 36 17.9 248.1 4.1      33.9  577   2136 12 25 58

12 37 34 J2030.4+223A 23 38 36 43.4 248.0 3.1      37.1   11   2136 12 37 34
12 47 11 ---          23 48 15 42.0 250.4 3.3      37.8  577   2210 12 37 35

12 47 31 J2030.4+223B 23 48 35 42.0 250.4 3.3      37.8   12   2210 12 47 31
12 57 08 ---          23 58 14 40.6 252.7 3.4      38.4  577   2284 12 47 32

12 59 08 3C454.3     00 00 14 51.0 205.4 1.1      15.6   10   2284 12 59 08
13 05 08 ---          00 06 15 50.6 207.6 1.2      16.9  360   2330 12 59 09

13 06 48 J2109.7+044A 00 07 55 29.6 233.3 3.0      28.9    8   2330 13 06 48
13 16 25 ---          00 17 34 28.4 235.7 3.1      29.8  577   2404 13 06 49

13 16 45 J2109.7+044B 00 17 54 28.4 235.7 3.1      29.9   13   2404 13 16 45
13 26 22 ---          00 27 32 27.2 238.1 3.3      30.8  577   2478 13 16 46

13 26 52 J2110.2+040B 00 28 03 26.7 237.7 3.3      30.6   17   2478 13 26 52
13 36 29 ---          00 37 41 25.4 240.0 3.4      31.4  577   2552 13 26 53

13 36 49 J2110.2+040A 00 38 01 25.4 240.1 3.4      31.4   14   2552 13 36 49
13 46 26 ---          00 47 40 24.1 242.3 3.6      32.2  577   2626 13 36 50

13 47 21 J2115.2+1218 00 48 35 31.6 246.5 3.5      34.3   13   2626 13 47 21
13 56 58 ---          00 58 14 30.2 248.7 3.7      34.9  577   2700 13 47 22

13 58 03 J2142.7+1959 00 59 19 40.1 247.9 3.3      36.3   14   2700 13 58 03
14 07 40 ---          01 08 57 38.8 250.3 3.4      37.0  577   2774 13 58 04

14 09 10 J2151.5+4155 01 10 28 55.5 271.7 3.3      53.9   13   2774 14 09 10
14 18 47 ---          01 20 06 54.1 273.6 3.5      53.8  577   2848 14 09 11

14 20 17 J2321.4+5112 01 21 36 71.7 276.4 2.0      72.6   10   2848 14 20 17
14 29 54 ---          01 31 15 70.3 277.8 2.2      72.0  577   2922 14 20 18

```

## SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: c1024.eofus

Setup group: 2

Station: TORUN

Total bit rate: 1024



Format: MARK5B                    Bits per sample: 2                    Sample rate: 32.000  
 Number of channels: 16        DBE type: DBBC\_DDC                    Speedup factor: 1.00

Disk used to record data.

1st LO=	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00
	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00
Net SB=	L	L	U	U	L	L	U	U	U
	L	L	U	U	L	L	U	U	U
IF SB =	U	U	U	U	U	U	U	U	U
	U	U	U	U	U	U	U	U	U
Pol. =	RCP	LCP	RCP	LCP	RCP	LCP	RCP	LCP	LCP
	RCP	LCP	RCP	LCP	RCP	LCP	RCP	LCP	LCP
BBC =	1	5	1	5	2	6	2	6	6
	3	7	3	7	4	8	4	8	8
BBC SB=	L	L	U	U	L	L	U	U	U
	L	L	U	U	L	L	U	U	U
IF =	A1	B1	A1	B1	A1	B1	A1	B1	B1
	A1	B1	A1	B1	A1	B1	A1	B1	B1

The following frequency sets based on these setups were used.

Frequency Set: 3 Setup file default. Used with PCAL = off

LO sum=	4778.49	4778.49	4778.49	4778.49	4850.49	4850.49	4850.49	4850.49
	4922.49	4922.49	4922.49	4922.49	4994.49	4994.49	4994.49	4994.49
BBC fr=	578.49	578.49	578.49	578.49	650.49	650.49	650.49	650.49
	722.49	722.49	722.49	722.49	794.49	794.49	794.49	794.49
Bandwd=	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00

Matching frequency sets: 3

Track assignments are:

track1= 18, 26, 2, 10, 20, 28, 4, 12, 22, 30, 6, 14, 24, 32, 8, 16  
 barrel=roll\_off

## POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 3C345	16 41 17.606228	* 16 42 58.809966	16 43 32.590704	0.76
J1642+3948	39 54 10.81496	* 39 48 36.99402	39 46 35.30680	0.52
1641+399	/Users/mgirolet/sched/catalogs/sources.gsfc			
J1642+39	GSFC 2015a astro solution, unpublished 53430 observations.			
1758+388	17 58 44.703952	* 18 00 24.765362	18 00 57.796077	0.01
* J1800+3848	38 48 32.47350	* 38 48 30.69749	38 48 24.37409	0.01
J1800+38	/Users/mgirolet/sched/catalogs/sources.gsfc			
	GSFC 2015a astro solution, unpublished 4173 observations.			
* 3C454.3	22 51 29.519738	* 22 53 57.747938	22 54 47.012881	0.67
J2253+1608	15 52 54.34810	* 16 08 53.56093	16 14 17.70161	0.70
2251+158	/Users/mgirolet/sched/catalogs/sources.gsfc			
J2253+16	GSFC 2015a astro solution, unpublished 40748 observations.			
* J1503.3+165A	15 00 57.348921	* 15 03 16.595000	15 04 04.021027	0.00
	17 02 59.86096	* 16 51 17.93000	16 47 14.52216	0.00
	../3fhl.dat			
* J1503.3+165B	15 00 59.905284	* 15 03 19.120000	15 04 06.534913	0.00
	17 04 53.49868	* 16 53 11.70000	16 49 08.32877	0.00
	../3fhl.dat			
* J1517.0+263A	15 14 53.843000	* 15 17 02.220000	15 17 45.808666	0.00
	26 50 04.41863	* 26 39 07.00000	26 35 16.29597	0.00
	../3fhl.dat			
* J1517.0+263B	15 14 54.218136	* 15 17 02.597000	15 17 46.186283	0.00
	26 49 56.35796	* 26 38 58.96000	26 35 08.26374	0.00
	../3fhl.dat			
* J1541.7+1413	15 39 30.311385	* 15 41 50.091000	15 42 37.511991	0.00
	14 24 10.06810	* 14 14 37.76000	14 11 20.22746	0.00
	../3fhl.dat			
* J1705.3+543A	17 04 18.211296	* 17 05 20.546000	17 05 40.741806	0.00
	54 40 58.62065	* 54 36 59.81000	54 35 28.57033	0.00
	../3fhl.dat			
* J1705.3+543B	17 04 30.609185	* 17 05 33.080000	17 05 53.321853	0.00
	54 38 11.52854	* 54 34 13.60000	54 32 42.67369	0.00
	../3fhl.dat			
* J1716.1+230B	17 13 57.496229	* 17 16 03.245000	17 16 45.353748	0.00
	23 11 38.22173	* 23 08 22.82000	23 07 12.94178	0.00
	../3fhl.dat			
* J1716.1+230A	17 14 06.864794	* 17 16 12.574000	17 16 54.668383	0.00
	23 13 13.08350	* 23 09 58.35000	23 08 48.69538	0.00
	../3fhl.dat			
* J1808.7+2420	18 06 42.167792	* 18 08 45.790000	18 09 26.935274	0.00
	24 18 33.14348	* 24 19 07.00000	24 19 15.86136	0.00
	../3fhl.dat			

* J1821.4+663A	18 22 00.111433 66 34 16.98717 ../3fhl.dat	* 18 22 00.370000 * 66 35 53.10000	18 21 58.370562 66 36 17.38598	0.00 0.00
* J1821.4+663B	18 22 03.400545 66 35 36.45442 ../3fhl.dat	* 18 22 03.500000 * 66 37 12.80000	18 22 01.444168 66 37 37.16511	0.00 0.00
* J1855.3+075A	18 52 55.492295 07 47 45.46868 ../3fhl.dat	* 18 55 20.350000 * 07 51 40.00000	18 56 08.585765 07 53 01.21362	0.00 0.00
* J1855.3+075B	18 52 56.540337 07 49 44.49579 ../3fhl.dat	* 18 55 21.360000 * 07 53 39.10000	18 56 09.582788 07 55 00.33100	0.00 0.00
* J1855.5+0142	18 52 57.553608 01 38 08.47176 ../3fhl.dat	* 18 55 29.450000 * 01 42 03.40000	18 56 20.068667 01 43 26.16410	0.00 0.00
* J1857.0+005A	18 54 30.122233 00 57 22.59155 ../3fhl.dat	* 18 57 02.790000 * 01 01 24.10000	18 57 53.663012 01 02 49.24599	0.00 0.00
* J1857.0+005B	18 54 37.540771 00 58 21.76754 ../3fhl.dat	* 18 57 10.190000 * 01 02 23.80000	18 58 01.056274 01 03 49.11891	0.00 0.00
* J1907.0+0713	19 04 41.772547 07 06 51.12825 ../3fhl.dat	* 19 07 07.520000 * 07 11 35.40000	19 07 56.016051 07 13 13.62659	0.00 0.00
* J1911.5+0310	19 09 01.129921 03 06 04.99524 ../3fhl.dat	* 19 11 31.420000 * 03 11 07.50000	19 12 21.437061 03 12 52.74196	0.00 0.00
* J1917.9+0331	19 15 33.800390 03 25 03.05206 ../3fhl.dat	* 19 18 03.770000 * 03 30 32.70000	19 18 53.656636 03 32 27.03045	0.00 0.00
* J1925.3+161A	19 22 54.099006 16 12 58.32705 ../3fhl.dat	* 19 25 09.690000 * 16 18 57.60000	19 25 54.677878 16 20 59.60694	0.00 0.00
* J1925.3+161B	19 22 57.445875 16 11 52.89858 ../3fhl.dat	* 19 25 13.060000 * 16 17 52.40000	19 25 58.055616 16 19 54.48780	0.00 0.00
* J1925.3+161C	19 22 59.265134 16 14 25.77656 ../3fhl.dat	* 19 25 14.830000 * 16 20 25.40000	19 25 59.808729 16 22 27.52245	0.00 0.00
* J1925.3+161D	19 23 00.232150 16 09 13.30719 ../3fhl.dat	* 19 25 15.900000 * 16 15 13.00000	19 26 00.913815 16 17 15.16031	0.00 0.00
* J1925.3+161E	19 23 02.789620 16 11 11.43456 ../3fhl.dat	* 19 25 18.420000 * 16 17 11.30000	19 26 03.420917 16 19 13.51379	0.00 0.00
* J1927.5+0153	19 24 57.466051 01 47 45.18481 ../3fhl.dat	* 19 27 29.250000 * 01 53 53.40000	19 28 19.716892 01 56 01.04170	0.00 0.00

* J1958.1+2437	19 55 53.250062	* 19 58 00.390000	19 58 42.410334	0.00
	24 29 53.15591	* 24 38 02.60000	24 40 48.01748	0.00
	../3fhl.dat			
* J2030.4+223A	20 28 05.903737	* 20 30 17.640000	20 31 01.188061	0.00
	22 27 01.16290	* 22 37 08.40000	22 40 34.29081	0.00
	../3fhl.dat			
* J2030.4+223B	20 28 19.891544	* 20 30 31.690000	20 31 15.259085	0.00
	22 24 31.35052	* 22 34 39.40000	22 38 05.57065	0.00
	../3fhl.dat			
* J2109.7+044A	21 07 07.719723	* 21 09 37.841000	21 10 27.565722	0.00
	04 30 07.14308	* 04 42 21.20000	04 46 30.70802	0.00
	../3fhl.dat			
* J2109.7+044B	21 07 09.957787	* 21 09 40.111000	21 10 29.846281	0.00
	04 27 46.05112	* 04 40 00.22000	04 44 09.76668	0.00
	../3fhl.dat			
* J2110.2+040B	21 07 44.320433	* 21 10 14.962000	21 11 04.858627	0.00
	03 51 40.69473	* 04 03 56.58000	04 08 06.71906	0.00
	../3fhl.dat			
* J2110.2+040A	21 07 49.048960	* 21 10 19.687000	21 11 09.582433	0.00
	03 52 01.82097	* 04 04 17.94000	04 08 28.15612	0.00
	../3fhl.dat			
* J2115.2+1218	21 12 57.796773	* 21 15 22.020000	21 16 09.780740	0.00
	12 05 31.88451	* 12 18 02.90000	12 22 17.83823	0.00
	../3fhl.dat			
* J2142.7+1959	21 40 27.314647	* 21 42 47.400000	21 43 33.788022	0.00
	19 44 25.60593	* 19 58 10.50000	20 02 50.34144	0.00
	../3fhl.dat			
* J2151.5+4155	21 49 21.245666	* 21 51 22.990000	21 52 03.060050	0.00
	41 42 26.98779	* 41 56 32.90000	42 01 21.38860	0.00
	../3fhl.dat			
* J2321.4+5112	23 19 07.730529	* 23 21 27.260000	23 22 13.617604	0.00
	50 54 51.00164	* 51 11 17.90000	51 16 57.42434	0.00
	../3fhl.dat			

**rk16litr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST       EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Thu 16 Feb 2017    Day 47 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00  
Next BBC frequencies:    736.00    736.00    736.00    736.00  
Next scan bandwidths:    16.00    16.00    16.00    16.00

22 00 00	0529+483	09 02 35	57.5	-76.9	3.5		61.7	0	0	22 00 00
22 19 30	---	09 22 08	54.7	-74.1	3.8		60.4	1170	37	22 00 01
22 20 00	0529+483	09 22 38	54.6	-74.0	3.8		60.4	24	37	22 20 00
22 39 30	---	09 42 11	51.8	-71.2	4.1		58.9	1170	75	22 20 01
22 40 00	0529+483	09 42 41	51.7	-71.2	4.1		58.9	24	75	22 40 00
23 00 00	---	10 02 45	48.9	-68.4	4.5		57.2	1200	113	22 40 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
Setup file: ra6cm2.set

Setup group:    2	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor:    1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=           L           L           U           U
IF SB =           U           U           U           U
Pol.  =          RCP          LCP          RCP          LCP
BBC   =           1           2           1           2
BBC SB=           L           L           U           U
IF    =           C           A           C           A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  2

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 57.818549	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 07.68322	0.00
	fake circumpolar target for a TS to look at			
* 0529+483	05 29 27.565384	* 05 33 15.865793	05 34 34.522639	0.00
J0533+4822	48 20 47.97038	* 48 22 52.80771	48 23 31.76501	0.00
	./rk16li_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 19801 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
0529+483    114.2

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```



```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=          L          L          U          U
IF SB =          U          U          U          U
Pol.  =          RCP         LCP         RCP         LCP
BBC   =           1          2          1          2
BBC SB=          L          L          U          U
IF    =           C          A          C          A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr=  736.00  736.00  736.00  736.00
Bandwd=  16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 57.839620	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 07.72737	0.00
	fake circumpolar target for a TS to look at			
* 1226+023	12 26 33.245835	* 12 29 06.699731	12 29 59.813179	0.00
J1229+0203	02 19 43.30547	* 02 03 08.59797	01 57 24.40353	0.00
3C273B	./rk16lj_sources.radioastron			
3C273	AGN, rfc_2013d Petrov, 2013, unpublished 32011 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source          Sun distance (deg)
1226+023        142.2

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz        45. deg
2.3 GHz        36. deg
5.0 GHz        23. deg
8.4 GHz        17. deg
15.0 GHz       12. deg
22.0 GHz        9. deg

```



**rk16ltr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start.    Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST       EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Fri 17 Feb 2017    Day 48 ---

----- C-band VLBI scans -----

Next scan frequencies:	4836.00	4836.00	4836.00	4836.00							
Next BBC frequencies:	736.00	736.00	736.00	736.00							
Next scan bandwidths:	16.00	16.00	16.00	16.00							
20 00 00	0727-115	07 06 12	25.0	173.3	-0.4		-4.1	0	0	20 00 00	
20 19 30	---	07 25 45	25.2	178.5	-0.1		-0.9	1170	37	20 00 01	
20 20 00	0727-115	07 26 15	25.2	178.7	-0.1		-0.8	24	37	20 20 00	
20 39 30	---	07 45 48	25.1	184.0	0.2		2.4	1170	75	20 20 01	
20 40 00	0727-115	07 46 18	25.1	184.1	0.3		2.5	24	75	20 40 00	
21 00 00	---	08 06 22	24.7	189.5	0.6		5.8	1200	113	20 40 01	

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
Setup file: ra6cm2.set

Setup group:	3	Station:	TORUN	Total bit rate:	256
Format:	MKIV1:4	Bits per sample:	2	Sample rate:	32.000
Number of channels:	4	DBE type:		Speedup factor:	1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=           L           L           U           U
IF SB =           U           U           U           U
Pol.  =          RCP          LCP          RCP          LCP
BBC   =           1           2           1           2
BBC SB=           L           L           U           U
IF    =           C           A           C           A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  3

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 57.935547	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 07.92855	0.00
	fake circumpolar target for a TS to look at			
* 0727-115	07 27 58.097813	* 07 30 19.112473	07 31 08.187414	0.00
J0730-1141	-11 34 52.58107	*-11 41 12.60063	-11 43 40.44425	0.00
	./rk16ll_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 155894 observations, RA-A04-07, RA-A03-			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
0727-115    135.0

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```



```

1st LO= 2400.00 2400.00 2400.00 2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 2 Setup file default. Used with PCAL = 1MHz
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 732.00 732.00 732.00 732.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 2

```

Track assignments are:

```

track1= 2, 18, 3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 57.956571	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 07.97244	0.00
	fake circumpolar target for a TS to look at			
* 1641+399	16 41 17.606226	* 16 42 58.809963	16 43 32.646392	0.00
J1642+3948	39 54 10.81479	* 39 48 36.99385	39 46 35.13823	0.00
3C345	./rk16lm_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 51938 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1641+399    90.5

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz     45. deg
2.3 GHz     36. deg
5.0 GHz     23. deg
8.4 GHz     17. deg
15.0 GHz    12. deg
22.0 GHz     9. deg

```

**rk16lntr**

RADIOASTRON AGN MONITORING  
PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: L-band, dual-pol

Schedule for TORUN              (Code Tr )                                      Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----

Start UT	Source	Start / Stop					Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA	UP	ParA Dwell	GBytes	SYNC
-----									
--- Sat 18 Feb 2017    Day 49 ---									
----- L-band VLBI scans -----									
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00				
Next BBC frequencies:		732.00	732.00	732.00	732.00				
Next scan bandwidths:		16.00	16.00	16.00	16.00				
21 00 00	0529+483	08 10 18	65.2	274.9	2.6		64.3    0	0	21 00 00
21 19 30	---	08 29 51	62.3	278.2	2.9		63.5 1170	37	21 00 01
21 20 00	0529+483	08 30 21	62.2	278.2	2.9		63.5    24	37	21 20 00
21 39 30	---	08 49 55	59.4	281.3	3.3		62.5 1170	75	21 20 01
21 40 00	0529+483	08 50 25	59.3	281.3	3.3		62.5    24	75	21 40 00
22 00 00	---	09 10 28	56.3	284.3	3.6		61.2 1200	113	21 40 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

===== Setup file: ra18cm2.set

Setup group:    5                      Station: TORUN                      Total bit rate:    256  
Format: MKIV1:4                      Bits per sample: 2                      Sample rate: 32.000  
Number of channels: 4                      DBE type:                      Speedup factor:    1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 5 Setup file default. Used with PCAL = 1MHz  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 732.00 732.00 732.00 732.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 5

Track assignments are:

track1= 2, 18, 3, 19  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 58.065079	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 08.19580	0.00
	fake circumpolar target for a TS to look at			
* 0529+483	05 29 27.565384	* 05 33 15.865793	05 34 34.475697	0.00
J0533+4822	48 20 47.97038	* 48 22 52.80771	48 23 31.85510	0.00
	./rk16ln_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 19801 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
0529+483	112.4

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**rk16lotr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start.    Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST       EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Sun 19 Feb 2017    Day 50 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00  
Next BBC frequencies:    736.00    736.00    736.00    736.00  
Next scan bandwidths:    16.00    16.00    16.00    16.00

01 00 00	1357+769	12 10 58	64.4	13.9	-1.8		-141.2	0	0	01 00 00
01 19 30	---	12 30 31	65.1	11.8	-1.5		-147.9	1170	37	01 00 01
01 20 00	1357+769	12 31 01	65.1	11.7	-1.5		-148.1	24	37	01 20 00
01 39 30	---	12 50 34	65.6	9.3	-1.1		-155.0	1170	75	01 20 01
01 40 00	1357+769	12 51 04	65.6	9.3	-1.1		-155.2	24	75	01 40 00
02 00 00	---	13 11 07	66.0	6.6	-0.8		-162.5	1200	113	01 40 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
Setup file: ra6cm2.set

Setup group:    4	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=           L           L           U           U
IF SB =           U           U           U           U
Pol.  =      RCP      LCP      RCP      LCP
BBC   =           1           2           1           2
BBC SB=           L           L           U           U
IF    =           C           A           C           A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  4

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 58.087871	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 08.24183	0.00
	fake circumpolar target for a TS to look at			
* 1357+769	13 57 42.117007	* 13 57 55.371538	13 58 01.096345	0.00
J1357+7643	76 57 53.35418	* 76 43 21.05098	76 38 10.09532	0.00
	./rk16lo_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 226762 observations, RA-A04-07, RA-A03-			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1357+769    108.3

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```





1st LO=	4100.00	4100.00	4100.00	4100.00
Net SB=	L	L	U	U
IF SB =	U	U	U	U
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	L	L	U	U
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 3 Setup file default. Used with PCAL = 1MHz  
 LO sum= 4836.00 4836.00 4836.00 4836.00  
 BBC fr= 736.00 736.00 736.00 736.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 3

Track assignments are:

track1= 2, 18, 3, 19  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 58.109015	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 08.28421	0.00
	fake circumpolar target for a TS to look at			
* 1641+399	16 41 17.606226	* 16 42 58.809963	16 43 32.688369	0.00
J1642+3948	39 54 10.81479	* 39 48 36.99385	39 46 35.02074	0.00
3C345	./rk16lp_sources.radioastron AGN, rfc_2013d Petrov, 2013, unpublished 51938 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1641+399	91.1

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg



1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 6 Setup file default. Used with PCAL = 1MHz  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 732.00 732.00 732.00 732.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 6

Track assignments are:

track1= 2, 18, 3, 19  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 58.194479	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 08.45205	0.00
	fake circumpolar target for a TS to look at			
* 1357+769	13 57 42.117007	* 13 57 55.371538	13 58 01.167426	0.00
J1357+7643	76 57 53.35418	* 76 43 21.05098	76 38 10.20136	0.00
	./rk16lq_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 226762 observations, RA-A04-07, RA-A03-			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1357+769	108.2

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**rk16lrtr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/K-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start.    Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST       EL       AZ       HA    UP       ParA    Dwell    GBytes    SYNC  
-----

--- Mon 20 Feb 2017    Day 51 ---

----- K-band VLBI scans -----

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00

Next BBC frequencies:    736.00    736.00    736.00    736.00

Next scan bandwidths:    16.00    16.00    16.00    16.00

01 00 00	1641+399	12 14 54	43.7	78.4	-4.5		-49.9	0	0	01 00 00
01 14 30	---	12 29 26	45.8	80.9	-4.2		-50.5	870	28	01 00 01
01 15 00	1641+399	12 29 57	45.9	81.0	-4.2		-50.5	24	28	01 15 00
01 29 30	---	12 44 29	48.1	83.6	-4.0		-50.9	870	56	01 15 01
01 30 00	1641+399	12 44 59	48.1	83.7	-4.0		-50.9	24	56	01 30 00
01 44 30	---	12 59 31	50.3	86.4	-3.7		-51.2	870	84	01 30 01
01 45 00	1641+399	13 00 01	50.4	86.5	-3.7		-51.2	24	84	01 45 00
02 00 00	---	13 15 04	52.7	89.4	-3.5		-51.4	900	112	01 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra1cm2.set

Matching groups in ./rk16lr\_freq.dat:

tr1cm

Setup group:    7                      Station: TORUN                      Total bit rate:    256  
Format: MKIV1:4                      Bits per sample: 2                      Sample rate: 32.000  
Number of channels: 4                      DBE type:                      Speedup factor:    1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 5 Setup file default. Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr= 736.00 736.00 736.00 736.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 5

```

Track assignments are:

```

track1= 2, 18, 3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 58.215671	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 08.49280	0.00
	fake circumpolar target for a TS to look at			
* 1641+399	16 41 17.606226	* 16 42 58.809963	16 43 32.718258	0.00
J1642+3948	39 54 10.81479	* 39 48 36.99385	39 46 34.93697	0.00
3C345	./rk16lr_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 51938 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1641+399    91.5

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

**rk16lstr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST       EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Mon 20 Feb 2017    Day 51 ---

----- L-band VLBI scans -----

Next scan frequencies:	1668.00	1668.00	1668.00	1668.00						
Next BBC frequencies:	732.00	732.00	732.00	732.00						
Next scan bandwidths:	16.00	16.00	16.00	16.00						
05 00 00	1357+769	16 15 34	63.2	-16.8	2.3	131.2	0	0	05 00 00	
05 19 30	---	16 35 07	62.3	-18.3	2.6	125.1	1170	37	05 00 01	
05 20 00	1357+769	16 35 37	62.3	-18.4	2.6	125.0	25	37	05 20 00	
05 39 30	---	16 55 10	61.3	-19.7	3.0	119.1	1170	75	05 20 01	
05 40 00	1357+769	16 55 40	61.3	-19.7	3.0	119.0	25	75	05 40 00	
06 00 00	---	17 15 43	60.3	-20.7	3.3	113.2	1200	113	05 40 01	

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group:    6	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor:    1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 5 Setup file default. Used with PCAL = 1MHz  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 732.00 732.00 732.00 732.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 5

Track assignments are:

track1= 2, 18, 3, 19  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 58.236124	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 08.53179	0.00
	fake circumpolar target for a TS to look at			
* 1357+769	13 57 42.117007	* 13 57 55.371538	13 58 01.194969	0.00
J1357+7643	76 57 53.35418	* 76 43 21.05098	76 38 10.24095	0.00
	./rk16ls_sources.radioastron AGN, rfc_2013d Petrov, 2013, unpublished 226762 observations, RA-A04-07, RA-A03-			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun.  
 SCHED provides warnings at individual scans for distances less than 10 degrees.  
 The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1357+769	108.1

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg



**rk16lttr**

RADIOASTRON AGN MONITORING  
PI: Yuri Kovalev

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia  
Phone: +7-495-3332512 EMAIL: kirx@scan.sai.msu.ru  
Fax: +7-495-3332378 Phone during observation: +7-903-6614865

Observing mode: C/K-band, dual-pol

Schedule for TORUN (Code Tr ) Page 2  
RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start. Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----  
Start UT Source Start / Stop Early Disk TPStart  
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC  
-----

--- Tue 21 Feb 2017 Day 52 ---

----- K-band VLBI scans -----

Next scan frequencies: 22236.00 22236.00 22236.00 22236.00  
Next BBC frequencies: 736.00 736.00 736.00 736.00  
Next scan bandwidths: 16.00 16.00 16.00 16.00

17 00 00	1642+690	04 21 28	32.1	-2.2	11.7	3.6	0	0	17 00 00
17 19 30	---	04 41 02	32.0	-0.1	12.0	0.2	1170	37	17 00 01
17 20 00	1642+690	04 41 32	32.0	-0.1	12.0	0.1	24	37	17 20 00
17 40 00	---	05 01 35	32.1	2.1-11.7		-3.5	1200	76	17 20 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
Setup file: ra1cm2.set

Matching groups in ./rk16lt\_freq.dat:

tr1cm

Setup group:	5	Station: TORUN	Total bit rate:	256
Format:	MKIV1:4	Bits per sample:	2	Sample rate: 32.000
Number of channels:	4	DBE type:		Speedup factor: 1.00

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr=  736.00  736.00  736.00  736.00
Bandwd=  16.00  16.00  16.00  16.00
Matching frequency sets:  5

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 58.440912	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 08.90650	0.00
	fake circumpolar target for a TS to look at			
* 1642+690	16 42 18.064877	* 16 42 07.848507	16 42 03.449812	0.00
J1642+6856	69 02 13.21708	* 68 56 39.75636	68 54 33.24275	0.00
	./rk16lt_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 18956 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1642+690    97.7

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

**rk16lutr**

RADIOASTRON AGN MONITORING  
PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page 2  
    RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

Start UT		Source	Start / Stop					Early	Disk	TPStart	
Stop UT			LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Tue 21 Feb 2017 Day 52 ---

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies: 732.00 732.00 732.00 732.00  
Next scan bandwidths: 16.00 16.00 16.00 16.00

22 10 00	1357+769	09 32 19	56.5	22.5	-4.4			-95.1	0	0	22 10 00
22 34 30	---	09 56 53	57.9	22.2	-4.0			-101.4	1470	47	22 10 01
22 35 00	1357+769	09 57 23	57.9	22.2	-4.0			-101.5	25	47	22 35 00
23 00 00	---	10 22 28	59.3	21.4	-3.6			-108.2	1500	95	22 35 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

===== Setup file: ra18cm2.set

Setup group: 7	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 6 Setup file default. Used with PCAL = 1MHz  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 732.00 732.00 732.00 732.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 6

Track assignments are:

track1= 2, 18, 3, 19  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 58.469263	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 08.95663	0.00
	fake circumpolar target for a TS to look at			
* 1357+769	13 57 42.117007	* 13 57 55.371538	13 58 01.346332	0.00
J1357+7643	76 57 53.35418	* 76 43 21.05098	76 38 10.44563	0.00
	./rk16lu_sources.radioastron AGN, rfc_2013d Petrov, 2013, unpublished 226762 observations, RA-A04-07, RA-A03-			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1357+769	107.8

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg



1st LO=	4100.00	4100.00	4100.00	4100.00
Net SB=	L	L	U	U
IF SB =	U	U	U	U
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	L	L	U	U
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 3 Setup file default. Used with PCAL = 1MHz  
 LO sum= 4836.00 4836.00 4836.00 4836.00  
 BBC fr= 736.00 736.00 736.00 736.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 3

Track assignments are:

track1= 2, 18, 3, 19  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 58.541539	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 09.08333	0.00
	fake circumpolar target for a TS to look at			
* 1044+719	10 44 49.735111	* 10 48 27.619927	10 49 43.322761	0.00
J1048+7143	71 59 26.88535	* 71 43 35.93838	71 38 02.88709	0.00
	./rk16lw_sources.radioastron AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 141793 observations, RA-A04-07,			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1044+719	118.3

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**rk16lxt**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start.    Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST       EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Wed 22 Feb 2017    Day 53 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00

Next BBC frequencies: 736.00 736.00 736.00 736.00

Next scan bandwidths: 16.00 16.00 16.00 16.00

15 00 00	1642+690	02 25 05	34.6	-14.2	9.7		24.2	0	0	15 00 00
15 19 30	---	02 44 38	33.9	-12.3	10.0		20.8	1170	37	15 00 01
15 20 00	1642+690	02 45 08	33.9	-12.2	10.1		20.7	24	37	15 20 00
15 39 30	---	03 04 42	33.3	-10.2	10.4		17.2	1170	75	15 20 01
15 40 00	1642+690	03 05 12	33.3	-10.2	10.4		17.1	24	75	15 40 00
16 00 00	---	03 25 15	32.8	-8.1	10.7		13.6	1200	113	15 40 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra6cm2.set

Setup group:    1	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

1st LO=	4100.00	4100.00	4100.00	4100.00
Net SB=	L	L	U	U
IF SB =	U	U	U	U
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	L	L	U	U
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 1 Setup file default. Used with PCAL = 1MHz  
 LO sum= 4836.00 4836.00 4836.00 4836.00  
 BBC fr= 736.00 736.00 736.00 736.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 1

Track assignments are:

track1= 2, 18, 3, 19  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 58.571685	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 09.13590	0.00
	fake circumpolar target for a TS to look at			
* 1642+690	16 42 18.064877	* 16 42 07.848507	16 42 03.510861	0.00
J1642+6856	69 02 13.21708	* 68 56 39.75636	68 54 33.15055	0.00
	./rk16lx_sources.radioastron AGN, rfc_2013d Petrov, 2013, unpublished 18956 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1642+690	97.7

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg



**rk16lytr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia  
Phone: +7-495-3332512 EMAIL: kirx@scan.sai.msu.ru  
Fax: +7-495-3332378 Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr ) Page 2  
RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start. Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are L0 sum (band edge).  
SYNC: Time correlator is expected to sync up.

---

Start UT	Source	Start / Stop				Early	Disk	TPStart
Stop UT		LST	EL	AZ	HA UP	ParA Dwell	GBytes	SYNC

---

--- Wed 22 Feb 2017 Day 53 ---

----- C-band VLBI scans -----

Next scan frequencies:	4836.00	4836.00	4836.00	4836.00				
Next BBC frequencies:	736.00	736.00	736.00	736.00				
Next scan bandwidths:	16.00	16.00	16.00	16.00				
22 50 00	1226+023	10 16 22	31.9 139.6	-2.2	-22.9	0	0	22 50 00
22 59 30	---	10 25 54	32.8 142.2	-2.1	-21.6	570	18	22 50 01
23 00 00	1226+023	10 26 24	32.8 142.3	-2.1	-21.5	24	18	23 00 00
23 09 30	---	10 35 56	33.7 145.0	-1.9	-20.2	570	36	23 00 01
23 10 00	1226+023	10 36 26	33.7 145.2	-1.9	-20.1	24	36	23 10 00
23 19 30	---	10 45 57	34.5 147.9	-1.7	-18.6	570	55	23 10 01
23 20 00	1226+023	10 46 27	34.6 148.0	-1.7	-18.6	24	55	23 20 00
23 30 00	---	10 56 29	35.3 150.9	-1.6	-17.0	600	74	23 20 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
Setup file: ra6cm2.set

Setup group: 2	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

1st LO=	4100.00	4100.00	4100.00	4100.00
Net SB=	L	L	U	U
IF SB =	U	U	U	U
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	L	L	U	U
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 2 Setup file default. Used with PCAL = 1MHz  
 LO sum= 4836.00 4836.00 4836.00 4836.00  
 BBC fr= 736.00 736.00 736.00 736.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 2

Track assignments are:

track1= 2, 18, 3, 19  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 58.618336	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 09.21720	0.00
	fake circumpolar target for a TS to look at			
* 1226+023	12 26 33.245835	* 12 29 06.699731	12 29 59.939914	0.00
J1229+0203	02 19 43.30547	* 02 03 08.59797	01 57 23.73885	0.00
3C273B	./rk16ly_sources.radioastron			
3C273	AGN, rfc_2013d Petrov, 2013, unpublished 32011 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1226+023	148.1

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

f1711tr

NETWORK MONITORING EXPERIMENT  
PI: Ross Burns

Address: JIVE  
Postbus 2  
7990 AA Dwingeloo  
The Netherlands

Phone: +31-521-596508  
EMAIL: burns@jive.eu  
Fax:  
Phone during observation: +31-521-596508

Observing mode:

Schedule for TORUN (Code Tr ) Page 2  
Network Monitoring Experiment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start. Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Thu 23 Feb 2017 Day 54 ---

Next scan frequencies:	1642.49	1642.49	1642.49	1642.49	1674.49	1674.49	1674.49	1674.49	1674.49	
Next BBC frequencies:	657.51	657.51	657.51	657.51	625.51	625.51	625.51	625.51	625.51	
Next scan bandwidths:	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	
11 00 00	J1753+2848	22 28 22	35.3	272.3	4.6		43.2	0	0	11 00 00
11 14 00	=1751+288	22 42 25	33.2	275.0	4.8		43.0	840	54	11 00 01
11 15 00	J1753+2848	22 43 25	33.1	275.2	4.8		43.0	54	54	11 15 00
11 29 00	=1751+288	22 57 27	31.0	277.8	5.1		42.8	840	108	11 15 01
11 31 00	J0237+2848	22 59 27	43.5	99.0	-3.7		-42.6	-251	108	11 31 00
11 44 00	=0234+285	23 12 30	45.5	101.9	-3.4		-42.1	529	158	11 31 01
11 45 00	J0237+2848	23 13 30	45.6	102.2	-3.4		-42.1	54	158	11 45 00
11 59 00	=0234+285	23 27 32	47.7	105.5	-3.2		-41.4	840	212	11 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: sess117.L512nme

Setup group: 15	Station: TORUN	Total bit rate: 512
Format: MARK5B	Bits per sample: 2	Sample rate: 32.000
Number of channels: 8	DBE type: DBBC_DDC	Speedup factor: 1.00

Disk used to record data.

1st LO=	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00
Net SB=	L	L	U	U	L	L	U	U
IF SB =	L	L	L	L	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP	RCP	LCP	RCP	LCP
BBC =	1	5	1	5	3	7	3	7
BBC SB=	U	U	L	L	U	U	L	L
IF =	A1	B1	A1	B1	A1	B1	A1	B1

The following frequency sets based on these setups were used.

```

Frequency Set: 6 Setup file default. Used with PCAL = off
LO sum= 1642.49 1642.49 1642.49 1642.49 1674.49 1674.49 1674.49 1674.49
BBC fr= 657.51 657.51 657.51 657.51 625.51 625.51 625.51 625.51
Bandwd= 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00
Matching frequency sets: 6

```

Track assignments are:

```

track1= 2, 6, 10, 14, 4, 8, 12, 16
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(Date)	Error (mas)
0234+285	02 34 55.589590 * 02 37 52.405677	02 38 52.362728	0.00
* J0237+2848	28 35 11.40776 * 28 48 08.99001	28 52 28.78954	0.00
J0237+28	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc GSFC 2015a astro solution, unpublished 54650 observations.		
1751+288	17 51 45.401874 * 17 53 42.473647	17 54 21.638548	0.01
* J1753+2848	28 48 36.64968 * 28 48 04.93895	28 47 49.18956	0.01
J1753+28	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc GSFC 2015a astro solution, unpublished 13238 observations.		

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
J0237+2848	71.8
J1753+2848	76.2

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**ep103atr**

FRB121102 MONITORING

PI: *Hessels/Paragi*

Address: JIVE

Observing mode: evn

Schedule for TORUN (Code Tr ) Page 2  
 FRB121102 monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
 Early: Seconds between end of slew and start. Dwell: On source seconds.  
 Disk: GBytes recorded to this point.  
 TPStart: Recording start time. Frequencies are L0 sum (band edge).  
 SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Thu 23 Feb 2017 Day 54 ---										
Next scan frequencies:		1626.49	1626.49	1626.49	1626.49	1690.49	1690.49	1690.49	1690.49	1690.49
Next BBC frequencies:		673.51	673.51	673.51	673.51	609.51	609.51	609.51	609.51	609.51
Next scan bandwidths:		32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00
13 00 00	0234+285	00 28 42	56.0	122.5	-2.2		-35.3	0	0	13 00 00
13 03 30	---	00 32 13	56.5	123.7	-2.1		-34.8	210	27	13 00 01
13 06 30	J0529+3209	00 35 13	34.6	80.8	-4.9		-44.5	79	27	13 06 30
13 07 30	---	00 36 13	34.7	81.0	-4.9		-44.5	60	35	13 06 31
13 07 30	J0530+3301	00 36 13	35.2	80.1	-4.9		-44.9	-13	35	No stop
13 11 00	---	00 39 44	35.7	80.7	-4.9		-45.0	197	62	13 07 31
13 11 00	J0529+3209	00 39 44	35.2	81.6	-4.8		-44.6	-14	62	No stop
13 12 30	---	00 41 14	35.5	81.9	-4.8		-44.6	76	73	13 11 01
13 12 30	J0530+3301	00 41 14	35.9	81.0	-4.8		-45.0	-13	73	No stop
13 15 50	---	00 44 35	36.4	81.6	-4.8		-45.1	187	99	13 12 31
13 16 20	J0529+3209	00 45 05	36.0	82.6	-4.8		-44.7	16	99	13 16 20
13 17 20	---	00 46 05	36.2	82.8	-4.7		-44.7	60	106	13 16 21
13 17 20	J0530+3301	00 46 05	36.6	81.9	-4.8		-45.2	-13	106	No stop
13 20 40	---	00 49 25	37.1	82.5	-4.7		-45.2	187	132	13 17 21
13 20 40	J0529+3209	00 49 25	36.7	83.4	-4.7		-44.8	-14	132	No stop
13 22 10	---	00 50 56	36.9	83.7	-4.7		-44.8	76	144	13 20 41
13 22 10	J0530+3301	00 50 56	37.4	82.8	-4.7		-45.3	-13	144	No stop
13 25 30	---	00 54 16	37.9	83.4	-4.6		-45.4	187	169	13 22 11
13 26 00	J0529+3209	00 54 46	37.5	84.5	-4.6		-44.9	16	169	13 26 00
13 27 30	---	00 56 17	37.7	84.7	-4.6		-44.9	90	181	13 26 01
13 27 30	FRB	00 56 17	38.0	83.4	-4.6		-45.4	-15	181	No stop
13 31 00	---	00 59 47	38.5	84.0	-4.6		-45.5	195	208	13 27 31
13 31 00	J0529+3209	00 59 47	38.2	85.4	-4.5		-45.0	-16	208	No stop
13 32 30	---	01 01 17	38.4	85.7	-4.5		-45.0	74	219	13 31 01
13 32 30	FRB	01 01 17	38.8	84.3	-4.5		-45.5	-15	219	No stop
13 36 00	---	01 04 48	39.3	85.0	-4.5		-45.6	195	246	13 32 31

Schedule for TORUN (Code Tr )

Page 3

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Thu 23 Feb 2017	Day	54	---						
13 36 30	J0529+3209	01 05 18	39.0	86.5	-4.4		-45.1	14	246	13 36 30
13 37 30	---	01 06 18	39.2	86.7	-4.4		-45.1	60	254	13 36 31
13 37 30	FRB	01 06 18	39.5	85.3	-4.4		-45.6	-15	254	No stop
13 41 00	---	01 09 49	40.0	85.9	-4.4		-45.7	195	281	13 37 31
13 41 00	J0529+3209	01 09 49	39.7	87.3	-4.3		-45.1	-16	281	No stop
13 42 30	---	01 11 19	39.9	87.6	-4.3		-45.1	74	292	13 41 01
13 42 30	FRB	01 11 19	40.3	86.2	-4.4		-45.7	-15	292	No stop
13 46 00	---	01 14 50	40.8	86.9	-4.3		-45.7	195	319	13 42 31
13 46 30	J0529+3209	01 15 20	40.5	88.4	-4.3		-45.2	14	319	13 46 30
13 47 30	---	01 16 20	40.7	88.6	-4.2		-45.2	60	327	13 46 31
13 48 00	J0518+3306	01 16 50	43.1	90.1	-4.0		-45.8	7	327	13 48 00
13 51 00	=0514+330	01 19 50	43.6	90.7	-4.0		-45.8	180	350	13 48 01
13 51 00	J0529+3209	01 19 50	41.2	89.3	-4.2		-45.2	-23	350	No stop
13 52 30	---	01 21 21	41.5	89.6	-4.2		-45.2	67	362	13 51 01
13 52 30	FRB	01 21 21	41.8	88.2	-4.2		-45.8	-16	362	No stop
13 56 00	---	01 24 51	42.3	88.9	-4.1		-45.8	194	388	13 52 31
13 56 00	J0529+3209	01 24 51	42.0	90.3	-4.1		-45.2	-16	388	No stop
13 57 30	---	01 26 21	42.2	90.6	-4.1		-45.2	74	400	13 56 01
13 57 30	FRB	01 26 21	42.5	89.2	-4.1		-45.8	-16	400	No stop
14 01 00	---	01 29 52	43.0	89.8	-4.1		-45.8	194	427	13 57 31
14 01 30	J0529+3209	01 30 22	42.8	91.4	-4.0		-45.2	14	427	14 01 30
14 02 30	---	01 31 22	43.0	91.6	-4.0		-45.2	60	435	14 01 31
14 02 30	FRB	01 31 22	43.3	90.1	-4.0		-45.8	-16	435	No stop
14 06 00	---	01 34 53	43.8	90.9	-4.0		-45.8	194	462	14 02 31
14 06 00	J0529+3209	01 34 53	43.5	92.3	-3.9		-45.1	-16	462	No stop
14 07 30	---	01 36 23	43.7	92.6	-3.9		-45.1	74	473	14 06 01
14 07 30	FRB	01 36 23	44.0	91.2	-3.9		-45.8	-16	473	No stop
14 11 00	---	01 39 54	44.5	91.9	-3.9		-45.8	194	500	14 07 31
14 11 30	J0529+3209	01 40 24	44.3	93.5	-3.8		-45.1	14	500	14 11 30
14 12 30	---	01 41 24	44.5	93.7	-3.8		-45.1	60	508	14 11 31
14 13 00	J0518+3306	01 41 54	46.9	95.2	-3.6		-45.6	7	508	14 13 00
14 16 00	=0514+330	01 44 55	47.4	95.9	-3.6		-45.5	180	531	14 13 01

Schedule for TORUN (Code Tr )

Page 4

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC	
-----											
---	Thu 23 Feb 2017	Day	54	---							
14 16 00	J0529+3209	01 44 55	45.0	94.4	-3.8		-45.0	-23	531	No stop	
14 17 30	---	01 46 25	45.2	94.7	-3.7		-45.0	67	542	14 16 01	
14 17 30	FRB	01 46 25	45.5	93.2	-3.8		-45.7	-16	542	No stop	
14 21 00	---	01 49 55	46.1	94.0	-3.7		-45.7	194	569	14 17 31	
14 21 00	J0529+3209	01 49 55	45.7	95.5	-3.7		-44.9	-16	569	No stop	
14 22 30	---	01 51 26	46.0	95.8	-3.7		-44.9	74	581	14 21 01	
14 22 30	FRB	01 51 26	46.3	94.3	-3.7		-45.7	-16	581	No stop	
14 26 00	---	01 54 56	46.8	95.0	-3.6		-45.6	194	608	14 22 31	
14 26 30	J0529+3209	01 55 26	46.6	96.7	-3.6		-44.8	14	608	14 26 30	
14 27 30	---	01 56 26	46.7	96.9	-3.6		-44.8	60	615	14 26 31	
14 27 30	FRB	01 56 26	47.0	95.3	-3.6		-45.6	-16	615	No stop	
14 31 00	---	01 59 57	47.6	96.1	-3.6		-45.5	194	642	14 27 31	
14 31 00	J0529+3209	01 59 57	47.2	97.7	-3.5		-44.7	-16	642	No stop	
14 32 30	---	02 01 27	47.5	98.0	-3.5		-44.6	74	654	14 31 01	
14 32 30	FRB	02 01 27	47.8	96.4	-3.5		-45.5	-16	654	No stop	
14 36 00	---	02 04 58	48.3	97.2	-3.5		-45.4	194	681	14 32 31	
14 36 30	J0529+3209	02 05 28	48.0	98.9	-3.4		-44.5	14	681	14 36 30	
14 37 30	---	02 06 28	48.2	99.1	-3.4		-44.5	60	688	14 36 31	
14 38 00	J0518+3306	02 06 58	50.6	100.9	-3.2		-44.8	7	688	14 38 00	
14 41 00	=0514+330	02 09 59	51.1	101.6	-3.2		-44.6	180	712	14 38 01	
14 41 00	J0529+3209	02 09 59	48.7	99.9	-3.3		-44.3	-23	712	No stop	
14 42 30	---	02 11 29	48.9	100.3	-3.3		-44.3	67	723	14 41 01	
14 42 30	FRB	02 11 29	49.3	98.7	-3.4		-45.2	-16	723	No stop	
14 46 00	---	02 14 59	49.8	99.5	-3.3		-45.0	194	750	14 42 31	
14 46 00	J0529+3209	02 14 59	49.5	101.1	-3.3		-44.1	-17	750	No stop	
14 47 30	---	02 16 30	49.7	101.5	-3.2		-44.1	73	762	14 46 01	
14 47 30	FRB	02 16 30	50.0	99.8	-3.3		-45.0	-16	762	No stop	
14 51 00	---	02 20 00	50.5	100.6	-3.2		-44.8	194	788	14 47 31	
14 51 30	J0529+3209	02 20 30	50.3	102.4	-3.2		-43.9	13	788	14 51 30	
14 52 30	---	02 21 31	50.4	102.6	-3.2		-43.8	60	796	14 51 31	

Schedule for TORUN (Code Tr )

Page 5

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Thu 23 Feb 2017	Day	54	---						
14 52 30	FRB	02 21 31	50.8	101.0	-3.2		-44.8	-16	796	No stop
14 56 00	---	02 25 01	51.3	101.8	-3.1		-44.6	194	823	14 52 31
14 56 00	J0529+3209	02 25 01	50.9	103.5	-3.1		-43.6	-17	823	No stop
14 57 30	---	02 26 31	51.1	103.9	-3.1		-43.5	73	835	14 56 01
14 57 30	FRB	02 26 31	51.5	102.2	-3.1		-44.5	-17	835	No stop
15 01 00	---	02 30 02	52.0	103.0	-3.1		-44.3	193	862	14 57 31
15 01 30	J0529+3209	02 30 32	51.7	104.8	-3.0		-43.3	13	862	15 01 30
15 02 30	---	02 31 32	51.9	105.1	-3.0		-43.2	60	869	15 01 31
15 03 00	J0518+3306	02 32 02	54.3	107.1	-2.8		-43.3	7	869	15 03 00
15 06 00	=0514+330	02 35 03	54.7	107.8	-2.7		-43.0	180	892	15 03 01
15 06 00	J0529+3209	02 35 03	52.4	106.0	-2.9		-43.0	-22	892	No stop
15 07 30	---	02 36 33	52.6	106.4	-2.9		-42.9	68	904	15 06 01
15 07 30	FRB	02 36 33	53.0	104.6	-2.9		-44.0	-17	904	No stop
15 11 00	---	02 40 04	53.5	105.5	-2.9		-43.7	193	931	15 07 31
15 11 00	J0529+3209	02 40 04	53.1	107.3	-2.8		-42.6	-17	931	No stop
15 12 30	---	02 41 34	53.3	107.7	-2.8		-42.5	73	942	15 11 01
15 12 30	FRB	02 41 34	53.7	105.9	-2.9		-43.6	-17	942	No stop
15 16 00	---	02 45 04	54.2	106.8	-2.8		-43.4	193	969	15 12 31
15 16 30	J0529+3209	02 45 34	53.9	108.7	-2.8		-42.2	13	969	15 16 30
15 17 30	---	02 46 35	54.0	109.0	-2.7		-42.1	60	977	15 16 31
15 17 30	FRB	02 46 35	54.4	107.2	-2.8		-43.3	-17	977	No stop
15 21 00	---	02 50 05	54.9	108.1	-2.7		-43.0	193	1004	15 17 31
15 21 00	J0529+3209	02 50 05	54.5	109.9	-2.7		-41.8	-17	1004	No stop
15 22 30	---	02 51 35	54.7	110.3	-2.6		-41.7	73	1015	15 21 01
15 22 30	FRB	02 51 35	55.1	108.5	-2.7		-42.9	-17	1015	No stop
15 26 00	---	02 55 06	55.6	109.5	-2.6		-42.6	193	1042	15 22 31
15 26 30	J0529+3209	02 55 36	55.3	111.4	-2.6		-41.3	13	1042	15 26 30
15 27 30	---	02 56 36	55.4	111.7	-2.6		-41.2	60	1050	15 26 31
15 28 00	J0518+3306	02 57 06	57.8	114.0	-2.4		-40.9	7	1050	15 28 00
15 31 00	=0514+330	03 00 07	58.2	114.9	-2.3		-40.6	180	1073	15 28 01



Schedule for TORUN (Code Tr )

Page 6

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Thu 23 Feb 2017	Day	54	---						
15 31 00	J0529+3209	03 00 07	55.9	112.7	-2.5		-40.9	-22	1073	No stop
15 32 30	---	03 01 37	56.1	113.2	-2.5		-40.7	68	1085	15 31 01
15 32 30	FRB	03 01 37	56.5	111.3	-2.5		-41.9	-17	1085	No stop
15 36 00	---	03 05 08	57.0	112.3	-2.5		-41.6	193	1112	15 32 31
15 36 00	J0529+3209	03 05 08	56.6	114.2	-2.4		-40.3	-18	1112	No stop
15 37 30	---	03 06 38	56.8	114.6	-2.4		-40.2	72	1123	15 36 01
15 37 30	FRB	03 06 38	57.2	112.7	-2.4		-41.4	-17	1123	No stop
15 41 00	---	03 10 08	57.7	113.7	-2.4		-41.0	193	1150	15 37 31
15 41 30	J0529+3209	03 10 39	57.4	115.8	-2.3		-39.7	12	1150	15 41 30
15 42 30	---	03 11 39	57.5	116.1	-2.3		-39.6	60	1158	15 41 31
15 42 30	FRB	03 11 39	57.9	114.2	-2.4		-40.9	-17	1158	No stop
15 46 00	---	03 15 09	58.4	115.2	-2.3		-40.5	193	1185	15 42 31
15 46 00	J0529+3209	03 15 09	58.0	117.2	-2.3		-39.1	-18	1185	No stop
15 47 30	---	03 16 40	58.2	117.7	-2.2		-38.9	72	1196	15 46 01
15 47 30	FRB	03 16 40	58.6	115.7	-2.3		-40.3	-17	1196	No stop
15 51 00	---	03 20 10	59.1	116.8	-2.2		-39.8	193	1223	15 47 31
15 51 30	J0529+3209	03 20 40	58.7	118.9	-2.2		-38.4	12	1223	15 51 30
15 52 30	---	03 21 40	58.8	119.3	-2.1		-38.2	60	1231	15 51 31
15 53 00	J0518+3306	03 22 10	61.1	122.0	-2.0		-37.4	8	1231	15 53 00
15 56 00	=0514+330	03 25 11	61.5	123.1	-1.9		-36.9	180	1254	15 53 01
15 56 00	J0529+3209	03 25 11	59.3	120.4	-2.1		-37.7	-22	1254	No stop
15 57 30	---	03 26 41	59.5	120.9	-2.1		-37.5	68	1265	15 56 01
15 57 30	FRB	03 26 41	59.9	118.9	-2.1		-38.9	-18	1265	No stop
16 01 00	---	03 30 12	60.4	120.0	-2.0		-38.4	192	1292	15 57 31
16 01 00	J0529+3209	03 30 12	59.9	122.1	-2.0		-37.0	-18	1292	No stop
16 02 30	---	03 31 42	60.1	122.6	-2.0		-36.7	72	1304	16 01 01
16 02 30	FRB	03 31 42	60.6	120.5	-2.0		-38.2	-18	1304	No stop
16 06 00	---	03 35 13	61.0	121.7	-2.0		-37.6	192	1331	16 02 31
16 06 30	J0529+3209	03 35 43	60.6	124.0	-1.9		-36.0	12	1331	16 06 30
16 07 30	---	03 36 43	60.8	124.3	-1.9		-35.9	60	1338	16 06 31

Schedule for TORUN (Code Tr )

Page 7

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC	
-----											
---	Thu 23 Feb 2017	Day	54	---							
16 07 30	FRB	03 36 43	61.2	122.2	-1.9		-37.4	-18	1338	No stop	
16 11 00	---	03 40 13	61.7	123.4	-1.9		-36.8	192	1365	16 07 31	
16 11 00	J0529+3209	03 40 13	61.2	125.5	-1.8		-35.3	-18	1365	No stop	
16 12 30	---	03 41 44	61.4	126.1	-1.8		-35.0	72	1377	16 11 01	
16 12 30	FRB	03 41 44	61.9	124.0	-1.9		-36.5	-18	1377	No stop	
16 16 00	---	03 45 14	62.3	125.2	-1.8		-35.9	192	1404	16 12 31	
16 16 30	J0529+3209	03 45 44	61.9	127.6	-1.7		-34.2	12	1404	16 16 30	
16 17 30	---	03 46 44	62.0	127.9	-1.7		-34.0	60	1412	16 16 31	
16 18 00	J0518+3306	03 47 15	64.1	131.4	-1.5		-32.5	8	1412	16 18 00	
16 21 00	=0514+330	03 50 15	64.5	132.6	-1.5		-31.8	180	1435	16 18 01	
16 21 00	J0529+3209	03 50 15	62.4	129.3	-1.7		-33.3	-22	1435	No stop	
16 22 30	---	03 51 45	62.6	129.8	-1.6		-33.0	68	1446	16 21 01	
16 22 30	FRB	03 51 45	63.1	127.7	-1.7		-34.6	-18	1446	No stop	
16 26 00	---	03 55 16	63.5	129.0	-1.6		-33.9	192	1473	16 22 31	
16 26 00	J0529+3209	03 55 16	63.0	131.2	-1.6		-32.3	-18	1473	No stop	
16 27 30	---	03 56 46	63.1	131.8	-1.6		-31.9	72	1485	16 26 01	
16 27 30	FRB	03 56 46	63.7	129.6	-1.6		-33.5	-18	1485	No stop	
16 31 00	---	04 00 17	64.1	131.0	-1.5		-32.8	192	1512	16 27 31	
16 31 30	J0529+3209	04 00 47	63.6	133.4	-1.5		-31.0	11	1512	16 31 30	
16 32 30	---	04 01 47	63.7	133.8	-1.5		-30.8	60	1519	16 31 31	
16 32 30	FRB	04 01 47	64.2	131.6	-1.5		-32.4	-18	1519	No stop	
16 36 00	---	04 05 18	64.6	133.1	-1.5		-31.6	192	1546	16 32 31	
16 36 00	J0529+3209	04 05 18	64.1	135.3	-1.4		-29.9	-19	1546	No stop	
16 37 30	---	04 06 48	64.2	135.9	-1.4		-29.6	71	1558	16 36 01	
16 37 30	FRB	04 06 48	64.8	133.7	-1.4		-31.2	-18	1558	No stop	
16 41 00	---	04 10 18	65.2	135.2	-1.4		-30.4	192	1585	16 37 31	
16 41 30	J0529+3209	04 10 48	64.6	137.6	-1.3		-28.6	11	1585	16 41 30	
16 42 30	---	04 11 49	64.7	138.1	-1.3		-28.3	60	1592	16 41 31	
16 43 00	J0518+3306	04 12 19	66.7	142.4	-1.1		-25.9	7	1592	16 43 00	
16 46 00	=0514+330	04 15 19	67.0	143.9	-1.1		-25.0	180	1615	16 43 01	

Schedule for TORUN (Code Tr )

Page 8

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Thu 23 Feb 2017	Day	54	---						
16 46 00	J0529+3209	04 15 19	65.1	139.6	-1.3		-27.4	-23	1615	No stop
16 47 30	---	04 16 49	65.2	140.3	-1.2		-27.0	67	1627	16 46 01
16 47 30	FRB	04 16 49	65.8	138.0	-1.3		-28.7	-18	1627	No stop
16 51 00	---	04 20 20	66.2	139.6	-1.2		-27.7	192	1654	16 47 31
16 51 00	J0529+3209	04 20 20	65.6	141.9	-1.2		-26.0	-19	1654	No stop
16 52 30	---	04 21 50	65.7	142.6	-1.1		-25.5	71	1665	16 51 01
16 52 30	FRB	04 21 50	66.3	140.3	-1.2		-27.2	-18	1665	No stop
16 56 00	---	04 25 21	66.7	142.0	-1.1		-26.2	192	1692	16 52 31
16 56 30	J0529+3209	04 25 51	66.1	144.5	-1.1		-24.4	11	1692	16 56 30
16 57 30	---	04 26 51	66.1	144.9	-1.1		-24.1	60	1700	16 56 31
16 57 30	FRB	04 26 51	66.8	142.7	-1.1		-25.8	-18	1700	No stop
17 01 00	---	04 30 22	67.1	144.4	-1.0		-24.7	192	1727	16 57 31
17 01 00	J0529+3209	04 30 22	66.4	146.6	-1.0		-23.0	-19	1727	No stop
17 02 30	---	04 31 52	66.6	147.4	-1.0		-22.5	71	1738	17 01 01
17 02 30	FRB	04 31 52	67.3	145.1	-1.0		-24.2	-18	1738	No stop
17 06 00	---	04 35 22	67.5	146.9	-1.0		-23.1	192	1765	17 02 31
17 06 30	J0529+3209	04 35 53	66.9	149.4	-0.9		-21.2	11	1765	17 06 30
17 07 30	---	04 36 53	67.0	149.9	-0.9		-20.9	60	1773	17 06 31
17 08 00	J0518+3306	04 37 23	68.7	155.3	-0.7		-17.4	4	1773	17 08 00
17 11 00	=0514+330	04 40 23	68.8	157.0	-0.6		-16.3	180	1796	17 08 01
17 11 00	J0529+3209	04 40 23	67.2	151.7	-0.8		-19.7	-25	1796	No stop
17 12 30	---	04 41 54	67.3	152.4	-0.8		-19.2	65	1808	17 11 01
17 12 30	FRB	04 41 54	68.1	150.2	-0.9		-20.9	-18	1808	No stop
17 16 00	---	04 45 24	68.3	152.1	-0.8		-19.6	192	1835	17 12 31
17 16 00	J0529+3209	04 45 24	67.6	154.3	-0.8		-17.9	-19	1835	No stop
17 17 30	---	04 46 54	67.6	155.1	-0.7		-17.4	71	1846	17 16 01
17 17 30	FRB	04 46 54	68.4	152.9	-0.8		-19.1	-18	1846	No stop
17 21 00	---	04 50 25	68.6	154.8	-0.7		-17.8	192	1873	17 17 31
17 21 30	J0529+3209	04 50 55	67.9	157.2	-0.7		-16.0	12	1873	17 21 30
17 22 30	---	04 51 55	67.9	157.8	-0.6		-15.6	60	1881	17 21 31

Schedule for TORUN (Code Tr )

Page 9

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Thu 23 Feb 2017	Day	54	---						
17 22 30	FRB	04 51 55	68.7	155.6	-0.7		-17.2	-18	1881	No stop
17 26 00	---	04 55 26	69.0	157.6	-0.6		-15.9	192	1908	17 22 31
17 26 00	J0529+3209	04 55 26	68.1	159.7	-0.6		-14.3	-18	1908	No stop
17 27 30	---	04 56 56	68.2	160.5	-0.6		-13.7	72	1919	17 26 01
17 27 30	FRB	04 56 56	69.0	158.4	-0.6		-15.3	-18	1919	No stop
17 31 00	---	05 00 27	69.2	160.4	-0.5		-13.9	192	1946	17 27 31
17 31 30	J0529+3209	05 00 57	68.4	162.7	-0.5		-12.1	12	1946	17 31 30
17 32 30	---	05 01 57	68.5	163.3	-0.5		-11.8	60	1954	17 31 31
17 33 00	J0518+3306	05 02 27	69.8	169.8	-0.3		-7.3	2	1954	17 33 00
17 36 00	=0514+330	05 05 27	69.9	171.6	-0.2		-6.0	180	1977	17 33 01
17 36 00	J0529+3209	05 05 27	68.6	165.3	-0.4		-10.4	-27	1977	No stop
17 37 30	---	05 06 58	68.6	166.2	-0.4		-9.8	63	1988	17 36 01
17 37 30	FRB	05 06 58	69.5	164.2	-0.4		-11.3	-17	1988	No stop
17 41 00	---	05 10 28	69.7	166.3	-0.4		-9.8	193	2015	17 37 31
17 41 00	J0529+3209	05 10 28	68.8	168.2	-0.3		-8.4	-18	2015	No stop
17 42 30	---	05 11 58	68.8	169.0	-0.3		-7.7	72	2027	17 41 01
17 42 30	FRB	05 11 58	69.7	167.2	-0.4		-9.2	-17	2027	No stop
17 46 00	---	05 15 29	69.8	169.3	-0.3		-7.7	193	2054	17 42 31
17 46 30	J0529+3209	05 15 59	68.9	171.4	-0.2		-6.1	12	2054	17 46 30
17 47 30	---	05 16 59	68.9	172.0	-0.2		-5.7	60	2062	17 46 31
17 49 00	DA193	05 18 30	75.2	150.0	-0.6		-23.0	30	2062	17 49 00
17 52 00	---	05 21 30	75.4	152.1	-0.6		-21.4	180	2085	17 49 01
17 54 00	J0518+3306	05 23 30	70.0	182.6	0.1		1.9	45	2085	17 54 00
17 57 00	=0514+330	05 26 31	70.0	184.5	0.1		3.2	180	2108	17 54 01
17 57 00	J0529+3209	05 26 31	69.1	177.6	-0.1		-1.7	-28	2108	No stop
17 58 30	---	05 28 01	69.1	178.5	-0.0		-1.1	62	2119	17 57 01
17 58 30	FRB	05 28 01	70.0	176.9	-0.1		-2.2	-16	2119	No stop
18 02 00	---	05 31 32	70.1	179.0	-0.0		-0.7	194	2146	17 58 31
18 02 00	J0529+3209	05 31 32	69.1	180.6	0.0		0.4	-16	2146	No stop
18 03 30	---	05 33 02	69.1	181.4	0.0		1.0	74	2158	18 02 01

Schedule for TORUN (Code Tr )

Page 10

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Thu 23 Feb 2017 Day 54 ---										
18 03 30	FRB	05 33 02	70.1	180.0	-0.0		-0.0	-16	2158	No stop
18 07 00	---	05 36 32	70.1	182.1	0.1		1.5	194	2185	18 03 31
18 07 30	J0529+3209	05 37 03	69.0	183.8	0.1		2.7	13	2185	18 07 30
18 08 30	---	05 38 03	69.0	184.4	0.1		3.1	60	2192	18 07 31
18 08 30	FRB	05 38 03	70.0	183.0	0.1		2.2	-17	2192	No stop
18 12 00	---	05 41 33	70.0	185.2	0.1		3.7	193	2219	18 08 31
18 12 00	J0529+3209	05 41 33	69.0	186.5	0.2		4.6	-17	2219	No stop
18 13 30	---	05 43 04	69.0	187.4	0.2		5.2	73	2231	18 12 01
18 13 30	FRB	05 43 04	70.0	186.1	0.2		4.4	-17	2231	No stop
18 17 00	---	05 46 34	69.9	188.2	0.2		5.9	193	2258	18 13 31
18 17 30	J0529+3209	05 47 04	68.9	189.7	0.3		6.9	13	2258	18 17 30
18 18 30	---	05 48 04	68.8	190.3	0.3		7.3	60	2265	18 17 31
18 19 10	J0518+3306	05 48 44	69.3	197.8	0.5		12.6	10	2265	18 19 10
18 22 10	=0514+330	05 51 45	69.2	199.5	0.5		13.8	180	2288	18 19 11
18 22 10	J0529+3209	05 51 45	68.7	192.4	0.4		8.8	-29	2288	No stop
18 23 40	---	05 53 15	68.7	193.3	0.4		9.4	61	2300	18 22 11
18 23 40	FRB	05 53 15	69.7	192.3	0.3		8.8	-17	2300	No stop
18 27 10	---	05 56 46	69.6	194.3	0.4		10.2	193	2327	18 23 41
18 27 10	J0529+3209	05 56 46	68.6	195.3	0.4		10.8	-17	2327	No stop
18 28 40	---	05 58 16	68.5	196.2	0.5		11.4	73	2338	18 27 11
18 28 40	FRB	05 58 16	69.6	195.2	0.4		10.9	-17	2338	No stop
18 32 10	---	06 01 47	69.4	197.3	0.5		12.3	193	2365	18 28 41
18 32 40	J0529+3209	06 02 17	68.3	198.4	0.5		12.9	13	2365	18 32 40
18 33 40	---	06 03 17	68.3	199.0	0.5		13.3	60	2373	18 32 41
18 33 40	FRB	06 03 17	69.3	198.2	0.5		12.9	-17	2373	No stop
18 37 10	---	06 06 47	69.2	200.2	0.6		14.3	193	2400	18 33 41
18 37 10	J0529+3209	06 06 47	68.1	200.9	0.6		14.7	-17	2400	No stop
18 38 40	---	06 08 18	68.0	201.7	0.6		15.2	73	2412	18 37 11
18 38 40	FRB	06 08 18	69.1	201.0	0.6		14.9	-17	2412	No stop
18 42 10	---	06 11 48	68.9	203.0	0.6		16.3	193	2438	18 38 41

Schedule for TORUN (Code Tr )

Page 11

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Thu 23 Feb 2017	Day	54	---						
18 42 40	J0529+3209	06 12 18	67.8	203.9	0.7		16.7	13	2438	18 42 40
18 43 40	---	06 13 19	67.7	204.4	0.7		17.1	60	2446	18 42 41
18 44 20	J0518+3306	06 13 59	67.8	211.6	0.9		22.0	11	2446	18 44 20
18 47 20	=0514+330	06 16 59	67.5	213.1	1.0		23.1	180	2469	18 44 21
18 47 20	J0529+3209	06 16 59	67.5	206.4	0.8		18.4	-28	2469	No stop
18 48 50	---	06 18 29	67.4	207.2	0.8		18.9	62	2481	18 47 21
18 48 50	FRB	06 18 29	68.5	206.7	0.8		18.8	-17	2481	No stop
18 52 20	---	06 22 00	68.2	208.5	0.8		20.0	193	2508	18 48 51
18 52 20	J0529+3209	06 22 00	67.1	209.0	0.9		20.1	-17	2508	No stop
18 53 50	---	06 23 30	67.0	209.7	0.9		20.6	73	2519	18 52 21
18 53 50	FRB	06 23 30	68.1	209.3	0.8		20.6	-17	2519	No stop
18 57 20	---	06 27 01	67.9	211.2	0.9		21.8	193	2546	18 53 51
18 57 50	J0529+3209	06 27 31	66.7	211.7	0.9		21.9	13	2546	18 57 50
18 58 50	---	06 28 31	66.6	212.2	1.0		22.2	60	2554	18 57 51
18 58 50	FRB	06 28 31	67.7	211.9	0.9		22.3	-17	2554	No stop
19 02 20	---	06 32 02	67.4	213.7	1.0		23.5	193	2581	18 58 51
19 02 20	J0529+3209	06 32 02	66.3	214.0	1.0		23.3	-17	2581	No stop
19 03 50	---	06 33 32	66.2	214.7	1.0		23.8	73	2592	19 02 21
19 03 50	FRB	06 33 32	67.3	214.5	1.0		23.9	-17	2592	No stop
19 07 20	---	06 37 02	67.0	216.2	1.1		25.1	193	2619	19 03 51
19 07 50	J0529+3209	06 37 32	65.9	216.6	1.1		25.0	13	2619	19 07 50
19 08 50	---	06 38 33	65.8	217.1	1.1		25.3	60	2627	19 07 51
19 09 30	J0518+3306	06 39 13	65.4	223.6	1.3		29.6	12	2627	19 09 30
19 12 30	=0514+330	06 42 13	65.1	224.9	1.4		30.4	180	2650	19 09 31
19 12 30	J0529+3209	06 42 13	65.4	218.7	1.2		26.4	-27	2650	No stop
19 14 00	---	06 43 43	65.3	219.4	1.2		26.8	63	2662	19 12 31
19 14 00	FRB	06 43 43	66.4	219.4	1.2		27.1	-17	2662	No stop
19 17 30	---	06 47 14	66.1	221.0	1.2		28.1	193	2688	19 14 01
19 17 30	J0529+3209	06 47 14	64.9	221.0	1.3		27.7	-17	2688	No stop
19 19 00	---	06 48 44	64.8	221.7	1.3		28.1	73	2700	19 17 31

Schedule for TORUN (Code Tr )

Page 12

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC	
-----											
---	Thu 23 Feb 2017	Day	54	---							
19 19 00	FRB	06 48 44	65.9	221.7	1.3		28.5	-17	2700	No stop	
19 22 30	---	06 52 15	65.6	223.2	1.3		29.4	193	2727	19 19 01	
19 23 00	J0529+3209	06 52 45	64.4	223.4	1.4		29.2	13	2727	19 23 00	
19 24 00	---	06 53 45	64.3	223.8	1.4		29.4	60	2735	19 23 01	
19 24 00	FRB	06 53 45	65.4	223.9	1.3		29.8	-17	2735	No stop	
19 27 30	---	06 57 16	65.0	225.4	1.4		30.7	193	2762	19 24 01	
19 27 30	J0529+3209	06 57 16	63.9	225.3	1.4		30.3	-17	2762	No stop	
19 29 00	---	06 58 46	63.8	225.9	1.5		30.6	73	2773	19 27 31	
19 29 00	FRB	06 58 46	64.9	226.0	1.4		31.1	-17	2773	No stop	
19 32 30	---	07 02 17	64.5	227.5	1.5		31.9	193	2800	19 29 01	
19 33 00	J0529+3209	07 02 47	63.3	227.6	1.5		31.6	13	2800	19 33 00	
19 34 00	---	07 03 47	63.2	228.0	1.6		31.8	60	2808	19 33 01	
19 34 40	J0518+3306	07 04 27	62.6	233.7	1.8		35.3	14	2808	19 34 40	
19 37 40	=0514+330	07 07 27	62.2	234.8	1.8		35.9	180	2831	19 34 41	
19 37 40	J0529+3209	07 07 27	62.8	229.4	1.6		32.6	-26	2831	No stop	
19 39 10	---	07 08 58	62.6	230.0	1.6		32.9	64	2842	19 37 41	
19 39 10	FRB	07 08 58	63.7	230.2	1.6		33.4	-17	2842	No stop	
19 42 40	---	07 12 28	63.3	231.6	1.7		34.2	193	2869	19 39 11	
19 42 40	J0529+3209	07 12 28	62.2	231.3	1.7		33.6	-17	2869	No stop	
19 44 10	---	07 13 58	62.0	231.9	1.7		33.9	73	2881	19 42 41	
19 44 10	FRB	07 13 58	63.1	232.1	1.7		34.5	-17	2881	No stop	
19 47 40	---	07 17 29	62.7	233.5	1.7		35.2	193	2908	19 44 11	
19 48 10	J0529+3209	07 17 59	61.6	233.4	1.8		34.7	13	2908	19 48 10	
19 49 10	---	07 18 59	61.4	233.7	1.8		34.9	60	2915	19 48 11	
19 50 00	J0529+3209	07 19 49	61.3	234.0	1.8		35.0	43	2915	19 50 00	
19 51 00	---	07 20 50	61.2	234.4	1.8		35.2	60	2923	19 50 01	
19 51 00	FRB	07 20 50	62.3	234.7	1.8		35.8	-17	2923	No stop	
19 54 30	---	07 24 20	61.9	236.0	1.9		36.5	193	2950	19 51 01	
19 54 30	J0529+3209	07 24 20	60.8	235.7	1.9		35.9	-17	2950	No stop	
19 56 00	---	07 25 50	60.6	236.2	1.9		36.1	73	2962	19 54 31	

Schedule for TORUN (Code Tr )

Page 13

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC	
-----											
---	Thu 23 Feb 2017	Day	54	---							
19 56 00	FRB	07 25 50	61.7	236.5	1.9		36.7	-17	2962	No stop	
19 59 30	---	07 29 21	61.3	237.7	1.9		37.3	193	2988	19 56 01	
20 00 00	J0529+3209	07 29 51	60.1	237.6	2.0		36.8	13	2988	20 00 00	
20 01 00	---	07 30 51	60.0	237.9	2.0		36.9	60	2996	20 00 01	
20 01 00	FRB	07 30 51	61.1	238.3	2.0		37.6	-17	2996	No stop	
20 04 30	---	07 34 22	60.6	239.4	2.0		38.1	193	3023	20 01 01	
20 04 30	J0529+3209	07 34 22	59.5	239.1	2.1		37.5	-17	3023	No stop	
20 06 00	---	07 35 52	59.3	239.6	2.1		37.7	73	3035	20 04 31	
20 06 00	FRB	07 35 52	60.4	239.9	2.0		38.4	-17	3035	No stop	
20 09 30	---	07 39 23	60.0	241.1	2.1		38.9	193	3062	20 06 01	
20 10 00	J0529+3209	07 39 53	58.8	240.9	2.2		38.3	13	3062	20 10 00	
20 11 00	---	07 40 53	58.7	241.2	2.2		38.4	60	3069	20 10 01	
20 11 40	J0518+3306	07 41 33	57.8	246.0	2.4		40.9	16	3069	20 11 40	
20 14 40	=0514+330	07 44 33	57.4	246.9	2.4		41.3	180	3092	20 11 41	
20 14 40	J0529+3209	07 44 33	58.2	242.4	2.2		38.9	-24	3092	No stop	
20 16 10	---	07 46 04	58.0	242.8	2.3		39.1	66	3104	20 14 41	
20 16 10	FRB	07 46 04	59.1	243.2	2.2		39.8	-17	3104	No stop	
20 19 40	---	07 49 34	58.6	244.3	2.3		40.3	193	3131	20 16 11	
20 19 40	J0529+3209	07 49 34	57.5	243.9	2.3		39.6	-17	3131	No stop	
20 21 10	---	07 51 05	57.3	244.3	2.3		39.8	73	3142	20 19 41	
20 21 10	FRB	07 51 05	58.4	244.8	2.3		40.5	-17	3142	No stop	
20 24 40	---	07 54 35	57.9	245.8	2.4		40.9	193	3169	20 21 11	
20 25 10	J0529+3209	07 55 05	56.8	245.5	2.4		40.2	13	3169	20 25 10	
20 26 10	---	07 56 05	56.6	245.8	2.4		40.3	60	3177	20 25 11	
20 26 10	FRB	07 56 05	57.7	246.3	2.4		41.0	-17	3177	No stop	
20 29 40	---	07 59 36	57.2	247.3	2.4		41.4	193	3204	20 26 11	
20 29 40	J0529+3209	07 59 36	56.1	246.9	2.5		40.7	-17	3204	No stop	
20 31 10	---	08 01 06	55.9	247.3	2.5		40.9	73	3215	20 29 41	
20 31 10	FRB	08 01 06	57.0	247.7	2.5		41.6	-17	3215	No stop	
20 34 40	---	08 04 37	56.5	248.7	2.5		41.9	193	3242	20 31 11	



Schedule for TORUN (Code Tr )

Page 14

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Thu 23 Feb 2017 Day 54 ---										
20 35 10	J0529+3209	08 05 07	55.4	248.4	2.6		41.3	13	3242	20 35 10
20 36 10	---	08 06 07	55.2	248.7	2.6		41.4	60	3250	20 35 11
20 36 50	J0518+3306	08 06 47	54.2	253.1	2.8		43.3	17	3250	20 36 50
20 39 50	=0514+330	08 09 48	53.8	253.8	2.8		43.5	180	3273	20 36 51
20 39 50	J0529+3209	08 09 48	54.7	249.7	2.7		41.7	-23	3273	No stop
20 41 20	---	08 11 18	54.5	250.1	2.7		41.8	67	3285	20 39 51
20 41 20	FRB	08 11 18	55.6	250.6	2.6		42.6	-17	3285	No stop
20 44 50	---	08 14 48	55.1	251.5	2.7		42.9	193	3312	20 41 21
20 45 20	J0529+3209	08 15 18	53.9	251.2	2.7		42.2	13	3312	20 45 20
20 46 20	---	08 16 19	53.8	251.5	2.8		42.3	60	3319	20 45 21
20 46 20	FRB	08 16 19	54.9	251.9	2.7		43.0	-17	3319	No stop
20 49 50	---	08 19 49	54.4	252.9	2.8		43.3	193	3346	20 46 21
20 49 50	J0529+3209	08 19 49	53.3	252.4	2.8		42.5	-17	3346	No stop
20 51 20	---	08 21 19	53.1	252.8	2.8		42.7	73	3358	20 49 51
20 51 20	FRB	08 21 19	54.2	253.3	2.8		43.4	-17	3358	No stop
20 54 50	---	08 24 50	53.7	254.2	2.9		43.6	193	3385	20 51 21
20 55 20	J0529+3209	08 25 20	52.5	253.8	2.9		42.9	13	3385	20 55 20
20 56 20	---	08 26 20	52.4	254.1	2.9		43.0	60	3392	20 55 21
20 56 20	FRB	08 26 20	53.4	254.6	2.9		43.7	-17	3392	No stop
20 59 50	---	08 29 51	52.9	255.4	2.9		44.0	193	3419	20 56 21
20 59 50	J0529+3209	08 29 51	51.8	255.0	3.0		43.2	-17	3419	No stop
21 01 20	---	08 31 21	51.6	255.3	3.0		43.3	73	3431	20 59 51
21 02 00	J0518+3306	08 32 01	50.5	259.3	3.2		44.8	17	3431	21 02 00
21 05 00	=0514+330	08 35 02	50.1	260.0	3.3		44.9	180	3454	21 02 01
21 05 00	J0529+3209	08 35 02	51.1	256.2	3.1		43.6	-22	3454	No stop
21 06 30	---	08 36 32	50.9	256.6	3.1		43.6	68	3465	21 05 01
21 06 30	FRB	08 36 32	51.9	257.1	3.1		44.4	-17	3465	No stop
21 10 00	---	08 40 03	51.4	257.9	3.1		44.5	193	3492	21 06 31
21 10 00	J0529+3209	08 40 03	50.4	257.4	3.2		43.8	-17	3492	No stop
21 11 30	---	08 41 33	50.1	257.8	3.2		43.9	73	3504	21 10 01

Schedule for TORUN (Code Tr )

Page 15

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Thu 23 Feb 2017 Day 54 ---										
21 11 30	FRB	08 41 33	51.2	258.3	3.1		44.6	-17	3504	No stop
21 15 00	---	08 45 03	50.7	259.1	3.2		44.8	193	3531	21 11 31
21 15 30	J0529+3209	08 45 33	49.6	258.7	3.2		44.1	13	3531	21 15 30
21 16 30	---	08 46 34	49.4	259.0	3.3		44.1	60	3538	21 15 31
21 16 30	FRB	08 46 34	50.5	259.5	3.2		44.8	-17	3538	No stop
21 20 00	---	08 50 04	50.0	260.3	3.3		45.0	193	3565	21 16 31
21 20 00	J0529+3209	08 50 04	48.9	259.8	3.3		44.3	-17	3565	No stop
21 21 30	---	08 51 34	48.7	260.1	3.3		44.3	73	3577	21 20 01
21 21 30	FRB	08 51 34	49.7	260.6	3.3		45.0	-17	3577	No stop
21 25 00	---	08 55 05	49.2	261.4	3.4		45.2	193	3604	21 21 31
21 25 00	J0529+3209	08 55 05	48.1	260.9	3.4		44.5	-17	3604	No stop
21 26 30	---	08 56 35	47.9	261.3	3.4		44.5	73	3615	21 25 01
21 26 30	FRB	08 56 35	49.0	261.8	3.4		45.2	-17	3615	No stop
21 30 00	---	09 00 06	48.5	262.5	3.4		45.3	193	3642	21 26 31
21 30 30	J0529+3209	09 00 36	47.3	262.2	3.5		44.7	13	3642	21 30 30
21 31 30	---	09 01 36	47.2	262.4	3.5		44.7	60	3650	21 30 31
21 31 30	FRB	09 01 36	48.2	262.9	3.5		45.4	-17	3650	No stop
21 35 00	---	09 05 07	47.7	263.6	3.5		45.5	193	3677	21 31 31
21 35 00	J0529+3209	09 05 07	46.7	263.2	3.6		44.8	-17	3677	No stop
21 36 30	---	09 06 37	46.4	263.5	3.6		44.8	73	3688	21 35 01
21 36 30	FRB	09 06 37	47.5	264.0	3.6		45.5	-17	3688	No stop
21 40 00	---	09 10 07	47.0	264.7	3.6		45.6	193	3715	21 36 31
21 40 30	J0529+3209	09 10 38	45.8	264.4	3.7		44.9	13	3715	21 40 30
21 41 30	---	09 11 38	45.7	264.6	3.7		44.9	60	3723	21 40 31
21 42 10	J0518+3306	09 12 18	44.5	268.1	3.9		45.8	19	3723	21 42 10
21 45 10	=0514+330	09 15 18	44.1	268.7	3.9		45.8	180	3746	21 42 11
21 45 10	J0529+3209	09 15 18	45.1	265.4	3.7		45.0	-21	3746	No stop
21 46 40	---	09 16 49	44.9	265.7	3.8		45.0	69	3758	21 45 11
21 46 40	FRB	09 16 49	46.0	266.2	3.7		45.7	-17	3758	No stop
21 50 10	---	09 20 19	45.4	266.9	3.8		45.7	193	3785	21 46 41

Schedule for TORUN (Code Tr )

Page 16

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Thu 23 Feb 2017	Day	54	---						
21 50 40	J0529+3209	09 20 49	44.3	266.5	3.8		45.1	13	3785	21 50 40
21 51 40	---	09 21 49	44.2	266.7	3.9		45.1	60	3792	21 50 41
21 51 40	FRB	09 21 49	45.2	267.2	3.8		45.8	-17	3792	No stop
21 55 10	---	09 25 20	44.7	267.9	3.9		45.8	193	3819	21 51 41
21 55 10	J0529+3209	09 25 20	43.6	267.5	3.9		45.1	-17	3819	No stop
21 56 40	---	09 26 50	43.4	267.8	3.9		45.1	73	3831	21 55 11
21 56 40	FRB	09 26 50	44.5	268.2	3.9		45.8	-17	3831	No stop
22 00 10	---	09 30 21	43.9	268.9	4.0		45.8	193	3858	21 56 41
22 00 40	J0529+3209	09 30 51	42.8	268.6	4.0		45.2	13	3858	22 00 40
22 01 40	---	09 31 51	42.6	268.8	4.0		45.2	60	3865	22 00 41
22 01 40	FRB	09 31 51	43.7	269.3	4.0		45.8	-17	3865	No stop
22 05 10	---	09 35 22	43.2	270.0	4.0		45.8	193	3892	22 01 41
22 05 10	J0529+3209	09 35 22	42.1	269.5	4.1		45.2	-17	3892	No stop
22 06 40	---	09 36 52	41.9	269.8	4.1		45.2	73	3904	22 05 11
22 06 40	FRB	09 36 52	43.0	270.3	4.1		45.8	-17	3904	No stop
22 10 10	---	09 40 22	42.4	271.0	4.1		45.8	193	3931	22 06 41
22 10 40	J0529+3209	09 40 53	41.3	270.6	4.2		45.2	13	3931	22 10 40
22 11 40	---	09 41 53	41.1	270.8	4.2		45.2	60	3938	22 10 41
22 12 20	J0518+3306	09 42 33	40.0	274.0	4.4		45.7	19	3938	22 12 20
22 15 20	=0514+330	09 45 33	39.6	274.6	4.4		45.6	180	3962	22 12 21
22 15 20	J0529+3209	09 45 33	40.6	271.5	4.2		45.2	-21	3962	No stop
22 16 50	---	09 47 04	40.4	271.8	4.3		45.2	69	3973	22 15 21
22 16 50	FRB	09 47 04	41.4	272.3	4.2		45.8	-17	3973	No stop
22 20 20	---	09 50 34	40.9	272.9	4.3		45.8	193	4000	22 16 51
22 20 50	J0529+3209	09 51 04	39.8	272.6	4.3		45.1	13	4000	22 20 50
22 21 50	---	09 52 04	39.6	272.8	4.4		45.1	60	4008	22 20 51
22 21 50	FRB	09 52 04	40.7	273.2	4.3		45.7	-17	4008	No stop
22 25 20	---	09 55 35	40.2	273.9	4.4		45.7	193	4035	22 21 51
22 25 20	J0529+3209	09 55 35	39.1	273.5	4.4		45.1	-17	4035	No stop
22 26 50	---	09 57 05	38.9	273.8	4.4		45.1	73	4046	22 25 21

Schedule for TORUN (Code Tr )

Page 17

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC	
-----											
---	Thu 23 Feb 2017	Day	54	---							
22 26 50	FRB	09 57 05	39.9	274.2	4.4		45.7	-17	4046	No stop	
22 30 20	---	10 00 36	39.4	274.9	4.5		45.6	193	4073	22 26 51	
22 30 50	J0529+3209	10 01 06	38.3	274.5	4.5		45.0	13	4073	22 30 50	
22 31 50	---	10 02 06	38.1	274.7	4.5		45.0	60	4081	22 30 51	
22 31 50	FRB	10 02 06	39.2	275.1	4.5		45.6	-17	4081	No stop	
22 35 20	---	10 05 37	38.7	275.8	4.5		45.5	193	4108	22 31 51	
22 35 20	J0529+3209	10 05 37	37.6	275.4	4.6		44.9	-17	4108	No stop	
22 36 50	---	10 07 07	37.4	275.7	4.6		44.9	73	4119	22 35 21	
22 36 50	FRB	10 07 07	38.4	276.1	4.6		45.5	-17	4119	No stop	
22 40 20	---	10 10 37	37.9	276.7	4.6		45.4	193	4146	22 36 51	
22 40 50	J0529+3209	10 11 07	36.8	276.4	4.7		44.8	13	4146	22 40 50	
22 41 50	---	10 12 08	36.6	276.6	4.7		44.8	60	4154	22 40 51	
22 42 30	J0518+3306	10 12 48	35.5	279.7	4.9		45.0	20	4154	22 42 30	
22 45 30	=0514+330	10 15 48	35.0	280.2	4.9		44.9	180	4177	22 42 31	
22 45 30	J0529+3209	10 15 48	36.1	277.3	4.8		44.7	-20	4177	No stop	
22 47 00	---	10 17 18	35.8	277.6	4.8		44.7	70	4188	22 45 31	
22 47 00	FRB	10 17 18	36.9	278.0	4.7		45.3	-17	4188	No stop	
22 50 30	---	10 20 49	36.4	278.6	4.8		45.2	193	4215	22 47 01	
22 50 30	J0529+3209	10 20 49	35.3	278.2	4.8		44.6	-17	4215	No stop	
22 52 00	---	10 22 19	35.1	278.5	4.9		44.6	73	4227	22 50 31	
22 52 00	FRB	10 22 19	36.2	278.9	4.8		45.1	-17	4227	No stop	
22 55 30	---	10 25 50	35.6	279.5	4.9		45.0	193	4254	22 52 01	
22 56 00	J0529+3209	10 26 20	34.5	279.2	4.9		44.4	13	4254	22 56 00	
22 57 00	---	10 27 20	34.4	279.4	4.9		44.4	60	4262	22 56 01	
22 57 00	FRB	10 27 20	35.4	279.8	4.9		45.0	-17	4262	No stop	
23 00 30	---	10 30 51	34.9	280.5	5.0		44.9	193	4288	22 57 01	
23 00 30	J0529+3209	10 30 51	33.8	280.1	5.0		44.3	-17	4288	No stop	
23 02 00	---	10 32 21	33.6	280.3	5.0		44.3	73	4300	23 00 31	
23 02 00	FRB	10 32 21	34.7	280.7	5.0		44.8	-17	4300	No stop	
23 05 30	---	10 35 52	34.2	281.4	5.0		44.7	193	4327	23 02 01	

Schedule for TORUN (Code Tr )

Page 18

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Thu 23 Feb 2017	Day	54	---						
23 06 00	J0529+3209	10 36 22	33.0	281.1	5.1		44.1	13	4327	23 06 00
23 07 00	---	10 37 22	32.9	281.3	5.1		44.1	60	4335	23 06 01
23 07 40	J0518+3306	10 38 02	31.8	284.2	5.3		44.0	20	4335	23 07 40
23 10 40	=0514+330	10 41 02	31.4	284.7	5.4		43.9	180	4358	23 07 41
23 10 40	J0529+3209	10 41 02	32.3	281.9	5.2		44.0	-20	4358	No stop
23 12 10	---	10 42 33	32.1	282.2	5.2		43.9	70	4369	23 10 41
23 12 10	FRB	10 42 33	33.2	282.6	5.2		44.4	-17	4369	No stop
23 15 40	---	10 46 03	32.7	283.2	5.2		44.3	193	4396	23 12 11
23 16 10	J0529+3209	10 46 33	31.5	282.9	5.3		43.7	13	4396	23 16 10
23 17 10	---	10 47 33	31.4	283.1	5.3		43.7	60	4404	23 16 11
23 17 10	FRB	10 47 33	32.5	283.4	5.2		44.2	-17	4404	No stop
23 20 40	---	10 51 04	31.9	284.1	5.3		44.1	193	4431	23 17 11
23 20 40	J0529+3209	10 51 04	30.9	283.7	5.3		43.6	-17	4431	No stop
23 22 10	---	10 52 34	30.6	284.0	5.4		43.5	73	4442	23 20 41
23 22 10	FRB	10 52 34	31.7	284.3	5.3		44.0	-17	4442	No stop
23 25 40	---	10 56 05	31.2	285.0	5.4		43.9	193	4469	23 22 11
23 26 10	J0529+3209	10 56 35	30.1	284.7	5.4		43.3	13	4469	23 26 10
23 27 10	---	10 57 35	29.9	284.9	5.4		43.3	60	4477	23 26 11
23 27 10	FRB	10 57 35	31.0	285.2	5.4		43.8	-17	4477	No stop
23 30 40	---	11 01 06	30.5	285.8	5.5		43.6	193	4504	23 27 11
23 30 40	J0529+3209	11 01 06	29.4	285.5	5.5		43.1	-17	4504	No stop
23 32 10	---	11 02 36	29.2	285.8	5.5		43.1	73	4515	23 30 41
23 32 10	FRB	11 02 36	30.3	286.1	5.5		43.6	-17	4515	No stop
23 35 40	---	11 06 06	29.8	286.7	5.6		43.4	193	4542	23 32 11
23 36 10	J0529+3209	11 06 37	28.6	286.5	5.6		42.9	13	4542	23 36 10
23 37 10	---	11 07 37	28.5	286.7	5.6		42.8	60	4550	23 36 11
23 37 50	J0518+3306	11 08 17	27.4	289.5	5.8		42.5	20	4550	23 37 50
23 40 50	=0514+330	11 11 17	27.0	290.0	5.9		42.3	180	4573	23 37 51
23 40 50	J0529+3209	11 11 17	27.9	287.3	5.7		42.6	-20	4573	No stop
23 42 20	---	11 12 48	27.7	287.6	5.7		42.6	70	4585	23 40 51

Schedule for TORUN (Code Tr )

Page 19

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Thu 23 Feb 2017 Day 54 ---										
23 42 20	FRB	11 12 48	28.8	287.9	5.7		43.0	-17	4585	No stop
23 45 50	---	11 16 18	28.3	288.5	5.7		42.9	193	4612	23 42 21
23 45 50	J0529+3209	11 16 18	27.2	288.2	5.8		42.4	-17	4612	No stop
23 47 20	---	11 17 48	27.0	288.5	5.8		42.3	73	4623	23 45 51
23 47 20	FRB	11 17 48	28.1	288.8	5.7		42.8	-17	4623	No stop
23 50 50	---	11 21 19	27.6	289.4	5.8		42.6	193	4650	23 47 21
23 51 20	J0529+3209	11 21 49	26.4	289.2	5.9		42.1	13	4650	23 51 20
23 52 20	---	11 22 49	26.3	289.3	5.9		42.0	60	4658	23 51 21
23 52 20	FRB	11 22 49	27.4	289.6	5.8		42.5	-17	4658	No stop
23 55 50	---	11 26 20	26.9	290.2	5.9		42.3	193	4685	23 52 21
23 55 50	J0529+3209	11 26 20	25.8	289.9	5.9		41.8	-17	4685	No stop
23 57 20	---	11 27 50	25.6	290.2	6.0		41.7	73	4696	23 55 51
--- Start: Thu 23 Feb 2017 Day 54 -- Stop: Fri 24 Feb 2017 Day 55 ---										
23 57 20	FRB	11 27 50	26.7	290.5	5.9		42.2	-17	4696	No stop
00 00 50	---	11 31 21	26.2	291.1	6.0		42.0	193	4723	23 57 21
00 01 20	J0529+3209	11 31 51	25.0	290.9	6.0		41.5	13	4723	00 01 20
00 02 20	---	11 32 51	24.9	291.1	6.0		41.4	60	4731	00 01 21
00 02 20	FRB	11 32 51	26.0	291.4	6.0		41.9	-17	4731	No stop
00 05 50	---	11 36 21	25.5	292.0	6.1		41.7	193	4758	00 02 21
00 06 20	J0529+3209	11 36 52	24.3	291.8	6.1		41.2	13	4758	00 06 20
00 07 20	---	11 37 52	24.2	292.0	6.1		41.1	60	4765	00 06 21
00 07 20	FRB	11 37 52	25.3	292.2	6.1		41.6	-17	4765	No stop
00 10 50	---	11 41 22	24.8	292.9	6.1		41.4	193	4792	00 07 21
00 10 50	J0529+3209	11 41 22	23.7	292.6	6.2		40.9	-17	4792	No stop
00 12 20	---	11 42 52	23.5	292.8	6.2		40.8	73	4804	00 10 51
00 13 00	J0518+3306	11 43 33	22.6	295.6	6.4		40.3	20	4804	00 13 00
00 16 00	=0514+330	11 46 33	22.2	296.1	6.5		40.1	180	4827	00 13 01
00 16 00	J0529+3209	11 46 33	23.0	293.5	6.3		40.6	-19	4827	No stop
00 17 30	---	11 48 03	22.8	293.7	6.3		40.5	71	4838	00 16 01

Schedule for TORUN (Code Tr )

Page 20

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Fri 24 Feb 2017 Day 55 ---										
00 17 30	FRB	11 48 03	23.9	294.0	6.2		40.9	-17	4838	No stop
00 21 00	---	11 51 34	23.4	294.6	6.3		40.7	193	4865	00 17 31
00 21 30	J0529+3209	11 52 04	22.2	294.4	6.4		40.2	13	4865	00 21 30
00 22 30	---	11 53 04	22.1	294.6	6.4		40.2	60	4873	00 21 31
00 22 30	FRB	11 53 04	23.2	294.9	6.3		40.6	-17	4873	No stop
00 26 00	---	11 56 35	22.7	295.5	6.4		40.4	193	4900	00 22 31
00 26 00	J0529+3209	11 56 35	21.6	295.2	6.4		39.9	-17	4900	No stop
00 27 30	---	11 58 05	21.4	295.5	6.5		39.8	73	4912	00 26 01
00 27 30	FRB	11 58 05	22.5	295.7	6.4		40.2	-17	4912	No stop
00 31 00	---	12 01 36	22.0	296.3	6.5		40.0	193	4938	00 27 31
00 31 30	J0529+3209	12 02 06	20.9	296.2	6.5		39.5	13	4938	00 31 30
00 32 30	---	12 03 06	20.7	296.4	6.5		39.5	60	4946	00 31 31
00 32 30	FRB	12 03 06	21.8	296.6	6.5		39.9	-17	4946	No stop
00 36 00	---	12 06 36	21.4	297.2	6.6		39.6	193	4973	00 32 31
00 36 30	J0529+3209	12 07 06	20.2	297.1	6.6		39.2	13	4973	00 36 30
00 37 30	---	12 08 07	20.1	297.2	6.6		39.1	60	4981	00 36 31
00 37 30	FRB	12 08 07	21.2	297.5	6.6		39.5	-17	4981	No stop
00 41 00	---	12 11 37	20.7	298.1	6.6		39.3	193	5008	00 37 31
00 41 00	J0529+3209	12 11 37	19.6	297.9	6.7		38.8	-17	5008	No stop
00 42 30	---	12 13 07	19.4	298.1	6.7		38.7	73	5019	00 41 01
00 48 30	J0637+2319	12 19 08	21.3	280.9	5.7		40.0	308	5019	00 48 30
00 50 30	=0634+233	12 21 09	21.0	281.3	5.7		39.9	120	5035	00 48 31
00 51 40	J0629+2415	12 22 19	20.3	283.7	5.9		39.8	52	5035	00 51 40
00 55 10	---	12 25 50	19.8	284.3	5.9		39.7	210	5062	00 51 41
00 56 10	J0637+2319	12 26 50	20.2	282.3	5.8		39.7	42	5062	00 56 10
00 58 10	=0634+233	12 28 50	19.9	282.7	5.8		39.6	120	5077	00 56 11
00 58 40	J0637+2319	12 29 20	19.8	282.8	5.8		39.6	24	5077	00 58 40
00 59 40	=0634+233	12 30 20	19.6	283.0	5.9		39.6	60	5085	00 58 41

## SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
 ===== Setup file: sess117.L1024

```

Setup group: 15          Station: TORUN          Total bit rate: 1024
Format: MARK5B         Bits per sample: 2          Sample rate: 64.000
Number of channels: 8   DBE type: DBBC_DDC       Speedup factor: 1.00
  
```

Disk used to record data.

```

1st LO= 2300.00 2300.00 2300.00 2300.00 2300.00 2300.00 2300.00 2300.00
Net SB=      L      L      U      U      L      L      U      U
IF SB =      L      L      L      L      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP     RCP     LCP     RCP     LCP
BBC   =      1      5      1      5      3      7      3      7
BBC SB=      U      U      L      L      U      U      L      L
IF    =      A1     B1     A1     B1     A1     B1     A1     B1
  
```

The following frequency sets based on these setups were used.

```

Frequency Set: 5 Setup file default. Used with PCAL = off
LO sum= 1626.49 1626.49 1626.49 1626.49 1690.49 1690.49 1690.49 1690.49
BBC fr=  673.51 673.51 673.51 673.51 609.51 609.51 609.51 609.51
Bandwd=  32.00 32.00 32.00 32.00 32.00 32.00 32.00 32.00
Matching frequency sets: 5
  
```

Track assignments are:

```

track1= 2, 6, 10, 14, 4, 8, 12, 16
barrel=roll_off
  
```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(Date)	Error (mas)	
* FRB	05 28 41.725142 33 06 43.23981	* 05 31 58.702000 * 33 08 52.54900	05 33 06.354624 33 09 29.06558	0.00 0.00
* J0529+3209	05 26 12.903667 32 07 26.83083	* 05 29 28.211037 * 32 09 46.94745	05 30 35.277379 32 10 26.89430	0.00 0.00
* J0530+3301	05 27 04.333498 32 59 03.55663	* 05 30 21.061039 * 33 01 19.90878	05 31 28.621609 33 01 58.82075	0.00 0.00
* J0629+2415	06 26 02.069795 24 17 43.52461	* 06 29 05.728000 * 24 15 43.30000	06 30 08.987856 24 14 51.18242	0.00 0.00
J0237+2848	02 34 55.589591	* 02 37 52.405678	02 38 52.361572	0.11
* 0234+285	28 35 11.40773	* 28 48 08.98998	28 52 28.78506	0.10
J0237+28	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.vlba.2012jul rfc_2012b Petrov, 2012, unpublished 56811 observations			
* J0518+3306	05 14 48.670952	* 05 18 05.142474	05 19 12.569797	0.26
0514+330	33 03 04.11948	* 33 06 13.36506	33 07 10.58725	0.32
	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.vlba.2012jul rfc_2012b Petrov, 2012, unpublished 92 observations			
J0555+3948	05 52 01.407174	* 05 55 30.805616	05 56 42.835529	0.13
0552+398	39 48 21.94578	* 39 48 49.16493	39 48 52.33769	0.10
* DA193	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.vlba.2012jul			
J0555+39	rfc_2012b Petrov, 2012, unpublished 376994 observations			



```

* J0637+2319      06 34 24.138792  * 06 37 26.373600    06 38 29.172066    0.00
0634+233         23 22 34.59869   * 23 19 58.19400    23 18 53.39736    0.00
/home/guest/rmc/SCHED/sched11.4/catalogs/sources.vlba.2012jul
JVAS - Wilkinson et al. 1998, mnras, 300, 790; S8.4GHz= 179 mJy

```

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
FRB	108.6
J0529+3209	108.1
J0530+3301	108.3
J0629+2415	121.5
0234+285	71.5
J0518+3306	105.7
DA193	113.0
J0637+2319	123.5

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**em127atr**

EVN: EM127A  
PI: *Maan*

Address: JIVE

Observing mode: vlbi

Schedule for TORUN (Code Tr )

Page 2

EVN: EM127A

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

---

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Fri 24 Feb 2017 Day 55 ---										
Next scan frequencies: 1353.49 1353.49 1353.49 1353.49 1417.49 1417.49 1417.49 1417.49										
Next BBC frequencies: 746.51 746.51 746.51 746.51 682.51 682.51 682.51 682.51										
Next scan bandwidths: 32.00 32.00 32.00 32.00 32.00 32.00 32.00 32.00										
-----										
16 30 00	3C84	04 03 13	76.5	215.9	0.7		28.1	0	0	16 30 00
16 34 00	---	04 07 14	76.1	218.7	0.8		30.1	240	31	16 30 01
16 38 00	J0521+2112	04 11 14	55.3	149.8	-1.2		-18.9	86	31	16 38 00
16 42 00	=0518+211	04 15 15	55.6	151.4	-1.1		-18.0	240	62	16 38 01
16 42 00	B0525+21	04 15 15	55.8	148.1	-1.2		-20.0	-21	62	No stop
16 45 30	---	04 18 46	56.1	149.5	-1.2		-19.2	189	88	16 42 01
16 46 10	J0521+2112	04 19 26	55.9	153.0	-1.1		-17.0	19	88	16 46 10
16 48 00	=0518+211	04 21 16	56.0	153.7	-1.0		-16.6	110	103	16 46 11
16 48 00	B0525+21	04 21 16	56.3	150.5	-1.1		-18.6	-21	103	No stop
16 51 30	---	04 24 47	56.5	151.9	-1.1		-17.8	189	129	16 48 01
16 51 30	J0521+2112	04 24 47	56.2	155.2	-1.0		-15.7	-21	129	No stop
16 54 00	=0518+211	04 27 17	56.4	156.2	-0.9		-15.1	129	149	16 51 31
16 54 00	B0525+21	04 27 17	56.7	152.9	-1.0		-17.2	-21	149	No stop
16 57 30	---	04 30 48	56.9	154.3	-1.0		-16.3	189	176	16 54 01
16 58 10	J0521+2112	04 31 28	56.6	157.9	-0.9		-14.0	19	176	16 58 10
17 00 00	=0518+211	04 33 18	56.7	158.6	-0.8		-13.6	110	190	16 58 11
17 00 00	B0525+21	04 33 18	57.1	155.3	-0.9		-15.7	-21	190	No stop
17 03 30	---	04 36 49	57.3	156.8	-0.9		-14.8	189	217	17 00 01
17 03 30	J0521+2112	04 36 49	56.9	160.1	-0.8		-12.7	-22	217	No stop
17 06 00	=0518+211	04 39 19	57.1	161.1	-0.7		-12.0	128	236	17 03 31
17 06 00	B0525+21	04 39 19	57.4	157.8	-0.8		-14.1	-21	236	No stop
17 09 30	---	04 42 50	57.6	159.3	-0.8		-13.2	189	263	17 06 01
17 10 10	J0521+2112	04 43 30	57.3	162.9	-0.7		-10.9	18	263	17 10 10
17 12 00	=0518+211	04 45 20	57.3	163.7	-0.6		-10.4	110	277	17 10 11
17 12 00	B0525+21	04 45 20	57.8	160.4	-0.7		-12.6	-21	277	No stop
17 15 30	---	04 48 51	57.9	161.9	-0.7		-11.6	189	304	17 12 01

Schedule for TORUN (Code Tr )

Page 3

EVN: EM127A

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Fri 24 Feb 2017	Day	55	---						
17 15 30	J0521+2112	04 48 51	57.5	165.2	-0.6		-9.5	-22	304	No stop
17 18 00	=0518+211	04 51 21	57.6	166.3	-0.5		-8.8	128	323	17 15 31
17 18 00	B0525+21	04 51 21	58.1	162.9	-0.6		-11.0	-21	323	No stop
17 21 30	---	04 54 52	58.2	164.5	-0.6		-10.0	189	350	17 18 01
17 22 10	J0521+2112	04 55 32	57.7	168.1	-0.5		-7.7	18	350	17 22 10
17 24 00	=0518+211	04 57 22	57.8	168.8	-0.4		-7.2	110	364	17 22 11
17 24 00	B0525+21	04 57 22	58.3	165.5	-0.5		-9.3	-21	364	No stop
17 27 30	---	05 00 53	58.4	167.1	-0.5		-8.3	189	391	17 24 01
17 27 30	J0521+2112	05 00 53	57.9	170.4	-0.4		-6.2	-22	391	No stop
17 30 00	=0518+211	05 03 23	57.9	171.5	-0.3		-5.5	128	410	17 27 31
17 30 00	B0525+21	05 03 23	58.5	168.2	-0.4		-7.6	-21	410	No stop
17 33 30	---	05 06 54	58.6	169.7	-0.4		-6.6	189	437	17 30 01
17 34 10	J0521+2112	05 07 34	58.0	173.3	-0.3		-4.3	19	437	17 34 10
17 36 00	=0518+211	05 09 24	58.0	174.1	-0.2		-3.8	110	451	17 34 11
17 36 00	B0525+21	05 09 24	58.7	170.8	-0.3		-5.9	-21	451	No stop
17 39 30	---	05 12 55	58.7	172.4	-0.3		-4.9	189	478	17 36 01
17 39 30	J0521+2112	05 12 55	58.1	175.6	-0.2		-2.8	-21	478	No stop
17 42 00	=0518+211	05 15 25	58.1	176.7	-0.1		-2.1	129	497	17 39 31
17 42 00	B0525+21	05 15 25	58.8	173.5	-0.2		-4.2	-21	497	No stop
17 45 30	---	05 18 56	58.8	175.1	-0.2		-3.2	189	524	17 42 01
17 46 10	J0521+2112	05 19 36	58.1	178.6	-0.1		-0.9	19	524	17 46 10
17 48 00	=0518+211	05 21 26	58.1	179.4	-0.0		-0.4	110	538	17 46 11
17 48 00	B0525+21	05 21 26	58.9	176.2	-0.1		-2.5	-21	538	No stop
17 51 30	---	05 24 56	58.9	177.8	-0.1		-1.4	189	565	17 48 01
17 51 30	J0521+2112	05 24 56	58.1	180.9	0.0		0.6	-21	565	No stop
17 54 00	=0518+211	05 27 27	58.1	182.1	0.1		1.3	129	585	17 51 31
17 54 00	B0525+21	05 27 27	58.9	178.9	-0.0		-0.7	-21	585	No stop
17 57 30	---	05 30 57	58.9	180.5	0.0		0.3	189	612	17 54 01
17 58 10	J0521+2112	05 31 38	58.1	183.9	0.1		2.5	19	612	17 58 10
18 00 00	=0518+211	05 33 28	58.1	184.7	0.2		3.0	110	626	17 58 11
18 00 00	B0525+21	05 33 28	58.9	181.6	0.1		1.0	-20	626	No stop
18 03 30	---	05 36 58	58.9	183.2	0.1		2.1	190	653	18 00 01

Schedule for TORUN (Code Tr )

Page 4

EVN: EM127A

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Fri 24 Feb 2017 Day 55 ---										
18 03 30	J0521+2112	05 36 58	58.0	186.2	0.2		4.0	-21	653	No stop
18 06 00	=0518+211	05 39 29	58.0	187.3	0.3		4.7	129	672	18 03 31
18 06 00	B0525+21	05 39 29	58.9	184.3	0.2		2.8	-20	672	No stop
18 09 30	---	05 42 59	58.8	185.9	0.2		3.8	190	699	18 06 01
18 10 10	J0521+2112	05 43 40	57.9	189.2	0.3		5.9	19	699	18 10 10
18 12 00	=0518+211	05 45 30	57.8	190.0	0.4		6.4	110	713	18 10 11
18 12 00	B0525+21	05 45 30	58.8	187.0	0.3		4.5	-20	713	No stop
18 15 30	---	05 49 00	58.7	188.5	0.3		5.5	190	740	18 12 01
18 15 30	J0521+2112	05 49 00	57.7	191.5	0.4		7.4	-21	740	No stop
18 18 00	=0518+211	05 51 31	57.7	192.6	0.5		8.1	129	759	18 15 31
18 18 00	B0525+21	05 51 31	58.6	189.7	0.4		6.2	-20	759	No stop
18 21 30	---	05 55 01	58.5	191.2	0.4		7.2	190	786	18 18 01
18 22 10	J0521+2112	05 55 42	57.5	194.4	0.5		9.2	20	786	18 22 10
18 24 00	=0518+211	05 57 32	57.4	195.2	0.6		9.7	110	800	18 22 11
18 24 00	B0525+21	05 57 32	58.5	192.3	0.5		7.9	-20	800	No stop
18 27 30	---	06 01 02	58.4	193.8	0.5		8.9	190	827	18 24 01
18 27 30	J0521+2112	06 01 02	57.3	196.7	0.6		10.6	-20	827	No stop
18 30 00	=0518+211	06 03 33	57.2	197.7	0.7		11.3	130	846	18 27 31
18 30 00	B0525+21	06 03 33	58.3	194.9	0.6		9.6	-20	846	No stop
18 33 30	---	06 07 03	58.1	196.5	0.6		10.6	190	873	18 30 01
18 34 10	J0521+2112	06 07 44	57.0	199.5	0.7		12.4	20	873	18 34 10
18 36 00	=0518+211	06 09 34	56.9	200.2	0.8		12.9	110	887	18 34 11
18 36 00	B0525+21	06 09 34	58.0	197.5	0.7		11.3	-19	887	No stop
18 39 30	---	06 13 04	57.8	199.0	0.7		12.2	191	914	18 36 01
18 39 30	J0521+2112	06 13 04	56.7	201.7	0.8		13.8	-20	914	No stop
18 42 00	=0518+211	06 15 35	56.6	202.7	0.9		14.4	130	933	18 39 31
18 42 00	B0525+21	06 15 35	57.7	200.1	0.8		12.9	-19	933	No stop
18 45 30	---	06 19 05	57.5	201.6	0.8		13.8	191	960	18 42 01
18 46 10	J0521+2112	06 19 45	56.3	204.4	0.9		15.4	20	960	18 46 10
18 48 00	=0518+211	06 21 36	56.2	205.2	1.0		15.9	110	974	18 46 11

Schedule for TORUN (Code Tr )

Page 5

EVN: EM127A

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Fri 24 Feb 2017 Day 55 ---										
18 48 00	B0525+21	06 21 36	57.4	202.6	0.9		14.4	-19	974	No stop
18 51 30	---	06 25 06	57.2	204.1	0.9		15.3	191	1001	18 48 01
18 51 30	J0521+2112	06 25 06	56.0	206.6	1.0		16.7	-19	1001	No stop
18 54 00	=0518+211	06 27 37	55.8	207.6	1.1		17.3	131	1021	18 51 31
18 54 00	B0525+21	06 27 37	57.0	205.1	1.0		16.0	-19	1021	No stop
18 57 30	---	06 31 07	56.8	206.5	1.0		16.8	191	1047	18 54 01
18 58 10	J0521+2112	06 31 47	55.5	209.2	1.2		18.3	21	1047	18 58 10
19 00 00	=0518+211	06 33 38	55.4	209.9	1.2		18.7	110	1062	18 58 11
19 00 00	B0525+21	06 33 38	56.6	207.5	1.1		17.4	-19	1062	No stop
19 03 30	---	06 37 08	56.4	209.0	1.1		18.3	191	1088	19 00 01
19 03 30	J0521+2112	06 37 08	55.1	211.3	1.2		19.5	-19	1088	No stop
19 06 00	=0518+211	06 39 39	54.9	212.2	1.3		20.1	131	1108	19 03 31
19 08 10	3C84	06 41 49	54.9	271.6	3.3		53.4	-4	1108	19 08 10
19 12 10	---	06 45 50	54.3	272.3	3.4		53.3	236	1138	19 08 11
19 15 10	J0521+2112	06 48 50	54.1	215.7	1.4		22.1	51	1138	19 15 10
19 17 10	=0518+211	06 50 51	53.9	216.4	1.5		22.5	120	1154	19 15 11
19 17 10	B0525+21	06 50 51	55.3	214.3	1.3		21.4	-18	1154	No stop
19 20 40	---	06 54 21	55.0	215.6	1.4		22.1	192	1181	19 17 11
19 21 20	J0521+2112	06 55 01	53.6	217.9	1.5		23.3	21	1181	19 21 20
19 23 10	=0518+211	06 56 52	53.4	218.6	1.6		23.7	110	1195	19 21 21
19 23 10	B0525+21	06 56 52	54.8	216.5	1.4		22.7	-18	1195	No stop
19 26 40	---	07 00 22	54.4	217.8	1.5		23.4	192	1222	19 23 11
19 26 40	J0521+2112	07 00 22	53.1	219.8	1.6		24.4	-19	1222	No stop
19 29 10	=0518+211	07 02 53	52.8	220.7	1.7		24.9	131	1241	19 26 41
19 29 10	B0525+21	07 02 53	54.2	218.7	1.5		23.9	-19	1241	No stop
19 32 40	---	07 06 23	53.9	220.0	1.6		24.6	191	1268	19 29 11
19 33 20	J0521+2112	07 07 03	52.4	222.2	1.7		25.6	21	1268	19 33 20
19 35 10	=0518+211	07 08 54	52.2	222.8	1.8		26.0	110	1282	19 33 21
19 35 10	B0525+21	07 08 54	53.6	220.9	1.6		25.1	-19	1282	No stop
19 38 40	---	07 12 24	53.3	222.1	1.7		25.7	191	1309	19 35 11

Schedule for TORUN (Code Tr )

Page 6

EVN: EM127A

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Fri 24 Feb 2017 Day 55 ---										
19 38 40	J0521+2112	07 12 24	51.9	224.0	1.8		26.6	-19	1309	No stop
19 41 10	=0518+211	07 14 55	51.6	224.8	1.9		27.0	131	1328	19 38 41
19 41 10	B0525+21	07 14 55	53.0	223.0	1.8		26.2	-19	1328	No stop
19 44 40	---	07 18 25	52.7	224.2	1.8		26.8	191	1355	19 41 11
19 45 20	J0521+2112	07 19 05	51.1	226.2	1.9		27.7	21	1355	19 45 20
19 47 10	=0518+211	07 20 55	50.9	226.8	2.0		28.0	110	1369	19 45 21
19 47 10	B0525+21	07 20 55	52.4	225.1	1.9		27.3	-19	1369	No stop
19 50 40	---	07 24 26	52.0	226.2	1.9		27.9	191	1396	19 47 11
19 50 40	J0521+2112	07 24 26	50.6	228.0	2.0		28.6	-19	1396	No stop
19 53 10	=0518+211	07 26 56	50.3	228.8	2.1		29.0	131	1415	19 50 41
19 53 10	B0525+21	07 26 56	51.8	227.1	2.0		28.3	-19	1415	No stop
19 56 40	---	07 30 27	51.4	228.2	2.0		28.9	191	1442	19 53 11
19 57 20	J0521+2112	07 31 07	49.8	230.1	2.1		29.6	21	1442	19 57 20
19 59 10	=0518+211	07 32 57	49.6	230.7	2.2		29.9	110	1456	19 57 21
19 59 10	B0525+21	07 32 57	51.1	229.0	2.1		29.3	-19	1456	No stop
20 02 40	---	07 36 28	50.7	230.1	2.1		29.8	191	1483	19 59 11
20 02 40	J0521+2112	07 36 28	49.2	231.8	2.2		30.4	-19	1483	No stop
20 05 10	=0518+211	07 38 58	48.9	232.5	2.3		30.7	131	1503	20 02 41
20 05 10	B0525+21	07 38 58	50.4	230.9	2.2		30.2	-19	1503	No stop
20 08 40	---	07 42 29	50.0	232.0	2.2		30.7	191	1529	20 05 11
20 09 10	J0521+2112	07 42 59	48.4	233.7	2.3		31.3	11	1529	20 09 10
20 11 10	=0518+211	07 44 59	48.2	234.3	2.4		31.6	120	1545	20 09 11
20 11 10	B0525+21	07 44 59	49.7	232.8	2.3		31.1	-19	1545	No stop
20 14 40	---	07 48 30	49.3	233.9	2.3		31.5	191	1572	20 11 11
20 14 40	J0521+2112	07 48 30	47.7	235.4	2.4		32.0	-19	1572	No stop
20 17 10	=0518+211	07 51 00	47.4	236.1	2.5		32.3	131	1591	20 14 41
20 17 10	B0525+21	07 51 00	49.0	234.6	2.4		31.9	-19	1591	No stop
20 20 40	---	07 54 31	48.5	235.7	2.4		32.3	191	1618	20 17 11
20 21 10	J0521+2112	07 55 01	46.9	237.3	2.5		32.8	10	1618	20 21 10
20 23 10	=0518+211	07 57 01	46.7	237.8	2.6		33.0	120	1633	20 21 11

Schedule for TORUN (Code Tr )

Page 7

EVN: EM127A

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Fri 24 Feb 2017 Day 55 ---										
20 23 10	B0525+21	07 57 01	48.2	236.4	2.5		32.7	-19	1633	No stop
20 26 40	---	08 00 32	47.8	237.4	2.5		33.1	191	1660	20 23 11
20 26 40	J0521+2112	08 00 32	46.2	238.8	2.6		33.4	-20	1660	No stop
20 29 10	=0518+211	08 03 02	45.9	239.5	2.7		33.7	130	1679	20 26 41
20 29 10	B0525+21	08 03 02	47.5	238.1	2.6		33.4	-19	1679	No stop
20 32 40	---	08 06 33	47.0	239.1	2.6		33.8	191	1706	20 29 11
20 33 10	J0521+2112	08 07 03	45.4	240.6	2.7		34.2	10	1706	20 33 10
20 35 10	=0518+211	08 09 03	45.1	241.2	2.8		34.4	120	1722	20 33 11
20 35 10	B0525+21	08 09 03	46.7	239.9	2.7		34.1	-19	1722	No stop
20 38 40	---	08 12 34	46.2	240.8	2.7		34.4	191	1749	20 35 11
20 38 40	J0521+2112	08 12 34	44.6	242.1	2.8		34.7	-20	1749	No stop
20 41 10	=0518+211	08 15 04	44.3	242.8	2.9		35.0	130	1768	20 38 41
20 41 10	B0525+21	08 15 04	45.9	241.5	2.8		34.7	-19	1768	No stop
20 44 40	---	08 18 35	45.4	242.5	2.8		35.1	191	1795	20 41 11
20 45 10	J0521+2112	08 19 05	43.8	243.9	2.9		35.3	10	1795	20 45 10
20 47 10	=0518+211	08 21 05	43.5	244.4	3.0		35.5	120	1810	20 45 11
20 47 10	B0525+21	08 21 05	45.1	243.1	2.9		35.3	-19	1810	No stop
20 50 40	---	08 24 36	44.6	244.1	2.9		35.6	191	1837	20 47 11
20 50 40	J0521+2112	08 24 36	43.0	245.3	3.0		35.8	-20	1837	No stop
20 53 10	=0518+211	08 27 06	42.7	246.0	3.1		36.0	130	1856	20 50 41
20 53 10	B0525+21	08 27 06	44.3	244.7	3.0		35.9	-19	1856	No stop
20 56 40	---	08 30 37	43.8	245.7	3.0		36.2	191	1883	20 53 11
20 57 10	J0521+2112	08 31 07	42.1	247.0	3.1		36.4	10	1883	20 57 10
20 59 10	=0518+211	08 33 07	41.8	247.5	3.2		36.5	120	1899	20 57 11
20 59 10	B0525+21	08 33 07	43.5	246.3	3.1		36.4	-20	1899	No stop
21 02 40	---	08 36 38	43.0	247.2	3.1		36.7	190	1926	20 59 11
21 02 40	J0521+2112	08 36 38	41.4	248.4	3.2		36.8	-20	1926	No stop
21 05 10	=0518+211	08 39 08	41.0	249.0	3.3		37.0	130	1945	21 02 41
21 05 10	B0525+21	08 39 08	42.6	247.8	3.2		36.9	-20	1945	No stop
21 08 40	---	08 42 39	42.1	248.7	3.2		37.1	190	1972	21 05 11

Schedule for TORUN (Code Tr )

Page 8

EVN: EM127A

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Fri 24 Feb 2017 Day 55 ---										
21 09 10	J0521+2112	08 43 09	40.4	250.0	3.3		37.2	10	1972	21 09 10
21 11 10	=0518+211	08 45 09	40.2	250.4	3.4		37.4	120	1987	21 09 11
21 11 10	B0525+21	08 45 09	41.8	249.3	3.3		37.3	-20	1987	No stop
21 14 40	---	08 48 40	41.3	250.2	3.3		37.5	190	2014	21 11 11
21 14 40	J0521+2112	08 48 40	39.7	251.3	3.4		37.6	-20	2014	No stop
21 17 10	=0518+211	08 51 10	39.3	251.9	3.5		37.8	130	2033	21 14 41
21 17 10	B0525+21	08 51 10	40.9	250.8	3.4		37.7	-20	2033	No stop
21 20 40	---	08 54 41	40.4	251.7	3.4		37.9	190	2060	21 17 11
21 21 10	J0521+2112	08 55 11	38.7	252.8	3.5		38.0	10	2060	21 21 10
21 23 10	=0518+211	08 57 11	38.4	253.3	3.6		38.1	120	2076	21 21 11
21 23 10	B0525+21	08 57 11	40.1	252.3	3.5		38.1	-20	2076	No stop
21 26 40	---	09 00 42	39.6	253.1	3.5		38.3	190	2103	21 23 11
21 26 40	J0521+2112	09 00 42	37.9	254.1	3.6		38.3	-20	2103	No stop
21 29 10	=0518+211	09 03 12	37.6	254.7	3.7		38.4	130	2122	21 26 41
21 29 10	B0525+21	09 03 12	39.2	253.7	3.6		38.4	-20	2122	No stop
21 32 40	---	09 06 43	38.7	254.5	3.6		38.6	190	2149	21 29 11
21 33 10	J0521+2112	09 07 13	37.0	255.6	3.7		38.6	10	2149	21 33 10
21 35 10	=0518+211	09 09 13	36.7	256.1	3.8		38.7	120	2164	21 33 11
21 35 10	B0525+21	09 09 13	38.3	255.1	3.7		38.7	-20	2164	No stop
21 38 40	---	09 12 44	37.8	255.9	3.7		38.9	190	2191	21 35 11
21 38 40	J0521+2112	09 12 44	36.2	256.9	3.8		38.9	-20	2191	No stop
21 41 10	=0518+211	09 15 14	35.8	257.4	3.9		39.0	130	2210	21 38 41
21 41 10	B0525+21	09 15 14	37.5	256.5	3.8		39.0	-20	2210	No stop
21 44 40	---	09 18 45	37.0	257.2	3.8		39.2	190	2237	21 41 11
21 45 10	J0521+2112	09 19 15	35.2	258.3	3.9		39.1	10	2237	21 45 10
21 47 10	=0518+211	09 21 15	34.9	258.8	4.0		39.2	120	2253	21 45 11
21 47 10	B0525+21	09 21 15	36.6	257.8	3.9		39.3	-20	2253	No stop
21 50 40	---	09 24 46	36.1	258.6	3.9		39.4	190	2279	21 47 11
21 50 40	J0521+2112	09 24 46	34.4	259.5	4.0		39.3	-20	2279	No stop
21 53 10	=0518+211	09 27 16	34.0	260.1	4.1		39.4	130	2299	21 50 41



Schedule for TORUN (Code Tr )

Page 9

EVN: EM127A

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

```

-----
Start UT  Source          Start / Stop          Early  Disk  TPStart
Stop UT          LST      EL  AZ  HA  UP  ParA  Dwell  GBytes  SYNC
-----
--- Fri 24 Feb 2017  Day 55 ---

21 53 10  B0525+21    09 27 16  35.7 259.1  4.0    39.5  -20    2299  No stop
21 56 40  ---          09 30 47  35.2 259.9  4.0    39.6   190    2326  21 53 11

21 57 10  J0521+2112   09 31 17  33.5 261.0  4.1    39.5   10    2326  21 57 10
21 59 10  =0518+211   09 33 17  33.2 261.4  4.2    39.6  120    2341  21 57 11

21 59 10  B0525+21    09 33 17  34.8 260.5  4.1    39.7  -20    2341  No stop
22 02 40  ---          09 36 48  34.3 261.2  4.1    39.8   190    2368  21 59 11

22 02 40  J0521+2112   09 36 48  32.6 262.1  4.2    39.7  -20    2368  No stop
22 05 10  =0518+211   09 39 18  32.3 262.7  4.3    39.7  130    2387  22 02 41

22 05 10  B0525+21    09 39 18  33.9 261.8  4.2    39.9  -20    2387  No stop
22 08 40  ---          09 42 49  33.4 262.5  4.2    40.0   190    2414  22 05 11

22 09 10  J0521+2112   09 43 19  31.7 263.5  4.3    39.8   10    2414  22 09 10
22 11 10  =0518+211   09 45 19  31.4 263.9  4.4    39.8  120    2429  22 09 11

22 11 10  B0525+21    09 45 19  33.0 263.0  4.3    40.0  -20    2429  No stop
22 14 40  ---          09 48 50  32.5 263.8  4.3    40.1   190    2456  22 11 11

22 14 40  J0521+2112   09 48 50  30.8 264.7  4.4    39.9  -20    2456  No stop
22 17 10  =0518+211   09 51 20  30.5 265.2  4.5    39.9  130    2476  22 14 41

22 17 10  B0525+21    09 51 20  32.1 264.3  4.4    40.1  -20    2476  No stop
22 20 40  ---          09 54 51  31.6 265.0  4.4    40.2   190    2503  22 17 11

22 21 10  J0521+2112   09 55 21  29.9 266.0  4.5    40.0   10    2503  22 21 10
22 23 10  =0518+211   09 57 21  29.6 266.4  4.6    40.0  120    2518  22 21 11

22 23 10  B0525+21    09 57 21  31.2 265.6  4.5    40.2  -20    2518  No stop
22 26 40  ---          10 00 52  30.7 266.3  4.5    40.3   190    2545  22 23 11

22 26 40  J0521+2112   10 00 52  29.0 267.2  4.6    40.0  -20    2545  No stop
22 29 10  =0518+211   10 03 22  28.7 267.7  4.7    40.1  130    2564  22 26 41

22 29 10  B0525+21    10 03 22  30.3 266.8  4.6    40.3  -20    2564  No stop
22 32 40  ---          10 06 53  29.8 267.5  4.6    40.3   190    2591  22 29 11

22 33 10  J0521+2112   10 07 23  28.1 268.5  4.7    40.1   10    2591  22 33 10
22 35 10  =0518+211   10 09 23  27.8 268.9  4.8    40.1  120    2606  22 33 11

22 35 10  B0525+21    10 09 23  29.4 268.0  4.7    40.3  -20    2606  No stop
22 38 40  ---          10 12 54  28.9 268.7  4.7    40.4   190    2633  22 35 11

```

Schedule for TORUN (Code Tr )

Page 10

EVN: EM127A

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Fri 24 Feb 2017	Day	55	---						
22 38 40	J0521+2112	10 12 54	27.2	269.6	4.8		40.1	-20	2633	No stop
22 41 10	=0518+211	10 15 24	26.9	270.1	4.9		40.1	130	2653	22 38 41
22 41 10	B0525+21	10 15 24	28.5	269.2	4.8		40.4	-20	2653	No stop
22 44 40	---	10 18 55	28.0	269.9	4.8		40.4	190	2679	22 41 11
22 45 10	J0521+2112	10 19 25	26.3	270.9	4.9		40.1	10	2679	22 45 10
22 47 10	=0518+211	10 21 25	26.0	271.3	5.0		40.1	120	2695	22 45 11
22 47 10	B0525+21	10 21 25	27.6	270.4	4.9		40.4	-20	2695	No stop
22 50 40	---	10 24 56	27.1	271.1	4.9		40.4	190	2722	22 47 11
22 50 40	J0521+2112	10 24 56	25.4	272.0	5.0		40.1	-20	2722	No stop
22 53 10	=0518+211	10 27 26	25.1	272.5	5.1		40.1	130	2741	22 50 41
22 53 10	B0525+21	10 27 26	26.7	271.6	5.0		40.3	-20	2741	No stop
22 56 40	---	10 30 57	26.2	272.3	5.0		40.3	190	2768	22 53 11
22 57 10	J0521+2112	10 31 27	24.4	273.3	5.1		40.0	10	2768	22 57 10
22 59 10	=0518+211	10 33 27	24.1	273.7	5.2		40.0	120	2783	22 57 11
22 59 10	B0525+21	10 33 27	25.8	272.8	5.1		40.3	-20	2783	No stop
23 02 40	---	10 36 58	25.3	273.5	5.1		40.3	190	2810	22 59 11
23 02 40	J0521+2112	10 36 58	23.6	274.3	5.2		40.0	-20	2810	No stop
23 05 10	=0518+211	10 39 28	23.2	274.8	5.3		39.9	130	2829	23 02 41
23 05 10	B0525+21	10 39 28	24.9	274.0	5.2		40.2	-20	2829	No stop
23 08 40	---	10 42 59	24.4	274.7	5.2		40.2	190	2856	23 05 11
23 09 10	J0521+2112	10 43 29	22.6	275.6	5.3		39.9	10	2856	23 09 10
23 11 10	=0518+211	10 45 29	22.3	276.0	5.4		39.8	120	2872	23 09 11
23 11 10	B0525+21	10 45 29	24.0	275.2	5.3		40.2	-20	2872	No stop
23 14 40	---	10 49 00	23.5	275.8	5.3		40.1	190	2899	23 11 11
23 14 40	J0521+2112	10 49 00	21.8	276.7	5.4		39.8	-20	2899	No stop
23 17 10	=0518+211	10 51 30	21.5	277.2	5.5		39.7	130	2918	23 14 41
23 17 10	B0525+21	10 51 30	23.1	276.3	5.4		40.1	-20	2918	No stop
23 20 40	---	10 55 01	22.6	277.0	5.4		40.0	190	2945	23 17 11
23 20 40	J0521+2112	10 55 01	20.9	277.8	5.5		39.7	-20	2945	No stop
23 23 10	=0518+211	10 57 31	20.6	278.3	5.6		39.6	130	2964	23 20 41

Schedule for TORUN (Code Tr )

Page 11

EVN: EM127A

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

```
-----
Start UT  Source          Start / Stop          Early  Disk  TPStart
Stop UT          LST      EL  AZ  HA  UP  ParA  Dwell  GBytes  SYNC
-----
```

--- Fri 24 Feb 2017 Day 55 ---

```
23 25 10 3C84          10 59 31 20.1 313.6 7.6      35.5   35   2964  23 25 10
23 30 00 ---          11 04 22 19.6 314.4 7.7      35.0  290   3001  23 25 11
```

## SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

===== Setup file: sess117.H1024

```
Setup group:   11          Station: TORUN          Total bit rate: 1024
Format: MARK5B          Bits per sample: 2      Sample rate: 64.000
Number of channels: 8    DBE type: DBBC_DDC      Speedup factor: 1.00
```

Disk used to record data.

1st LO=	2100.00	2100.00	2100.00	2100.00	2100.00	2100.00	2100.00	2100.00
Net SB=	L	L	U	U	L	L	U	U
IF SB =	L	L	L	L	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP	RCP	LCP	RCP	LCP
BBC =	1	5	1	5	3	7	3	7
BBC SB=	U	U	L	L	U	U	L	L
IF =	A1	B1	A1	B1	A1	B1	A1	B1

The following frequency sets based on these setups were used.

```

Frequency Set: 5 Setup file default. Used with PCAL = off
LO sum= 1353.49 1353.49 1353.49 1353.49 1417.49 1417.49 1417.49 1417.49
BBC fr= 746.51 746.51 746.51 746.51 682.51 682.51 682.51 682.51
Bandwd= 32.00 32.00 32.00 32.00 32.00 32.00 32.00 32.00
Matching frequency sets: 5

```

Track assignments are:

```

track1= 2, 6, 10, 14, 4, 8, 12, 16
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* B0525+21	05 25 51.827467	* 05 28 52.264000	05 29 54.177430	0.00
	21 57 41.80619	* 22 00 04.00000	22 00 41.48657	0.00
* 3C84	03 16 29.567282	* 03 19 48.160113	03 20 55.843883	0.00
	41 19 51.91853	* 41 30 42.10565	41 34 21.69520	0.00
0518+211	05 18 46.711054	* 05 21 45.965889	05 22 47.443284	0.12
* J0521+2112	21 09 58.62252	* 21 12 51.45170	21 13 39.23161	0.14
	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.rfc			
	rfc_2015a Petrov, 2015, unpublished. 388 observations			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
B0525+21	106.6
3C84	83.0
J0521+2112	104.9

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

em127btr

EVN: EM127B

PI: Maan

Address: JIVE

Observing mode: vlbi

Schedule for TORUN (Code Tr )

Page 2

EVN: EM127B

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are LO sum (band edge).
SYNC: Time correlator is expected to sync up.

Table with columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Early Dwell, Disk GBytes, TPStart SYNC. Includes scan frequencies and bandwidths for various sources like J2148+0657 and J2047-1639.

Schedule for TORUN (Code Tr )

Page 3

EVN: EM127B

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Sat 25 Feb 2017	Day	56	---						
08 42 40	J2047-1639	20 18 33	20.0	172.4	-0.5		-4.7	-12	300	No stop
08 45 10	=2044-168	20 21 03	20.1	173.1	-0.5		-4.3	138	319	08 42 41
08 45 10	B2045-16	20 21 03	20.4	172.7	-0.5		-4.6	-12	319	No stop
08 48 40	---	20 24 34	20.5	173.6	-0.4		-4.0	198	346	08 45 11
08 49 10	J2047-1639	20 25 04	20.1	174.1	-0.4		-3.7	18	346	08 49 10
08 51 10	=2044-168	20 27 04	20.2	174.6	-0.4		-3.4	120	362	08 49 11
08 51 10	B2045-16	20 27 04	20.5	174.2	-0.4		-3.6	-12	362	No stop
08 54 40	---	20 30 35	20.6	175.1	-0.3		-3.0	198	388	08 51 11
08 54 40	J2047-1639	20 30 35	20.2	175.5	-0.3		-2.8	-12	388	No stop
08 57 10	=2044-168	20 33 05	20.2	176.1	-0.3		-2.4	138	408	08 54 41
08 57 10	B2045-16	20 33 05	20.6	175.8	-0.3		-2.6	-12	408	No stop
09 00 40	---	20 36 36	20.6	176.7	-0.2		-2.1	198	435	08 57 11
09 01 10	J2047-1639	20 37 06	20.3	177.1	-0.2		-1.8	18	435	09 01 10
09 03 10	=2044-168	20 39 06	20.3	177.7	-0.2		-1.5	120	450	09 01 11
09 03 10	B2045-16	20 39 06	20.7	177.3	-0.2		-1.7	-12	450	No stop
09 06 40	---	20 42 37	20.7	178.2	-0.1		-1.1	198	477	09 03 11
09 06 40	J2047-1639	20 42 37	20.3	178.6	-0.1		-0.9	-12	477	No stop
09 09 10	=2044-168	20 45 07	20.3	179.2	-0.1		-0.5	138	496	09 06 41
09 09 10	B2045-16	20 45 07	20.7	178.9	-0.1		-0.7	-12	496	No stop
09 12 40	---	20 48 38	20.7	179.8	-0.0		-0.1	198	523	09 09 11
09 13 10	J2047-1639	20 49 08	20.3	180.2	0.0		0.1	18	523	09 13 10
09 15 10	=2044-168	20 51 08	20.3	180.7	0.0		0.5	120	538	09 13 11
09 15 10	B2045-16	20 51 08	20.7	180.4	0.0		0.3	-12	538	No stop
09 18 40	---	20 54 39	20.7	181.3	0.1		0.8	198	565	09 15 11
09 18 40	J2047-1639	20 54 39	20.3	181.6	0.1		1.0	-12	565	No stop
09 21 10	=2044-168	20 57 09	20.3	182.3	0.1		1.4	138	585	09 18 41
09 21 10	B2045-16	20 57 09	20.7	182.0	0.1		1.2	-12	585	No stop
09 24 40	---	21 00 40	20.6	182.9	0.2		1.8	198	612	09 21 11
09 25 10	J2047-1639	21 01 10	20.3	183.3	0.2		2.1	18	612	09 25 10
09 27 10	=2044-168	21 03 10	20.2	183.8	0.2		2.4	120	627	09 25 11
09 27 10	B2045-16	21 03 10	20.6	183.5	0.2		2.2	-12	627	No stop
09 30 40	---	21 06 41	20.6	184.4	0.3		2.7	198	654	09 27 11

Schedule for TORUN (Code Tr )

Page 4

EVN: EM127B

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
 Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Sat 25 Feb 2017 Day 56 ---										
09 30 40	J2047-1639	21 06 41	20.2	184.7	0.3		2.9	-12	654	No stop
09 33 10	=2044-168	21 09 11	20.2	185.3	0.3		3.3	138	673	09 30 41
09 33 10	B2045-16	21 09 11	20.6	185.0	0.3		3.2	-12	673	No stop
09 36 40	---	21 12 42	20.5	185.9	0.4		3.7	198	700	09 33 11
09 37 10	J2047-1639	21 13 12	20.1	186.4	0.4		4.0	18	700	09 37 10
09 39 10	=2044-168	21 15 12	20.1	186.9	0.4		4.3	120	715	09 37 11
09 39 10	B2045-16	21 15 12	20.5	186.6	0.4		4.1	-12	715	No stop
09 42 40	---	21 18 43	20.4	187.5	0.5		4.7	198	742	09 39 11
09 42 40	J2047-1639	21 18 43	20.0	187.8	0.5		4.9	-12	742	No stop
09 45 10	=2044-168	21 21 13	20.0	188.4	0.5		5.3	138	762	09 42 41
09 45 10	B2045-16	21 21 13	20.4	188.1	0.5		5.1	-12	762	No stop
09 48 40	---	21 24 44	20.3	189.0	0.6		5.6	198	788	09 45 11
09 49 10	J2047-1639	21 25 14	19.9	189.4	0.6		5.9	18	788	09 49 10
09 51 10	=2044-168	21 27 14	19.8	189.9	0.6		6.2	120	804	09 49 11
09 51 10	B2045-16	21 27 14	20.2	189.6	0.6		6.0	-12	804	No stop
09 54 40	---	21 30 45	20.1	190.5	0.7		6.6	198	831	09 51 11
09 54 40	J2047-1639	21 30 45	19.7	190.8	0.7		6.8	-12	831	No stop
09 57 10	=2044-168	21 33 15	19.6	191.4	0.7		7.1	138	850	09 54 41
09 57 10	B2045-16	21 33 15	20.1	191.2	0.7		7.0	-12	850	No stop
10 00 40	---	21 36 46	19.9	192.1	0.8		7.5	198	877	09 57 11
10 01 10	J2047-1639	21 37 16	19.5	192.5	0.8		7.8	18	877	10 01 10
10 03 10	=2044-168	21 39 16	19.5	193.0	0.9		8.1	120	892	10 01 11
10 03 10	B2045-16	21 39 16	19.9	192.7	0.8		7.9	-12	892	No stop
10 06 40	---	21 42 47	19.7	193.6	0.9		8.4	198	919	10 03 11
10 06 40	J2047-1639	21 42 47	19.3	193.8	0.9		8.6	-12	919	No stop
10 09 10	=2044-168	21 45 17	19.2	194.5	1.0		9.0	138	938	10 06 41
10 11 10	J2148+0657	21 47 17	43.9	179.4	-0.0		-0.3	13	938	10 11 10
10 15 10	=2145+067	21 51 18	43.9	180.8	0.0		0.5	240	969	10 11 11
10 18 10	J2047-1639	21 54 19	18.9	196.7	1.1		10.4	72	969	10 18 10
10 20 10	=2044-168	21 56 19	18.8	197.2	1.1		10.7	120	985	10 18 11

Schedule for TORUN (Code Tr )

Page 5

EVN: EM127B

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Sat 25 Feb 2017 Day 56 ---										
10 20 10	B2045-16	21 56 19	19.2	197.0	1.1		10.5	-12	985	No stop
10 23 40	---	21 59 49	19.0	197.9	1.2		11.1	198	1012	10 20 11
10 24 10	J2047-1639	22 00 20	18.6	198.2	1.2		11.3	17	1012	10 24 10
10 26 10	=2044-168	22 02 20	18.5	198.7	1.2		11.6	120	1027	10 24 11
10 26 10	B2045-16	22 02 20	18.9	198.5	1.2		11.4	-12	1027	No stop
10 29 40	---	22 05 50	18.8	199.4	1.3		12.0	198	1054	10 26 11
10 29 40	J2047-1639	22 05 50	18.3	199.6	1.3		12.1	-13	1054	No stop
10 32 10	=2044-168	22 08 21	18.2	200.2	1.3		12.5	137	1073	10 29 41
10 32 10	B2045-16	22 08 21	18.6	200.0	1.3		12.3	-13	1073	No stop
10 35 40	---	22 11 51	18.5	200.8	1.4		12.9	197	1100	10 32 11
10 36 10	J2047-1639	22 12 22	18.0	201.2	1.4		13.1	17	1100	10 36 10
10 38 10	=2044-168	22 14 22	17.9	201.7	1.4		13.4	120	1115	10 36 11
10 38 10	B2045-16	22 14 22	18.3	201.5	1.4		13.2	-13	1115	No stop
10 41 40	---	22 17 52	18.1	202.3	1.5		13.7	197	1142	10 38 11
10 41 40	J2047-1639	22 17 52	17.7	202.5	1.5		13.9	-13	1142	No stop
10 44 10	=2044-168	22 20 23	17.5	203.2	1.5		14.3	137	1162	10 41 41
10 44 10	B2045-16	22 20 23	18.0	202.9	1.5		14.1	-13	1162	No stop
10 47 40	---	22 23 53	17.8	203.8	1.6		14.6	197	1188	10 44 11
10 48 10	J2047-1639	22 24 24	17.3	204.1	1.6		14.8	17	1188	10 48 10
10 50 10	=2044-168	22 26 24	17.2	204.6	1.6		15.1	120	1204	10 48 11
10 50 10	B2045-16	22 26 24	17.6	204.4	1.6		15.0	-13	1204	No stop
10 53 40	---	22 29 54	17.4	205.3	1.7		15.5	197	1231	10 50 11
10 53 40	J2047-1639	22 29 54	16.9	205.5	1.7		15.6	-13	1231	No stop
10 56 10	=2044-168	22 32 25	16.8	206.1	1.7		16.0	137	1250	10 53 41
10 56 10	B2045-16	22 32 25	17.2	205.9	1.7		15.8	-13	1250	No stop
10 59 40	---	22 35 55	17.0	206.7	1.8		16.3	197	1277	10 56 11
11 00 10	J2047-1639	22 36 25	16.5	207.0	1.8		16.5	17	1277	11 00 10
11 02 10	=2044-168	22 38 26	16.4	207.5	1.8		16.8	120	1292	11 00 11
11 02 10	B2045-16	22 38 26	16.8	207.3	1.8		16.7	-13	1292	No stop
11 05 40	---	22 41 56	16.6	208.2	1.9		17.2	197	1319	11 02 11



Schedule for TORUN (Code Tr )

Page 6

EVN: EM127B

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Sat 25 Feb 2017	Day	56	---						
11 05 40	J2047-1639	22 41 56	16.1	208.3	1.9		17.3	-13	1319	No stop
11 08 10	=2044-168	22 44 27	16.0	208.9	1.9		17.7	137	1338	11 05 41
11 08 10	B2045-16	22 44 27	16.4	208.8	1.9		17.5	-13	1338	No stop
11 11 40	---	22 47 57	16.1	209.6	2.0		18.0	197	1365	11 08 11
11 12 10	J2047-1639	22 48 27	15.7	209.9	2.0		18.2	17	1365	11 12 10
11 14 10	=2044-168	22 50 28	15.5	210.4	2.0		18.5	120	1381	11 12 11
11 14 10	B2045-16	22 50 28	16.0	210.2	2.0		18.3	-13	1381	No stop
11 17 40	---	22 53 58	15.7	211.0	2.1		18.8	197	1408	11 14 11
11 17 40	J2047-1639	22 53 58	15.2	211.2	2.1		18.9	-13	1408	No stop
11 20 10	=2044-168	22 56 29	15.0	211.8	2.1		19.3	137	1427	11 17 41
11 20 10	B2045-16	22 56 29	15.5	211.6	2.1		19.1	-13	1427	No stop
11 23 40	---	22 59 59	15.2	212.4	2.2		19.6	197	1454	11 20 11
11 24 10	J2047-1639	23 00 29	14.7	212.7	2.2		19.8	17	1454	11 24 10
11 26 10	=2044-168	23 02 30	14.6	213.2	2.2		20.1	120	1469	11 24 11
11 26 10	B2045-16	23 02 30	15.0	213.0	2.2		19.9	-13	1469	No stop
11 29 40	---	23 06 00	14.7	213.8	2.3		20.4	197	1496	11 26 11
11 29 40	J2047-1639	23 06 00	14.3	214.0	2.3		20.5	-13	1496	No stop
11 32 10	=2044-168	23 08 31	14.0	214.6	2.3		20.8	137	1515	11 29 41
11 32 10	B2045-16	23 08 31	14.5	214.4	2.3		20.7	-13	1515	No stop
11 35 40	---	23 12 01	14.2	215.2	2.4		21.1	197	1542	11 32 11
11 36 10	J2047-1639	23 12 31	13.7	215.5	2.4		21.3	17	1542	11 36 10
11 38 10	=2044-168	23 14 32	13.5	216.0	2.4		21.6	120	1558	11 36 11
11 38 10	B2045-16	23 14 32	14.0	215.8	2.4		21.5	-13	1558	No stop
11 41 40	---	23 18 02	13.7	216.6	2.5		21.9	197	1585	11 38 11
11 41 40	J2047-1639	23 18 02	13.2	216.8	2.5		22.0	-13	1585	No stop
11 44 10	=2044-168	23 20 33	13.0	217.3	2.5		22.3	137	1604	11 41 41
11 44 10	B2045-16	23 20 33	13.4	217.2	2.5		22.2	-13	1604	No stop
11 47 40	---	23 24 03	13.1	218.0	2.6		22.6	197	1631	11 44 11
11 48 10	J2047-1639	23 24 33	12.6	218.2	2.6		22.8	17	1631	11 48 10
11 50 10	=2044-168	23 26 34	12.4	218.7	2.6		23.1	120	1646	11 48 11

Schedule for TORUN (Code Tr )

Page 7

EVN: EM127B

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Sat	25 Feb 2017	Day	56	---					
11 50 10	B2045-16	23 26 34	12.9	218.6	2.6		22.9	-13	1646	No stop
11 53 40	---	23 30 04	12.6	219.4	2.7		23.4	197	1673	11 50 11
11 53 40	J2047-1639	23 30 04	12.1	219.5	2.7		23.5	-13	1673	No stop
11 56 10	=2044-168	23 32 35	11.9	220.1	2.7		23.8	137	1692	11 53 41
11 56 10	B2045-16	23 32 35	12.3	219.9	2.7		23.7	-13	1692	No stop
11 59 40	---	23 36 05	12.0	220.7	2.8		24.1	197	1719	11 56 11
12 00 10	J2047-1639	23 36 35	11.5	220.9	2.8		24.2	17	1719	12 00 10
12 02 10	=2044-168	23 38 36	11.3	221.4	2.8		24.5	120	1735	12 00 11
12 02 10	B2045-16	23 38 36	11.7	221.3	2.8		24.4	-13	1735	No stop
12 05 40	---	23 42 06	11.4	222.1	2.9		24.8	197	1762	12 02 11
12 05 40	J2047-1639	23 42 06	10.9	222.2	2.9		24.9	-13	1762	No stop
12 08 10	=2044-168	23 44 37	10.7	222.7	2.9		25.2	137	1781	12 05 41
12 08 10	B2045-16	23 44 37	11.1	222.6	2.9		25.0	-13	1781	No stop
12 11 40	---	23 48 07	10.8	223.4	3.0		25.4	197	1808	12 08 11
12 12 10	J2047-1639	23 48 37	10.3	223.6	3.0		25.6	17	1808	12 12 10
12 14 10	=2044-168	23 50 38	10.0	224.1	3.0		25.8	120	1823	12 12 11
12 14 10	B2045-16	23 50 38	10.5	223.9	3.0		25.7	-13	1823	No stop
12 17 40	---	23 54 08	10.1	224.7	3.1		26.1	197	1850	12 14 11
12 17 40	J2047-1639	23 54 08	9.7	224.8	3.1		26.2	-13	1850	No stop
12 20 10	=2044-168	23 56 39	9.4	225.4	3.1		26.5	137	1869	12 17 41
13 10 10	J2148+0657	00 46 47	31.6	234.7	3.0		29.6	2883	1869	13 10 10
13 15 00	=2145+067	00 51 38	31.0	235.9	3.0		30.1	290	1906	13 10 11
13 15 20	J2148+0657	00 51 58	30.9	236.0	3.1		30.1	14	1906	13 15 20
13 20 00	=2145+067	00 56 38	30.3	237.1	3.1		30.5	280	1942	13 15 21
13 20 20	J2148+0657	00 56 59	30.3	237.2	3.1		30.6	14	1942	13 20 20
13 25 00	=2145+067	01 01 39	29.7	238.4	3.2		31.0	280	1978	13 20 21
13 25 20	J2148+0657	01 01 59	29.6	238.5	3.2		31.0	14	1978	13 25 20
13 30 00	=2145+067	01 06 40	29.0	239.6	3.3		31.5	280	2014	13 25 21

## SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: sess117.H1024

```

Setup group:      8          Station: TORUN          Total bit rate: 1024
Format: MARK5B   Bits per sample: 2          Sample rate: 64.000
Number of channels: 8    DBE type: DBBC_DDC      Speedup factor: 1.00

```

Disk used to record data.

```

1st LO=  2100.00  2100.00  2100.00  2100.00  2100.00  2100.00  2100.00  2100.00  2100.00
Net SB=      L      L      U      U      L      L      U      U
IF SB =      L      L      L      L      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP     RCP     LCP     RCP     LCP
BBC   =      1      5      1      5      3      7      3      7
BBC SB=      U      U      L      L      U      U      L      L
IF    =      A1     B1     A1     B1     A1     B1     A1     B1

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = off
LO sum=  1353.49  1353.49  1353.49  1353.49  1417.49  1417.49  1417.49  1417.49
BBC fr=   746.51  746.51  746.51  746.51  682.51  682.51  682.51  682.51
Bandwd=   32.00  32.00  32.00  32.00  32.00  32.00  32.00  32.00
Matching frequency sets:  5

```

Track assignments are:

```

track1=  2,  6, 10, 14,  4,  8, 12, 16
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* B2045-16	20 45 47.182159	* 20 48 35.600000	20 49 31.488288	0.00
	-16 27 51.99670	*-16 16 44.00000	-16 12 54.00422	0.00
2044-168	20 44 30.823017	* 20 47 19.667024	20 48 15.698012	0.21
* J2047-1639	-16 50 09.69276	*-16 39 05.84276	-16 35 17.12701	0.42
	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.rfc			
	rfc_2015a Petrov, 2015, unpublished. 86 observations			
2145+067	21 45 36.078474	* 21 48 05.458672	21 48 55.042365	0.10
* J2148+0657	06 43 40.90462	* 06 57 38.60422	07 02 21.59423	0.10
	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.rfc			
	rfc_2015a Petrov, 2015, unpublished. 108940 observations			

LONG OVERDUE - MEASURING THE PARALLAX AND PROPER MOTION OF THE CRAB  
 PI: *Franz Kirsten*

Observing mode: Continuum 18cm (1 Gb/s), pulsar gating

Schedule for TORUN (Code Tr )

Page 2

Long overdue - Measuring the Parallax and proper motion of the Crab. Ste

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Sat 25 Feb 2017 Day 56 ---										
Next scan frequencies:		1626.49	1626.49	1626.49	1626.49	1690.49	1690.49	1690.49	1690.49	1690.49
Next BBC frequencies:		673.51	673.51	673.51	673.51	609.51	609.51	609.51	609.51	609.51
Next scan bandwidths:		32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00
-----										
16 00 00	J0530+1331	03 37 05	44.4	139.2	-1.9		-23.8	0	0	16 00 00
16 05 00	=0528+134	03 42 06	44.9	140.8	-1.8		-23.0	300	38	16 00 01
16 05 40	J0518+2054	03 42 46	52.9	140.8	-1.6		-24.0	-4	38	16 05 40
16 07 10	=0515+208	03 44 16	53.1	141.3	-1.6		-23.7	86	50	16 05 41
16 07 52	CRAB	03 44 58	52.5	135.1	-1.8		-27.2	14	50	16 07 52
16 12 52	---	03 49 59	53.0	136.8	-1.8		-26.3	300	88	16 07 53
16 13 32	J0518+2054	03 50 39	53.6	143.6	-1.5		-22.4	12	88	16 13 32
16 15 02	=0515+208	03 52 09	53.8	144.2	-1.4		-22.1	90	100	16 13 33
16 15 44	CRAB	03 52 51	53.3	137.8	-1.7		-25.8	14	100	16 15 44
16 20 44	---	03 57 52	53.8	139.6	-1.6		-24.8	300	138	16 15 45
16 21 24	J0518+2054	03 58 32	54.3	146.5	-1.3		-20.8	11	138	16 21 24
16 22 54	=0515+208	04 00 02	54.4	147.1	-1.3		-20.4	90	150	16 21 25
16 23 36	CRAB	04 00 45	54.1	140.6	-1.6		-24.3	14	150	16 23 36
16 28 36	---	04 05 45	54.5	142.4	-1.5		-23.3	300	188	16 23 37
16 29 16	J0518+2054	04 06 26	54.9	149.5	-1.2		-19.0	11	188	16 29 16
16 30 46	=0515+208	04 07 56	55.1	150.1	-1.2		-18.7	90	200	16 29 17
16 31 28	CRAB	04 08 38	54.8	143.5	-1.4		-22.7	13	200	16 31 28
16 36 28	---	04 13 39	55.2	145.3	-1.4		-21.6	300	238	16 31 29
16 37 08	J0518+2054	04 14 19	55.5	152.6	-1.1		-17.2	11	238	16 37 08
16 38 38	=0515+208	04 15 49	55.6	153.2	-1.1		-16.8	90	250	16 37 09
16 39 20	CRAB	04 16 31	55.5	146.4	-1.3		-21.0	13	250	16 39 20
16 44 20	---	04 21 32	55.9	148.4	-1.2		-19.9	300	288	16 39 21
16 45 00	J0518+2054	04 22 12	56.0	155.8	-0.9		-15.3	10	288	16 45 00
16 46 30	=0515+208	04 23 42	56.1	156.4	-0.9		-14.9	90	300	16 45 01
16 47 12	CRAB	04 24 24	56.1	149.5	-1.2		-19.2	13	300	16 47 12
16 52 12	---	04 29 25	56.5	151.5	-1.1		-18.0	300	338	16 47 13

Schedule for TORUN (Code Tr )

Page 3

Long overdue - Measuring the Parallax and proper motion of the Crab. Ste

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
---	Sat 25 Feb 2017	Day	56	---						
16 53 02	J0530+1331	04 30 15	48.6	157.0	-1.0		-14.0	7	338	16 53 02
16 57 02	=0528+134	04 34 16	48.8	158.4	-1.0		-13.1	240	369	16 53 03
16 57 42	J0518+2054	04 34 56	56.7	161.0	-0.7		-12.1	-4	369	16 57 42
16 59 12	=0515+208	04 36 26	56.8	161.6	-0.7		-11.7	86	381	16 57 43
16 59 54	CRAB	04 37 09	57.0	154.6	-1.0		-16.1	13	381	16 59 54
17 04 54	---	04 42 09	57.3	156.7	-0.9		-14.9	300	419	16 59 55
17 05 34	J0518+2054	04 42 50	57.1	164.3	-0.6		-10.0	10	419	17 05 34
17 07 04	=0515+208	04 44 20	57.1	164.9	-0.6		-9.6	90	431	17 05 35
17 07 46	CRAB	04 45 02	57.5	157.9	-0.8		-14.1	13	431	17 07 46
17 12 46	---	04 50 03	57.7	160.0	-0.8		-12.8	300	469	17 07 47
17 13 26	J0518+2054	04 50 43	57.4	167.6	-0.5		-7.9	10	469	17 13 26
17 14 56	=0515+208	04 52 13	57.4	168.3	-0.4		-7.5	90	481	17 13 27
17 15 38	CRAB	04 52 55	57.9	161.2	-0.7		-12.1	13	481	17 15 38
17 20 38	---	04 57 56	58.1	163.3	-0.6		-10.7	300	519	17 15 39
17 21 18	J0518+2054	04 58 36	57.6	171.1	-0.3		-5.7	10	519	17 21 18
17 22 48	=0515+208	05 00 06	57.6	171.7	-0.3		-5.3	90	531	17 21 19
17 23 30	CRAB	05 00 48	58.2	164.6	-0.6		-9.9	12	531	17 23 30
17 28 30	---	05 05 49	58.4	166.8	-0.5		-8.5	300	569	17 23 31
17 29 10	J0518+2054	05 06 29	57.7	174.5	-0.2		-3.5	10	569	17 29 10
17 30 40	=0515+208	05 08 00	57.8	175.1	-0.2		-3.1	90	581	17 29 11
17 31 22	CRAB	05 08 42	58.5	168.0	-0.4		-7.7	12	581	17 31 22
17 36 22	---	05 13 43	58.6	170.2	-0.4		-6.3	300	619	17 31 23
17 37 02	J0518+2054	05 14 23	57.8	177.9	-0.1		-1.3	10	619	17 37 02
17 38 32	=0515+208	05 15 53	57.8	178.6	-0.1		-0.9	90	631	17 37 03
17 39 14	CRAB	05 16 35	58.7	171.5	-0.3		-5.5	13	631	17 39 14
17 44 14	---	05 21 36	58.8	173.7	-0.2		-4.0	300	669	17 39 15
17 44 54	J0518+2054	05 22 16	57.8	181.4	0.1		0.9	10	669	17 44 54
17 46 24	=0515+208	05 23 46	57.8	182.1	0.1		1.3	90	681	17 44 55
17 47 06	CRAB	05 24 28	58.9	175.0	-0.2		-3.2	13	681	17 47 06
17 52 06	---	05 29 29	58.9	177.3	-0.1		-1.8	300	719	17 47 07
17 52 46	J0518+2054	05 30 09	57.8	184.8	0.2		3.1	10	719	17 52 46
17 54 16	=0515+208	05 31 40	57.7	185.5	0.2		3.5	90	731	17 52 47

Schedule for TORUN (Code Tr )

Page 4

Long overdue - Measuring the Parallax and proper motion of the Crab. Ste  
 UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
 Early: Seconds between end of slew and start. Dwell: On source seconds.  
 Disk: GBytes recorded to this point.  
 TPStart: Recording start time. Frequencies are L0 sum (band edge).  
 SYNC: Time correlator is expected to sync up.

```
-----
Start UT  Source          Start / Stop          Early  Disk  TPStart
Stop UT   LST    EL    AZ    HA  UP  ParA  Dwell  GBytes  SYNC
-----
```

--- Sat 25 Feb 2017 Day 56 ---

```
17 54 58 CRAB          05 32 22  58.9 178.6 -0.1    -0.9  13    731  17 54 58
17 59 58 ---          05 37 22  58.9 180.8  0.0     0.5  300   769  17 54 59
```

## SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

===== Setup file: sess117.L1024

```
Setup group: 12          Station: TORUN          Total bit rate: 1024
Format: MARK5B          Bits per sample: 2       Sample rate: 64.000
Number of channels: 8   DBE type: DBBC_DDC      Speedup factor: 1.00
```

Disk used to record data.

```
1st L0= 2300.00 2300.00 2300.00 2300.00 2300.00 2300.00 2300.00 2300.00
Net SB=      L      L      U      U      L      L      U      U
IF SB =      L      L      L      L      L      L      L      L
Pol.  =      RCP    LCP    RCP    LCP    RCP    LCP    RCP    LCP
BBC   =      1      5      1      5      3      7      3      7
BBC SB=      U      U      L      L      U      U      L      L
IF    =      A1     B1     A1     B1     A1     B1     A1     B1
```

The following frequency sets based on these setups were used.

```
Frequency Set: 6 Setup file default. Used with PCAL = off
L0 sum= 1626.49 1626.49 1626.49 1626.49 1690.49 1690.49 1690.49 1690.49
BBC fr=  673.51 673.51 673.51 673.51 609.51 609.51 609.51 609.51
Bandwd=  32.00 32.00 32.00 32.00 32.00 32.00 32.00 32.00
Matching frequency sets: 6
```

Track assignments are:

```
track1= 2, 6, 10, 14, 4, 8, 12, 16
barrel=roll_off
```

## POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(Date)	Error (mas)
* CRAB	05 31 31.388685	* 05 35 33.889523	0.00
	21 58 54.53487	* 22 00 52.19100	0.00

0515+208	05 15 05.041798	* 05 18 03.824513	05 19 05.105439	0.02
* J0518+2054	20 51 43.76307	* 20 54 52.49736	20 55 45.68891	0.03
	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc			
	GSFC 2015a astro solution, unpublished 1774 observations.			
0528+134	05 28 06.759216	* 05 30 56.416747	05 31 54.614639	0.21
* J0530+1331	13 29 42.28885	* 13 31 55.14952	13 32 26.72422	0.24
J0530+13	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc			
	GSFC 2015a astro solution, unpublished 135789 observations.			

## NETWORK MONITORING EXPERIMENT

PI: *Ross Burns*

Address: JIVE

Observing mode:

Schedule for TORUN (Code Tr )

Page 2

## Network Monitoring Experiment

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Sat 25 Feb 2017 Day 56 ---										
Next scan frequencies:		1642.49	1642.49	1642.49	1642.49	1642.49	1674.49	1674.49	1674.49	1674.49
Next BBC frequencies:		657.51	657.51	657.51	657.51	657.51	625.51	625.51	625.51	625.51
Next scan bandwidths:		16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
-----										
19 00 00	J0854+2006	06 37 34	47.6	127.8	-2.3	-30.3	0	0	19 00 00	
19 14 00	=OJ287	06 51 37	49.2	132.1	-2.1	-28.3	840	54	19 00 01	
19 15 00	J0854+2006	06 52 37	49.3	132.4	-2.1	-28.2	54	54	19 15 00	
19 29 00	=OJ287	07 06 39	50.8	137.0	-1.8	-25.8	840	108	19 15 01	
19 31 00	J0956+2515	07 08 39	47.9	114.7	-2.8	-37.1	60	108	19 31 00	
19 44 00	=OK290	07 21 42	49.7	118.3	-2.6	-35.7	780	158	19 31 01	
19 45 00	J0956+2515	07 22 42	49.8	118.6	-2.6	-35.6	54	158	19 45 00	
19 59 00	=OK290	07 36 44	51.6	122.7	-2.4	-33.9	840	212	19 45 01	
20 00 00	J0956+2515	07 37 44	51.7	123.0	-2.3	-33.8	54	212	20 00 00	
20 14 00	=OK290	07 51 46	53.5	127.4	-2.1	-31.8	840	265	20 00 01	
20 15 00	J0956+2515	07 52 47	53.6	127.7	-2.1	-31.7	54	265	20 15 00	
20 29 00	=OK290	08 06 49	55.2	132.4	-1.8	-29.3	840	319	20 15 01	
20 30 00	J0237+2848	08 07 49	27.2	282.7	5.5	42.0	-257	319	20 30 00	
20 44 00	=O234+285	08 21 51	25.2	285.2	5.7	41.4	583	373	20 30 01	
20 45 00	J0237+2848	08 22 52	25.0	285.4	5.7	41.4	54	373	20 45 00	
20 59 00	=O234+285	08 36 54	23.0	288.0	6.0	40.7	840	427	20 45 01	
21 01 00	J0237+2848	08 38 54	22.7	288.3	6.0	40.6	114	427	21 01 00	
21 14 00	=O234+285	08 51 56	20.9	290.7	6.2	39.9	780	477	21 01 01	
21 15 00	J0237+2848	08 52 56	20.7	290.9	6.2	39.9	54	477	21 15 00	
21 29 00	=O234+285	09 06 59	18.8	293.4	6.5	39.0	840	531	21 15 01	
21 30 00	J0237+2848	09 07 59	18.6	293.6	6.5	38.9	54	531	21 30 00	
21 44 00	=O234+285	09 22 01	16.7	296.1	6.7	38.0	840	585	21 30 01	
21 45 00	J0237+2848	09 23 01	16.6	296.3	6.7	37.9	54	585	21 45 00	
21 59 00	=O234+285	09 37 04	14.7	298.8	7.0	36.9	840	638	21 45 01	

SETUP FILE INFORMATION:



NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: sess117.L512nme

```

Setup group: 16          Station: TORUN          Total bit rate: 512
Format: MARK5B         Bits per sample: 2          Sample rate: 32.000
Number of channels: 8   DBE type: DBBC_DDC       Speedup factor: 1.00

```

Disk used to record data.

```

1st LO= 2300.00 2300.00 2300.00 2300.00 2300.00 2300.00 2300.00 2300.00
Net SB=      L      L      U      U      L      L      U      U
IF SB =      L      L      L      L      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP     RCP     LCP     RCP     LCP
BBC   =      1      5      1      5      3      7      3      7
BBC SB=      U      U      L      L      U      U      L      L
IF    =      A1     B1     A1     B1     A1     B1     A1     B1

```

The following frequency sets based on these setups were used.

```

Frequency Set: 8 Setup file default. Used with PCAL = off
LO sum= 1642.49 1642.49 1642.49 1642.49 1674.49 1674.49 1674.49 1674.49
BBC fr=  657.51 657.51 657.51 657.51 625.51 625.51 625.51 625.51
Bandwd=  16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00
Matching frequency sets: 8

```

Track assignments are:

```

track1= 2, 6, 10, 14, 4, 8, 12, 16
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
0234+285	02 34 55.589590	* 02 37 52.405677	02 38 52.321276	0.00
* J0237+2848	28 35 11.40776	* 28 48 08.99001	28 52 28.63700	0.00
J0237+28	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc GSFC 2015a astro solution, unpublished 54650 observations.			
OJ287	08 51 57.250615	* 08 54 48.874926	08 55 48.350352	0.00
* J0854+2006	20 17 58.41743	* 20 06 30.64088	20 02 24.04458	0.00
0851+202	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc			
J0854+20	GSFC 2015a astro solution, unpublished 216540 observations.			
OK290	09 53 59.738481	* 09 56 49.875375	09 57 48.872665	0.41
* J0956+2515	25 29 33.58582	* 25 15 16.04992	25 10 12.60315	0.38
0953+254	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc			
J0956+25	GSFC 2015a astro solution, unpublished 26571 observations.			

18CM GLOBAL VLBI OBSERVATIONS OF ARP220

PI: *Eskil Varenius*

Address: Department of Earth and Space Sciences, Chalmers University of T

Observing mode: 18cm 2Gbps global VLBI with phased D-array VLA

Schedule for TORUN (Code Tr ) Page 2

18cm global VLBI observations of Arp220

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Sun 26 Feb 2017 Day 57 ---										
Next scan frequencies: 1600.25 1600.25 1600.25 1600.25 1664.25 1664.25 1664.25 1664.25										
Next BBC frequencies: 699.75 699.75 699.75 699.75 635.75 635.75 635.75 635.75										
Next scan bandwidths: 32.00 32.00 32.00 32.00 32.00 32.00 32.00 32.00										
03 30 00	J1532+2344	15 08 58	60.2	168.6	-0.4		-7.4	0	0	03 30 00
03 33 00	=1530+239	15 11 59	60.3	170.0	-0.4		-6.5	180	23	03 30 01
03 33 25	ARP220	15 12 24	60.0	169.3	-0.4		-7.0	12	23	03 33 25
03 43 25	---	15 22 26	60.2	173.9	-0.2		-4.0	600	100	03 33 26
03 43 51	J1532+2344	15 22 51	60.5	175.0	-0.2		-3.3	11	100	03 43 51
03 46 51	=1530+239	15 25 52	60.5	176.4	-0.1		-2.3	180	123	03 43 52
03 47 17	ARP220	15 26 17	60.3	175.6	-0.2		-2.8	12	123	03 47 17
03 57 17	---	15 36 19	60.3	180.3	0.0		0.2	600	200	03 47 18
03 57 42	J1532+2344	15 36 45	60.6	181.5	0.1		1.0	11	200	03 57 42
04 00 42	=1530+239	15 39 45	60.6	182.9	0.1		1.9	180	223	03 57 43
04 01 08	ARP220	15 40 11	60.3	182.1	0.1		1.4	12	223	04 01 08
04 11 08	---	15 50 12	60.2	186.7	0.2		4.4	600	300	04 01 09
04 11 33	J1532+2344	15 50 38	60.4	188.0	0.3		5.2	11	300	04 11 33
04 14 33	=1530+239	15 53 39	60.3	189.3	0.3		6.1	180	323	04 11 34
04 14 59	ARP220	15 54 04	60.1	188.5	0.3		5.5	12	323	04 14 59
04 24 59	---	16 04 06	59.9	193.1	0.5		8.5	600	400	04 15 00
04 25 52	J1516+1932	16 04 59	55.2	199.7	0.8		12.4	22	400	04 25 52
04 27 52	=1514+197	16 07 00	55.1	200.6	0.8		12.9	120	415	04 25 53
04 28 40	J1532+2344	16 07 47	59.9	195.8	0.6		10.3	16	415	04 28 40
04 31 40	=1530+239	16 10 48	59.7	197.1	0.6		11.1	180	438	04 28 41
04 32 05	ARP220	16 11 13	59.6	196.3	0.6		10.6	11	438	04 32 05
04 42 05	---	16 21 15	59.1	200.7	0.8		13.4	600	515	04 32 06
04 42 31	J1532+2344	16 21 41	59.2	201.9	0.8		14.2	11	515	04 42 31
04 45 31	=1530+239	16 24 41	59.0	203.2	0.9		15.0	180	538	04 42 32
04 45 56	ARP220	16 25 07	58.9	202.3	0.8		14.4	12	538	04 45 56
04 55 56	---	16 35 08	58.3	206.6	1.0		17.0	600	615	04 45 57

Schedule for TORUN (Code Tr )

Page 3

18cm global VLBI observations of Arp220

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA UP	ParA	Dwell	GBytes	SYNC
-----									
---	Sun 26 Feb 2017	Day	57	---					
04 56 22	J1532+2344	16 35 34	58.3	207.8	1.0	17.8	11	615	04 56 22
04 59 22	=1530+239	16 38 35	58.1	209.0	1.1	18.6	180	638	04 56 23
04 59 47	ARP220	16 39 00	58.0	208.2	1.1	18.0	12	638	04 59 47
05 09 47	---	16 49 02	57.3	212.2	1.2	20.4	600	715	04 59 48
05 10 13	J1532+2344	16 49 28	57.3	213.4	1.3	21.2	11	715	05 10 13
05 13 13	=1530+239	16 52 28	57.0	214.6	1.3	21.9	180	738	05 10 14
05 13 38	ARP220	16 52 54	56.9	213.8	1.3	21.3	12	738	05 13 38
05 23 38	---	17 02 55	56.1	217.6	1.5	23.5	600	815	05 13 39
05 24 25	J1516+1932	17 03 42	50.6	221.6	1.8	25.0	12	815	05 24 25
05 26 25	=1514+197	17 05 42	50.4	222.2	1.8	25.3	120	831	05 24 26
05 27 10	J1532+2344	17 06 28	55.7	219.9	1.5	24.9	12	831	05 27 10
05 30 10	=1530+239	17 09 28	55.4	221.0	1.6	25.5	180	854	05 27 11
05 30 36	ARP220	17 09 54	55.4	220.2	1.6	25.0	12	854	05 30 36
05 40 36	---	17 19 55	54.4	223.8	1.7	26.9	600	931	05 30 37
05 41 01	J1532+2344	17 20 21	54.3	224.9	1.8	27.6	12	931	05 41 01
05 44 01	=1530+239	17 23 22	54.0	225.9	1.8	28.1	180	954	05 41 02
05 44 27	ARP220	17 23 47	54.0	225.2	1.8	27.6	12	954	05 44 27
05 54 27	---	17 33 49	52.9	228.5	2.0	29.4	600	1031	05 44 28
05 54 53	J1532+2344	17 34 14	52.8	229.6	2.0	30.0	12	1031	05 54 53
05 57 53	=1530+239	17 37 15	52.5	230.6	2.1	30.4	180	1054	05 54 54
05 58 18	ARP220	17 37 40	52.5	229.8	2.0	30.0	12	1054	05 58 18
06 08 18	---	17 47 42	51.3	233.0	2.2	31.5	600	1131	05 58 19
06 08 44	J1532+2344	17 48 08	51.2	234.0	2.2	32.0	12	1131	06 08 44
06 11 44	=1530+239	17 51 08	50.8	234.9	2.3	32.5	180	1154	06 08 45
06 12 09	ARP220	17 51 34	50.8	234.2	2.3	32.1	12	1154	06 12 09
06 22 09	---	18 01 35	49.6	237.2	2.4	33.4	600	1231	06 12 10
06 22 35	J1532+2344	18 02 01	49.4	238.2	2.5	33.9	12	1231	06 22 35
06 25 35	=1530+239	18 05 02	49.0	239.1	2.5	34.2	180	1254	06 22 36
06 26 00	ARP220	18 05 27	49.1	238.4	2.5	33.9	12	1254	06 26 00
06 36 00	---	18 15 29	47.8	241.2	2.7	35.0	600	1331	06 26 01
06 36 00	J1516+1932	18 15 29	42.1	242.9	3.0	34.5	-35	1331	No stop
06 37 00	=1514+197	18 16 29	42.0	243.1	3.0	34.6	25	1338	06 36 01

Schedule for TORUN (Code Tr )

Page 4

18cm global VLBI observations of Arp220

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Sun 26 Feb 2017 Day 57 ---										
06 37 21	J1516+1932	18 16 50	41.9	243.2	3.0		34.7	15	1338	06 37 14
06 38 21	=1514+197	18 17 50	41.8	243.5	3.0		34.7	60	1347	06 37 15
06 39 12	J1532+2344	18 18 42	47.2	242.9	2.8		35.7	17	1347	06 39 12
06 42 12	=1530+239	18 21 42	46.8	243.7	2.8		36.0	180	1370	06 39 13
06 42 38	ARP220	18 22 08	46.9	243.1	2.8		35.7	13	1370	06 42 38
06 52 38	---	18 32 09	45.5	245.7	2.9		36.6	600	1447	06 42 39
06 53 04	J1532+2344	18 32 35	45.4	246.6	3.0		37.0	13	1447	06 53 04
06 56 04	=1530+239	18 35 35	44.9	247.4	3.0		37.3	180	1470	06 53 05
06 56 29	ARP220	18 36 01	45.0	246.7	3.0		37.0	13	1470	06 56 29
07 06 29	---	18 46 03	43.6	249.3	3.2		37.8	600	1547	06 56 30
07 06 55	J1532+2344	18 46 28	43.4	250.2	3.2		38.1	13	1547	07 06 55
07 07 55	=1530+239	18 47 28	43.3	250.4	3.2		38.1	60	1555	07 06 56
07 08 15	J1532+2344	18 47 49	43.2	250.5	3.2		38.2	14	1555	07 08 15
07 10 15	=1530+239	18 49 49	42.9	251.0	3.3		38.3	120	1570	07 08 16
07 10 40	ARP220	18 50 14	43.0	250.3	3.2		38.1	13	1570	07 10 40
07 20 40	---	19 00 16	41.6	252.8	3.4		38.7	600	1647	07 10 41
07 21 06	J1532+2344	19 00 42	41.4	253.6	3.5		39.0	13	1647	07 21 06
07 24 06	=1530+239	19 03 42	41.0	254.3	3.5		39.1	180	1670	07 21 07
07 24 31	ARP220	19 04 08	41.0	253.7	3.5		38.9	13	1670	07 24 31
07 34 31	---	19 14 09	39.6	256.0	3.6		39.4	600	1747	07 24 32
07 35 25	J1516+1932	19 15 04	33.7	257.2	4.0		38.4	19	1747	07 35 25
07 36 25	=1514+197	19 16 04	33.6	257.4	4.0		38.4	60	1755	07 35 26
07 36 45	J1516+1932	19 16 24	33.5	257.5	4.0		38.4	14	1755	07 36 45
07 37 45	=1514+197	19 17 24	33.4	257.7	4.0		38.5	60	1763	07 36 46
07 38 38	J1532+2344	19 18 17	38.8	257.7	3.7		39.8	18	1763	07 38 38
07 41 38	=1530+239	19 21 17	38.4	258.3	3.8		40.0	180	1786	07 38 39
07 41 59	ARP220	19 21 38	38.5	257.7	3.8		39.8	9	1786	07 41 59
07 51 59	---	19 31 40	37.0	260.0	3.9		40.1	600	1863	07 42 00
07 52 20	J1532+2344	19 32 02	36.8	260.7	4.0		40.3	9	1863	07 52 20
07 55 20	=1530+239	19 35 02	36.4	261.4	4.0		40.4	180	1886	07 52 21

18cm global VLBI observations of Arp220

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Sun 26 Feb 2017 Day 57 ---										
07 55 41	ARP220	19 35 23	36.5	260.8	4.0		40.2	9	1886	07 55 41
08 05 41	---	19 45 25	35.0	262.9	4.2		40.5	600	1963	07 55 42
08 06 02	J1532+2344	19 45 46	34.8	263.7	4.2		40.7	9	1963	08 06 02
08 07 02	=1530+239	19 46 46	34.6	263.9	4.2		40.7	60	1970	08 06 03
08 07 12	J1532+2344	19 46 56	34.6	263.9	4.2		40.7	4	1970	08 07 12
08 09 12	=1530+239	19 48 56	34.3	264.3	4.3		40.7	120	1986	08 07 13
08 09 33	ARP220	19 49 17	34.4	263.8	4.2		40.6	8	1986	08 09 33
08 19 33	---	19 59 19	32.9	265.9	4.4		40.8	600	2063	08 09 34
08 19 54	J1532+2344	19 59 40	32.7	266.6	4.4		40.9	9	2063	08 19 54
08 22 54	=1530+239	20 02 40	32.2	267.2	4.5		40.9	180	2086	08 19 55
08 23 14	ARP220	20 03 01	32.3	266.6	4.5		40.8	8	2086	08 23 14
08 33 14	---	20 13 02	30.8	268.7	4.6		40.9	600	2163	08 23 15
08 34 10	J1516+1932	20 13 58	25.0	269.6	4.9		39.6	20	2163	08 34 10
08 35 10	=1514+197	20 14 58	24.8	269.8	5.0		39.6	60	2170	08 34 11
08 35 20	J1516+1932	20 15 08	24.8	269.8	5.0		39.6	4	2170	08 35 20
08 36 20	=1514+197	20 16 08	24.6	270.0	5.0		39.6	60	2178	08 35 21
08 37 12	J1532+2344	20 17 01	30.1	270.1	4.7		41.0	18	2178	08 37 12
08 40 12	=1530+239	20 20 01	29.6	270.7	4.8		41.0	180	2201	08 37 13
08 40 33	ARP220	20 20 22	29.7	270.1	4.7		40.9	8	2201	08 40 33
08 50 33	---	20 30 23	28.2	272.1	4.9		40.8	600	2278	08 40 34
08 50 53	J1532+2344	20 30 44	28.0	272.8	5.0		40.9	9	2278	08 50 53
08 53 53	=1530+239	20 33 44	27.6	273.4	5.0		40.9	180	2301	08 50 54
08 54 13	ARP220	20 34 04	27.7	272.8	5.0		40.8	8	2301	08 54 13
09 04 13	---	20 44 06	26.2	274.8	5.1		40.7	600	2378	08 54 14
09 04 34	J1532+2344	20 44 27	26.0	275.5	5.2		40.7	8	2378	09 04 34
09 05 34	=1530+239	20 45 27	25.8	275.7	5.2		40.7	60	2386	09 04 35
09 05 45	J1532+2344	20 45 39	25.8	275.7	5.2		40.7	6	2386	09 05 45
09 07 45	=1530+239	20 47 39	25.5	276.1	5.2		40.7	120	2401	09 05 46
09 08 05	ARP220	20 47 59	25.6	275.6	5.2		40.7	8	2401	09 08 05
09 18 05	---	20 58 00	24.1	277.5	5.4		40.5	600	2478	09 08 06

Schedule for TORUN (Code Tr )

Page 6

18cm global VLBI observations of Arp220

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Sun 26 Feb 2017 Day 57 ---										
09 18 25	J1532+2344	20 58 21	23.9	278.1	5.4		40.5	8	2478	09 18 25
09 21 25	=1530+239	21 01 21	23.5	278.7	5.5		40.4	180	2501	09 18 26
09 21 45	ARP220	21 01 41	23.6	278.2	5.4		40.4	8	2501	09 21 45
09 31 45	---	21 11 43	22.1	280.1	5.6		40.1	600	2578	09 21 46
09 32 41	J1516+1932	21 12 38	16.2	281.0	5.9		38.7	20	2578	09 32 41
09 33 41	=1514+197	21 13 39	16.1	281.2	5.9		38.7	60	2586	09 32 42
09 33 51	J1516+1932	21 13 49	16.0	281.2	5.9		38.7	4	2586	09 33 51
09 34 51	=1514+197	21 14 49	15.9	281.4	6.0		38.6	60	2593	09 33 52
09 35 43	J1532+2344	21 15 42	21.3	281.4	5.7		40.0	18	2593	09 35 43
09 36 43	=1530+239	21 16 42	21.2	281.6	5.7		40.0	60	2601	09 35 44
09 37 03	ARP220	21 17 01	21.3	281.1	5.7		40.0	8	2601	09 37 03
09 47 03	---	21 27 03	19.8	283.0	5.9		39.6	600	2678	09 37 04
09 47 23	J1532+2344	21 27 23	19.6	283.6	5.9		39.6	8	2678	09 47 23
09 50 23	=1530+239	21 30 24	19.2	284.2	5.9		39.5	180	2701	09 47 24
09 50 43	ARP220	21 30 43	19.3	283.7	5.9		39.5	8	2701	09 50 43
10 00 43	---	21 40 45	17.8	285.5	6.1		39.1	600	2778	09 50 44
10 01 03	J1532+2344	21 41 05	17.6	286.2	6.1		39.0	8	2778	10 01 03
10 02 03	=1530+239	21 42 05	17.5	286.4	6.1		39.0	60	2786	10 01 04
10 02 21	J1532+2344	21 42 24	17.4	286.4	6.1		39.0	13	2786	10 02 21
10 04 21	=1530+239	21 44 24	17.2	286.8	6.2		38.9	120	2801	10 02 22
10 04 41	ARP220	21 44 44	17.2	286.3	6.2		38.9	8	2801	10 04 41
10 14 41	---	21 54 45	15.8	288.2	6.3		38.5	600	2878	10 04 42
10 15 01	J1532+2344	21 55 05	15.6	288.8	6.4		38.4	8	2878	10 15 01
10 18 01	=1530+239	21 58 06	15.2	289.3	6.4		38.2	180	2901	10 15 02
10 18 20	ARP220	21 58 25	15.3	288.8	6.4		38.3	8	2901	10 18 20
10 28 20	---	22 08 27	13.9	290.7	6.5		37.7	600	2978	10 18 21
10 29 16	J1516+1932	22 09 22	8.1	291.9	6.9		36.2	20	2978	10 29 16
10 30 16	=1514+197	22 10 23	7.9	292.1	6.9		36.2	60	2986	10 29 17
10 30 22	J1516+1932	22 10 29	7.9	292.1	6.9		36.2	0	2986	No stop
10 31 22	=1514+197	22 11 29	7.8	292.3	6.9		36.1	60	2994	10 30 17

Schedule for TORUN (Code Tr ) Page 7

18cm global VLBI observations of Arp220

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Sun 26 Feb 2017 Day 57 ---										
10 32 14	J1532+2344	22 12 22	13.2	292.0	6.6		37.4	18	2994	10 32 14
10 35 14	=1530+239	22 15 22	12.8	292.6	6.7		37.3	180	3017	10 32 15
10 35 33	ARP220	22 15 41	12.9	292.1	6.7		37.3	8	3017	10 35 33
10 45 33	---	22 25 43	11.5	293.9	6.8		36.7	600	3094	10 35 34
10 45 53	J1532+2344	22 26 03	11.3	294.6	6.9		36.6	8	3094	10 45 53
10 48 53	=1530+239	22 29 03	10.9	295.1	6.9		36.4	180	3117	10 45 54
10 49 12	ARP220	22 29 23	11.0	294.6	6.9		36.5	8	3117	10 49 12
10 59 12	---	22 39 24	9.6	296.5	7.1		35.8	600	3194	10 49 13
11 01 06	J1532+2344	22 41 18	9.3	297.4	7.1		35.6	101	3194	11 01 06
11 02 06	=1530+239	22 42 18	9.1	297.6	7.1		35.5	60	3202	11 01 07
11 02 15	J1532+2344	22 42 27	9.1	297.6	7.1		35.5	3	3202	No stop
11 04 15	=1530+239	22 44 27	8.8	298.0	7.2		35.4	120	3218	11 02 07
11 04 30	ARP220	22 44 42	8.9	297.5	7.2		35.5	4	3218	11 04 30
11 14 30	---	22 54 44	7.6	299.4	7.3		34.8	600	3295	11 04 31
11 14 45	J1532+2344	22 55 00	7.5	300.0	7.4		34.6	4	3295	11 14 45
11 17 45	=1530+239	22 58 00	7.1	300.6	7.4		34.4	180	3318	11 14 46
11 18 00	ARP220	22 58 15	7.1	300.1	7.4		34.5	4	3318	11 18 00
11 28 00	---	23 08 17	5.8	302.0	7.5		33.7	600	3395	11 18 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: sess117.L2048glob

Setup group: 23	Station: TORUN	Total bit rate: 1024
Format: MARK5B	Bits per sample: 2	Sample rate: 64.000
Number of channels: 8	DBE type: DBBC_DDC	Speedup factor: 1.00

Disk used to record data.

1st LO=	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00
Net SB=	L	L	U	U	L	L	U	U
IF SB =	L	L	L	L	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP	RCP	LCP	RCP	LCP
BBC =	1	5	1	5	3	7	3	7
BBC SB=	U	U	L	L	U	U	L	L
IF =	A1	B1	A1	B1	A1	B1	A1	B1

The following frequency sets based on these setups were used.

Frequency Set: 7 Setup file default. Used with PCAL = off  
 LO sum= 1600.25 1600.25 1600.25 1600.25 1664.25 1664.25 1664.25 1664.25  
 BBC fr= 699.75 699.75 699.75 699.75 635.75 635.75 635.75 635.75  
 Bandwd= 32.00 32.00 32.00 32.00 32.00 32.00 32.00 32.00  
 Matching frequency sets: 7

Track assignments are:  
 track1= 2, 6, 10, 14, 4, 8, 12, 16  
 barrel=roll\_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* 3C318	15 17 50.628003	* 15 20 05.489700	15 20 51.619460	0.00
	20 26 53.10030	* 20 16 05.61100	20 12 19.37298	0.00
	Pos. from <a href="https://science.nrao.edu/facilities/vla/observing/callist#R15">https://science.nrao.edu/facilities/vla/observing/callist#R15</a>			
* ARP220	15 32 46.905485	* 15 34 57.250000	15 35 41.749984	0.00
	23 40 07.75728	* 23 30 11.33000	23 26 41.88094	0.00
	Pos. from Batejat. et al 2011			
* 3C286	13 28 49.657758	* 13 31 08.288051	13 31 56.137992	0.18
J1331+3030	30 45 58.64059	* 30 30 32.95924	30 25 07.99101	0.17
1328+307	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc			
J1331+30	GSFC 2015a astro solution, unpublished 225 observations.			
1514+197	15 14 40.985840	* 15 16 56.796162	15 17 43.268587	0.01
* J1516+1932	19 43 10.94252	* 19 32 12.99209	19 28 23.33097	0.02
J1516+19	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc			
	GSFC 2015a astro solution, unpublished 2699 observations.			
1530+239	15 30 36.092767	* 15 32 46.345222	15 33 30.823776	0.10
* J1532+2344	23 54 09.32921	* 23 44 05.26804	23 40 33.11927	0.17
	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc			
	GSFC 2015a astro solution, unpublished 90 observations.			



ep102tr

COMPACT GROUP

PI: *Paragi*

Address: JIVE

Observing mode: evn

Schedule for TORUN (Code Tr )

Page 2

Compact Group

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC	
-----											
--- Sun 26 Feb 2017 Day 57 ---											
Next scan frequencies:		1626.49	1626.49	1626.49	1626.49	1626.49	1626.49	1690.49	1690.49	1690.49	1690.49
Next BBC frequencies:		673.51	673.51	673.51	673.51	673.51	673.51	609.51	609.51	609.51	609.51
Next scan bandwidths:		32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00
-----											
17 30 00	OJ287	05 11 16	36.0	105.3	-3.7		-38.1	0	0	17 30 00	
17 41 00	---	05 22 18	37.6	107.8	-3.6		-37.5	660	85	17 30 01	
17 43 30	J1000+1324	05 24 48	23.1	98.6	-4.6		-37.6	81	85	17 43 30	
17 45 00	=0957+136	05 26 19	23.3	99.0	-4.6		-37.6	90	96	17 43 31	
17 45 00	FIELD1	05 26 19	23.2	99.5	-4.6		-37.4	-12	96	No stop	
17 48 30	---	05 29 49	23.7	100.3	-4.5		-37.3	198	123	17 45 01	
17 48 30	J1000+1324	05 29 49	23.8	99.7	-4.5		-37.5	-12	123	No stop	
17 50 00	=0957+136	05 31 19	24.0	100.0	-4.5		-37.4	78	135	17 48 31	
17 50 00	FIELD1	05 31 19	24.0	100.6	-4.5		-37.3	-12	135	No stop	
17 53 30	---	05 34 50	24.5	101.3	-4.4		-37.2	198	162	17 50 01	
17 54 10	J1000+1324	05 35 30	24.7	100.9	-4.4		-37.3	28	162	17 54 10	
17 55 10	=0957+136	05 36 30	24.8	101.1	-4.4		-37.3	60	169	17 54 11	
17 55 10	FIELD1	05 36 30	24.7	101.7	-4.4		-37.1	-12	169	No stop	
17 58 40	---	05 40 01	25.2	102.4	-4.3		-37.0	198	196	17 55 11	
17 58 40	J1000+1324	05 40 01	25.3	101.9	-4.4		-37.1	-12	196	No stop	
18 00 10	=0957+136	05 41 31	25.5	102.2	-4.3		-37.1	78	208	17 58 41	
18 00 10	FIELD2	05 41 31	25.3	102.6	-4.3		-37.0	-11	208	No stop	
18 03 10	---	05 44 32	25.8	103.2	-4.3		-36.9	169	231	18 00 11	
18 03 10	J1000+1324	05 44 32	26.0	102.8	-4.3		-37.0	-10	231	No stop	
18 04 40	=0957+136	05 46 02	26.2	103.2	-4.3		-36.9	80	242	18 03 11	
18 05 30	J1002+1216	05 46 52	25.1	103.6	-4.3		-36.7	32	242	18 05 30	
18 08 30	=1000+125	05 49 52	25.5	104.3	-4.2		-36.5	180	265	18 05 31	
18 08 30	J1000+1324	05 49 52	26.8	104.0	-4.2		-36.8	-18	265	No stop	
18 10 00	=0957+136	05 51 23	27.0	104.3	-4.2		-36.7	72	277	18 08 31	
18 10 00	FIELD1	05 51 23	26.9	104.9	-4.1		-36.5	-12	277	No stop	
18 13 30	---	05 54 53	27.4	105.7	-4.1		-36.4	198	304	18 10 01	

Schedule for TORUN (Code Tr )

Page 3

Compact Group

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC	
-----											
---	Sun 26 Feb 2017	Day	57	---							
18 13 30	J1000+1324	05 54 53	27.5	105.1	-4.1		-36.6	-12	304	No stop	
18 15 00	=0957+136	05 56 23	27.7	105.4	-4.1		-36.5	78	315	18 13 31	
18 15 00	FIELD1	05 56 23	27.6	106.0	-4.1		-36.3	-12	315	No stop	
18 18 30	---	05 59 54	28.1	106.8	-4.0		-36.1	198	342	18 15 01	
18 19 10	J1000+1324	06 00 34	28.3	106.4	-4.0		-36.3	28	342	18 19 10	
18 20 10	=0957+136	06 01 34	28.5	106.6	-4.0		-36.3	60	350	18 19 11	
18 20 10	FIELD1	06 01 34	28.4	107.2	-4.0		-36.1	-12	350	No stop	
18 23 40	---	06 05 05	28.9	108.0	-3.9		-35.9	198	377	18 20 11	
18 23 40	J1000+1324	06 05 05	29.0	107.4	-3.9		-36.1	-12	377	No stop	
18 25 10	=0957+136	06 06 35	29.2	107.7	-3.9		-36.0	78	388	18 23 41	
18 25 10	FIELD2	06 06 35	29.0	108.1	-3.9		-35.9	-11	388	No stop	
18 28 10	---	06 09 36	29.4	108.8	-3.9		-35.7	169	412	18 25 11	
18 28 10	J1000+1324	06 09 36	29.6	108.4	-3.9		-35.8	-10	412	No stop	
18 29 40	=0957+136	06 11 06	29.8	108.7	-3.8		-35.8	80	423	18 28 11	
18 30 30	J1002+1216	06 11 56	28.7	109.2	-3.9		-35.5	32	423	18 30 30	
18 33 30	=1000+125	06 14 57	29.1	109.8	-3.8		-35.3	180	446	18 30 31	
18 33 30	J1000+1324	06 14 57	30.4	109.6	-3.8		-35.5	-18	446	No stop	
18 35 00	=0957+136	06 16 27	30.6	110.0	-3.8		-35.5	72	458	18 33 31	
18 35 00	FIELD1	06 16 27	30.5	110.5	-3.7		-35.2	-12	458	No stop	
18 38 30	---	06 19 57	31.0	111.4	-3.7		-35.0	198	485	18 35 01	
18 38 30	J1000+1324	06 19 57	31.1	110.8	-3.7		-35.2	-12	485	No stop	
18 40 00	=0957+136	06 21 28	31.3	111.1	-3.7		-35.1	78	496	18 38 31	
18 40 00	FIELD1	06 21 28	31.2	111.7	-3.6		-34.9	-12	496	No stop	
18 43 30	---	06 24 58	31.7	112.5	-3.6		-34.7	198	523	18 40 01	
18 44 10	J1000+1324	06 25 38	31.9	112.1	-3.6		-34.9	28	523	18 44 10	
18 45 10	=0957+136	06 26 38	32.0	112.3	-3.6		-34.8	60	531	18 44 11	
18 45 10	FIELD1	06 26 38	31.9	112.9	-3.6		-34.6	-12	531	No stop	
18 48 40	---	06 30 09	32.4	113.8	-3.5		-34.3	198	558	18 45 11	
18 48 40	J1000+1324	06 30 09	32.5	113.2	-3.5		-34.6	-12	558	No stop	
18 50 10	=0957+136	06 31 39	32.7	113.5	-3.5		-34.5	78	569	18 48 41	
18 50 10	FIELD2	06 31 39	32.5	113.9	-3.5		-34.3	-11	569	No stop	
18 53 10	---	06 34 40	32.9	114.6	-3.4		-34.1	169	592	18 50 11	

Schedule for TORUN (Code Tr )

Page 4

Compact Group

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Sun 26 Feb 2017 Day 57 ---										
18 53 10	J1000+1324	06 34 40	33.1	114.2	-3.4		-34.2	-10	592	No stop
18 54 40	=0957+136	06 36 10	33.3	114.6	-3.4		-34.1	80	604	18 53 11
18 55 30	J1002+1216	06 37 00	32.2	115.0	-3.4		-33.8	32	604	18 55 30
18 58 30	=1000+125	06 40 01	32.6	115.7	-3.4		-33.6	180	627	18 55 31
18 58 30	J1000+1324	06 40 01	33.8	115.5	-3.4		-33.8	-18	627	No stop
19 00 00	=0957+136	06 41 31	34.0	115.9	-3.3		-33.7	72	638	18 58 31
19 00 00	FIELD1	06 41 31	33.9	116.5	-3.3		-33.5	-12	638	No stop
19 03 30	---	06 45 01	34.4	117.4	-3.3		-33.2	198	665	19 00 01
19 03 30	J1000+1324	06 45 01	34.5	116.8	-3.3		-33.4	-12	665	No stop
19 05 00	=0957+136	06 46 32	34.7	117.1	-3.2		-33.3	78	677	19 03 31
19 05 00	FIELD1	06 46 32	34.6	117.7	-3.2		-33.0	-12	677	No stop
19 08 30	---	06 50 02	35.1	118.6	-3.2		-32.7	198	704	19 05 01
19 09 10	J1000+1324	06 50 42	35.3	118.2	-3.2		-33.0	28	704	19 09 10
19 10 10	=0957+136	06 51 43	35.4	118.4	-3.2		-32.9	60	712	19 09 11
19 10 10	FIELD1	06 51 43	35.3	119.0	-3.1		-32.6	-12	712	No stop
19 13 40	---	06 55 13	35.7	119.9	-3.1		-32.3	198	738	19 10 11
19 13 40	J1000+1324	06 55 13	35.9	119.3	-3.1		-32.6	-12	738	No stop
19 15 10	=0957+136	06 56 43	36.1	119.7	-3.1		-32.4	78	750	19 13 41
19 15 10	FIELD2	06 56 43	35.8	120.1	-3.1		-32.2	-11	750	No stop
19 18 10	---	06 59 44	36.2	120.8	-3.0		-31.9	169	773	19 15 11
19 18 10	J1000+1324	06 59 44	36.5	120.5	-3.0		-32.1	-11	773	No stop
19 19 40	=0957+136	07 01 14	36.6	120.8	-3.0		-32.0	79	785	19 18 11
19 20 30	J1002+1216	07 02 04	35.5	121.2	-3.0		-31.7	32	785	19 20 30
19 23 30	=1000+125	07 05 05	35.9	122.0	-3.0		-31.4	180	808	19 20 31
19 23 30	J1000+1324	07 05 05	37.1	121.8	-2.9		-31.6	-18	808	No stop
19 25 00	=0957+136	07 06 35	37.3	122.2	-2.9		-31.5	72	819	19 23 31
19 25 00	FIELD1	07 06 35	37.2	122.8	-2.9		-31.2	-12	819	No stop
19 28 30	---	07 10 06	37.6	123.8	-2.8		-30.8	198	846	19 25 01
19 28 30	J1000+1324	07 10 06	37.8	123.1	-2.9		-31.1	-12	846	No stop
19 30 00	=0957+136	07 11 36	38.0	123.5	-2.8		-31.0	78	858	19 28 31

Schedule for TORUN (Code Tr )

Page 5

Compact Group

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Sun 26 Feb 2017 Day 57 ---										
19 30 00	FIELD1	07 11 36	37.8	124.2	-2.8		-30.6	-12	858	No stop
19 33 30	---	07 15 06	38.3	125.1	-2.7		-30.3	198	885	19 30 01
19 34 10	J1000+1324	07 15 46	38.5	124.7	-2.8		-30.5	28	885	19 34 10
19 35 10	=0957+136	07 16 47	38.6	124.9	-2.7		-30.4	60	892	19 34 11
19 35 10	FIELD1	07 16 47	38.5	125.6	-2.7		-30.1	-12	892	No stop
19 38 40	---	07 20 17	38.9	126.5	-2.7		-29.7	198	919	19 35 11
19 38 40	J1000+1324	07 20 17	39.0	125.9	-2.7		-30.0	-12	919	No stop
19 40 10	=0957+136	07 21 47	39.2	126.3	-2.7		-29.8	78	931	19 38 41
19 40 10	FIELD2	07 21 47	39.0	126.7	-2.7		-29.6	-11	931	No stop
19 43 10	---	07 24 48	39.3	127.5	-2.6		-29.3	169	954	19 40 11
19 43 10	J1000+1324	07 24 48	39.6	127.1	-2.6		-29.5	-11	954	No stop
19 44 40	=0957+136	07 26 18	39.8	127.5	-2.6		-29.3	79	965	19 43 11
19 45 30	J1002+1216	07 27 08	38.6	127.8	-2.6		-29.0	32	965	19 45 30
19 48 30	=1000+125	07 30 09	39.0	128.6	-2.6		-28.7	180	988	19 45 31
19 48 30	J1000+1324	07 30 09	40.2	128.6	-2.5		-28.8	-18	988	No stop
19 50 00	=0957+136	07 31 39	40.4	129.0	-2.5		-28.7	72	1000	19 48 31
19 50 00	FIELD1	07 31 39	40.2	129.6	-2.5		-28.3	-12	1000	No stop
19 53 30	---	07 35 10	40.6	130.6	-2.4		-27.9	198	1027	19 50 01
19 53 30	J1000+1324	07 35 10	40.8	130.0	-2.4		-28.2	-12	1027	No stop
19 55 00	=0957+136	07 36 40	41.0	130.4	-2.4		-28.0	78	1038	19 53 31
19 55 00	FIELD1	07 36 40	40.8	131.1	-2.4		-27.7	-12	1038	No stop
19 58 30	---	07 40 10	41.2	132.1	-2.3		-27.2	198	1065	19 55 01
19 59 10	J1000+1324	07 40 51	41.4	131.6	-2.3		-27.5	28	1065	19 59 10
20 00 10	=0957+136	07 41 51	41.6	131.9	-2.3		-27.3	60	1073	19 59 11
20 00 10	FIELD1	07 41 51	41.4	132.6	-2.3		-27.0	-12	1073	No stop
20 03 40	---	07 45 21	41.8	133.6	-2.2		-26.5	198	1100	20 00 11
20 03 40	J1000+1324	07 45 21	41.9	132.9	-2.3		-26.9	-12	1100	No stop
20 05 10	=0957+136	07 46 52	42.1	133.4	-2.2		-26.7	78	1112	20 03 41
20 05 10	FIELD2	07 46 52	41.9	133.8	-2.2		-26.4	-11	1112	No stop
20 08 10	---	07 49 52	42.2	134.6	-2.2		-26.0	169	1135	20 05 11

Schedule for TORUN (Code Tr )

Page 6

Compact Group

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Sun 26 Feb 2017 Day 57 ---										
20 08 10	J1000+1324	07 49 52	42.4	134.2	-2.2		-26.2	-11	1135	No stop
20 09 40	=0957+136	07 51 22	42.6	134.7	-2.2		-26.0	79	1146	20 08 11
20 10 30	J1002+1216	07 52 12	41.4	134.9	-2.2		-25.8	32	1146	20 10 30
20 13 30	=1000+125	07 55 13	41.7	135.8	-2.1		-25.4	180	1169	20 10 31
20 13 30	J1000+1324	07 55 13	43.0	135.8	-2.1		-25.5	-18	1169	No stop
20 15 00	=0957+136	07 56 43	43.2	136.3	-2.1		-25.2	72	1181	20 13 31
20 15 00	FIELD1	07 56 43	43.0	136.9	-2.1		-24.9	-12	1181	No stop
20 18 30	---	08 00 14	43.3	138.0	-2.0		-24.3	198	1208	20 15 01
20 18 30	J1000+1324	08 00 14	43.5	137.4	-2.0		-24.7	-12	1208	No stop
20 20 00	=0957+136	08 01 44	43.7	137.8	-2.0		-24.5	78	1219	20 18 31
20 20 00	FIELD1	08 01 44	43.5	138.5	-2.0		-24.1	-12	1219	No stop
20 23 30	---	08 05 15	43.8	139.6	-1.9		-23.6	198	1246	20 20 01
20 24 10	J1000+1324	08 05 55	44.1	139.1	-1.9		-23.8	28	1246	20 24 10
20 25 10	=0957+136	08 06 55	44.2	139.4	-1.9		-23.7	60	1254	20 24 11
20 25 10	FIELD1	08 06 55	44.0	140.1	-1.9		-23.3	-12	1254	No stop
20 28 40	---	08 10 25	44.3	141.2	-1.8		-22.7	198	1281	20 25 11
20 28 40	J1000+1324	08 10 25	44.5	140.5	-1.9		-23.1	-12	1281	No stop
20 30 10	=0957+136	08 11 56	44.7	141.0	-1.8		-22.9	78	1292	20 28 41
20 30 10	FIELD2	08 11 56	44.4	141.4	-1.8		-22.6	-11	1292	No stop
20 33 10	---	08 14 56	44.7	142.3	-1.8		-22.1	169	1315	20 30 11
20 33 10	J1000+1324	08 14 56	45.0	141.9	-1.8		-22.4	-11	1315	No stop
20 34 40	=0957+136	08 16 26	45.1	142.4	-1.8		-22.1	79	1327	20 33 11
20 35 30	J1002+1216	08 17 17	43.9	142.5	-1.8		-21.9	32	1327	20 35 30
20 38 30	=1000+125	08 20 17	44.2	143.5	-1.7		-21.4	180	1350	20 35 31
20 38 30	J1000+1324	08 20 17	45.4	143.6	-1.7		-21.5	-18	1350	No stop
20 40 00	=0957+136	08 21 47	45.6	144.1	-1.7		-21.2	72	1362	20 38 31
20 40 00	FIELD1	08 21 47	45.3	144.8	-1.6		-20.8	-12	1362	No stop
20 43 30	---	08 25 18	45.6	145.9	-1.6		-20.2	198	1388	20 40 01
20 43 30	J1000+1324	08 25 18	45.9	145.3	-1.6		-20.6	-12	1388	No stop
20 45 00	=0957+136	08 26 48	46.0	145.8	-1.6		-20.3	78	1400	20 43 31

Schedule for TORUN (Code Tr )

Page 7

Compact Group

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Sun 26 Feb 2017 Day 57 ---										
20 45 00	FIELD1	08 26 48	45.8	146.4	-1.6		-19.9	-13	1400	No stop
20 48 30	---	08 30 19	46.1	147.6	-1.5		-19.3	197	1427	20 45 01
20 49 10	J1000+1324	08 30 59	46.3	147.1	-1.5		-19.6	28	1427	20 49 10
20 50 10	=0957+136	08 31 59	46.4	147.5	-1.5		-19.4	60	1435	20 49 11
20 50 10	FIELD1	08 31 59	46.2	148.1	-1.5		-19.0	-13	1435	No stop
20 53 40	---	08 35 30	46.5	149.3	-1.4		-18.3	197	1462	20 50 11
20 53 40	J1000+1324	08 35 30	46.7	148.7	-1.4		-18.7	-12	1462	No stop
20 55 10	=0957+136	08 37 00	46.8	149.2	-1.4		-18.4	78	1473	20 53 41
20 55 10	FIELD2	08 37 00	46.5	149.5	-1.4		-18.2	-11	1473	No stop
20 58 10	---	08 40 00	46.8	150.6	-1.3		-17.6	169	1496	20 55 11
20 58 10	J1000+1324	08 40 00	47.1	150.2	-1.4		-17.9	-11	1496	No stop
20 59 40	=0957+136	08 41 31	47.2	150.7	-1.3		-17.6	79	1508	20 58 11
21 00 30	J1002+1216	08 42 21	46.0	150.7	-1.4		-17.5	32	1508	21 00 30
21 03 30	=1000+125	08 45 21	46.2	151.7	-1.3		-16.9	180	1531	21 00 31
21 03 30	J1000+1324	08 45 21	47.4	152.0	-1.3		-16.8	-18	1531	No stop
21 05 00	=0957+136	08 46 51	47.5	152.5	-1.2		-16.5	72	1542	21 03 31
21 07 30	OJ287	08 49 22	56.9	177.2	-0.1		-1.8	87	1542	21 07 30
21 11 00	---	08 52 52	56.9	178.7	-0.0		-0.8	210	1569	21 07 31
21 13 30	J1000+1324	08 55 23	48.1	155.5	-1.1		-14.8	87	1569	21 13 30
21 15 00	=0957+136	08 56 53	48.2	156.0	-1.1		-14.5	90	1581	21 13 31
21 15 00	FIELD1	08 56 53	47.9	156.7	-1.1		-14.1	-12	1581	No stop
21 18 30	---	09 00 24	48.1	157.9	-1.0		-13.4	198	1608	21 15 01
21 18 30	J1000+1324	09 00 24	48.4	157.3	-1.0		-13.8	-12	1608	No stop
21 20 00	=0957+136	09 01 54	48.5	157.8	-1.0		-13.5	78	1619	21 18 31
21 20 00	FIELD1	09 01 54	48.2	158.5	-1.0		-13.1	-12	1619	No stop
21 23 30	---	09 05 24	48.4	159.7	-0.9		-12.3	198	1646	21 20 01
21 24 10	J1000+1324	09 06 05	48.7	159.3	-0.9		-12.6	28	1646	21 24 10
21 25 10	=0957+136	09 07 05	48.8	159.7	-0.9		-12.4	60	1654	21 24 11
21 25 10	FIELD1	09 07 05	48.5	160.3	-0.9		-12.0	-12	1654	No stop
21 28 40	---	09 10 35	48.7	161.6	-0.8		-11.2	198	1681	21 25 11

Schedule for TORUN (Code Tr )

Page 8

Compact Group

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Sun 26 Feb 2017 Day 57 ---										
21 28 40	J1000+1324	09 10 35	49.0	160.9	-0.8		-11.6	-12	1681	No stop
21 30 10	=0957+136	09 12 06	49.0	161.5	-0.8		-11.3	78	1692	21 28 41
21 30 10	FIELD2	09 12 06	48.7	161.8	-0.8		-11.1	-12	1692	No stop
21 33 10	---	09 15 06	48.8	162.9	-0.8		-10.4	168	1715	21 30 11
21 33 10	J1000+1324	09 15 06	49.2	162.6	-0.8		-10.6	-12	1715	No stop
21 34 40	=0957+136	09 16 36	49.2	163.1	-0.7		-10.3	78	1727	21 33 11
21 35 30	J1002+1216	09 17 26	48.1	162.9	-0.8		-10.4	32	1727	21 35 30
21 38 30	=1000+125	09 20 27	48.2	164.0	-0.7		-9.8	180	1750	21 35 31
21 38 30	J1000+1324	09 20 27	49.4	164.6	-0.7		-9.5	-18	1750	No stop
21 40 00	=0957+136	09 21 57	49.5	165.1	-0.7		-9.1	72	1762	21 38 31
21 40 00	FIELD1	09 21 57	49.1	165.7	-0.6		-8.7	-12	1762	No stop
21 43 30	---	09 25 28	49.3	167.0	-0.6		-8.0	198	1788	21 40 01
21 43 30	J1000+1324	09 25 28	49.6	166.4	-0.6		-8.3	-12	1788	No stop
21 45 00	=0957+136	09 26 58	49.6	167.0	-0.6		-8.0	78	1800	21 43 31
21 45 00	FIELD1	09 26 58	49.3	167.6	-0.6		-7.6	-12	1800	No stop
21 48 30	---	09 30 29	49.4	168.9	-0.5		-6.8	198	1827	21 45 01
21 49 10	J1000+1324	09 31 09	49.8	168.5	-0.5		-7.1	28	1827	21 49 10
21 50 10	=0957+136	09 32 09	49.8	168.9	-0.5		-6.8	60	1835	21 49 11
21 50 10	FIELD1	09 32 09	49.5	169.5	-0.5		-6.4	-12	1835	No stop
21 53 40	---	09 35 39	49.6	170.8	-0.4		-5.6	198	1862	21 50 11
21 53 40	J1000+1324	09 35 39	49.9	170.2	-0.4		-6.0	-12	1862	No stop
21 55 10	=0957+136	09 37 10	49.9	170.8	-0.4		-5.7	78	1873	21 53 41
21 55 10	FIELD2	09 37 10	49.6	171.1	-0.4		-5.5	-12	1873	No stop
21 58 10	---	09 40 10	49.7	172.2	-0.3		-4.8	168	1896	21 55 11
21 58 10	J1000+1324	09 40 10	50.0	171.9	-0.4		-5.0	-12	1896	No stop
21 59 40	=0957+136	09 41 40	50.0	172.5	-0.3		-4.6	78	1908	21 58 11
22 00 30	J1002+1216	09 42 31	48.9	172.1	-0.4		-4.9	32	1908	22 00 30
22 03 30	=1000+125	09 45 31	48.9	173.2	-0.3		-4.2	180	1931	22 00 31
22 03 30	J1000+1324	09 45 31	50.1	173.9	-0.3		-3.7	-18	1931	No stop
22 05 00	=0957+136	09 47 01	50.1	174.5	-0.2		-3.4	72	1942	22 03 31

Schedule for TORUN (Code Tr )

Page 9

Compact Group

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

```

-----
Start UT  Source          Start / Stop          Early  Disk  TPStart
Stop UT   LST      EL  AZ  HA  UP  ParA  Dwell  GBytes  SYNC
-----
--- Sun 26 Feb 2017  Day 57 ---

----- Robledo in -----

22 07 30  OJ287          09 49 32  55.4 202.6  0.9      14.2   80    1942  22 07 30
22 11 00  ---              09 53 02  55.1 204.0  1.0      15.1  210    1969  22 07 31

22 13 30  J1000+1324       09 55 33  50.2 177.7 -0.1     -1.4   81    1969  22 13 30
22 15 00  =0957+136       09 57 03  50.2 178.3 -0.1     -1.0   90    1981  22 13 31

22 15 00  FIELD1          09 57 03  49.8 178.9 -0.0     -0.7  -12    1981  No stop
22 18 30  ---              10 00 33  49.8 180.2  0.0       0.1  198    2008  22 15 01

22 18 30  J1000+1324       10 00 33  50.2 179.6 -0.0     -0.2  -12    2008  No stop
22 20 00  =0957+136       10 02 04  50.2 180.2  0.0       0.1   78    2019  22 18 31

22 20 00  FIELD1          10 02 04  49.8 180.8  0.0       0.5  -12    2019  No stop
22 23 30  ---              10 05 34  49.8 182.1  0.1       1.3  198    2046  22 20 01

22 24 10  J1000+1324       10 06 14  50.2 181.8  0.1       1.1   28    2046  22 24 10
22 25 10  =0957+136       10 07 15  50.2 182.2  0.1       1.3   60    2054  22 24 11

22 25 10  FIELD1          10 07 15  49.8 182.7  0.1       1.7  -12    2054  No stop
22 28 40  ---              10 10 45  49.8 184.0  0.2       2.5  198    2081  22 25 11

22 28 40  J1000+1324       10 10 45  50.2 183.5  0.2       2.2  -12    2081  No stop
22 30 10  =0957+136       10 12 15  50.2 184.1  0.2       2.5   78    2092  22 28 41

22 30 10  FIELD2          10 12 15  49.8 184.3  0.2       2.6  -12    2092  No stop
22 33 10  ---              10 15 16  49.8 185.4  0.2       3.3  168    2115  22 30 11

22 33 10  J1000+1324       10 15 16  50.1 185.2  0.2       3.2  -12    2115  No stop
22 34 40  =0957+136       10 16 46  50.1 185.8  0.3       3.6   78    2127  22 33 11

22 35 30  J1002+1216       10 17 36  49.0 185.1  0.2       3.2   33    2127  22 35 30
22 38 30  =1000+125       10 20 37  49.0 186.3  0.3       3.8  180    2150  22 35 31

22 38 30  J1000+1324       10 20 37  50.0 187.3  0.3       4.5  -17    2150  No stop
22 40 00  =0957+136       10 22 07  50.0 187.8  0.3       4.8   73    2162  22 38 31

22 40 00  FIELD1          10 22 07  49.6 188.3  0.4       5.1  -12    2162  No stop
22 43 30  ---              10 25 38  49.5 189.6  0.4       5.9  198    2188  22 40 01

22 43 30  J1000+1324       10 25 38  49.9 189.1  0.4       5.6  -12    2188  No stop
22 45 00  =0957+136       10 27 08  49.9 189.7  0.4       6.0   78    2200  22 43 31

```



Schedule for TORUN (Code Tr )

Page 10

Compact Group

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Sun 26 Feb 2017 Day 57 ---										
22 45 00	FIELD1	10 27 08	49.5	190.2	0.5		6.3	-12	2200	No stop
22 48 30	---	10 30 38	49.4	191.5	0.5		7.1	198	2227	22 45 01
22 49 10	J1000+1324	10 31 19	49.8	191.3	0.5		6.9	28	2227	22 49 10
22 50 10	=0957+136	10 32 19	49.8	191.6	0.5		7.2	60	2235	22 49 11
22 50 10	FIELD1	10 32 19	49.3	192.1	0.5		7.4	-13	2235	No stop
22 53 40	---	10 35 49	49.2	193.4	0.6		8.2	197	2262	22 50 11
22 53 40	J1000+1324	10 35 49	49.6	193.0	0.6		8.0	-12	2262	No stop
22 55 10	=0957+136	10 37 19	49.6	193.5	0.6		8.3	78	2273	22 53 41
22 55 10	FIELD2	10 37 19	49.2	193.7	0.6		8.4	-12	2273	No stop
22 58 10	---	10 40 20	49.1	194.8	0.7		9.0	168	2296	22 55 11
22 58 10	J1000+1324	10 40 20	49.5	194.6	0.6		9.0	-12	2296	No stop
22 59 40	=0957+136	10 41 50	49.4	195.2	0.7		9.3	78	2308	22 58 11
23 00 30	J1002+1216	10 42 40	48.4	194.4	0.6		8.8	33	2308	23 00 30
23 03 30	=1000+125	10 45 41	48.2	195.5	0.7		9.4	180	2331	23 00 31
23 03 30	J1000+1324	10 45 41	49.3	196.6	0.7		10.2	-17	2331	No stop
23 05 00	=0957+136	10 47 11	49.2	197.2	0.8		10.5	73	2342	23 03 31
23 05 00	FIELD1	10 47 11	48.8	197.6	0.8		10.7	-13	2342	No stop
23 08 30	---	10 50 42	48.6	198.8	0.8		11.5	197	2369	23 05 01
23 08 30	J1000+1324	10 50 42	49.0	198.4	0.8		11.3	-13	2369	No stop
23 10 00	=0957+136	10 52 12	49.0	199.0	0.8		11.6	77	2381	23 08 31
23 10 00	FIELD1	10 52 12	48.5	199.4	0.9		11.8	-13	2381	No stop
23 13 30	---	10 55 42	48.3	200.6	0.9		12.5	197	2408	23 10 01
23 14 10	J1000+1324	10 56 23	48.8	200.5	0.9		12.5	27	2408	23 14 10
23 15 10	=0957+136	10 57 23	48.7	200.8	0.9		12.7	60	2415	23 14 11
23 15 10	FIELD1	10 57 23	48.3	201.2	1.0		12.9	-13	2415	No stop
23 18 40	---	11 00 53	48.1	202.5	1.0		13.6	197	2442	23 15 11
23 18 40	J1000+1324	11 00 53	48.5	202.1	1.0		13.4	-13	2442	No stop
23 20 10	=0957+136	11 02 24	48.4	202.6	1.0		13.7	77	2454	23 18 41
23 20 10	FIELD2	11 02 24	48.0	202.7	1.0		13.8	-12	2454	No stop
23 23 10	---	11 05 24	47.9	203.8	1.1		14.4	168	2477	23 20 11

Schedule for TORUN (Code Tr )

Page 11

Compact Group

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Sun 26 Feb 2017 Day 57 ---										
23 23 10	J1000+1324	11 05 24	48.2	203.7	1.1		14.4	-12	2477	No stop
23 24 40	=0957+136	11 06 54	48.2	204.2	1.1		14.7	78	2488	23 23 11
23 25 30	J1002+1216	11 07 44	47.1	203.3	1.1		14.1	34	2488	23 25 30
23 28 30	=1000+125	11 10 45	47.0	204.4	1.1		14.7	180	2512	23 25 31
23 28 30	J1000+1324	11 10 45	47.9	205.6	1.2		15.5	-16	2512	No stop
23 30 00	=0957+136	11 12 15	47.8	206.1	1.2		15.8	74	2523	23 28 31
23 30 00	FIELD1	11 12 15	47.4	206.5	1.2		15.9	-13	2523	No stop
23 33 30	---	11 15 46	47.1	207.7	1.3		16.6	197	2550	23 30 01
23 33 30	J1000+1324	11 15 46	47.6	207.3	1.2		16.5	-13	2550	No stop
23 35 00	=0957+136	11 17 16	47.5	207.9	1.3		16.8	77	2562	23 33 31
23 35 00	FIELD1	11 17 16	47.0	208.2	1.3		16.9	-13	2562	No stop
23 38 30	---	11 20 47	46.8	209.4	1.3		17.6	197	2588	23 35 01
23 39 10	J1000+1324	11 21 27	47.2	209.3	1.3		17.6	27	2588	23 39 10
23 40 10	=0957+136	11 22 27	47.1	209.6	1.3		17.8	60	2596	23 39 11
23 40 10	FIELD1	11 22 27	46.6	210.0	1.4		17.9	-13	2596	No stop
23 43 40	---	11 25 57	46.4	211.1	1.4		18.6	197	2623	23 40 11
23 43 40	J1000+1324	11 25 57	46.8	210.8	1.4		18.4	-13	2623	No stop
23 45 10	=0957+136	11 27 28	46.7	211.3	1.4		18.7	77	2635	23 43 41
23 45 10	FIELD2	11 27 28	46.3	211.4	1.4		18.7	-12	2635	No stop
23 48 10	---	11 30 28	46.1	212.4	1.5		19.3	168	2658	23 45 11
23 48 10	J1000+1324	11 30 28	46.5	212.3	1.5		19.3	-12	2658	No stop
23 49 40	=0957+136	11 31 58	46.4	212.8	1.5		19.5	78	2669	23 48 11
23 50 30	J1002+1216	11 32 49	45.4	211.8	1.5		18.9	34	2669	23 50 30
23 53 30	=1000+125	11 35 49	45.2	212.8	1.5		19.4	180	2692	23 50 31
23 53 30	J1000+1324	11 35 49	46.0	214.1	1.6		20.2	-16	2692	No stop
23 55 00	=0957+136	11 37 19	45.9	214.6	1.6		20.5	74	2704	23 53 31
-----										
--- Start: Sun 26 Feb 2017 Day 57 -- Stop: Mon 27 Feb 2017 Day 58 ---										
23 58 00	OJ287	11 40 20	44.3	239.8	2.7		33.5	116	2704	23 58 00
00 01 00	---	11 43 20	43.9	240.6	2.8		33.8	180	2727	23 58 01

Schedule for TORUN (Code Tr )

Page 12

Compact Group

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Mon 27 Feb 2017 Day 58 ---										
00 03 30	J1000+1324	11 45 51	45.2	217.4	1.7		22.0	88	2727	00 03 30
00 05 00	=0957+136	11 47 21	45.0	217.8	1.8		22.2	90	2738	00 03 31
00 05 00	FIELD1	11 47 21	44.5	218.1	1.8		22.3	-13	2738	No stop
00 08 30	---	11 50 52	44.2	219.2	1.8		22.9	197	2765	00 05 01
00 08 30	J1000+1324	11 50 52	44.7	218.9	1.8		22.8	-13	2765	No stop
00 10 00	=0957+136	11 52 22	44.5	219.4	1.8		23.1	77	2777	00 08 31
00 10 00	FIELD1	11 52 22	44.1	219.7	1.9		23.2	-13	2777	No stop
00 13 30	---	11 55 52	43.7	220.8	1.9		23.7	197	2804	00 10 01
00 14 10	J1000+1324	11 56 32	44.1	220.7	1.9		23.7	27	2804	00 14 10
00 15 10	=0957+136	11 57 33	44.0	221.0	1.9		23.9	60	2812	00 14 11
00 15 10	FIELD1	11 57 33	43.6	221.3	2.0		24.0	-13	2812	No stop
00 18 40	---	12 01 03	43.2	222.3	2.0		24.5	197	2838	00 15 11
00 18 40	J1000+1324	12 01 03	43.7	222.1	2.0		24.4	-13	2838	No stop
00 20 10	=0957+136	12 02 33	43.5	222.6	2.0		24.7	77	2850	00 18 41
00 20 10	FIELD2	12 02 33	43.2	222.6	2.0		24.6	-12	2850	No stop
00 23 10	---	12 05 34	42.8	223.5	2.1		25.1	168	2873	00 20 11
00 23 10	J1000+1324	12 05 34	43.2	223.5	2.1		25.1	-12	2873	No stop
00 24 40	=0957+136	12 07 04	43.1	223.9	2.1		25.4	78	2885	00 23 11
00 25 30	J1002+1216	12 07 54	42.2	222.8	2.1		24.7	35	2885	00 25 30
00 28 30	=1000+125	12 10 55	41.9	223.7	2.1		25.1	180	2908	00 25 31
00 28 30	J1000+1324	12 10 55	42.7	225.1	2.2		25.9	-16	2908	No stop
00 30 00	=0957+136	12 12 25	42.5	225.5	2.2		26.1	74	2919	00 28 31
00 30 00	FIELD1	12 12 25	42.0	225.7	2.2		26.2	-13	2919	No stop
00 33 30	---	12 15 56	41.6	226.8	2.3		26.7	197	2946	00 30 01
00 33 30	J1000+1324	12 15 56	42.1	226.6	2.2		26.6	-13	2946	No stop
00 35 00	=0957+136	12 17 26	42.0	227.0	2.3		26.8	77	2958	00 33 31
00 35 00	FIELD1	12 17 26	41.5	227.2	2.3		26.9	-13	2958	No stop
00 38 30	---	12 20 56	41.1	228.2	2.3		27.4	197	2985	00 35 01
00 39 10	J1000+1324	12 21 37	41.5	228.2	2.3		27.4	27	2985	00 39 10
00 40 10	=0957+136	12 22 37	41.4	228.5	2.4		27.5	60	2992	00 39 11

Schedule for TORUN (Code Tr )

Page 13

Compact Group

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Mon 27 Feb 2017 Day 58 ---										
00 40 10	FIELD1	12 22 37	40.9	228.7	2.4		27.6	-13	2992	No stop
00 43 40	---	12 26 07	40.5	229.7	2.4		28.0	197	3019	00 40 11
00 43 40	J1000+1324	12 26 07	41.0	229.5	2.4		28.0	-13	3019	No stop
00 45 10	=0957+136	12 27 38	40.8	229.9	2.4		28.2	77	3031	00 43 41
00 45 10	FIELD2	12 27 38	40.4	229.9	2.4		28.1	-12	3031	No stop
00 48 10	---	12 30 38	40.1	230.8	2.5		28.5	168	3054	00 45 11
00 48 10	J1000+1324	12 30 38	40.5	230.8	2.5		28.6	-12	3054	No stop
00 49 40	=0957+136	12 32 08	40.3	231.2	2.5		28.8	78	3065	00 48 11
00 50 30	J1002+1216	12 32 58	39.5	230.1	2.5		28.1	35	3065	00 50 30
00 53 30	=1000+125	12 35 59	39.1	230.9	2.5		28.5	180	3088	00 50 31
00 53 30	J1000+1324	12 35 59	39.8	232.3	2.6		29.2	-16	3088	No stop
00 55 00	=0957+136	12 37 29	39.7	232.7	2.6		29.4	74	3100	00 53 31
00 55 00	FIELD1	12 37 29	39.2	232.9	2.6		29.4	-13	3100	No stop
00 58 30	---	12 41 00	38.7	233.8	2.7		29.8	197	3127	00 55 01
00 58 30	J1000+1324	12 41 00	39.2	233.7	2.7		29.8	-13	3127	No stop
01 00 00	=0957+136	12 42 30	39.1	234.1	2.7		30.0	77	3138	00 58 31
01 00 00	FIELD1	12 42 30	38.6	234.2	2.7		30.0	-13	3138	No stop
01 03 30	---	12 46 01	38.1	235.2	2.8		30.4	197	3165	01 00 01
01 04 10	J1000+1324	12 46 41	38.6	235.2	2.8		30.4	27	3165	01 04 10
01 05 10	=0957+136	12 47 41	38.4	235.5	2.8		30.6	60	3173	01 04 11
01 05 10	FIELD1	12 47 41	37.9	235.6	2.8		30.6	-13	3173	No stop
01 08 40	---	12 51 11	37.5	236.5	2.9		30.9	197	3200	01 05 11
01 08 40	J1000+1324	12 51 11	38.0	236.4	2.8		30.9	-13	3200	No stop
01 10 10	=0957+136	12 52 42	37.8	236.8	2.9		31.1	77	3212	01 08 41
01 10 10	FIELD2	12 52 42	37.4	236.7	2.9		31.0	-12	3212	No stop
01 13 10	---	12 55 42	37.0	237.5	2.9		31.3	168	3235	01 10 11
01 13 10	J1000+1324	12 55 42	37.4	237.6	2.9		31.4	-12	3235	No stop
01 14 40	=0957+136	12 57 12	37.2	238.0	2.9		31.5	78	3246	01 13 11
01 15 30	J1002+1216	12 58 03	36.5	236.9	2.9		31.0	35	3246	01 15 30
01 18 30	=1000+125	13 01 03	36.1	237.6	3.0		31.3	180	3269	01 15 31

Schedule for TORUN (Code Tr )

Page 14

Compact Group

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Mon 27 Feb 2017 Day 58 ---										
01 18 30	J1000+1324	13 01 03	36.7	239.0	3.0		31.9	-16	3269	No stop
01 20 00	=0957+136	13 02 33	36.5	239.4	3.0		32.1	74	3281	01 18 31
01 20 00	FIELD1	13 02 33	36.0	239.5	3.0		32.1	-13	3281	No stop
01 23 30	---	13 06 04	35.6	240.4	3.1		32.4	197	3308	01 20 01
01 23 30	J1000+1324	13 06 04	36.1	240.3	3.1		32.4	-13	3308	No stop
01 25 00	=0957+136	13 07 34	35.9	240.6	3.1		32.5	77	3319	01 23 31
01 25 00	FIELD1	13 07 34	35.4	240.8	3.1		32.5	-13	3319	No stop
01 28 30	---	13 11 05	34.9	241.6	3.2		32.8	197	3346	01 25 01
01 29 10	J1000+1324	13 11 45	35.3	241.7	3.2		32.9	27	3346	01 29 10
01 30 10	=0957+136	13 12 45	35.2	241.9	3.2		33.0	60	3354	01 29 11
01 30 10	FIELD1	13 12 45	34.7	242.1	3.2		33.0	-13	3354	No stop
01 33 40	---	13 16 16	34.2	242.9	3.3		33.3	197	3381	01 30 11
01 33 40	J1000+1324	13 16 16	34.7	242.8	3.2		33.3	-13	3381	No stop
01 35 10	=0957+136	13 17 46	34.5	243.2	3.3		33.4	77	3392	01 33 41
01 35 10	FIELD2	13 17 46	34.2	243.1	3.3		33.3	-12	3392	No stop
01 38 10	---	13 20 46	33.8	243.8	3.3		33.6	168	3415	01 35 11
01 38 10	J1000+1324	13 20 46	34.1	243.9	3.3		33.7	-12	3415	No stop
01 39 40	=0957+136	13 22 17	33.9	244.3	3.3		33.8	78	3427	01 38 11
01 40 30	J1002+1216	13 23 07	33.2	243.2	3.3		33.2	35	3427	01 40 30
01 43 30	=1000+125	13 26 07	32.8	243.9	3.4		33.5	180	3450	01 40 31
01 43 30	J1000+1324	13 26 07	33.4	245.2	3.4		34.1	-15	3450	No stop
01 45 00	=0957+136	13 27 37	33.2	245.6	3.4		34.2	75	3462	01 43 31
01 45 00	FIELD1	13 27 37	32.7	245.7	3.5		34.2	-13	3462	No stop
01 48 30	---	13 31 08	32.2	246.5	3.5		34.4	197	3488	01 45 01
01 48 30	J1000+1324	13 31 08	32.7	246.4	3.5		34.4	-13	3488	No stop
01 50 00	=0957+136	13 32 38	32.5	246.8	3.5		34.6	77	3500	01 48 31
01 50 00	FIELD1	13 32 38	32.0	246.9	3.5		34.5	-13	3500	No stop
01 53 30	---	13 36 09	31.5	247.7	3.6		34.8	197	3527	01 50 01
01 54 10	J1000+1324	13 36 49	31.9	247.8	3.6		34.8	27	3527	01 54 10
01 55 10	=0957+136	13 37 49	31.8	248.0	3.6		34.9	60	3535	01 54 11

Schedule for TORUN (Code Tr )

Page 15

Compact Group

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Mon 27 Feb 2017 Day 58 ---										
01 55 10	FIELD1	13 37 49	31.3	248.1	3.6		34.9	-13	3535	No stop
01 58 40	---	13 41 20	30.8	248.9	3.7		35.1	197	3562	01 55 11
01 58 40	J1000+1324	13 41 20	31.3	248.8	3.7		35.1	-13	3562	No stop
02 00 10	=0957+136	13 42 50	31.1	249.2	3.7		35.2	77	3573	01 58 41
02 00 10	FIELD2	13 42 50	30.7	249.1	3.7		35.1	-12	3573	No stop
02 03 10	---	13 45 50	30.3	249.8	3.7		35.3	168	3596	02 00 11
02 03 10	J1000+1324	13 45 50	30.7	249.9	3.7		35.4	-12	3596	No stop
02 04 40	=0957+136	13 47 21	30.5	250.2	3.8		35.5	78	3608	02 03 11
02 05 30	J1002+1216	13 48 11	29.8	249.1	3.7		35.0	35	3608	02 05 30
02 08 30	=1000+125	13 51 11	29.3	249.8	3.8		35.2	180	3631	02 05 31
02 08 30	J1000+1324	13 51 11	29.9	251.1	3.8		35.7	-15	3631	No stop
02 10 00	=0957+136	13 52 41	29.7	251.4	3.9		35.8	75	3642	02 08 31
02 10 00	FIELD1	13 52 41	29.2	251.5	3.9		35.8	-13	3642	No stop
02 13 30	---	13 56 12	28.7	252.3	3.9		35.9	197	3669	02 10 01
02 13 30	J1000+1324	13 56 12	29.2	252.2	3.9		36.0	-13	3669	No stop
02 15 00	=0957+136	13 57 42	29.0	252.6	3.9		36.1	77	3681	02 13 31
02 15 00	FIELD1	13 57 42	28.5	252.7	4.0		36.0	-13	3681	No stop
02 18 30	---	14 01 13	28.0	253.4	4.0		36.2	197	3708	02 15 01
02 19 10	J1000+1324	14 01 53	28.4	253.5	4.0		36.3	27	3708	02 19 10
02 20 10	=0957+136	14 02 53	28.2	253.7	4.0		36.3	60	3715	02 19 11
02 20 10	FIELD1	14 02 53	27.7	253.8	4.0		36.3	-13	3715	No stop
02 23 40	---	14 06 24	27.2	254.6	4.1		36.4	197	3742	02 20 11
02 23 40	J1000+1324	14 06 24	27.7	254.5	4.1		36.5	-13	3742	No stop
02 25 10	=0957+136	14 07 54	27.5	254.8	4.1		36.6	77	3754	02 23 41
02 25 10	FIELD2	14 07 54	27.1	254.7	4.1		36.5	-12	3754	No stop
02 28 10	---	14 10 54	26.7	255.4	4.2		36.6	168	3777	02 25 11
02 28 10	J1000+1324	14 10 54	27.1	255.5	4.2		36.7	-12	3777	No stop
02 29 40	=0957+136	14 12 25	26.9	255.8	4.2		36.8	78	3788	02 28 11
02 30 30	J1002+1216	14 13 15	26.2	254.8	4.2		36.4	35	3788	02 30 30
02 33 30	=1000+125	14 16 15	25.7	255.4	4.2		36.5	180	3812	02 30 31

Schedule for TORUN (Code Tr )

Page 16

Compact Group

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Mon 27 Feb 2017 Day 58 ---										
02 33 30	J1000+1324	14 16 15	26.3	256.7	4.2		36.9	-15	3812	No stop
02 35 00	=0957+136	14 17 46	26.1	257.0	4.3		37.0	75	3823	02 33 31
02 35 00	FIELD1	14 17 46	25.6	257.1	4.3		36.9	-13	3823	No stop
02 38 30	---	14 21 16	25.1	257.8	4.4		37.0	197	3850	02 35 01
02 38 30	J1000+1324	14 21 16	25.6	257.8	4.3		37.1	-13	3850	No stop
02 40 00	=0957+136	14 22 46	25.4	258.1	4.4		37.1	77	3862	02 38 31
02 40 00	FIELD1	14 22 46	24.8	258.1	4.4		37.1	-13	3862	No stop
02 43 30	---	14 26 17	24.3	258.9	4.4		37.2	197	3888	02 40 01
02 44 10	J1000+1324	14 26 57	24.7	259.0	4.4		37.3	27	3888	02 44 10
02 45 10	=0957+136	14 27 57	24.6	259.2	4.4		37.3	60	3896	02 44 11
02 45 10	FIELD1	14 27 57	24.1	259.2	4.5		37.3	-13	3896	No stop
02 48 40	---	14 31 28	23.6	260.0	4.5		37.4	197	3923	02 45 11
02 48 40	J1000+1324	14 31 28	24.1	259.9	4.5		37.4	-13	3923	No stop
02 50 10	=0957+136	14 32 58	23.9	260.3	4.5		37.5	77	3935	02 48 41
02 50 10	FIELD2	14 32 58	23.5	260.1	4.5		37.4	-12	3935	No stop
02 53 10	---	14 35 59	23.0	260.8	4.6		37.5	168	3958	02 50 11
02 53 10	J1000+1324	14 35 59	23.4	260.9	4.6		37.5	-12	3958	No stop
02 54 40	=0957+136	14 37 29	23.2	261.2	4.6		37.6	78	3969	02 53 11
02 55 30	J1002+1216	14 38 19	22.5	260.1	4.6		37.2	35	3969	02 55 30
02 58 30	=1000+125	14 41 19	22.1	260.8	4.6		37.3	180	3992	02 55 31
02 58 30	J1000+1324	14 41 19	22.6	262.0	4.7		37.7	-15	3992	No stop
03 00 00	=0957+136	14 42 50	22.4	262.3	4.7		37.7	75	4004	02 58 31
03 00 00	FIELD1	14 42 50	21.9	262.4	4.7		37.6	-13	4004	No stop
03 03 30	---	14 46 20	21.4	263.1	4.8		37.7	197	4031	03 00 01
03 03 30	J1000+1324	14 46 20	21.9	263.0	4.7		37.8	-13	4031	No stop
03 05 00	=0957+136	14 47 51	21.6	263.4	4.8		37.8	77	4042	03 03 31
03 05 00	FIELD1	14 47 51	21.1	263.4	4.8		37.7	-13	4042	No stop
03 08 30	---	14 51 21	20.6	264.1	4.9		37.8	197	4069	03 05 01
03 09 10	J1000+1324	14 52 01	21.0	264.2	4.8		37.9	27	4069	03 09 10
03 10 10	=0957+136	14 53 01	20.9	264.4	4.9		37.9	60	4077	03 09 11

Schedule for TORUN (Code Tr )

Page 17

Compact Group

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

```

-----
Start UT  Source          Start / Stop          Early  Disk  TPStart
Stop UT          LST      EL  AZ  HA  UP  ParA  Dwell  GBytes  SYNC
-----
--- Mon 27 Feb 2017  Day 58 ---

03 10 10  FIELD1          14 53 01  20.4 264.5  4.9      37.8  -13   4077  No stop
03 13 40  ---                14 56 32  19.8 265.2  4.9      37.9  197   4104  03 10 11

03 13 40  J1000+1324      14 56 32  20.3 265.1  4.9      37.9  -13   4104  No stop
03 15 10  =0957+136           14 58 02  20.1 265.5  4.9      38.0   77   4115  03 13 41

03 15 10  FIELD2          14 58 02  19.7 265.3  5.0      37.9  -12   4115  No stop
03 18 10  ---                15 01 03  19.3 266.0  5.0      37.9  168   4138  03 15 11

03 18 10  J1000+1324      15 01 03  19.7 266.1  5.0      38.0  -12   4138  No stop
03 19 40  =0957+136           15 02 33  19.4 266.4  5.0      38.0   78   4150  03 18 11

03 20 30  J1002+1216      15 03 23  18.8 265.3  5.0      37.8   35   4150  03 20 30
03 23 30  =1000+125         15 06 24  18.3 266.0  5.0      37.8  180   4173  03 20 31

03 23 30  J1000+1324      15 06 24  18.9 267.2  5.1      38.0  -15   4173  No stop
03 25 00  =0957+136           15 07 54  18.6 267.5  5.1      38.1   75   4185  03 23 31

03 27 00  OJ287          15 09 54  13.8 285.0  6.2      38.1   70   4185  03 27 00
03 30 00  ---                15 12 55  13.4 285.6  6.3      38.0  180   4208  03 27 01

```

## SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: sess117.L1024

```

Setup group: 14      Station: TORUN      Total bit rate: 1024
Format: MARK5B      Bits per sample: 2    Sample rate: 64.000
Number of channels: 8  DBE type: DBBC_DDC  Speedup factor: 1.00

```

Disk used to record data.



1st LO=	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00
Net SB=	L	L	U	U	L	L	U	U
IF SB =	L	L	L	L	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP	RCP	LCP	RCP	LCP
BBC =	1	5	1	5	3	7	3	7
BBC SB=	U	U	L	L	U	U	L	L
IF =	A1	B1	A1	B1	A1	B1	A1	B1

The following frequency sets based on these setups were used.

```

Frequency Set: 6 Setup file default. Used with PCAL = off
LO sum= 1626.49 1626.49 1626.49 1626.49 1690.49 1690.49 1690.49 1690.49
BBC fr= 673.51 673.51 673.51 673.51 609.51 609.51 609.51 609.51
Bandwd= 32.00 32.00 32.00 32.00 32.00 32.00 32.00 32.00
Matching frequency sets: 6

```

Track assignments are:

```

track1= 2, 6, 10, 14, 4, 8, 12, 16
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FIELD1	09 56 24.964995	* 09 59 06.648000	10 00 02.821315	0.00
	13 15 57.80332	* 13 01 34.95000	12 56 28.97924	0.00
* FIELD2	09 57 14.194080	* 09 59 55.840000	10 00 52.000882	0.00
	13 17 02.37091	* 13 02 37.70000	12 57 31.12898	0.00
J0854+2006	08 51 57.250618	* 08 54 48.874930	08 55 48.343935	0.11
0851+202	20 17 58.41733	* 20 06 30.64078	20 02 24.12244	0.10
J0854+20	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.vlba.2012jul			
* 0J287	rfc_2012b Petrov, 2012, unpublished 191510 observations			
0957+136	09 57 52.019138	* 10 00 33.850518	10 01 30.072513	0.71
* J1000+1324	13 38 36.95615	* 13 24 10.89375	13 19 03.88206	2.36
	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.vlba.2012jul			
	rfc_2012b Petrov, 2012, unpublished 184 observations			
* J1002+1216	10 00 11.841402	* 10 02 52.845218	10 03 48.793492	0.16
1000+125	12 30 45.71684	* 12 16 14.58485	12 11 05.83930	0.25
	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.vlba.2012jul			
	rfc_2012b Petrov, 2012, unpublished 106 observations			

n17c1tr

NETWORK MONITORING EXPERIMENT
PI: Ross Burns

Address: JIVE
Observing mode:

Schedule for TORUN (Code Tr )

Page 2

Network Monitoring Experiment

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.
Early: Seconds between end of slew and start. Dwell: On source seconds.
Disk: GBytes recorded to this point.
TPStart: Recording start time. Frequencies are L0 sum (band edge).
SYNC: Time correlator is expected to sync up.

Table with columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Early Dwell, Disk GBytes, TPStart SYNC. Includes scan frequencies and bandwidths for Feb 28, 2017.

Schedule for TORUN (Code Tr )

Page 3

## Network Monitoring Experiment

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

```
-----
Start UT  Source          Start / Stop          Early   Disk   TPStart
Stop UT   LST      EL   AZ   HA  UP   ParA Dwell  GBytes  SYNC
-----
```

--- Tue 28 Feb 2017 Day 59 ---

```
15 50 00  J0319+4130  03 38 53  78.1 196.5  0.3      13.2  171      354  15 50 00
16 00 00  =3C84          03 48 54  77.6 205.0  0.5      19.8  600      392  15 50 01
```

## SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: sess117.C512nme

```
Setup group:   16          Station: TORUN          Total bit rate:   512
Format: MARK5B          Bits per sample: 2      Sample rate: 32.000
Number of channels: 8    DBE type: DBBC_DDC      Speedup factor:   1.00
```

Disk used to record data.

1st LO=	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00
Net SB=	L	L	U	U	L	L	U	U	U
IF SB =	U	U	U	U	U	U	U	U	U
Pol. =	RCP	LCP	RCP	LCP	RCP	LCP	RCP	LCP	LCP
BBC =	1	5	1	5	3	7	3	7	7
BBC SB=	L	L	U	U	L	L	U	U	U
IF =	A1	B1	A1	B1	A1	B1	A1	B1	B1

The following frequency sets based on these setups were used.

Frequency Set: 26 Setup file default. Used with PCAL = off  
 LO sum= 4974.49 4974.49 4974.49 4974.49 5006.49 5006.49 5006.49 5006.49  
 BBC fr= 774.49 774.49 774.49 774.49 806.49 806.49 806.49 806.49  
 Bandwd= 16.00 16.00 16.00 16.00 16.00 16.00 16.00 16.00  
 Matching frequency sets: 26

Track assignments are:

track1= 10, 14, 2, 6, 12, 16, 4, 8  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
0234+285	02 34 55.589590	* 02 37 52.405677	02 38 52.258328	0.00
* J0237+2848	28 35 11.40776	* 28 48 08.99001	28 52 28.35710	0.00
J0237+28	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc GSFC 2015a astro solution, unpublished 54650 observations.			
3C84	03 16 29.567263	* 03 19 48.160094	03 20 55.734375	1.30
* J0319+4130	41 19 51.91701	* 41 30 42.10413	41 34 21.40213	2.69
0316+413	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc			
J0319+41	GSFC 2015a astro solution, unpublished 10208 observations.			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
J0237+2848	66.7
J0319+4130	79.5

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**rk16mfr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                                      Profsoyuznaya 84/32                                      117997 Moscow, Russia  
Phone:    +7-495-3332512                                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                                      Phone during observation: +7-903-6614865

Observing mode: C/K-band, dual-pol

Schedule for TORUN        (Code Tr )                                      Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                                      Start / Stop                                      Early    Disk    TPStart  
Stop UT                                      LST        EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Wed    1 Mar 2017    Day 60 ---

----- C-band VLBI scans -----

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00  
Next BBC frequencies:    736.00    736.00    736.00    736.00  
Next scan bandwidths:    16.00    16.00    16.00    16.00

00 00 00	1253-055	11 50 13	29.3	160.8	-1.1		-11.4	0	0	00 00 00
00 14 30	---	12 04 46	30.0	164.9	-0.9		-9.0	870	28	00 00 01
00 15 00	1253-055	12 05 16	30.0	165.1	-0.9		-8.9	24	28	00 15 00
00 29 30	---	12 19 48	30.5	169.2	-0.6		-6.5	870	56	00 15 01
00 30 00	1253-055	12 20 18	30.5	169.4	-0.6		-6.4	24	56	00 30 00
00 44 30	---	12 34 51	30.8	173.6	-0.4		-3.9	870	84	00 30 01
00 45 00	1253-055	12 35 21	30.8	173.7	-0.4		-3.8	24	84	00 45 00
01 00 00	---	12 50 23	31.0	178.1	-0.1		-1.2	900	112	00 45 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

===== Setup file: ra6cm2.set

Setup group:    3	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor:    1.00

Disk used to record data.

```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=           L           L           U           U
IF SB =           U           U           U           U
Pol.  =          RCP          LCP          RCP          LCP
BBC   =           1           2           1           2
BBC SB=           L           L           U           U
IF    =           C           A           C           A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  2  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  2

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 59.413957	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 11.03927	0.00
	fake circumpolar target for a TS to look at			
* 1253-055	12 53 35.831289	* 12 56 11.166557	12 57 05.162305	0.00
J1256-0547	-05 31 07.99603	*-05 47 21.52489	-05 52 56.89655	0.00
3C279	./rk16mf_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 7924 observations, RA-A04-07, RA-A03-04			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1253-055    145.2

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz     45. deg
2.3 GHz     36. deg
5.0 GHz     23. deg
8.4 GHz     17. deg
15.0 GHz    12. deg
22.0 GHz     9. deg

```

ep103btr

FRB121102 MONITORING

PI: *Hessels/Paragi*

Address: JIVE  
 Observing mode: evn

Schedule for TORUN (Code Tr ) Page 2

FRB121102 monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
 Early: Seconds between end of slew and start. Dwell: On source seconds.  
 Disk: GBytes recorded to this point.  
 TPStart: Recording start time. Frequencies are L0 sum (band edge).  
 SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
--- Wed 1 Mar 2017 Day 60 ---										
Next scan frequencies:		4958.49	4958.49	4958.49	4958.49	5022.49	5022.49	5022.49	5022.49	5022.49
Next BBC frequencies:		758.49	758.49	758.49	758.49	822.49	822.49	822.49	822.49	822.49
Next scan bandwidths:		32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00
12 30 00	0234+285	00 22 16	55.2	120.5	-2.3	-36.2	0	0	12 30 00	
12 33 30	---	00 25 47	55.7	121.6	-2.2	-35.7	210	27	12 30 01	
12 36 30	J0529+3209	00 28 48	33.6	79.6	-5.0	-44.3	81	27	12 36 30	
12 37 30	---	00 29 48	33.8	79.8	-5.0	-44.3	60	35	12 36 31	
12 37 30	J0530+3301	00 29 48	34.2	78.9	-5.0	-44.7	-13	35	No stop	
12 41 00	---	00 33 18	34.8	79.6	-5.0	-44.8	197	62	12 37 31	
12 41 00	J0529+3209	00 33 18	34.3	80.5	-5.0	-44.4	-14	62	No stop	
12 42 30	---	00 34 49	34.5	80.7	-4.9	-44.4	76	73	12 41 01	
12 42 30	J0530+3301	00 34 49	35.0	79.8	-4.9	-44.8	-13	73	No stop	
12 45 50	---	00 38 09	35.5	80.5	-4.9	-44.9	187	99	12 42 31	
12 46 20	J0529+3209	00 38 39	35.1	81.5	-4.9	-44.6	16	99	12 46 20	
12 47 20	---	00 39 39	35.2	81.6	-4.8	-44.6	60	106	12 46 21	
12 47 20	J0530+3301	00 39 39	35.7	80.7	-4.9	-45.0	-13	106	No stop	
12 50 40	---	00 43 00	36.2	81.3	-4.8	-45.1	187	132	12 47 21	
12 50 40	J0529+3209	00 43 00	35.7	82.3	-4.8	-44.7	-14	132	No stop	
12 52 10	---	00 44 30	35.9	82.5	-4.8	-44.7	76	144	12 50 41	
12 52 10	J0530+3301	00 44 30	36.4	81.6	-4.8	-45.1	-13	144	No stop	
12 55 30	---	00 47 51	36.9	82.2	-4.7	-45.2	187	169	12 52 11	
12 56 00	J0529+3209	00 48 21	36.5	83.2	-4.7	-44.8	16	169	12 56 00	
12 57 30	---	00 49 51	36.7	83.5	-4.7	-44.8	90	181	12 56 01	
12 57 30	FRB	00 49 51	37.1	82.2	-4.7	-45.3	-15	181	No stop	
13 01 00	---	00 53 22	37.6	82.8	-4.7	-45.4	195	208	12 57 31	
13 01 00	J0529+3209	00 53 22	37.3	84.2	-4.6	-44.9	-16	208	No stop	
13 02 30	---	00 54 52	37.5	84.5	-4.6	-44.9	74	219	13 01 01	
13 02 30	FRB	00 54 52	37.8	83.1	-4.6	-45.4	-15	219	No stop	
13 06 00	---	00 58 22	38.3	83.8	-4.6	-45.5	195	246	13 02 31	

Schedule for TORUN (Code Tr )

Page 3

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Wed 1 Mar 2017	Day	60	---						
13 06 30	J0529+3209	00 58 52	38.1	85.2	-4.5		-45.0	14	246	13 06 30
13 07 30	---	00 59 53	38.2	85.4	-4.5		-45.0	60	254	13 06 31
13 07 30	FRB	00 59 53	38.5	84.1	-4.6		-45.5	-15	254	No stop
13 11 00	---	01 03 23	39.1	84.7	-4.5		-45.6	195	281	13 07 31
13 11 00	J0529+3209	01 03 23	38.8	86.1	-4.5		-45.1	-16	281	No stop
13 12 30	---	01 04 53	39.0	86.4	-4.4		-45.1	74	292	13 11 01
13 12 30	INBEAM	01 04 53	39.3	85.0	-4.5		-45.6	-15	292	No stop
13 16 00	---	01 08 24	39.9	85.7	-4.4		-45.7	195	319	13 12 31
13 16 30	J0529+3209	01 08 54	39.6	87.2	-4.4		-45.1	14	319	13 16 30
13 17 30	---	01 09 54	39.7	87.4	-4.3		-45.1	60	327	13 16 31
13 18 00	J0518+3306	01 10 24	42.2	88.8	-4.1		-45.8	7	327	13 18 00
13 21 00	=0514+330	01 13 25	42.6	89.4	-4.1		-45.8	180	350	13 18 01
----- 13:21:00 -----										
13 21 00	J0529+3209	01 13 25	40.3	88.0	-4.3		-45.2	-23	350	No stop
13 22 30	---	01 14 55	40.5	88.3	-4.3		-45.2	67	362	13 21 01
13 22 30	FRB	01 14 55	40.8	86.9	-4.3		-45.7	-16	362	No stop
13 26 00	---	01 18 26	41.3	87.6	-4.2		-45.8	194	388	13 22 31
13 26 00	J0529+3209	01 18 26	41.0	89.0	-4.2		-45.2	-16	388	No stop
13 27 30	---	01 19 56	41.2	89.3	-4.2		-45.2	74	400	13 26 01
13 27 30	FRB	01 19 56	41.6	87.9	-4.2		-45.8	-16	400	No stop
13 31 00	---	01 23 26	42.1	88.6	-4.2		-45.8	194	427	13 27 31
13 31 40	J0529+3209	01 24 07	41.9	90.2	-4.1		-45.2	24	427	13 31 40
13 32 40	---	01 25 07	42.0	90.4	-4.1		-45.2	60	435	13 31 41
13 32 40	FRB	01 25 07	42.3	88.9	-4.1		-45.8	-16	435	No stop
13 36 10	---	01 28 37	42.9	89.6	-4.1		-45.8	194	462	13 32 41
13 36 10	J0529+3209	01 28 37	42.5	91.1	-4.0		-45.2	-16	462	No stop
13 37 40	---	01 30 08	42.8	91.4	-4.0		-45.2	74	473	13 36 11
13 37 40	INBEAM	01 30 08	43.1	89.9	-4.0		-45.8	-16	473	No stop
13 41 10	---	01 33 38	43.6	90.6	-4.0		-45.8	194	500	13 37 41
13 41 40	J0529+3209	01 34 08	43.4	92.2	-3.9		-45.1	14	500	13 41 40
13 42 40	---	01 35 08	43.5	92.4	-3.9		-45.1	60	508	13 41 41



Schedule for TORUN (Code Tr )

Page 4

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Wed	1 Mar 2017	Day	60	---					
13 43 20	J0518+3306	01 35 49	46.0	94.0	-3.7		-45.7	17	508	13 43 20
13 46 20	=0514+330	01 38 49	46.4	94.6	-3.7		-45.6	180	531	13 43 21
13 46 20	J0529+3209	01 38 49	44.1	93.2	-3.9		-45.1	-23	531	No stop
13 47 50	---	01 40 19	44.3	93.5	-3.8		-45.1	67	542	13 46 21
13 47 50	FRB	01 40 19	44.6	92.0	-3.9		-45.8	-16	542	No stop
13 51 20	---	01 43 50	45.1	92.7	-3.8		-45.8	194	569	13 47 51
13 51 20	J0529+3209	01 43 50	44.8	94.2	-3.8		-45.0	-16	569	No stop
13 52 50	---	01 45 20	45.0	94.5	-3.8		-45.0	74	581	13 51 21
13 52 50	FRB	01 45 20	45.4	93.0	-3.8		-45.8	-16	581	No stop
13 56 20	---	01 48 51	45.9	93.7	-3.7		-45.7	194	608	13 52 51
13 57 00	J0529+3209	01 49 31	45.7	95.4	-3.7		-44.9	24	608	13 57 00
13 58 00	---	01 50 31	45.8	95.6	-3.7		-44.9	60	615	13 57 01
13 58 00	FRB	01 50 31	46.1	94.1	-3.7		-45.7	-16	615	No stop
14 01 30	---	01 54 01	46.7	94.8	-3.7		-45.6	194	642	13 58 01
14 01 30	J0529+3209	01 54 01	46.3	96.4	-3.6		-44.8	-16	642	No stop
14 03 00	---	01 55 32	46.6	96.7	-3.6		-44.8	74	654	14 01 31
14 03 00	INBEAM	01 55 32	46.9	95.1	-3.6		-45.6	-16	654	No stop
14 06 30	---	01 59 02	47.4	95.9	-3.6		-45.5	194	681	14 03 01
14 07 00	J0529+3209	01 59 32	47.2	97.6	-3.5		-44.7	14	681	14 07 00
14 08 00	---	02 00 33	47.3	97.8	-3.5		-44.7	60	688	14 07 01
14 08 40	J0518+3306	02 01 13	49.8	99.5	-3.3		-45.0	17	688	14 08 40
14 11 40	=0514+330	02 04 13	50.2	100.2	-3.2		-44.9	180	712	14 08 41
14 11 40	J0529+3209	02 04 13	47.9	98.6	-3.4		-44.5	-23	712	No stop
14 13 10	---	02 05 43	48.1	99.0	-3.4		-44.5	67	723	14 11 41
14 13 10	FRB	02 05 43	48.4	97.4	-3.5		-45.3	-16	723	No stop
14 16 40	---	02 09 14	48.9	98.2	-3.4		-45.2	194	750	14 13 11
14 16 40	J0529+3209	02 09 14	48.6	99.8	-3.4		-44.4	-17	750	No stop
14 18 10	---	02 10 44	48.8	100.1	-3.3		-44.3	73	762	14 16 41
14 18 10	FRB	02 10 44	49.2	98.5	-3.4		-45.2	-16	762	No stop
14 21 40	---	02 14 15	49.7	99.3	-3.3		-45.1	194	788	14 18 11

Schedule for TORUN (Code Tr )

Page 5

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Wed	1 Mar 2017	Day	60	---					
14 22 20	J0529+3209	02 14 55	49.4	101.1	-3.3		-44.1	23	788	14 22 20
14 23 20	---	02 15 55	49.6	101.3	-3.2		-44.1	60	796	14 22 21
14 23 20	FRB	02 15 55	49.9	99.7	-3.3		-45.0	-16	796	No stop
14 26 50	---	02 19 26	50.4	100.5	-3.2		-44.9	194	823	14 23 21
14 26 50	J0529+3209	02 19 26	50.1	102.2	-3.2		-43.9	-17	823	No stop
14 28 20	---	02 20 56	50.3	102.5	-3.2		-43.8	73	835	14 26 51
14 28 20	INBEAM	02 20 56	50.7	100.8	-3.2		-44.8	-16	835	No stop
14 31 50	---	02 24 26	51.2	101.7	-3.1		-44.6	194	862	14 28 21
14 32 20	J0529+3209	02 24 57	50.9	103.5	-3.1		-43.6	13	862	14 32 20
14 33 20	---	02 25 57	51.1	103.7	-3.1		-43.6	60	869	14 32 21
14 34 00	J0518+3306	02 26 37	53.5	105.7	-2.9		-43.7	17	869	14 34 00
14 37 00	=0514+330	02 29 37	53.9	106.4	-2.8		-43.4	180	892	14 34 01
14 37 00	J0529+3209	02 29 37	51.6	104.6	-3.0		-43.3	-22	892	No stop
14 38 30	---	02 31 08	51.8	105.0	-3.0		-43.3	68	904	14 37 01
14 38 30	FRB	02 31 08	52.2	103.3	-3.0		-44.3	-17	904	No stop
14 42 00	---	02 34 38	52.7	104.1	-3.0		-44.1	193	931	14 38 31
14 42 00	J0529+3209	02 34 38	52.3	105.9	-2.9		-43.0	-17	931	No stop
14 43 30	---	02 36 08	52.5	106.3	-2.9		-42.9	73	942	14 42 01
14 43 30	FRB	02 36 08	52.9	104.5	-2.9		-44.0	-17	942	No stop
14 47 00	---	02 39 39	53.4	105.4	-2.9		-43.8	193	969	14 43 31
14 47 40	J0529+3209	02 40 19	53.1	107.3	-2.8		-42.6	23	969	14 47 40
14 48 40	---	02 41 19	53.3	107.6	-2.8		-42.5	60	977	14 47 41
14 48 40	FRB	02 41 19	53.6	105.8	-2.9		-43.6	-17	977	No stop
14 52 10	---	02 44 50	54.1	106.7	-2.8		-43.4	193	1004	14 48 41
14 52 10	J0529+3209	02 44 50	53.8	108.5	-2.8		-42.3	-17	1004	No stop
14 53 40	---	02 46 20	54.0	108.9	-2.7		-42.2	73	1015	14 52 11
14 53 40	INBEAM	02 46 20	54.4	107.1	-2.8		-43.3	-17	1015	No stop
14 57 10	---	02 49 51	54.9	108.0	-2.7		-43.0	193	1042	14 53 41
14 57 40	J0529+3209	02 50 21	54.6	110.0	-2.7		-41.8	13	1042	14 57 40
14 58 40	---	02 51 21	54.7	110.3	-2.7		-41.7	60	1050	14 57 41

Schedule for TORUN (Code Tr )

Page 6

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Wed	1 Mar 2017	Day	60	---					
14 59 20	J0518+3306	02 52 01	57.1	112.5	-2.5		-41.5	17	1050	14 59 20
15 02 20	=0514+330	02 55 01	57.5	113.4	-2.4		-41.1	180	1073	14 59 21
15 02 20	J0529+3209	02 55 01	55.2	111.3	-2.6		-41.4	-22	1073	No stop
15 03 50	---	02 56 32	55.4	111.7	-2.6		-41.2	68	1085	15 02 21
15 03 50	FRB	02 56 32	55.8	109.8	-2.6		-42.4	-17	1085	No stop
15 07 20	---	03 00 02	56.3	110.8	-2.6		-42.1	193	1112	15 03 51
15 07 20	J0529+3209	03 00 02	55.9	112.7	-2.5		-40.9	-17	1112	No stop
15 08 50	---	03 01 33	56.1	113.1	-2.5		-40.7	73	1123	15 07 21
15 08 50	FRB	03 01 33	56.5	111.2	-2.5		-42.0	-17	1123	No stop
15 12 20	---	03 05 03	57.0	112.2	-2.5		-41.6	193	1150	15 08 51
15 13 00	J0529+3209	03 05 43	56.7	114.3	-2.4		-40.3	22	1150	15 13 00
15 14 00	---	03 06 43	56.8	114.6	-2.4		-40.2	60	1158	15 13 01
15 14 00	FRB	03 06 43	57.2	112.7	-2.4		-41.4	-17	1158	No stop
15 17 30	---	03 10 14	57.7	113.8	-2.4		-41.0	193	1185	15 14 01
15 17 30	J0529+3209	03 10 14	57.3	115.7	-2.3		-39.7	-18	1185	No stop
15 19 00	---	03 11 44	57.5	116.1	-2.3		-39.6	72	1196	15 17 31
15 19 00	INBEAM	03 11 44	58.0	114.2	-2.4		-40.9	-17	1196	No stop
15 22 30	---	03 15 15	58.4	115.3	-2.3		-40.5	193	1223	15 19 01
15 23 00	J0529+3209	03 15 45	58.1	117.4	-2.2		-39.0	12	1223	15 23 00
15 24 00	---	03 16 45	58.2	117.7	-2.2		-38.9	60	1231	15 23 01
15 24 40	J0518+3306	03 17 25	60.5	120.4	-2.0		-38.2	18	1231	15 24 40
15 27 40	=0514+330	03 20 26	60.9	121.4	-2.0		-37.7	180	1254	15 24 41
15 27 40	J0529+3209	03 20 26	58.7	118.9	-2.2		-38.4	-22	1254	No stop
15 29 10	---	03 21 56	58.9	119.3	-2.1		-38.2	68	1265	15 27 41
15 29 10	FRB	03 21 56	59.3	117.3	-2.2		-39.6	-17	1265	No stop
15 32 40	---	03 25 26	59.8	118.4	-2.1		-39.1	193	1292	15 29 11
15 32 40	J0529+3209	03 25 26	59.3	120.5	-2.1		-37.7	-18	1292	No stop
15 34 10	---	03 26 57	59.5	121.0	-2.1		-37.5	72	1304	15 32 41
15 34 10	FRB	03 26 57	60.0	118.9	-2.1		-38.9	-18	1304	No stop
15 37 40	---	03 30 27	60.4	120.1	-2.0		-38.4	192	1331	15 34 11

Schedule for TORUN (Code Tr )

Page 7

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Wed	1 Mar 2017	Day	60	---					
15 38 20	J0529+3209	03 31 07	60.1	122.4	-2.0		-36.8	22	1331	15 38 20
15 39 20	---	03 32 08	60.2	122.7	-2.0		-36.6	60	1338	15 38 21
15 39 20	FRB	03 32 08	60.6	120.7	-2.0		-38.1	-18	1338	No stop
15 42 50	---	03 35 38	61.1	121.8	-2.0		-37.5	192	1365	15 39 21
15 42 50	J0529+3209	03 35 38	60.6	123.9	-1.9		-36.1	-18	1365	No stop
15 44 20	---	03 37 08	60.8	124.5	-1.9		-35.8	72	1377	15 42 51
15 44 20	INBEAM	03 37 08	61.3	122.4	-1.9		-37.3	-18	1377	No stop
15 47 50	---	03 40 39	61.8	123.6	-1.9		-36.7	192	1404	15 44 21
15 48 20	J0529+3209	03 41 09	61.3	125.9	-1.8		-35.1	12	1404	15 48 20
15 49 20	---	03 42 09	61.4	126.2	-1.8		-34.9	60	1412	15 48 21
15 50 00	J0518+3306	03 42 49	63.6	129.6	-1.6		-33.5	18	1412	15 50 00
15 53 00	=0514+330	03 45 50	64.0	130.8	-1.6		-32.9	180	1435	15 50 01
15 53 00	J0529+3209	03 45 50	61.9	127.6	-1.7		-34.2	-22	1435	No stop
15 54 30	---	03 47 20	62.1	128.2	-1.7		-33.9	68	1446	15 53 01
15 54 30	FRB	03 47 20	62.6	126.0	-1.8		-35.5	-18	1446	No stop
15 58 00	---	03 50 51	63.0	127.3	-1.7		-34.8	192	1473	15 54 31
15 58 00	J0529+3209	03 50 51	62.5	129.5	-1.7		-33.2	-18	1473	No stop
15 59 30	---	03 52 21	62.6	130.1	-1.6		-32.9	72	1485	15 58 01
15 59 30	FRB	03 52 21	63.2	127.9	-1.7		-34.5	-18	1485	No stop
16 03 00	---	03 55 51	63.6	129.3	-1.6		-33.7	192	1512	15 59 31
16 03 40	J0529+3209	03 56 32	63.1	131.7	-1.6		-32.0	22	1512	16 03 40
16 04 40	---	03 57 32	63.2	132.1	-1.6		-31.8	60	1519	16 03 41
16 04 40	FRB	03 57 32	63.8	129.9	-1.6		-33.4	-18	1519	No stop
16 08 10	---	04 01 02	64.2	131.3	-1.5		-32.6	192	1546	16 04 41
16 08 10	J0529+3209	04 01 02	63.6	133.5	-1.5		-31.0	-19	1546	No stop
16 09 40	---	04 02 33	63.8	134.1	-1.5		-30.6	71	1558	16 08 11
16 09 40	INBEAM	04 02 33	64.4	131.9	-1.5		-32.3	-18	1558	No stop
16 13 10	---	04 06 03	64.8	133.4	-1.4		-31.4	192	1585	16 09 41
16 13 40	J0529+3209	04 06 33	64.2	135.8	-1.4		-29.6	11	1585	16 13 40
16 14 40	---	04 07 33	64.3	136.2	-1.4		-29.4	60	1592	16 13 41

Schedule for TORUN (Code Tr )

Page 8

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Wed	1 Mar 2017	Day	60	---					
16 15 20	J0518+3306	04 08 13	66.3	140.5	-1.2		-27.1	17	1592	16 15 20
16 18 20	=0514+330	04 11 14	66.6	141.9	-1.1		-26.2	180	1615	16 15 21
16 18 20	J0529+3209	04 11 14	64.7	137.8	-1.3		-28.5	-23	1615	No stop
16 19 50	---	04 12 44	64.8	138.5	-1.3		-28.1	67	1627	16 18 21
16 19 50	FRB	04 12 44	65.4	136.2	-1.3		-29.7	-18	1627	No stop
16 23 20	---	04 16 15	65.8	137.8	-1.3		-28.8	192	1654	16 19 51
16 23 20	J0529+3209	04 16 15	65.2	140.0	-1.2		-27.1	-19	1654	No stop
16 24 50	---	04 17 45	65.3	140.7	-1.2		-26.7	71	1665	16 23 21
16 24 50	FRB	04 17 45	65.9	138.5	-1.3		-28.4	-18	1665	No stop
16 28 20	---	04 21 16	66.3	140.1	-1.2		-27.4	192	1692	16 24 51
16 29 00	J0529+3209	04 21 56	65.7	142.6	-1.1		-25.5	21	1692	16 29 00
16 30 00	---	04 22 56	65.8	143.1	-1.1		-25.2	60	1700	16 29 01
16 30 00	FRB	04 22 56	66.4	140.8	-1.2		-26.9	-18	1700	No stop
16 33 30	---	04 26 26	66.8	142.5	-1.1		-25.9	192	1727	16 30 01
16 33 30	J0529+3209	04 26 26	66.1	144.7	-1.1		-24.2	-19	1727	No stop
16 35 00	---	04 27 57	66.2	145.5	-1.0		-23.7	71	1738	16 33 31
16 35 00	INBEAM	04 27 57	66.9	143.2	-1.1		-25.4	-18	1738	No stop
16 38 30	---	04 31 27	67.2	144.9	-1.0		-24.3	192	1765	16 35 01
16 39 00	J0529+3209	04 31 57	66.6	147.4	-1.0		-22.5	11	1765	16 39 00
16 40 00	---	04 32 58	66.6	147.9	-1.0		-22.1	60	1773	16 39 01
16 40 40	J0518+3306	04 33 38	68.4	153.3	-0.8		-18.8	15	1773	16 40 40
16 43 40	=0514+330	04 36 38	68.6	154.9	-0.7		-17.7	180	1796	16 40 41
16 43 40	J0529+3209	04 36 38	66.9	149.7	-0.9		-20.9	-25	1796	No stop
16 45 10	---	04 38 08	67.0	150.5	-0.9		-20.4	65	1808	16 43 41
16 45 10	FRB	04 38 08	67.8	148.3	-0.9		-22.1	-18	1808	No stop
16 48 40	---	04 41 39	68.0	150.1	-0.9		-20.9	192	1835	16 45 11
16 48 40	J0529+3209	04 41 39	67.3	152.3	-0.8		-19.3	-19	1835	No stop
16 50 10	---	04 43 09	67.4	153.1	-0.8		-18.7	71	1846	16 48 41
16 50 10	FRB	04 43 09	68.2	150.9	-0.8		-20.4	-18	1846	No stop
16 53 40	---	04 46 40	68.4	152.8	-0.8		-19.2	192	1873	16 50 11

Schedule for TORUN (Code Tr )

Page 9

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Wed	1 Mar 2017	Day	60	---					
16 54 20	J0529+3209	04 47 20	67.7	155.3	-0.7		-17.3	21	1873	16 54 20
16 55 20	---	04 48 20	67.7	155.8	-0.7		-16.9	60	1881	16 54 21
16 55 20	FRB	04 48 20	68.5	153.7	-0.7		-18.6	-18	1881	No stop
16 58 50	---	04 51 51	68.7	155.6	-0.7		-17.2	192	1908	16 55 21
16 58 50	J0529+3209	04 51 51	67.9	157.7	-0.6		-15.6	-18	1908	No stop
17 00 20	---	04 53 21	68.0	158.5	-0.6		-15.0	72	1919	16 58 51
17 00 20	INBEAM	04 53 21	68.9	156.4	-0.7		-16.7	-18	1919	No stop
17 03 50	---	04 56 51	69.1	158.4	-0.6		-15.3	192	1946	17 00 21
17 04 20	J0529+3209	04 57 22	68.2	160.7	-0.6		-13.5	12	1946	17 04 20
17 05 20	---	04 58 22	68.3	161.3	-0.5		-13.1	60	1954	17 04 21
17 06 00	J0518+3306	04 59 02	69.7	167.7	-0.3		-8.8	12	1954	17 06 00
17 09 00	=0514+330	05 02 02	69.8	169.5	-0.3		-7.5	180	1977	17 06 01
17 09 00	J0529+3209	05 02 02	68.5	163.4	-0.5		-11.7	-27	1977	No stop
17 10 30	---	05 03 33	68.5	164.2	-0.5		-11.1	63	1988	17 09 01
17 10 30	FRB	05 03 33	69.4	162.2	-0.5		-12.7	-17	1988	No stop
17 14 00	---	05 07 03	69.5	164.2	-0.4		-11.2	193	2015	17 10 31
17 14 00	J0529+3209	05 07 03	68.7	166.2	-0.4		-9.7	-18	2015	No stop
17 15 30	---	05 08 33	68.7	167.1	-0.4		-9.1	72	2027	17 14 01
17 15 30	FRB	05 08 33	69.6	165.1	-0.4		-10.6	-17	2027	No stop
17 19 00	---	05 12 04	69.7	167.2	-0.4		-9.1	193	2054	17 15 31
17 19 40	J0529+3209	05 12 44	68.8	169.5	-0.3		-7.4	22	2054	17 19 40
17 20 40	---	05 13 44	68.9	170.1	-0.3		-7.0	60	2062	17 19 41
17 20 40	FRB	05 13 44	69.8	168.2	-0.3		-8.4	-17	2062	No stop
17 24 10	---	05 17 15	69.9	170.3	-0.3		-6.9	193	2088	17 20 41
17 24 10	J0529+3209	05 17 15	68.9	172.1	-0.2		-5.6	-17	2088	No stop
17 25 40	---	05 18 45	69.0	173.0	-0.2		-5.0	73	2100	17 24 11
17 25 40	INBEAM	05 18 45	69.9	171.3	-0.2		-6.3	-16	2100	No stop
17 29 10	---	05 22 16	70.0	173.4	-0.2		-4.7	194	2127	17 25 41
17 29 40	J0529+3209	05 22 46	69.0	175.4	-0.1		-3.3	13	2127	17 29 40
17 30 40	---	05 23 46	69.0	176.0	-0.1		-2.9	60	2135	17 29 41

Schedule for TORUN (Code Tr )

Page 10

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Wed	1 Mar 2017	Day	60	---					
17 31 20	J0518+3306	05 24 26	70.0	183.2	0.1		2.3	11	2135	17 31 20
17 34 20	=0514+330	05 27 26	70.0	185.0	0.1		3.6	180	2158	17 31 21
17 34 20	J0529+3209	05 27 26	69.1	178.1	-0.1		-1.3	-28	2158	No stop
17 35 50	---	05 28 57	69.1	179.0	-0.0		-0.7	62	2169	17 34 21
17 37 50	DA193	05 30 57	76.0	159.1	-0.4		-16.2	63	2169	17 37 50
17 40 50	---	05 33 58	76.2	161.4	-0.4		-14.4	180	2192	17 37 51
17 42 50	J0529+3209	05 35 58	69.1	183.2	0.1		2.3	63	2192	17 42 50
17 43 50	---	05 36 58	69.0	183.8	0.1		2.7	60	2200	17 42 51
17 43 50	FRB	05 36 58	70.1	182.4	0.1		1.7	-17	2200	No stop
17 47 20	---	05 40 29	70.0	184.5	0.1		3.2	193	2227	17 43 51
17 47 20	J0529+3209	05 40 29	69.0	185.8	0.2		4.1	-17	2227	No stop
17 48 50	---	05 41 59	69.0	186.7	0.2		4.8	73	2238	17 47 21
17 48 50	FRB	05 41 59	70.0	185.4	0.1		3.9	-17	2238	No stop
17 52 20	---	05 45 29	69.9	187.6	0.2		5.4	193	2265	17 48 51
17 53 10	J0529+3209	05 46 20	68.9	189.3	0.3		6.6	33	2265	17 53 10
17 54 10	---	05 47 20	68.9	189.9	0.3		7.0	60	2273	17 53 11
17 54 10	FRB	05 47 20	69.9	188.7	0.2		6.2	-17	2273	No stop
17 57 40	---	05 50 50	69.8	190.8	0.3		7.7	193	2300	17 54 11
17 57 40	J0529+3209	05 50 50	68.8	191.9	0.3		8.4	-17	2300	No stop
17 59 10	---	05 52 21	68.7	192.8	0.4		9.0	73	2312	17 57 41
17 59 10	INBEAM	05 52 21	69.8	191.8	0.3		8.4	-17	2312	No stop
18 02 40	---	05 55 51	69.7	193.9	0.4		9.9	193	2338	17 59 11
18 03 10	J0529+3209	05 56 21	68.6	195.1	0.4		10.6	13	2338	18 03 10
18 04 10	---	05 57 21	68.5	195.6	0.4		11.0	60	2346	18 03 11
18 05 00	J0518+3306	05 58 11	68.8	203.1	0.6		16.4	20	2346	18 05 00
18 08 00	=0514+330	06 01 12	68.7	204.8	0.7		17.5	180	2369	18 05 01
18 08 00	J0529+3209	06 01 12	68.4	197.8	0.5		12.5	-29	2369	No stop
18 09 30	---	06 02 42	68.3	198.6	0.5		13.1	61	2381	18 08 01
18 09 30	FRB	06 02 42	69.4	197.8	0.5		12.7	-17	2381	No stop
18 13 00	---	06 06 13	69.2	199.8	0.6		14.1	193	2408	18 09 31

Schedule for TORUN (Code Tr )

Page 11

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Wed	1 Mar 2017	Day	60	---					
18 13 00	J0529+3209	06 06 13	68.1	200.6	0.6		14.4	-17	2408	No stop
18 14 30	---	06 07 43	68.0	201.4	0.6		15.0	73	2419	18 13 01
18 14 30	FRB	06 07 43	69.1	200.7	0.6		14.7	-17	2419	No stop
18 18 00	---	06 11 14	68.9	202.7	0.6		16.1	193	2446	18 14 31
18 18 50	J0529+3209	06 12 04	67.8	203.8	0.7		16.6	33	2446	18 18 50
18 19 50	---	06 13 04	67.7	204.3	0.7		17.0	60	2454	18 18 51
18 19 50	FRB	06 13 04	68.8	203.7	0.7		16.8	-17	2454	No stop
18 23 20	---	06 16 34	68.6	205.6	0.7		18.1	193	2481	18 19 51
18 23 20	J0529+3209	06 16 34	67.5	206.2	0.8		18.2	-17	2481	No stop
18 24 50	---	06 18 05	67.4	206.9	0.8		18.8	73	2492	18 23 21
18 24 50	INBEAM	06 18 05	68.5	206.5	0.8		18.7	-17	2492	No stop
18 28 20	---	06 21 35	68.3	208.4	0.8		19.9	193	2519	18 24 51
18 28 50	J0529+3209	06 22 05	67.1	209.0	0.9		20.1	13	2519	18 28 50
18 29 50	---	06 23 06	67.0	209.5	0.9		20.5	60	2527	18 28 51
18 30 40	J0518+3306	06 23 56	66.9	216.5	1.1		25.3	21	2527	18 30 40
18 33 40	=0514+330	06 26 56	66.6	218.0	1.1		26.2	180	2550	18 30 41
18 33 40	J0529+3209	06 26 56	66.7	211.5	0.9		21.7	-28	2550	No stop
18 35 10	---	06 28 26	66.6	212.2	1.0		22.2	62	2562	18 33 41
18 35 10	FRB	06 28 26	67.7	211.9	0.9		22.3	-17	2562	No stop
18 38 40	---	06 31 57	67.5	213.7	1.0		23.4	193	2588	18 35 11
18 38 40	J0529+3209	06 31 57	66.3	213.9	1.0		23.3	-17	2588	No stop
18 40 10	---	06 33 27	66.2	214.6	1.0		23.8	73	2600	18 38 41
18 40 10	FRB	06 33 27	67.3	214.4	1.0		23.9	-17	2600	No stop
18 43 40	---	06 36 58	67.0	216.2	1.1		25.0	193	2627	18 40 11
18 44 30	J0529+3209	06 37 48	65.8	216.7	1.1		25.1	33	2627	18 44 30
18 45 30	---	06 38 48	65.7	217.2	1.1		25.4	60	2635	18 44 31
18 45 30	FRB	06 38 48	66.9	217.0	1.1		25.6	-17	2635	No stop
18 49 00	---	06 42 19	66.5	218.7	1.2		26.7	193	2662	18 45 31
18 49 00	J0529+3209	06 42 19	65.4	218.8	1.2		26.4	-17	2662	No stop
18 50 30	---	06 43 49	65.3	219.5	1.2		26.8	73	2673	18 49 01



Schedule for TORUN (Code Tr )

Page 12

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Wed 1 Mar 2017 Day 60 ---										
18 50 30	INBEAM	06 43 49	66.4	219.5	1.2		27.1	-17	2673	No stop
18 54 00	---	06 47 20	66.1	221.1	1.2		28.1	193	2700	18 50 31
18 54 30	J0529+3209	06 47 50	64.9	221.3	1.3		27.9	13	2700	18 54 30
18 55 30	---	06 48 50	64.8	221.7	1.3		28.2	60	2708	18 54 31
18 56 20	J0518+3306	06 49 40	64.3	228.0	1.5		32.2	23	2708	18 56 20
18 59 20	=0514+330	06 52 40	64.0	229.2	1.6		32.9	180	2731	18 56 21
18 59 20	J0529+3209	06 52 40	64.4	223.4	1.4		29.2	-26	2731	No stop
19 00 50	---	06 54 11	64.2	224.0	1.4		29.5	64	2742	18 59 21
19 00 50	FRB	06 54 11	65.4	224.1	1.4		29.9	-17	2742	No stop
19 04 20	---	06 57 41	65.0	225.6	1.4		30.8	193	2769	19 00 51
19 04 20	J0529+3209	06 57 41	63.9	225.5	1.5		30.4	-17	2769	No stop
19 05 50	---	06 59 11	63.7	226.1	1.5		30.7	73	2781	19 04 21
19 05 50	FRB	06 59 11	64.8	226.2	1.4		31.2	-17	2781	No stop
19 09 20	---	07 02 42	64.4	227.7	1.5		32.0	193	2808	19 05 51
19 10 10	J0529+3209	07 03 32	63.2	227.9	1.5		31.7	33	2808	19 10 10
19 11 10	---	07 04 32	63.1	228.3	1.6		32.0	60	2815	19 10 11
19 11 10	FRB	07 04 32	64.2	228.4	1.5		32.5	-17	2815	No stop
19 14 40	---	07 08 03	63.8	229.8	1.6		33.2	193	2842	19 11 11
19 14 40	J0529+3209	07 08 03	62.7	229.6	1.6		32.7	-17	2842	No stop
19 16 10	---	07 09 33	62.6	230.2	1.6		33.0	73	2854	19 14 41
19 16 10	INBEAM	07 09 33	63.7	230.5	1.6		33.6	-17	2854	No stop
19 19 40	---	07 13 04	63.3	231.9	1.7		34.4	193	2881	19 16 11
19 20 10	J0529+3209	07 13 34	62.1	231.7	1.7		33.9	13	2881	19 20 10
19 21 10	---	07 14 34	62.0	232.1	1.7		34.1	60	2888	19 20 11
19 22 00	J0518+3306	07 15 24	61.2	237.7	1.9		37.3	24	2888	19 22 00
19 25 00	=0514+330	07 18 25	60.8	238.7	2.0		37.8	180	2912	19 22 01
19 25 00	J0529+3209	07 18 25	61.5	233.5	1.8		34.8	-25	2912	No stop
19 26 30	---	07 19 55	61.3	234.1	1.8		35.1	65	2923	19 25 01
19 26 30	FRB	07 19 55	62.4	234.4	1.8		35.7	-17	2923	No stop
19 30 00	---	07 23 25	62.0	235.6	1.8		36.3	193	2950	19 26 31

Schedule for TORUN (Code Tr )

Page 13

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Wed	1 Mar 2017	Day	60	---					
19 30 00	J0529+3209	07 23 25	60.9	235.3	1.9		35.7	-17	2950	No stop
19 31 30	---	07 24 56	60.7	235.9	1.9		36.0	73	2962	19 30 01
19 31 30	FRB	07 24 56	61.8	236.2	1.9		36.6	-17	2962	No stop
19 35 00	---	07 28 26	61.4	237.4	1.9		37.2	193	2988	19 31 31
19 35 50	J0529+3209	07 29 16	60.2	237.4	2.0		36.7	33	2988	19 35 50
19 36 50	---	07 30 17	60.0	237.7	2.0		36.8	60	2996	19 35 51
19 36 50	FRB	07 30 17	61.1	238.1	2.0		37.5	-17	2996	No stop
19 40 20	---	07 33 47	60.7	239.3	2.0		38.1	193	3023	19 36 51
19 40 20	J0529+3209	07 33 47	59.6	238.9	2.1		37.4	-17	3023	No stop
19 41 50	---	07 35 17	59.4	239.4	2.1		37.6	73	3035	19 40 21
19 41 50	INBEAM	07 35 17	60.5	239.8	2.0		38.3	-17	3035	No stop
19 45 20	---	07 38 48	60.0	241.0	2.1		38.9	193	3062	19 41 51
19 45 50	J0529+3209	07 39 18	58.9	240.7	2.1		38.2	13	3062	19 45 50
19 46 50	---	07 40 18	58.7	241.0	2.2		38.4	60	3069	19 45 51
19 47 40	J0518+3306	07 41 08	57.8	245.9	2.4		40.9	25	3069	19 47 40
19 50 40	=0514+330	07 44 09	57.4	246.8	2.4		41.2	180	3092	19 47 41
19 50 40	J0529+3209	07 44 09	58.2	242.2	2.2		38.9	-24	3092	No stop
19 52 10	---	07 45 39	58.0	242.7	2.3		39.1	66	3104	19 50 41
19 52 10	FRB	07 45 39	59.1	243.1	2.2		39.8	-17	3104	No stop
19 55 40	---	07 49 10	58.7	244.2	2.3		40.2	193	3131	19 52 11
19 55 40	J0529+3209	07 49 10	57.6	243.8	2.3		39.5	-17	3131	No stop
19 57 10	---	07 50 40	57.4	244.2	2.3		39.7	73	3142	19 55 41
19 57 10	FRB	07 50 40	58.5	244.7	2.3		40.4	-17	3142	No stop
20 00 40	---	07 54 10	58.0	245.7	2.4		40.8	193	3169	19 57 11
20 01 10	J0529+3209	07 54 41	56.8	245.4	2.4		40.2	13	3169	20 01 10
20 02 10	---	07 55 41	56.7	245.7	2.4		40.3	60	3177	20 01 11
20 02 10	FRB	07 55 41	57.8	246.2	2.4		41.0	-17	3177	No stop
20 05 40	---	07 59 11	57.3	247.2	2.4		41.4	193	3204	20 02 11
20 05 40	J0529+3209	07 59 11	56.2	246.7	2.5		40.7	-17	3204	No stop
20 07 10	---	08 00 42	56.0	247.2	2.5		40.8	73	3215	20 05 41

Schedule for TORUN (Code Tr )

Page 14

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Wed 1 Mar 2017 Day 60 ---										
20 07 10	INBEAM	08 00 42	57.1	247.7	2.5		41.6	-17	3215	No stop
20 10 40	---	08 04 12	56.6	248.7	2.5		41.9	193	3242	20 07 11
20 11 10	J0529+3209	08 04 42	55.4	248.3	2.6		41.2	13	3242	20 11 10
20 12 10	---	08 05 42	55.3	248.6	2.6		41.3	60	3250	20 11 11
20 13 00	J0518+3306	08 06 33	54.3	253.0	2.8		43.3	27	3250	20 13 00
20 16 00	=0514+330	08 09 33	53.8	253.8	2.8		43.5	180	3273	20 13 01
20 16 00	J0529+3209	08 09 33	54.7	249.7	2.6		41.7	-23	3273	No stop
20 17 30	---	08 11 03	54.5	250.1	2.7		41.8	67	3285	20 16 01
20 17 30	FRB	08 11 03	55.6	250.5	2.6		42.6	-17	3285	No stop
20 21 00	---	08 14 34	55.1	251.5	2.7		42.9	193	3312	20 17 31
20 21 00	J0529+3209	08 14 34	54.0	251.0	2.7		42.1	-17	3312	No stop
20 22 30	---	08 16 04	53.8	251.4	2.8		42.3	73	3323	20 21 01
20 22 30	FRB	08 16 04	54.9	251.9	2.7		43.0	-17	3323	No stop
20 26 00	---	08 19 35	54.4	252.8	2.8		43.3	193	3350	20 22 31
20 26 30	J0529+3209	08 20 05	53.3	252.5	2.8		42.6	13	3350	20 26 30
20 27 30	---	08 21 05	53.1	252.7	2.8		42.6	60	3358	20 26 31
20 27 30	FRB	08 21 05	54.2	253.2	2.8		43.4	-17	3358	No stop
20 31 00	---	08 24 35	53.7	254.1	2.9		43.6	193	3385	20 27 31
20 31 00	J0529+3209	08 24 35	52.6	253.6	2.9		42.9	-17	3385	No stop
20 32 30	---	08 26 06	52.4	254.0	2.9		43.0	73	3396	20 31 01
20 32 30	INBEAM	08 26 06	53.5	254.5	2.9		43.8	-17	3396	No stop
20 36 00	---	08 29 36	53.0	255.4	2.9		44.0	193	3423	20 32 31
20 36 30	J0529+3209	08 30 06	51.8	255.0	3.0		43.3	13	3423	20 36 30
20 37 30	---	08 31 07	51.7	255.3	3.0		43.3	60	3431	20 36 31
20 38 20	J0518+3306	08 31 57	50.6	259.3	3.2		44.8	27	3431	20 38 20
20 41 20	=0514+330	08 34 57	50.1	260.0	3.3		44.9	180	3454	20 38 21
20 41 20	J0529+3209	08 34 57	51.1	256.2	3.1		43.6	-22	3454	No stop
20 42 50	---	08 36 27	50.9	256.6	3.1		43.6	68	3465	20 41 21
20 42 50	FRB	08 36 27	52.0	257.1	3.1		44.4	-17	3465	No stop
20 46 20	---	08 39 58	51.4	257.9	3.1		44.5	193	3492	20 42 51

Schedule for TORUN (Code Tr )

Page 15

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Wed	1 Mar 2017	Day	60	---					
20 46 20	J0529+3209	08 39 58	50.4	257.4	3.2		43.8	-17	3492	No stop
20 47 50	---	08 41 28	50.2	257.8	3.2		43.9	73	3504	20 46 21
20 47 50	FRB	08 41 28	51.2	258.3	3.1		44.6	-17	3504	No stop
20 51 20	---	08 44 59	50.7	259.1	3.2		44.8	193	3531	20 47 51
20 51 50	J0529+3209	08 45 29	49.6	258.7	3.2		44.1	13	3531	20 51 50
20 52 50	---	08 46 29	49.4	259.0	3.3		44.1	60	3538	20 51 51
20 52 50	FRB	08 46 29	50.5	259.5	3.2		44.8	-17	3538	No stop
20 56 20	---	08 50 00	50.0	260.3	3.3		45.0	193	3565	20 52 51
20 56 20	J0529+3209	08 50 00	48.9	259.8	3.3		44.3	-17	3565	No stop
20 57 50	---	08 51 30	48.7	260.1	3.3		44.3	73	3577	20 56 21
20 57 50	INBEAM	08 51 30	49.8	260.7	3.3		45.1	-17	3577	No stop
21 01 20	---	08 55 00	49.2	261.5	3.4		45.2	193	3604	20 57 51
21 01 50	J0529+3209	08 55 31	48.1	261.0	3.4		44.5	13	3604	21 01 50
21 02 50	---	08 56 31	47.9	261.3	3.4		44.5	60	3612	21 01 51
21 03 20	J0518+3306	08 57 01	46.8	264.9	3.6		45.6	8	3612	21 03 20
21 06 20	=0514+330	09 00 01	46.4	265.5	3.7		45.6	180	3635	21 03 21
21 06 20	J0529+3209	09 00 01	47.4	262.1	3.5		44.6	-21	3635	No stop
21 07 50	---	09 01 32	47.2	262.4	3.5		44.7	69	3646	21 06 21
21 07 50	FRB	09 01 32	48.3	262.9	3.5		45.4	-17	3646	No stop
21 11 20	---	09 05 02	47.7	263.6	3.5		45.5	193	3673	21 07 51
21 11 20	J0529+3209	09 05 02	46.7	263.2	3.6		44.8	-17	3673	No stop
21 12 50	---	09 06 32	46.4	263.5	3.6		44.8	73	3685	21 11 21
21 12 50	FRB	09 06 32	47.5	264.0	3.6		45.5	-17	3685	No stop
21 16 20	---	09 10 03	47.0	264.7	3.6		45.6	193	3712	21 12 51
21 16 50	J0529+3209	09 10 33	45.8	264.4	3.7		44.9	13	3712	21 16 50
21 17 50	---	09 11 33	45.7	264.6	3.7		44.9	60	3719	21 16 51
21 17 50	FRB	09 11 33	46.8	265.0	3.6		45.6	-17	3719	No stop
21 21 20	---	09 15 04	46.2	265.8	3.7		45.7	193	3746	21 17 51
21 21 20	J0529+3209	09 15 04	45.2	265.3	3.7		45.0	-17	3746	No stop
21 22 50	---	09 16 34	44.9	265.6	3.8		45.0	73	3758	21 21 21

Schedule for TORUN (Code Tr )

Page 16

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Wed 1 Mar 2017 Day 60 ---										
21 22 50	INBEAM	09 16 34	46.0	266.1	3.7		45.7	-17	3758	No stop
21 26 20	---	09 20 05	45.5	266.9	3.8		45.8	193	3785	21 22 51
21 26 50	J0529+3209	09 20 35	44.3	266.5	3.8		45.1	13	3785	21 26 50
21 27 50	---	09 21 35	44.2	266.7	3.8		45.1	60	3792	21 26 51
21 28 20	J0518+3306	09 22 05	43.1	270.0	4.0		45.8	9	3792	21 28 20
21 31 20	=0514+330	09 25 05	42.6	270.6	4.1		45.8	180	3815	21 28 21
21 31 20	J0529+3209	09 25 05	43.7	267.4	3.9		45.1	-21	3815	No stop
21 32 50	---	09 26 36	43.4	267.7	3.9		45.1	69	3827	21 31 21
21 32 50	FRB	09 26 36	44.5	268.2	3.9		45.8	-17	3827	No stop
21 36 20	---	09 30 06	44.0	268.9	3.9		45.8	193	3854	21 32 51
21 36 20	J0529+3209	09 30 06	42.9	268.4	4.0		45.2	-17	3854	No stop
21 37 50	---	09 31 36	42.7	268.7	4.0		45.2	73	3865	21 36 21
21 37 50	FRB	09 31 36	43.8	269.2	4.0		45.8	-17	3865	No stop
21 41 20	---	09 35 07	43.2	269.9	4.0		45.8	193	3892	21 37 51
21 41 50	J0529+3209	09 35 37	42.1	269.6	4.1		45.2	13	3892	21 41 50
21 42 50	---	09 36 37	41.9	269.8	4.1		45.2	60	3900	21 41 51
21 42 50	FRB	09 36 37	43.0	270.2	4.1		45.8	-17	3900	No stop
21 46 20	---	09 40 08	42.5	270.9	4.1		45.8	193	3927	21 42 51
21 46 20	J0529+3209	09 40 08	41.4	270.5	4.2		45.2	-17	3927	No stop
21 47 50	---	09 41 38	41.2	270.8	4.2		45.2	73	3938	21 46 21
21 47 50	INBEAM	09 41 38	42.3	271.2	4.1		45.8	-17	3938	No stop
21 51 20	---	09 45 09	41.7	271.9	4.2		45.8	193	3965	21 47 51
21 51 50	J0529+3209	09 45 39	40.6	271.6	4.3		45.2	13	3965	21 51 50
21 52 50	---	09 46 39	40.4	271.7	4.3		45.2	60	3973	21 51 51
21 53 20	J0518+3306	09 47 09	39.3	274.9	4.5		45.6	9	3973	21 53 20
21 56 20	=0514+330	09 50 09	38.9	275.5	4.5		45.5	180	3996	21 53 21
21 56 20	J0529+3209	09 50 09	39.9	272.4	4.3		45.1	-20	3996	No stop
21 57 50	---	09 51 40	39.7	272.7	4.4		45.1	70	4008	21 56 21
21 57 50	FRB	09 51 40	40.7	273.2	4.3		45.7	-17	4008	No stop
22 01 20	---	09 55 10	40.2	273.8	4.4		45.7	193	4035	21 57 51

Schedule for TORUN (Code Tr )

Page 17

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Wed	1 Mar 2017	Day	60	---					
22 01 20	J0529+3209	09 55 10	39.1	273.4	4.4		45.1	-17	4035	No stop
22 02 50	---	09 56 41	38.9	273.7	4.4		45.1	73	4046	22 01 21
22 02 50	FRB	09 56 41	40.0	274.1	4.4		45.7	-17	4046	No stop
22 06 20	---	10 00 11	39.5	274.8	4.5		45.6	193	4073	22 02 51
22 06 50	J0529+3209	10 00 41	38.3	274.5	4.5		45.0	13	4073	22 06 50
22 07 50	---	10 01 41	38.2	274.7	4.5		45.0	60	4081	22 06 51
22 07 50	FRB	10 01 41	39.2	275.1	4.5		45.6	-17	4081	No stop
22 11 20	---	10 05 12	38.7	275.7	4.5		45.5	193	4108	22 07 51
22 11 20	J0529+3209	10 05 12	37.6	275.3	4.6		44.9	-17	4108	No stop
22 12 50	---	10 06 42	37.4	275.6	4.6		44.9	73	4119	22 11 21
22 12 50	INBEAM	10 06 42	38.5	276.1	4.6		45.5	-17	4119	No stop
22 16 20	---	10 10 13	38.0	276.7	4.6		45.4	193	4146	22 12 51
22 16 50	J0529+3209	10 10 43	36.8	276.4	4.7		44.8	13	4146	22 16 50
22 17 50	---	10 11 43	36.7	276.5	4.7		44.8	60	4154	22 16 51
22 20 20	J0518+3306	10 14 13	35.3	279.9	4.9		44.9	130	4154	22 20 20
22 23 20	=0514+330	10 17 14	34.8	280.5	5.0		44.8	180	4177	22 20 21
22 23 20	J0529+3209	10 17 14	35.9	277.6	4.8		44.7	-20	4177	No stop
22 24 50	---	10 18 44	35.6	277.9	4.8		44.7	70	4188	22 23 21
22 24 50	FRB	10 18 44	36.7	278.2	4.8		45.2	-17	4188	No stop
22 28 20	---	10 22 15	36.2	278.9	4.8		45.1	193	4215	22 24 51
22 28 20	J0529+3209	10 22 15	35.1	278.5	4.9		44.6	-17	4215	No stop
22 29 50	---	10 23 45	34.9	278.8	4.9		44.5	73	4227	22 28 21
22 29 50	FRB	10 23 45	36.0	279.2	4.8		45.1	-17	4227	No stop
22 33 20	---	10 27 16	35.4	279.8	4.9		45.0	193	4254	22 29 51
22 34 10	J0529+3209	10 28 06	34.2	279.6	5.0		44.4	33	4254	22 34 10
22 35 10	---	10 29 06	34.1	279.8	5.0		44.4	60	4262	22 34 11
22 35 10	FRB	10 29 06	35.2	280.1	4.9		44.9	-17	4262	No stop
22 38 40	---	10 32 36	34.6	280.8	5.0		44.8	193	4288	22 35 11
22 38 40	J0529+3209	10 32 36	33.6	280.4	5.0		44.2	-17	4288	No stop
22 40 10	---	10 34 07	33.4	280.7	5.1		44.2	73	4300	22 38 41

Schedule for TORUN (Code Tr )

Page 18

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Wed	1 Mar 2017	Day	60	---					
22 40 10	INBEAM	10 34 07	34.4	281.1	5.0		44.8	-17	4300	No stop
22 43 40	---	10 37 37	33.9	281.7	5.1		44.6	193	4327	22 40 11
22 44 20	J0529+3209	10 38 17	32.7	281.4	5.1		44.1	23	4327	22 44 20
22 45 20	---	10 39 18	32.6	281.6	5.1		44.0	60	4335	22 44 21
22 46 10	J0518+3306	10 40 08	31.5	284.6	5.3		43.9	30	4335	22 46 10
22 49 10	=0514+330	10 43 08	31.0	285.1	5.4		43.8	180	4358	22 46 11
22 49 10	J0529+3209	10 43 08	32.0	282.3	5.2		43.9	-20	4358	No stop
22 50 40	---	10 44 38	31.8	282.6	5.2		43.8	70	4369	22 49 11
22 50 40	FRB	10 44 38	32.9	282.9	5.2		44.4	-17	4369	No stop
22 54 10	---	10 48 09	32.4	283.6	5.3		44.2	193	4396	22 50 41
22 54 10	J0529+3209	10 48 09	31.3	283.2	5.3		43.7	-17	4396	No stop
22 55 40	---	10 49 39	31.1	283.5	5.3		43.6	73	4408	22 54 11
22 55 40	FRB	10 49 39	32.1	283.8	5.3		44.1	-17	4408	No stop
22 59 10	---	10 53 10	31.6	284.4	5.3		44.0	193	4435	22 55 41
23 00 00	J0529+3209	10 54 00	30.4	284.2	5.4		43.4	33	4435	23 00 00
23 01 00	---	10 55 00	30.3	284.4	5.4		43.4	60	4442	23 00 01
23 01 00	FRB	10 55 00	31.4	284.8	5.4		43.9	-17	4442	No stop
23 04 30	---	10 58 31	30.9	285.4	5.4		43.8	193	4469	23 01 01
23 04 30	J0529+3209	10 58 31	29.8	285.0	5.5		43.2	-17	4469	No stop
23 06 00	---	11 00 01	29.6	285.3	5.5		43.2	73	4481	23 04 31
23 06 00	INBEAM	11 00 01	30.6	285.7	5.4		43.7	-17	4481	No stop
23 09 30	---	11 03 32	30.1	286.3	5.5		43.5	193	4508	23 06 01
23 10 10	J0529+3209	11 04 12	29.0	286.1	5.6		43.0	23	4508	23 10 10
23 11 10	---	11 05 12	28.8	286.2	5.6		42.9	60	4515	23 10 11
23 12 00	J0518+3306	11 06 02	27.8	289.1	5.8		42.6	30	4515	23 12 00
23 15 00	=0514+330	11 09 02	27.3	289.6	5.8		42.5	180	4538	23 12 01
23 15 00	J0529+3209	11 09 02	28.3	286.9	5.6		42.7	-20	4538	No stop
23 16 30	---	11 10 33	28.0	287.2	5.7		42.7	70	4550	23 15 01
23 16 30	FRB	11 10 33	29.1	287.5	5.6		43.2	-17	4550	No stop
23 20 00	---	11 14 03	28.6	288.1	5.7		43.0	193	4577	23 16 31

Schedule for TORUN (Code Tr )

Page 19

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Wed	1 Mar 2017	Day	60	---					
23 20 00	J0529+3209	11 14 03	27.5	287.8	5.7		42.5	-17	4577	No stop
23 21 30	---	11 15 33	27.3	288.1	5.7		42.4	73	4588	23 20 01
23 21 30	FRB	11 15 33	28.4	288.4	5.7		42.9	-17	4588	No stop
23 25 00	---	11 19 04	27.9	289.0	5.8		42.7	193	4615	23 21 31
23 25 50	J0529+3209	11 19 54	26.7	288.8	5.8		42.2	33	4615	23 25 50
23 26 50	---	11 20 54	26.6	289.0	5.8		42.1	60	4623	23 25 51
23 26 50	FRB	11 20 54	27.7	289.3	5.8		42.6	-17	4623	No stop
23 30 20	---	11 24 25	27.2	289.9	5.9		42.4	193	4650	23 26 51
23 30 20	J0529+3209	11 24 25	26.1	289.6	5.9		41.9	-17	4650	No stop
23 31 50	---	11 25 55	25.9	289.9	5.9		41.8	73	4662	23 30 21
23 31 50	INBEAM	11 25 55	27.0	290.2	5.9		42.3	-17	4662	No stop
23 35 20	---	11 29 26	26.5	290.8	5.9		42.1	193	4688	23 31 51
23 36 00	J0529+3209	11 30 06	25.3	290.6	6.0		41.6	23	4688	23 36 00
23 37 00	---	11 31 06	25.1	290.8	6.0		41.5	60	4696	23 36 01
23 37 50	J0518+3306	11 31 56	24.1	293.6	6.2		41.1	30	4696	23 37 50
23 40 50	=0514+330	11 34 57	23.7	294.1	6.3		40.9	180	4719	23 37 51
23 40 50	J0529+3209	11 34 57	24.6	291.5	6.1		41.3	-19	4719	No stop
23 42 20	---	11 36 27	24.4	291.7	6.1		41.2	71	4731	23 40 51
23 42 20	FRB	11 36 27	25.5	292.0	6.1		41.7	-17	4731	No stop
23 45 50	---	11 39 57	25.0	292.6	6.1		41.5	193	4758	23 42 21
23 45 50	J0529+3209	11 39 57	23.9	292.3	6.2		41.0	-17	4758	No stop
23 47 20	---	11 41 28	23.7	292.6	6.2		40.9	73	4769	23 45 51
23 47 20	FRB	11 41 28	24.8	292.9	6.1		41.4	-17	4769	No stop
23 50 50	---	11 44 58	24.3	293.5	6.2		41.1	193	4796	23 47 21
23 51 40	J0529+3209	11 45 48	23.1	293.4	6.3		40.6	33	4796	23 51 40
23 52 40	---	11 46 49	22.9	293.5	6.3		40.6	60	4804	23 51 41
23 52 40	FRB	11 46 49	24.0	293.8	6.2		41.0	-17	4804	No stop
23 56 10	---	11 50 19	23.6	294.4	6.3		40.8	193	4831	23 52 41
23 56 10	J0529+3209	11 50 19	22.5	294.1	6.3		40.3	-17	4831	No stop
23 57 40	---	11 51 49	22.3	294.4	6.4		40.2	73	4842	23 56 11



Schedule for TORUN (Code Tr )

Page 20

FRB121102 monitoring

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Start: Wed 1 Mar 2017 Day 60 -- Stop: Thu 2 Mar 2017 Day 61 ---										
23 57 40	INBEAM	11 51 49	23.4	294.7	6.3		40.7	-17	4842	No stop
00 01 10	---	11 55 20	22.9	295.3	6.4		40.4	193	4869	23 57 41
00 01 50	J0529+3209	11 56 00	21.7	295.1	6.4		40.0	23	4869	00 01 50
00 02 50	---	11 57 00	21.6	295.3	6.4		39.9	60	4877	00 01 51
00 03 40	J0518+3306	11 57 50	20.6	298.1	6.6		39.2	30	4877	00 03 40
00 06 40	=0514+330	12 00 51	20.2	298.6	6.7		39.0	180	4900	00 03 41
00 06 40	J0529+3209	12 00 51	21.0	296.0	6.5		39.6	-19	4900	No stop
00 08 10	---	12 02 21	20.8	296.2	6.5		39.5	71	4912	00 06 41
00 08 10	FRB	12 02 21	21.9	296.5	6.5		39.9	-17	4912	No stop
00 10 40	---	12 04 52	21.6	296.9	6.5		39.8	133	4931	00 08 11
00 10 40	J0529+3209	12 04 52	20.5	296.7	6.6		39.3	-17	4931	No stop
00 12 10	---	12 06 22	20.3	296.9	6.6		39.2	73	4942	00 10 41
00 12 10	FRB	12 06 22	21.4	297.2	6.6		39.7	-17	4942	No stop
00 14 40	---	12 08 52	21.1	297.6	6.6		39.5	133	4962	00 12 11
00 15 30	J0529+3209	12 09 42	19.8	297.5	6.7		39.0	33	4962	00 15 30
00 16 30	---	12 10 43	19.7	297.7	6.7		38.9	60	4969	00 15 31
00 22 30	J0637+2319	12 16 44	21.6	280.4	5.6		40.0	308	4969	00 22 30
00 23 30	=0634+233	12 17 44	21.5	280.6	5.7		40.0	60	4977	00 22 31
00 24 30	J0629+2415	12 18 44	20.8	283.0	5.8		39.9	42	4977	00 24 30
00 28 00	---	12 22 14	20.3	283.7	5.9		39.8	210	5004	00 24 31
00 29 00	J0637+2319	12 23 15	20.7	281.6	5.7		39.8	42	5004	00 29 00
00 30 00	=0634+233	12 24 15	20.5	281.8	5.8		39.8	60	5012	00 29 01

## SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: sess117.C2048

Setup group: 14	Station: TORUN	Total bit rate: 1024
Format: MARK5B	Bits per sample: 2	Sample rate: 64.000
Number of channels: 8	DBE type: DBBC_DDC	Speedup factor: 1.00

Disk used to record data.

1st LO=	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00
Net SB=	L	L	U	U	L	L	U	U	U
IF SB =	U	U	U	U	U	U	U	U	U
Pol. =	RCP	LCP	RCP	LCP	RCP	LCP	RCP	LCP	LCP
BBC =	1	5	1	5	3	7	3	7	7
BBC SB=	L	L	U	U	L	L	U	U	U
IF =	A1	B1	A1	B1	A1	B1	A1	B1	B1

The following frequency sets based on these setups were used.

Frequency Set: 6 Setup file default. Used with PCAL = off  
 LO sum= 4958.49 4958.49 4958.49 4958.49 5022.49 5022.49 5022.49 5022.49  
 BBC fr= 758.49 758.49 758.49 758.49 822.49 822.49 822.49 822.49  
 Bandwd= 32.00 32.00 32.00 32.00 32.00 32.00 32.00 32.00  
 Matching frequency sets: 6

Track assignments are:

track1= 10, 14, 2, 6, 12, 16, 4, 8  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FRB	05 28 41.725142	* 05 31 58.702000	05 33 06.212078	0.00
	33 06 43.23981	* 33 08 52.54900	33 09 29.31338	0.00
* INBEAM	05 28 36.907210	* 05 31 53.922113	05 33 01.445001	0.00
	33 08 10.41555	* 33 10 20.07143	33 10 56.96300	0.00
* J0529+3209	05 26 12.903667	* 05 29 28.211037	05 30 35.135957	0.00
	32 07 26.83083	* 32 09 46.94745	32 10 27.12078	0.00
* J0530+3301	05 27 04.333498	* 05 30 21.061039	05 31 28.478926	0.00
	32 59 03.55663	* 33 01 19.90878	33 01 59.05986	0.00
* J0629+2415	06 26 02.069795	* 06 29 05.728000	06 30 08.872935	0.00
	24 17 43.52461	* 24 15 43.30000	24 14 51.51130	0.00
J0237+2848	02 34 55.589591	* 02 37 52.405678	02 38 52.235919	0.11
* 0234+285	28 35 11.40773	* 28 48 08.98998	28 52 28.22972	0.10
J0237+28	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.vlba.2012jul rfc_2012b Petrov, 2012, unpublished 56811 observations			
* J0518+3306	05 14 48.670952	* 05 18 05.142474	05 19 12.424568	0.26
0514+330	33 03 04.11948	* 33 06 13.36506	33 07 10.77068	0.32
	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.vlba.2012jul rfc_2012b Petrov, 2012, unpublished 92 observations			
J0555+3948	05 52 01.407174	* 05 55 30.805616	05 56 42.686022	0.13
0552+398	39 48 21.94578	* 39 48 49.16493	39 48 52.77821	0.10
* DA193	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.vlba.2012jul			
J0555+39	rfc_2012b Petrov, 2012, unpublished 376994 observations			
* J0637+2319	06 34 24.138792	* 06 37 26.373600	06 38 29.060871	0.00
0634+233	23 22 34.59869	* 23 19 58.19400	23 18 53.73060	0.00
	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.vlba.2012jul JVAS - Wilkinson et al. 1998, mnras, 300, 790; S8.4GHz= 179 mJy			

Address: INAF

Observing mode:

Schedule for TORUN (Code Tr )

Page 2

SDSS 0040-0915

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
 Early: Seconds between end of slew and start. Dwell: On source seconds.  
 Disk: GBytes recorded to this point.  
 TPStart: Recording start time. Frequencies are LO sum (band edge).  
 SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Thu 2 Mar 2017 Day 61 ---										
Next scan frequencies:		4958.49	4958.49	4958.49	4958.49	5022.49	5022.49	5022.49	5022.49	5022.49
Next BBC frequencies:		758.49	758.49	758.49	758.49	822.49	822.49	822.49	822.49	822.49
Next scan bandwidths:		32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00
-----										
08 06 00	SDSS0040-091	20 01 30	4.3	111.5	-4.7		-34.5	0	0	08 06 00
08 10 10	---	20 05 40	4.9	112.3	-4.6		-34.2	250	32	08 06 01
08 10 10	J0039-0942	20 05 40	4.7	112.9	-4.6		-34.1	-12	32	No stop
08 11 40	=0036-099	20 07 11	4.9	113.2	-4.5		-34.0	78	44	08 10 11
08 11 40	SDSS0040-091	20 07 11	5.1	112.6	-4.6		-34.2	-12	44	No stop
08 15 50	---	20 11 21	5.7	113.5	-4.5		-33.9	238	76	08 11 41
08 16 20	J0039-0942	20 11 51	5.6	114.2	-4.5		-33.7	18	76	08 16 20
08 17 20	=0036-099	20 12 52	5.7	114.4	-4.5		-33.7	60	83	08 16 21
08 17 20	SDSS0040-091	20 12 52	5.9	113.8	-4.5		-33.8	-12	83	No stop
08 21 30	---	20 17 02	6.4	114.7	-4.4		-33.6	238	115	08 17 21
08 21 30	J0039-0942	20 17 02	6.3	115.3	-4.4		-33.4	-12	115	No stop
08 23 00	=0036-099	20 18 32	6.5	115.6	-4.4		-33.3	78	127	08 21 31
08 23 00	SDSS0040-091	20 18 32	6.6	115.0	-4.4		-33.5	-12	127	No stop
08 27 10	---	20 22 43	7.2	115.8	-4.3		-33.2	238	159	08 23 01
08 27 40	J0039-0942	20 23 13	7.1	116.6	-4.3		-33.0	18	159	08 27 40
08 28 40	=0036-099	20 24 13	7.3	116.8	-4.3		-32.9	60	167	08 27 41
08 28 40	SDSS0040-091	20 24 13	7.4	116.1	-4.3		-33.1	-12	167	No stop
08 32 50	---	20 28 24	8.0	117.0	-4.2		-32.8	238	199	08 28 41
08 32 50	J0039-0942	20 28 24	7.8	117.6	-4.2		-32.7	-12	199	No stop
08 34 20	=0036-099	20 29 54	8.0	118.0	-4.2		-32.5	78	210	08 32 51
08 34 20	SDSS0040-091	20 29 54	8.2	117.3	-4.2		-32.7	-12	210	No stop
08 38 30	---	20 34 05	8.7	118.2	-4.1		-32.4	238	242	08 34 21
08 39 00	J0039-0942	20 34 35	8.6	118.9	-4.1		-32.2	18	242	08 39 00
08 40 00	=0036-099	20 35 35	8.8	119.2	-4.1		-32.1	60	250	08 39 01
08 40 00	SDSS0040-091	20 35 35	8.9	118.5	-4.1		-32.3	-12	250	No stop
08 44 10	---	20 39 46	9.5	119.4	-4.0		-32.0	238	282	08 40 01
08 44 10	J0039-0942	20 39 46	9.3	120.0	-4.0		-31.8	-12	282	No stop
08 45 40	=0036-099	20 41 16	9.5	120.4	-4.0		-31.7	78	294	08 44 11

Schedule for TORUN (Code Tr )  
SDSS 0040-0915

Page 3

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start. Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are L0 sum (band edge).  
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Thu 2 Mar 2017 Day 61 ---										
08 45 40	SDSS0040-091	20 41 16	9.7	119.7	-4.0		-31.9	-12	294	No stop
08 49 50	---	20 45 27	10.2	120.6	-3.9		-31.6	238	326	08 45 41
08 50 20	J0039-0942	20 45 57	10.1	121.4	-3.9		-31.3	18	326	08 50 20
08 51 20	=0036-099	20 46 57	10.2	121.6	-3.9		-31.3	60	333	08 50 21
08 51 20	SDSS0040-091	20 46 57	10.4	120.9	-3.9		-31.4	-12	333	No stop
08 55 30	---	20 51 08	10.9	121.8	-3.8		-31.1	238	365	08 51 21
08 55 30	J0039-0942	20 51 08	10.8	122.5	-3.8		-30.9	-12	365	No stop
08 57 00	=0036-099	20 52 38	11.0	122.8	-3.8		-30.8	78	377	08 55 31
08 57 00	SDSS0040-091	20 52 38	11.1	122.2	-3.8		-31.0	-12	377	No stop
09 01 10	---	20 56 49	11.7	123.1	-3.7		-30.6	238	409	08 57 01
09 01 40	J0039-0942	20 57 19	11.6	123.8	-3.7		-30.4	18	409	09 01 40
09 02 40	=0036-099	20 58 19	11.7	124.0	-3.7		-30.3	60	417	09 01 41
09 02 40	SDSS0040-091	20 58 19	11.8	123.4	-3.7		-30.5	-12	417	No stop
09 06 50	---	21 02 30	12.4	124.3	-3.7		-30.2	238	449	09 02 41
09 06 50	J0039-0942	21 02 30	12.2	124.9	-3.6		-30.0	-12	449	No stop
09 08 20	=0036-099	21 04 00	12.4	125.3	-3.6		-29.8	78	460	09 06 51
09 08 20	SDSS0040-091	21 04 00	12.6	124.6	-3.6		-30.0	-12	460	No stop
09 12 30	---	21 08 11	13.1	125.6	-3.6		-29.7	238	492	09 08 21
09 13 00	J0039-0942	21 08 41	13.0	126.3	-3.5		-29.4	18	492	09 13 00
09 14 00	=0036-099	21 09 41	13.1	126.5	-3.5		-29.3	60	500	09 13 01
09 14 00	SDSS0040-091	21 09 41	13.3	125.9	-3.5		-29.5	-12	500	No stop
09 18 10	---	21 13 51	13.8	126.8	-3.5		-29.1	238	532	09 14 01
09 18 10	J0039-0942	21 13 51	13.6	127.4	-3.4		-28.9	-12	532	No stop
09 19 40	=0036-099	21 15 22	13.8	127.8	-3.4		-28.8	78	544	09 18 11
09 20 30	J0006-0623	21 16 12	20.5	133.9	-2.8		-25.8	11	544	09 20 30
09 23 30	=0003-066	21 19 12	20.9	134.7	-2.8		-25.4	180	567	09 20 31
09 24 20	J0039-0942	21 20 03	14.3	128.8	-3.3		-28.3	11	567	09 24 20
09 25 45	=0036-099	21 21 28	14.5	129.1	-3.3		-28.2	85	578	09 24 21
09 25 45	SDSS0040-091	21 21 28	14.7	128.5	-3.3		-28.4	-12	578	No stop
09 29 55	---	21 25 38	15.1	129.4	-3.3		-28.0	238	610	09 25 46

Schedule for TORUN (Code Tr )

Page 4

SDSS 0040-0915

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Thu	2 Mar 2017	Day	61	---					
09 29 55	J0039-0942	21 25 38	15.0	130.1	-3.2		-27.8	-12	610	No stop
09 31 25	=0036-099	21 27 09	15.1	130.4	-3.2		-27.6	78	621	09 29 56
09 31 25	SDSS0040-091	21 27 09	15.3	129.8	-3.2		-27.9	-12	621	No stop
09 35 35	---	21 31 19	15.8	130.7	-3.2		-27.4	238	653	09 31 26
09 36 05	J0039-0942	21 31 49	15.7	131.5	-3.1		-27.1	18	653	09 36 05
09 37 05	=0036-099	21 32 50	15.8	131.7	-3.1		-27.0	60	661	09 36 06
09 37 05	SDSS0040-091	21 32 50	16.0	131.1	-3.1		-27.3	-12	661	No stop
09 41 15	---	21 37 00	16.4	132.0	-3.1		-26.9	238	693	09 37 06
09 41 15	J0039-0942	21 37 00	16.2	132.7	-3.0		-26.6	-12	693	No stop
09 42 45	=0036-099	21 38 31	16.4	133.0	-3.0		-26.4	78	704	09 41 16
09 42 45	SDSS0040-091	21 38 31	16.6	132.4	-3.1		-26.7	-12	704	No stop
09 46 55	---	21 42 41	17.1	133.3	-3.0		-26.3	238	737	09 42 46
09 47 25	J0039-0942	21 43 11	16.9	134.1	-2.9		-25.9	18	737	09 47 25
09 48 25	=0036-099	21 44 11	17.0	134.3	-2.9		-25.8	60	744	09 47 26
09 48 25	SDSS0040-091	21 44 11	17.2	133.7	-3.0		-26.1	-12	744	No stop
09 52 35	---	21 48 22	17.7	134.7	-2.9		-25.6	238	776	09 48 26
09 52 35	J0039-0942	21 48 22	17.5	135.3	-2.9		-25.4	-12	776	No stop
09 54 05	=0036-099	21 49 52	17.6	135.6	-2.8		-25.2	78	788	09 52 36
09 54 05	SDSS0040-091	21 49 52	17.8	135.0	-2.9		-25.5	-12	788	No stop
09 58 15	---	21 54 03	18.3	136.0	-2.8		-25.0	238	820	09 54 06
09 58 45	J0039-0942	21 54 33	18.1	136.7	-2.8		-24.7	18	820	09 58 45
09 59 45	=0036-099	21 55 33	18.2	137.0	-2.7		-24.6	60	828	09 58 46
09 59 45	SDSS0040-091	21 55 33	18.4	136.4	-2.8		-24.8	-12	828	No stop
10 03 55	---	21 59 44	18.9	137.3	-2.7		-24.3	238	860	09 59 46
10 03 55	J0039-0942	21 59 44	18.6	138.0	-2.7		-24.1	-12	860	No stop
10 05 25	=0036-099	22 01 14	18.8	138.3	-2.6		-23.9	78	871	10 03 56
10 05 25	SDSS0040-091	22 01 14	19.0	137.7	-2.7		-24.2	-12	871	No stop
10 09 35	---	22 05 25	19.4	138.7	-2.6		-23.7	238	903	10 05 26
10 10 05	J0039-0942	22 05 55	19.2	139.4	-2.6		-23.3	18	903	10 10 05
10 11 05	=0036-099	22 06 55	19.3	139.7	-2.6		-23.2	60	911	10 10 06

Schedule for TORUN (Code Tr )  
SDSS 0040-0915

Page 5

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start. Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are L0 sum (band edge).  
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Thu	2 Mar 2017	Day	61	---					
10 11 05	SDSS0040-091	22 06 55	19.6	139.1	-2.6		-23.5	-12	911	No stop
10 15 15	---	22 11 06	20.0	140.1	-2.5		-23.0	238	943	10 11 06
10 15 15	J0039-0942	22 11 06	19.7	140.7	-2.5		-22.7	-12	943	No stop
10 16 45	=0036-099	22 12 36	19.9	141.1	-2.5		-22.5	78	954	10 15 16
10 16 45	SDSS0040-091	22 12 36	20.1	140.4	-2.5		-22.8	-12	954	No stop
10 20 55	---	22 16 47	20.5	141.4	-2.4		-22.3	238	987	10 16 46
10 21 25	J0039-0942	22 17 17	20.3	142.2	-2.4		-21.9	18	987	10 21 25
10 22 25	=0036-099	22 18 17	20.4	142.4	-2.4		-21.8	60	994	10 21 26
10 22 25	SDSS0040-091	22 18 17	20.7	141.8	-2.4		-22.1	-12	994	No stop
10 26 35	---	22 22 28	21.1	142.8	-2.3		-21.6	238	1026	10 22 26
10 26 35	J0039-0942	22 22 28	20.8	143.5	-2.3		-21.3	-12	1026	No stop
10 28 05	=0036-099	22 23 58	20.9	143.8	-2.3		-21.1	78	1038	10 26 36
10 29 05	J0006-0623	22 24 58	26.8	151.3	-1.7		-16.9	24	1038	10 29 05
10 32 05	=0003-066	22 27 59	27.0	152.1	-1.7		-16.4	180	1061	10 29 06
10 32 55	J0039-0942	22 28 49	21.4	145.0	-2.2		-20.4	15	1061	10 32 55
10 34 10	=0036-099	22 30 04	21.5	145.3	-2.2		-20.3	75	1071	10 32 56
10 34 10	SDSS0040-091	22 30 04	21.7	144.7	-2.2		-20.6	-12	1071	No stop
10 38 20	---	22 34 15	22.1	145.8	-2.1		-20.0	238	1103	10 34 11
10 38 20	J0039-0942	22 34 15	21.8	146.4	-2.1		-19.7	-12	1103	No stop
10 39 50	=0036-099	22 35 45	21.9	146.8	-2.1		-19.5	78	1114	10 38 21
10 39 50	SDSS0040-091	22 35 45	22.2	146.1	-2.1		-19.8	-12	1114	No stop
10 44 00	---	22 39 56	22.6	147.2	-2.0		-19.2	238	1146	10 39 51
10 44 30	J0039-0942	22 40 26	22.3	147.9	-2.0		-18.9	18	1146	10 44 30
10 45 30	=0036-099	22 41 26	22.4	148.2	-2.0		-18.7	60	1154	10 44 31
10 45 30	SDSS0040-091	22 41 26	22.7	147.6	-2.0		-19.0	-12	1154	No stop
10 49 40	---	22 45 37	23.0	148.6	-1.9		-18.5	238	1186	10 45 31
10 49 40	J0039-0942	22 45 37	22.7	149.2	-1.9		-18.1	-12	1186	No stop
10 51 10	=0036-099	22 47 07	22.8	149.6	-1.9		-17.9	78	1197	10 49 41
10 51 10	SDSS0040-091	22 47 07	23.1	149.0	-1.9		-18.3	-12	1197	No stop
10 55 20	---	22 51 17	23.4	150.1	-1.8		-17.7	238	1229	10 51 11

Schedule for TORUN (Code Tr )

Page 6

SDSS 0040-0915

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Thu	2 Mar 2017	Day	61	---					
10 55 50	J0039-0942	22 51 48	23.2	150.8	-1.8		-17.3	18	1229	10 55 50
10 56 50	=0036-099	22 52 48	23.3	151.1	-1.8		-17.1	60	1237	10 55 51
10 56 50	SDSS0040-091	22 52 48	23.6	150.5	-1.8		-17.4	-12	1237	No stop
11 01 00	---	22 56 58	23.9	151.5	-1.7		-16.8	238	1269	10 56 51
11 01 00	J0039-0942	22 56 58	23.6	152.2	-1.7		-16.5	-12	1269	No stop
11 02 30	=0036-099	22 58 29	23.7	152.5	-1.7		-16.3	78	1281	11 01 01
11 02 30	SDSS0040-091	22 58 29	24.0	151.9	-1.7		-16.6	-12	1281	No stop
11 06 40	---	23 02 39	24.3	153.0	-1.7		-16.0	238	1313	11 02 31
11 07 10	J0039-0942	23 03 09	24.0	153.8	-1.6		-15.6	18	1313	11 07 10
11 08 10	=0036-099	23 04 10	24.0	154.0	-1.6		-15.5	60	1321	11 07 11
11 08 10	SDSS0040-091	23 04 10	24.4	153.4	-1.6		-15.8	-12	1321	No stop
11 12 20	---	23 08 20	24.6	154.5	-1.6		-15.2	238	1353	11 08 11
11 12 20	J0039-0942	23 08 20	24.3	155.1	-1.5		-14.9	-12	1353	No stop
11 13 50	=0036-099	23 09 50	24.4	155.5	-1.5		-14.6	78	1364	11 12 21
11 13 50	SDSS0040-091	23 09 50	24.7	154.9	-1.5		-15.0	-12	1364	No stop
11 18 00	---	23 14 01	25.0	156.0	-1.5		-14.3	238	1396	11 13 51
11 18 30	J0039-0942	23 14 31	24.7	156.7	-1.4		-13.9	18	1396	11 18 30
11 19 30	=0036-099	23 15 31	24.7	157.0	-1.4		-13.8	60	1404	11 18 31
11 19 30	SDSS0040-091	23 15 31	25.1	156.4	-1.4		-14.1	-12	1404	No stop
11 23 40	---	23 19 42	25.3	157.5	-1.4		-13.5	238	1436	11 19 31
11 23 40	J0039-0942	23 19 42	25.0	158.1	-1.3		-13.1	-12	1436	No stop
11 25 10	=0036-099	23 21 12	25.1	158.5	-1.3		-12.9	78	1447	11 23 41
11 25 10	SDSS0040-091	23 21 12	25.4	157.9	-1.3		-13.2	-12	1447	No stop
11 29 20	---	23 25 23	25.6	159.0	-1.3		-12.6	238	1479	11 25 11
11 29 50	J0039-0942	23 25 53	25.3	159.7	-1.2		-12.2	18	1479	11 29 50
11 30 50	=0036-099	23 26 53	25.4	160.0	-1.2		-12.0	60	1487	11 29 51
11 30 50	SDSS0040-091	23 26 53	25.7	159.4	-1.2		-12.3	-12	1487	No stop
11 35 00	---	23 31 04	25.9	160.5	-1.2		-11.7	238	1519	11 30 51
11 35 00	J0039-0942	23 31 04	25.6	161.1	-1.1		-11.4	-12	1519	No stop
11 36 30	=0036-099	23 32 34	25.7	161.5	-1.1		-11.1	78	1531	11 35 01

Schedule for TORUN (Code Tr )

Page 7

SDSS 0040-0915

UP: D =&gt; Below limits; H =&gt; Below horizon mask; W =&gt; still slewing at end; blank =&gt; Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Thu	2 Mar 2017	Day	61	---					
11 37 30	J0006-0623	23 33 34	30.2	170.4	-0.6		-5.8	28	1531	11 37 30
11 40 30	=0003-066	23 36 35	30.3	171.2	-0.5		-5.3	180	1554	11 37 31
11 41 30	J0039-0942	23 37 35	25.9	162.9	-1.0		-10.3	28	1554	11 41 30
11 42 35	=0036-099	23 38 40	25.9	163.2	-1.0		-10.2	65	1562	11 41 31
11 42 35	SDSS0040-091	23 38 40	26.3	162.6	-1.1		-10.5	-12	1562	No stop
11 46 45	---	23 42 51	26.5	163.7	-1.0		-9.8	238	1594	11 42 36
11 46 45	J0039-0942	23 42 51	26.1	164.3	-1.0		-9.5	-12	1594	No stop
11 48 15	=0036-099	23 44 21	26.2	164.7	-0.9		-9.2	78	1606	11 46 46
11 48 15	SDSS0040-091	23 44 21	26.5	164.1	-1.0		-9.6	-12	1606	No stop
11 52 25	---	23 48 32	26.7	165.3	-0.9		-8.9	238	1638	11 48 16
11 52 55	J0039-0942	23 49 02	26.3	166.0	-0.8		-8.5	18	1638	11 52 55
11 53 55	=0036-099	23 50 02	26.4	166.2	-0.8		-8.3	60	1646	11 52 56
11 53 55	SDSS0040-091	23 50 02	26.8	165.7	-0.9		-8.7	-12	1646	No stop
11 58 05	---	23 54 13	26.9	166.8	-0.8		-8.0	238	1678	11 53 56
11 58 05	J0039-0942	23 54 13	26.5	167.4	-0.8		-7.6	-12	1678	No stop
11 59 35	=0036-099	23 55 43	26.6	167.8	-0.7		-7.4	78	1689	11 58 06
11 59 35	SDSS0040-091	23 55 43	27.0	167.2	-0.8		-7.7	-12	1689	No stop
12 03 45	---	23 59 54	27.1	168.4	-0.7		-7.0	238	1721	11 59 36
12 04 15	J0039-0942	00 00 24	26.7	169.1	-0.7		-6.6	18	1721	12 04 15
12 05 15	=0036-099	00 01 24	26.7	169.3	-0.6		-6.5	60	1729	12 04 16
12 05 15	SDSS0040-091	00 01 24	27.1	168.8	-0.7		-6.8	-12	1729	No stop
12 09 25	---	00 05 35	27.3	169.9	-0.6		-6.1	238	1761	12 05 16
12 09 25	J0039-0942	00 05 35	26.9	170.5	-0.6		-5.8	-12	1761	No stop
12 10 55	=0036-099	00 07 05	26.9	170.9	-0.5		-5.5	78	1772	12 09 26
12 10 55	SDSS0040-091	00 07 05	27.3	170.4	-0.6		-5.8	-12	1772	No stop
12 15 05	---	00 11 16	27.4	171.5	-0.5		-5.1	238	1804	12 10 56
12 15 35	J0039-0942	00 11 46	27.0	172.2	-0.5		-4.7	18	1804	12 15 35
12 16 35	=0036-099	00 12 46	27.0	172.5	-0.5		-4.6	60	1812	12 15 36
12 16 35	SDSS0040-091	00 12 46	27.4	171.9	-0.5		-4.9	-12	1812	No stop
12 20 45	---	00 16 56	27.5	173.1	-0.4		-4.2	238	1844	12 16 36



Schedule for TORUN (Code Tr )  
 SDSS 0040-0915

Page 8

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
 Early: Seconds between end of slew and start. Dwell: On source seconds.  
 Disk: GBytes recorded to this point.  
 TPStart: Recording start time. Frequencies are L0 sum (band edge).  
 SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Thu	2 Mar 2017	Day	61	---					
12 20 45	J0039-0942	00 16 56	27.1	173.6	-0.4		-3.9	-12	1844	No stop
12 22 15	=0036-099	00 18 27	27.1	174.0	-0.4		-3.6	78	1856	12 20 46
12 22 15	SDSS0040-091	00 18 27	27.5	173.5	-0.4		-3.9	-13	1856	No stop
12 26 25	---	00 22 37	27.6	174.7	-0.3		-3.2	237	1888	12 22 16
12 26 55	J0039-0942	00 23 08	27.2	175.3	-0.3		-2.8	17	1888	12 26 55
12 27 55	=0036-099	00 24 08	27.2	175.6	-0.3		-2.7	60	1896	12 26 56
12 27 55	SDSS0040-091	00 24 08	27.6	175.1	-0.3		-3.0	-13	1896	No stop
12 32 05	---	00 28 18	27.7	176.3	-0.2		-2.3	237	1928	12 27 56
12 32 05	J0039-0942	00 28 18	27.2	176.8	-0.2		-2.0	-13	1928	No stop
12 33 35	=0036-099	00 29 49	27.2	177.2	-0.2		-1.7	77	1939	12 32 06
12 33 35	SDSS0040-091	00 29 49	27.7	176.7	-0.2		-2.0	-13	1939	No stop
12 37 45	---	00 33 59	27.7	177.8	-0.1		-1.3	237	1971	12 33 36
12 38 15	J0039-0942	00 34 29	27.3	178.5	-0.1		-0.9	17	1971	12 38 15
12 39 15	=0036-099	00 35 30	27.3	178.8	-0.1		-0.8	60	1979	12 38 16
12 39 15	SDSS0040-091	00 35 30	27.7	178.3	-0.1		-1.1	-13	1979	No stop
12 43 25	---	00 39 40	27.7	179.4	-0.0		-0.4	237	2011	12 39 16
12 43 25	J0039-0942	00 39 40	27.3	179.9	-0.0		-0.0	-13	2011	No stop
12 44 55	=0036-099	00 41 10	27.3	180.3	0.0		0.2	77	2022	12 43 26
12 44 55	SDSS0040-091	00 41 10	27.7	179.8	-0.0		-0.1	-13	2022	No stop
12 49 05	---	00 45 21	27.7	181.0	0.1		0.6	237	2054	12 44 56
12 49 35	J0039-0942	00 45 51	27.3	181.6	0.1		1.0	17	2054	12 49 35
12 50 35	=0036-099	00 46 51	27.3	181.9	0.1		1.2	60	2062	12 49 36
12 50 35	SDSS0040-091	00 46 51	27.7	181.4	0.1		0.9	-13	2062	No stop
12 54 45	---	00 51 02	27.7	182.6	0.2		1.6	237	2094	12 50 36
12 54 45	J0039-0942	00 51 02	27.2	183.1	0.2		1.9	-13	2094	No stop
12 56 15	=0036-099	00 52 32	27.2	183.5	0.2		2.1	77	2106	12 54 46
12 56 15	SDSS0040-091	00 52 32	27.7	183.0	0.2		1.8	-13	2106	No stop
13 00 25	---	00 56 43	27.7	184.2	0.2		2.5	237	2138	12 56 16
13 00 55	J0039-0942	00 57 13	27.2	184.8	0.3		2.9	17	2138	13 00 55
13 01 55	=0036-099	00 58 13	27.2	185.1	0.3		3.1	60	2146	13 00 56

Schedule for TORUN (Code Tr )  
SDSS 0040-0915

Page 9

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start. Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are L0 sum (band edge).  
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
---	Thu	2 Mar 2017	Day	61	---					
13 01 55	SDSS0040-091	00 58 13	27.6	184.6	0.3		2.8	-13	2146	No stop
13 06 05	---	01 02 24	27.6	185.8	0.3		3.5	237	2178	13 01 56
13 06 05	J0039-0942	01 02 24	27.1	186.2	0.4		3.8	-13	2178	No stop
13 07 35	=0036-099	01 03 54	27.1	186.6	0.4		4.0	77	2189	13 06 06
13 07 35	SDSS0040-091	01 03 54	27.6	186.2	0.4		3.7	-13	2189	No stop
13 11 45	---	01 08 05	27.5	187.3	0.4		4.5	237	2221	13 07 36
13 12 15	J0039-0942	01 08 35	27.0	187.9	0.5		4.8	17	2221	13 12 15
13 13 15	=0036-099	01 09 35	27.0	188.2	0.5		5.0	60	2229	13 12 16
13 13 15	SDSS0040-091	01 09 35	27.5	187.7	0.5		4.7	-13	2229	No stop
13 17 25	---	01 13 46	27.4	188.9	0.5		5.4	237	2261	13 13 16
13 17 25	J0039-0942	01 13 46	26.9	189.4	0.6		5.7	-13	2261	No stop
13 18 55	=0036-099	01 15 16	26.8	189.8	0.6		5.9	77	2272	13 17 26
13 18 55	SDSS0040-091	01 15 16	27.3	189.3	0.6		5.7	-13	2272	No stop
13 23 05	---	01 19 27	27.2	190.5	0.6		6.3	237	2304	13 18 56
13 23 35	J0039-0942	01 19 57	26.7	191.0	0.7		6.7	17	2304	13 23 35
13 24 35	=0036-099	01 20 57	26.7	191.3	0.7		6.9	60	2312	13 23 36
13 24 35	SDSS0040-091	01 20 57	27.2	190.9	0.7		6.6	-13	2312	No stop
13 28 30	---	01 24 53	27.1	192.0	0.7		7.2	222	2342	13 24 36
13 28 30	J0039-0942	01 24 53	26.6	192.4	0.7		7.5	-13	2342	No stop
13 30 00	=0036-099	01 26 23	26.5	192.8	0.8		7.8	77	2354	13 28 31

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: sess117.C2048

Setup group: 13	Station: TORUN	Total bit rate: 1024
Format: MARK5B	Bits per sample: 2	Sample rate: 64.000
Number of channels: 8	DBE type: DBBC_DDC	Speedup factor: 1.00

Disk used to record data.

1st LO=	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00
Net SB=	L	L	U	U	L	L	U	U	U
IF SB =	U	U	U	U	U	U	U	U	U
Pol. =	RCP	LCP	RCP	LCP	RCP	LCP	RCP	LCP	LCP
BBC =	1	5	1	5	3	7	3	7	7
BBC SB=	L	L	U	U	L	L	U	U	U
IF =	A1	B1	A1	B1	A1	B1	A1	B1	B1

The following frequency sets based on these setups were used.

Frequency Set: 7 Setup file default. Used with PCAL = off  
 LO sum= 4958.49 4958.49 4958.49 4958.49 5022.49 5022.49 5022.49 5022.49  
 BBC fr= 758.49 758.49 758.49 758.49 822.49 822.49 822.49 822.49  
 Bandwd= 32.00 32.00 32.00 32.00 32.00 32.00 32.00 32.00  
 Matching frequency sets: 7

Track assignments are:  
 track1= 10, 14, 2, 6, 12, 16, 4, 8  
 barrel=roll\_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* SDSS0040-091	00 38 22.788643	* 00 40 54.652000	00 41 45.138122	0.00
	-09 31 54.05942	*-09 15 26.80000	-09 10 01.85852	0.00
0003-066	00 03 40.288767	* 00 06 13.892888	00 07 04.913240	0.00
* J0006-0623	-06 40 17.29991	*-06 23 35.33534	-06 18 03.11794	0.01
J0006-06	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc GSFC 2015a astro solution, unpublished 31905 observations.			
0036-099	00 36 34.432122	* 00 39 06.291667	00 39 56.763589	0.19
* J0039-0942	-09 59 15.47972	*-09 42 46.88912	-09 37 21.46140	0.41
	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc GSFC 2015a astro solution, unpublished 87 observations.			

**rk16mhr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/K-band, dual-pol

Schedule for TORUN                      (Code Tr )                                      Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

```
-----
Start UT    Source                      Start / Stop                      Early    Disk    TPStart
Stop UT                      LST       EL       AZ       HA    UP       ParA    Dwell    GBytes    SYNC
-----
```

--- Fri    3 Mar 2017    Day 62 ---

----- K-band VLBI scans -----

```
Next scan frequencies: 22236.00 22236.00 22236.00 22236.00
Next BBC frequencies:    736.00    736.00    736.00    736.00
Next scan bandwidths:    16.00    16.00    16.00    16.00

02 00 00 1803+784    13 58 26 57.5 18.8 -4.0    -104.1    0            0    02 00 00
02 24 30 ---            14 23 00 58.6 18.1 -3.6    -110.7 1470            47    02 00 01

02 25 00 1803+784    14 23 30 58.6 18.1 -3.6    -110.9    25            47    02 25 00
02 50 00 ---            14 48 34 59.8 17.1 -3.2    -117.9 1500            95    02 25 01
```

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
Setup file: ra1cm2.set  
Matching groups in ./rk16mh\_freq.dat:  
tr1cm

```
Setup group:    5                      Station: TORUN                      Total bit rate:    256
Format: MKIV1:4                      Bits per sample: 2                      Sample rate: 32.000
Number of channels: 4                      DBE type:                      Speedup factor:    1.00
```

Disk used to record data.

```

1st LO= 21500.00 21500.00 21500.00 21500.00
Net SB=      L      L      U      U
IF SB =      U      U      U      U
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      L      L      U      U
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  4  Setup file default.  Used with PCAL = 1MHz
LO sum= 22236.00 22236.00 22236.00 22236.00
BBC fr=  736.00  736.00  736.00  736.00
Bandwd=  16.00  16.00  16.00  16.00
Matching frequency sets:  4

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 59.561285	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 11.71206	0.00
	fake circumpolar target for a TS to look at			
* 1803+784	18 03 39.193524	* 18 00 45.683902	17 59 44.417786	0.00
J1800+7828	78 27 54.29744	* 78 28 04.01838	78 27 52.95178	0.00
	./rk16mh_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 217073 observations, RA-A03-04, RA-A02-			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1803+784	93.5

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**rk16mitr**

**RADIOASTRON AGN MONITORING**

PI: *Yuri Kovalev*

Address: ASC Lebedev                                      Profsoyuznaya 84/32                                      117997 Moscow, Russia  
Phone:    +7-495-3332512                                      EMAIL:      kirx@scan.sai.msu.ru  
Fax:        +7-495-3332378                                      Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page 2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.      Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time.      Frequencies are L0 sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                                      Start / Stop                                      Early      Disk    TPStart  
Stop UT                                      LST            EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Fri 3 Mar 2017 Day 62 ---

----- L-band VLBI scans -----

Next scan frequencies: 1668.00    1668.00    1668.00    1668.00  
Next BBC frequencies:    732.00    732.00    732.00    732.00  
Next scan bandwidths:     16.00     16.00     16.00     16.00

09 00 00	1357+769	20 59 35	47.8	-19.4	7.0		59.6	0	0	09 00 00
09 19 30	---	21 19 08	46.9	-18.5	7.4		55.5	1170	37	09 00 01
09 20 00	1357+769	21 19 38	46.9	-18.5	7.4		55.4	25	37	09 20 00
09 39 30	---	21 39 12	45.9	-17.5	7.7		51.3	1170	75	09 20 01
09 40 00	1357+769	21 39 42	45.9	-17.5	7.7		51.2	25	75	09 40 00
10 00 00	---	21 59 45	45.0	-16.4	8.0		47.1	1200	113	09 40 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
Setup file: ra18cm2.set

Setup group: 5	Station: TORUN	Total bit rate: 256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor: 1.00

Disk used to record data.

```

1st LO= 2400.00 2400.00 2400.00 2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 4 Setup file default. Used with PCAL = 1MHz
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 732.00 732.00 732.00 732.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 4

```

Track assignments are:

```

track1= 2, 18, 3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(Date)	Error (mas)	
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 59.578402	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 11.80174	0.00
	fake circumpolar target for a TS to look at			
* 1357+769	13 57 42.117007	* 13 57 55.371538	13 58 02.153161	0.00
J1357+7643	76 57 53.35418	* 76 43 21.05098	76 38 12.10494	0.00
	./rk16mi_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 226762 observations, RA-A04-07, RA-A03-			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1357+769	106.0

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**rk16mctr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST       EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Sat    4 Mar 2017    Day 63 ---

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies:    732.00    732.00    732.00    732.00  
Next scan bandwidths:    16.00    16.00    16.00    16.00

04 00 00	0529+483	16 02 42	13.3	-15.4	10.5		13.9	0	0	04 00 00
04 15 00	---	16 17 45	12.8	-12.9	10.7		11.7	900	29	04 00 01

----- L-band VLBI scans -----

04 15 30	0529+483	16 18 15	12.8	-12.9	10.7		11.6	24	29	04 15 30
04 37 30	---	16 40 19	12.1	-9.2	11.1		8.3	1320	71	04 15 31
04 38 00	0529+483	16 40 49	12.1	-9.1	11.1		8.2	24	71	04 38 00
05 00 00	---	17 02 52	11.7	-5.4	11.5		4.9	1320	113	04 38 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group:    2	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor:    1.00

Disk used to record data.



1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 1 Setup file default. Used with PCAL = 1MHz  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 732.00 732.00 732.00 732.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 1

Track assignments are:

track1= 2, 18, 3, 19  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 59.624447	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 12.04050	0.00
	fake circumpolar target for a TS to look at			
* 0529+483	05 29 27.565384	* 05 33 15.865793	05 34 34.122544	0.00
J0533+4822	48 20 47.97038	* 48 22 52.80771	48 23 32.57298	0.00
	./rk16mk_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 19801 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
0529+483	100.4

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**rk16mmtr**

RADIOASTRON AGN MONITORING  
PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start.    Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST       EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Sat    4 Mar 2017    Day 63 ---

----- L-band VLBI scans -----

Next scan frequencies:	1668.00	1668.00	1668.00	1668.00							
Next BBC frequencies:	732.00	732.00	732.00	732.00							
Next scan bandwidths:	16.00	16.00	16.00	16.00							
15 00 00	1803+784	03 04 31	44.2	-11.1	9.1		35.4	0	0	15 00 00	
15 19 30	---	03 24 04	43.6	-10.0	9.4		31.4	1170	37	15 00 01	
15 20 00	1803+784	03 24 34	43.6	-10.0	9.4		31.3	25	37	15 20 00	
15 39 30	---	03 44 07	43.1	-8.8	9.7		27.3	1170	75	15 20 01	
15 40 00	1803+784	03 44 37	43.1	-8.8	9.7		27.2	25	75	15 40 00	
16 00 00	---	04 04 41	42.7	-7.5	10.1		23.2	1200	113	15 40 01	

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
Setup file: ra18cm2.set

Setup group:    6	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor:    1.00

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00  732.00  732.00  732.00
Bandwd=   16.00  16.00  16.00  16.00
Matching frequency sets:  5

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 59.650600	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 12.16901	0.00
	fake circumpolar target for a TS to look at			
* 1803+784	18 03 39.193524	* 18 00 45.683902	17 59 44.583548	0.00
J1800+7828	78 27 54.29744	* 78 28 04.01838	78 27 52.83959	0.00
	./rk16mm_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 217073 observations, RA-A03-04, RA-A02-			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1803+784	93.2

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

rk16mnr

RADIOASTRON AGN MONITORING

PI: Yuri Kovalev

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: L-band, dual-pol

Schedule for TORUN            (Code Tr )    Page 2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start.    Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST       EL       AZ       HA       UP       ParA    Dwell    GBytes    SYNC  
-----

--- Sat    4 Mar 2017    Day 63 ---

----- L-band VLBI scans -----

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00  
Next BBC frequencies:    732.00    732.00    732.00    732.00  
Next scan bandwidths:    16.00    16.00    16.00    16.00

20 00 00	1253-055	08 05 20	5.4	107.2	-4.9		-35.2	0	0	20 00 00
20 19 30	---	08 24 53	8.1	111.3	-4.5		-34.2	1170	37	20 00 01
20 20 00	1253-055	08 25 23	8.2	111.4	-4.5		-34.2	24	37	20 20 00
20 39 30	---	08 44 57	10.9	115.5	-4.2		-33.0	1170	75	20 20 01
20 40 00	1253-055	08 45 27	11.0	115.6	-4.2		-33.0	24	75	20 40 00
21 00 00	---	09 05 30	13.6	119.9	-3.9		-31.6	1200	113	20 40 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

===== Setup file: ra18cm2.set

Setup group:	5	Station:	TORUN	Total bit rate:	256
Format:	MKIV1:4	Bits per sample:	2	Sample rate:	32.000
Number of channels:	4	DBE type:		Speedup factor:	1.00

Disk used to record data.

```

1st LO=  2400.00  2400.00  2400.00  2400.00
Net SB=           L           L           U           U
IF SB =           L           L           L           L
Pol.  =          RCP          LCP          RCP          LCP
BBC   =           1           2           1           2
BBC SB=           U           U           L           L
IF    =           C           A           C           A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  5  Setup file default.  Used with PCAL = 1MHz
LO sum=  1668.00  1668.00  1668.00  1668.00
BBC fr=   732.00   732.00   732.00   732.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  5

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 59.663921	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 12.23151	0.00
	fake circumpolar target for a TS to look at			
* 1253-055	12 53 35.831289	* 12 56 11.166557	12 57 05.225175	0.00
J1256-0547	-05 31 07.99603	*-05 47 21.52489	-05 52 57.26537	0.00
3C279	./rk16mn_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 7924 observations, RA-A04-07, RA-A03-04			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1253-055    149.1

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

**rk16mqr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
 Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
 Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN                      (Code Tr )                                      Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start.    Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are L0 sum (band edge).

SYNC: Time correlator is expected to sync up.

-----  

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

 -----

--- Sun    5 Mar 2017    Day 64 ---

----- C-band VLBI scans -----

```

Next scan frequencies: 4836.00 4836.00 4836.00 4836.00
Next BBC frequencies:  736.00  736.00  736.00  736.00
Next scan bandwidths:  16.00  16.00  16.00  16.00
    
```

12 00 00	0529+483	00 07 58	41.0	60.5	-5.4	-51.9	0	0	12 00 00
12 19 30	---	00 27 31	43.6	63.1	-5.1	-53.8	1170	37	12 00 01
12 20 00	0529+483	00 28 01	43.6	63.2	-5.1	-53.8	24	37	12 20 00
12 39 30	---	00 47 34	46.3	65.9	-4.8	-55.6	1170	75	12 20 01
12 40 00	0529+483	00 48 04	46.4	65.9	-4.8	-55.7	24	75	12 40 00
13 00 00	---	01 08 08	49.1	68.7	-4.4	-57.4	1200	113	12 40 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
 Setup file: ra6cm2.set

Setup group:    1	Station: TORUN	Total bit rate:    256
Format: MKIV1:4	Bits per sample: 2	Sample rate: 32.000
Number of channels: 4	DBE type:	Speedup factor:    1.00

Disk used to record data.

1st LO=	4100.00	4100.00	4100.00	4100.00
Net SB=	L	L	U	U
IF SB =	U	U	U	U
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	L	L	U	U
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 3 Setup file default. Used with PCAL = 1MHz  
 LO sum= 4836.00 4836.00 4836.00 4836.00  
 BBC fr= 736.00 736.00 736.00 736.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 3

Track assignments are:

track1= 2, 18, 3, 19  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 59.706117	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 12.41547	0.00
	fake circumpolar target for a TS to look at			
* 0529+483	05 29 27.565384	* 05 33 15.865793	05 34 34.093767	0.00
J0533+4822	48 20 47.97038	* 48 22 52.80771	48 23 32.57128	0.00
	./rk16mq_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 19801 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
0529+483	99.2

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**rk16mstr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: C/K-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start.    Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time.    Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST       EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Sun    5 Mar 2017    Day 64 ---

----- C-band VLBI scans -----

Next scan frequencies:	4836.00	4836.00	4836.00	4836.00							
Next BBC frequencies:	736.00	736.00	736.00	736.00							
Next scan bandwidths:	16.00	16.00	16.00	16.00							
22 10 00	1253-055	10 19 38	22.3	137.0	-2.6		-24.3	0	0	22 10 00	
22 22 00	---	10 31 40	23.5	140.0	-2.4		-22.8	720	23	22 10 01	
22 22 30	1253-055	10 32 10	23.6	140.1	-2.4		-22.8	24	23	22 22 30	
22 34 30	---	10 44 12	24.7	143.1	-2.2		-21.2	720	46	22 22 31	
22 35 00	1253-055	10 44 42	24.7	143.3	-2.2		-21.2	24	46	22 35 00	
22 47 00	---	10 56 44	25.8	146.4	-2.0		-19.5	720	69	22 35 01	
22 47 30	1253-055	10 57 14	25.8	146.5	-2.0		-19.5	24	69	22 47 30	
23 00 00	---	11 09 46	26.8	149.8	-1.8		-17.7	750	93	22 47 31	

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
Setup file: ra6cm2.set

Setup group:	2	Station:	TORUN	Total bit rate:	256
Format:	MKIV1:4	Bits per sample:	2	Sample rate:	32.000
Number of channels:	4	DBE type:		Speedup factor:	1.00

Disk used to record data.



```

1st LO=  4100.00  4100.00  4100.00  4100.00
Net SB=           L           L           U           U
IF SB =           U           U           U           U
Pol.  =          RCP          LCP          RCP          LCP
BBC   =           1           2           1           2
BBC SB=           L           L           U           U
IF    =           C           A           C           A

```

The following frequency sets based on these setups were used.

```

Frequency Set:  3  Setup file default.  Used with PCAL = 1MHz
LO sum=  4836.00  4836.00  4836.00  4836.00
BBC fr=   736.00   736.00   736.00   736.00
Bandwd=   16.00   16.00   16.00   16.00
Matching frequency sets:  3

```

Track assignments are:

```

track1=  2, 18,  3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 59.734653	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 12.52873	0.00
	fake circumpolar target for a TS to look at			
* 1253-055	12 53 35.831289	* 12 56 11.166557	12 57 05.248758	0.00
J1256-0547	-05 31 07.99603	*-05 47 21.52489	-05 52 57.40782	0.00
3C279	./rk16ms_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 7924 observations, RA-A04-07, RA-A03-04			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

```

Source      Sun distance (deg)
1253-055   150.1

```

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

```

1.6 GHz      45. deg
2.3 GHz      36. deg
5.0 GHz      23. deg
8.4 GHz      17. deg
15.0 GHz     12. deg
22.0 GHz     9. deg

```

**rk16mttr**

RADIOASTRON AGN MONITORING  
PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia  
Phone: +7-495-3332512 EMAIL: kirx@scan.sai.msu.ru  
Fax: +7-495-3332378 Phone during observation: +7-903-6614865

Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr ) Page 2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start. Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are L0 sum (band edge).  
SYNC: Time correlator is expected to sync up.

```

-----
Start UT Source Start / Stop Early Disk TPStart
Stop UT LST EL AZ HA UP ParA Dwell GBytes SYNC
-----

```

--- Mon 6 Mar 2017 Day 65 ---

----- L-band VLBI scans -----

```

Next scan frequencies: 1668.00 1668.00 1668.00 1668.00
Next BBC frequencies: 732.00 732.00 732.00 732.00
Next scan bandwidths: 16.00 16.00 16.00 16.00

20 00 00 0829+046 08 13 13 41.2 173.5 -0.3 -3.9 0 0 20 00 00
20 19 30 --- 08 32 46 41.3 180.0 0.0 0.0 1170 37 20 00 01

20 20 00 0829+046 08 33 16 41.3 180.2 0.0 0.1 24 37 20 20 00
20 39 30 --- 08 52 50 41.2 186.7 0.3 4.0 1170 75 20 20 01

20 40 00 0829+046 08 53 20 41.2 186.8 0.3 4.1 24 75 20 40 00
21 00 00 --- 09 13 23 40.6 193.4 0.7 8.0 1200 113 20 40 01

```

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

===== Setup file: ra18cm2.set

```

Setup group: 4 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

```

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 3 Setup file default. Used with PCAL = 1MHz  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 732.00 732.00 732.00 732.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 3

Track assignments are:

track1= 2, 18, 3, 19  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 59.803333	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 12.77401	0.00
	fake circumpolar target for a TS to look at			
* 0829+046	08 29 10.894139	* 08 31 48.876958	08 32 43.654073	0.00
J0831+0429	04 39 50.82946	* 04 29 39.08580	04 25 55.41310	0.00
	./rk16mt_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 1604 observations, RA-A03-04			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
0829+046	140.8

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**rk16mutr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev                      Profsoyuznaya 84/32                      117997 Moscow, Russia  
Phone:    +7-495-3332512                      EMAIL:    kirx@scan.sai.msu.ru  
Fax:       +7-495-3332378                      Phone during observation: +7-903-6614865

Observing mode: L-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start.    Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

-----  
Start UT    Source                      Start / Stop                      Early    Disk    TPStart  
Stop UT                      LST       EL    AZ    HA    UP    ParA    Dwell    GBytes    SYNC  
-----

--- Tue    7 Mar 2017    Day 66 ---

----- L-band VLBI scans -----

Next scan frequencies:	1668.00	1668.00	1668.00	1668.00								
Next BBC frequencies:	732.00	732.00	732.00	732.00								
Next scan bandwidths:	16.00	16.00	16.00	16.00								
00 00 00	1253-055	12 13 53	30.3	167.5	-0.7		-7.5	0	0	00 00 00		
00 19 30	---	12 33 26	30.8	173.1	-0.4		-4.1	1170	37	00 00 01		
00 20 00	1253-055	12 33 56	30.8	173.3	-0.4		-4.0	24	37	00 20 00		
00 39 30	---	12 53 29	31.0	179.0	-0.1		-0.6	1170	75	00 20 01		
00 40 00	1253-055	12 53 59	31.0	179.1	-0.1		-0.5	24	75	00 40 00		
01 00 00	---	13 14 02	30.9	184.9	0.3		3.0	1200	113	00 40 01		

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

=====  
Setup file: ra18cm2.set

Setup group:	4	Station:	TORUN	Total bit rate:	256
Format:	MKIV1:4	Bits per sample:	2	Sample rate:	32.000
Number of channels:	4	DBE type:		Speedup factor:	1.00

Disk used to record data.

```

1st LO= 2400.00 2400.00 2400.00 2400.00
Net SB=      L      L      U      U
IF SB =      L      L      L      L
Pol.  =      RCP     LCP     RCP     LCP
BBC   =      1      2      1      2
BBC SB=      U      U      L      L
IF    =      C      A      C      A

```

The following frequency sets based on these setups were used.

```

Frequency Set: 3 Setup file default. Used with PCAL = 1MHz
LO sum= 1668.00 1668.00 1668.00 1668.00
BBC fr= 732.00 732.00 732.00 732.00
Bandwd= 16.00 16.00 16.00 16.00
Matching frequency sets: 3

```

Track assignments are:

```

track1= 2, 18, 3, 19
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 59.816762	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 12.81876	0.00
	fake circumpolar target for a TS to look at			
* 1253-055	12 53 35.831289	* 12 56 11.166557	12 57 05.272873	0.00
J1256-0547	-05 31 07.99603	*-05 47 21.52489	-05 52 57.55952	0.00
3C279	./rk16mu_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 7924 observations, RA-A04-07, RA-A03-04			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
1253-055	151.2

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**rk16mvtr**

RADIOASTRON AGN MONITORING

PI: *Yuri Kovalev*

Address: ASC Lebedev Profsoyuznaya 84/32 117997 Moscow, Russia  
Phone: +7-495-3332512 EMAIL: kirx@scan.sai.msu.ru  
Fax: +7-495-3332378 Phone during observation: +7-903-6614865

Observing mode: C/L-band, dual-pol

Schedule for TORUN (Code Tr ) Page 2

RadioAstron AGN Monitoring

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.  
Early: Seconds between end of slew and start. Dwell: On source seconds.  
Disk: GBytes recorded to this point.  
TPStart: Recording start time. Frequencies are LO sum (band edge).  
SYNC: Time correlator is expected to sync up.

Start UT	Source	Start / Stop					Early	Disk	TPStart	
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC

--- Tue 7 Mar 2017 Day 66 ---

----- L-band VLBI scans -----

Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
04 00 00	0529+483	16 14 32	12.9	-13.5	10.7		12.2	0	0	04 00 00
04 19 30	---	16 34 05	12.3	-10.2	11.0		9.2	1170	37	04 00 01
04 20 00	0529+483	16 34 35	12.3	-10.1	11.0		9.1	24	37	04 20 00
04 39 30	---	16 54 08	11.8	-6.8	11.3		6.2	1170	75	04 20 01
04 40 00	0529+483	16 54 39	11.8	-6.8	11.3		6.1	24	75	04 40 00
05 00 00	---	17 14 42	11.6	-3.4	11.7		3.0	1200	113	04 40 01

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: ra18cm2.set

Setup group:	5	Station:	TORUN	Total bit rate:	256
Format:	MKIV1:4	Bits per sample:	2	Sample rate:	32.000
Number of channels:	4	DBE type:		Speedup factor:	1.00

Disk used to record data.

1st LO=	2400.00	2400.00	2400.00	2400.00
Net SB=	L	L	U	U
IF SB =	L	L	L	L
Pol. =	RCP	LCP	RCP	LCP
BBC =	1	2	1	2
BBC SB=	U	U	L	L
IF =	C	A	C	A

The following frequency sets based on these setups were used.

Frequency Set: 4 Setup file default. Used with PCAL = 1MHz  
 LO sum= 1668.00 1668.00 1668.00 1668.00  
 BBC fr= 732.00 732.00 732.00 732.00  
 Bandwd= 16.00 16.00 16.00 16.00  
 Matching frequency sets: 4

Track assignments are:

track1= 2, 18, 3, 19  
 barrel=roll\_off

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 59.829332	0.00
	85 16 41.77889	* 85 00 00.000000	84 54 12.85999	0.00
	fake circumpolar target for a TS to look at			
* 0529+483	05 29 27.565384	* 05 33 15.865793	05 34 34.062798	0.00
J0533+4822	48 20 47.97038	* 48 22 52.80771	48 23 32.60417	0.00
	./rk16mv_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 19801 observations, RA-A04-07, RA-A03-0			

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
0529+483	97.7

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

**f17k1tr**

FTP FRINGE-TEST

PI: Benito Marcote

Address: JIVE

Schedule for TORUN (Code Tr )

Page 2

FTP fringe-test

UP: D => Below limits; H => Below horizon mask; W => still slewing at end; blank => Up.

Early: Seconds between end of slew and start. Dwell: On source seconds.

Disk: GBytes recorded to this point.

TPStart: Recording start time. Frequencies are LO sum (band edge).

SYNC: Time correlator is expected to sync up.

```
-----
```

Start UT	Source	Start / Stop					Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC	
-----											
--- Tue 7 Mar 2017 Day 66 ---											
Next scan frequencies:		22203.49	22203.49	22203.49	22203.49	22203.49	22203.49	22267.49	22267.49	22267.49	22267.49
Next BBC frequencies:		703.49	703.49	703.49	703.49	703.49	703.49	767.49	767.49	767.49	767.49
Next scan bandwidths:		32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00
-----											
11 00 00	0234+285	23 15 41	45.9	102.7	-3.4		-42.0	0	0	11 00 00	
11 04 00	---	23 19 42	46.5	103.6	-3.3		-41.8	240	31	11 00 01	
-----											
11 06 00	0234+285	23 21 42	46.8	104.1	-3.3		-41.7	114	31	11 06 00	
11 14 00	---	23 29 43	48.0	106.0	-3.2		-41.2	480	92	11 06 01	
-----											
11 16 00	0234+285	23 31 44	48.3	106.5	-3.1		-41.1	114	92	11 16 00	
11 23 00	---	23 38 45	49.3	108.3	-3.0		-40.6	420	146	11 16 01	
-----											
11 25 00	0234+285	23 40 45	49.6	108.8	-3.0		-40.5	114	146	11 25 00	
11 33 00	---	23 48 46	50.7	110.9	-2.8		-39.8	480	208	11 25 01	
-----											
11 35 00	0234+285	23 50 47	51.0	111.4	-2.8		-39.7	113	208	11 35 00	
11 42 00	---	23 57 48	51.9	113.3	-2.7		-39.0	420	262	11 35 01	
-----											
11 44 00	0234+285	23 59 48	52.2	113.9	-2.7		-38.8	113	262	11 44 00	
11 52 00	---	00 07 50	53.3	116.2	-2.5		-38.0	480	323	11 44 01	
-----											
11 54 00	0234+285	00 09 50	53.6	116.8	-2.5		-37.8	113	323	11 54 00	
12 00 00	---	00 15 51	54.4	118.5	-2.4		-37.0	360	369	11 54 01	

SETUP FILE INFORMATION:

NOTE: If DOPPLER, FREQ, or BW were used, see the individual scans for the final BBC settings.

==== Setup file: sess117.K1024

Setup group: 16	Station: TORUN	Total bit rate: 1024
Format: MARK5B	Bits per sample: 2	Sample rate: 64.000
Number of channels: 8	DBE type: DBBC_DDC	Speedup factor: 1.00

Disk used to record data.



1st LO=	21500.00	21500.00	21500.00	21500.00	21500.00	21500.00	21500.00	21500.00	21500.00
Net SB=	L	L	U	U	L	L	U	U	U
IF SB =	U	U	U	U	U	U	U	U	U
Pol. =	RCP	LCP	RCP	LCP	RCP	LCP	RCP	LCP	LCP
BBC =	1	5	1	5	3	7	3	7	7
BBC SB=	L	L	U	U	L	L	U	U	U
IF =	A1	B1	A1	B1	A1	B1	A1	B1	B1

The following frequency sets based on these setups were used.

```

Frequency Set: 7 Setup file default. Used with PCAL = off
LO sum= 22203.49 22203.49 22203.49 22203.49 22267.49 22267.49 22267.49 22267.49
BBC fr= 703.49 703.49 703.49 703.49 767.49 767.49 767.49 767.49
Bandwd= 32.00 32.00 32.00 32.00 32.00 32.00 32.00 32.00
Matching frequency sets: 7

```

Track assignments are:

```

track1= 10, 14, 2, 6, 12, 16, 4, 8
barrel=roll_off

```

#### POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec)		Error
	(B1950)	(J2000)	(Date)
			(mas)
* 0234+285	02 34 55.589590	* 02 37 52.405677	02 38 52.158694 0.00
J0237+2848	28 35 11.40776	* 28 48 08.99001	28 52 27.61374 0.00
J0237+28	/home/guest/rmc/SCHED/sched11.4/catalogs/sources.gsfc		
	GSFC 2015a astro solution, unpublished 54650 observations.		

#### EFFECT OF SOLAR CORONA

The solar corona can cause unstable phases for sources too close to the Sun. SCHED provides warnings at individual scans for distances less than 10 degrees. The distance from the Sun to each source in this schedule is:

Source	Sun distance (deg)
0234+285	60.1

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes that the Sun will cause amplitude reductions on the longest VLBA baselines at a solar distance of  $60 \text{ deg } F^{-0.6}$  where  $F$  is in GHz.

For common VLBI bands, this is:

1.6 GHz	45. deg
2.3 GHz	36. deg
5.0 GHz	23. deg
8.4 GHz	17. deg
15.0 GHz	12. deg
22.0 GHz	9. deg

## Contents

Graphical Plan of Experiments in Feb 2017.....	1
Experiment Listing .....	3
rk16kgtr – RadioAstron AGN Monitoring .....	5
rk16khtr – RadioAstron AGN Monitoring .....	7
rk16kitr – RadioAstron AGN Monitoring .....	9
rk16kjtr – RadioAstron AGN Monitoring .....	11
rk16kktr – RadioAstron AGN Monitoring .....	13
rk16kltr – RadioAstron AGN Monitoring .....	15
rk16kmtr – RadioAstron AGN Monitoring .....	17
rk16kntr – RadioAstron AGN Monitoring .....	19
rk16kotr – RadioAstron AGN Monitoring .....	21
rk16kptr – RadioAstron AGN Monitoring .....	23
rk16kqtr – RadioAstron AGN Monitoring .....	25
rk16krtr – RadioAstron AGN Monitoring .....	27
rk16kstr – RadioAstron AGN Monitoring .....	29
rk16kttr – RadioAstron AGN Monitoring .....	31
rk16kutr – RadioAstron AGN Monitoring .....	33
rk16kvtr – RadioAstron AGN Monitoring .....	35
rk16kwtr – RadioAstron AGN Monitoring .....	37
rk16kxtr – RadioAstron AGN Monitoring .....	39
rk16kytr – RadioAstron AGN Monitoring .....	41
rk16lbtr – RadioAstron AGN Monitoring .....	43
rk16ldtr – RadioAstron AGN Monitoring .....	45
rk16lftr – RadioAstron AGN Monitoring .....	47
eg091btr – e-EVN: eg091b, eg096a, el058a .....	49
rk16lftr – RadioAstron AGN Monitoring .....	72
rk16lgtr – RadioAstron AGN Monitoring .....	74
rk16lhtr – RadioAstron AGN Monitoring .....	76
fus03tr – Hunting the unidentified gamma-ray sources .....	78
rk16litr – RadioAstron AGN Monitoring .....	85
rk16ljtr – RadioAstron AGN Monitoring .....	87
rk16lltr – RadioAstron AGN Monitoring .....	89
rk16lmtr – RadioAstron AGN Monitoring .....	91
rk16lntr – RadioAstron AGN Monitoring .....	93
rk16lotr – RadioAstron AGN Monitoring .....	95
rk16lptr – RadioAstron AGN Monitoring .....	97
rk16lqtr – RadioAstron AGN Monitoring .....	99
rk16lrtr – RadioAstron AGN Monitoring .....	101
rk16lstr – RadioAstron AGN Monitoring .....	103
rk16lttr – RadioAstron AGN Monitoring .....	105
rk16lutr – RadioAstron AGN Monitoring .....	107
rk16lwtr – RadioAstron AGN Monitoring .....	109
rk16lxtr – RadioAstron AGN Monitoring .....	111
rk16lytr – RadioAstron AGN Monitoring .....	113
f1711tr – Network Monitoring Experiment .....	115
ep103atr – FRB121102 monitoring .....	117
em127atr – EVN: EM127A .....	138
em127btr – EVN: EM127B .....	149
ek036ctr – Long overdue - Measuring the Parallax and proper motion of the Crab	156
n1711tr – Network Monitoring Experiment .....	160
gv022atr – 18cm global VLBI observations of Arp220 .....	162
ep102tr – Compact Group .....	169
n17c1tr – Network Monitoring Experiment .....	186

rk16mftr – RadioAstron AGN Monitoring .....	189
ep103btr – FRB121102 monitoring .....	191
e1056tr – SDSS 0040-0915 .....	211
rk16mhtr – RadioAstron AGN Monitoring .....	220
rk16mitr – RadioAstron AGN Monitoring .....	222
rk16mktr – RadioAstron AGN Monitoring .....	224
rk16mmtr – RadioAstron AGN Monitoring .....	226
rk16mntr – RadioAstron AGN Monitoring .....	228
rk16mqtr – RadioAstron AGN Monitoring .....	230
rk16mstr – RadioAstron AGN Monitoring .....	232
rk16mttr – RadioAstron AGN Monitoring .....	234
rk16mutr – RadioAstron AGN Monitoring .....	236
rk16mvtr – RadioAstron AGN Monitoring .....	238
f17k1tr – FTP fringe-test .....	240