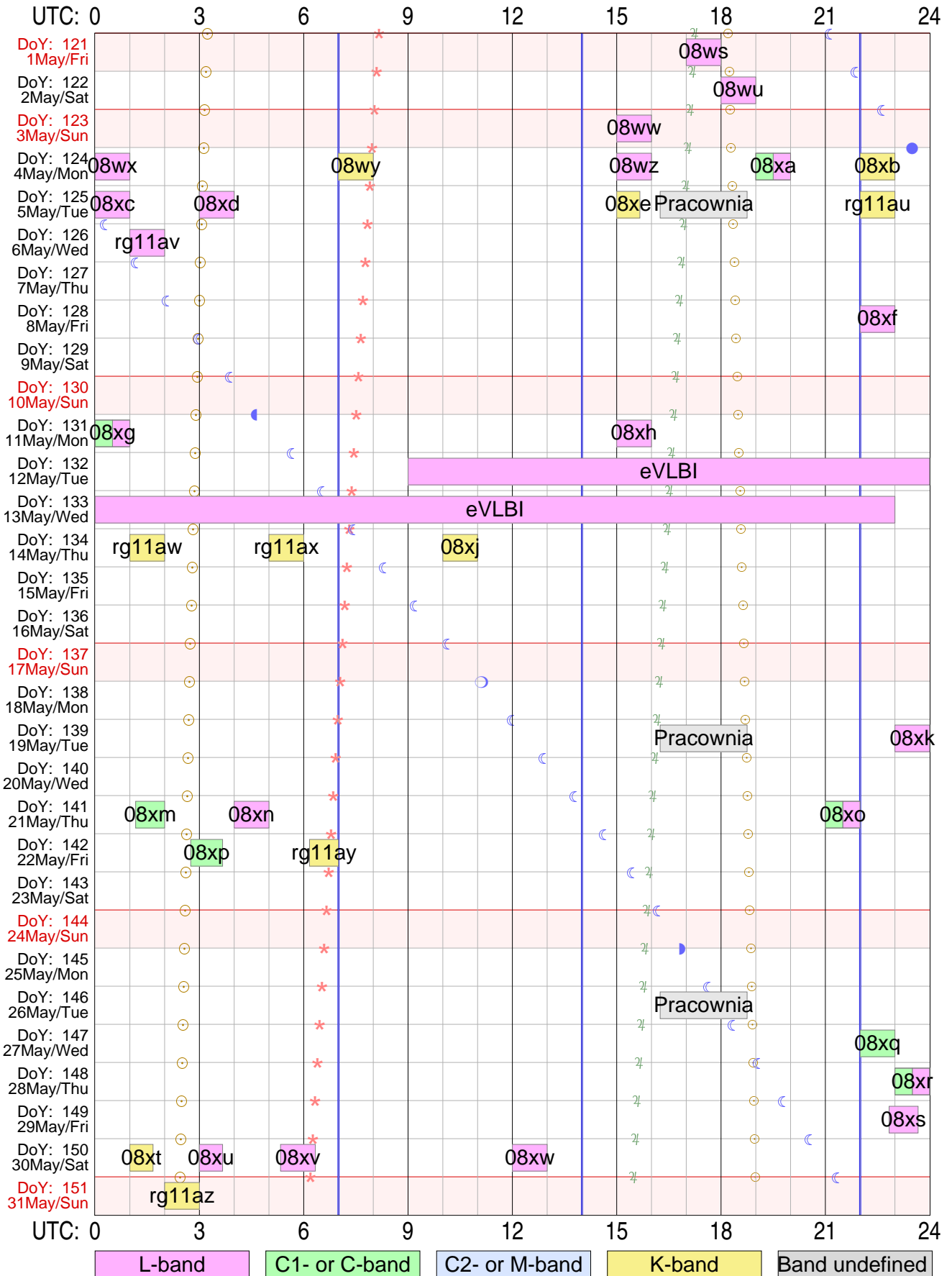


# Tr VLBI plan for May 2015



Version: 2015.05.08

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: 69.4 hours in 34 experiments scheduled  
 Initial characters 'rk' are omitted from RA experiment names!

Strona zostawiona celowo pusta

# RadioAstron & EVN Experiments

## May 2015

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

DoY	D	M	WD	UT_Start	UT_Stop	Experiment	Band	Correlator
				h m	h m	name		
121	1	05	Pia	17 00	18 00	rk08ws	L	
122	2	05	Sob	18 00	19 00	rk08wu	L	
123	3	05	Nie	15 00	16 00	rk08ww	L	
124	4	05	Pon	0 00	1 00	rk08wx	L	
124	4	05	Pon	7 00	8 00	rk08wy	K	
124	4	05	Pon	15 00	16 00	rk08wz	L	
124	4	05	Pon	19 00	20 00	rk08xa	C>L	
124	4	05	Pon	22 00	23 00	rk08xb	K	
125	5	05	Wto	0 00	1 00	rk08xc	L	
125	5	05	Wto	3 00	4 00	rk08xd	L	
125	5	05	Wto	15 00	15 40	rk08xe	K	
125	5	05	Wto	22 00	23 00	rg11au	K	
126	6	05	Sro	1 00	2 00	rg11av	L	
128	8	05	Pia	22 00	23 00	rk08xf	L	
131	11	05	Pon	0 00	1 00	rk08xg	C>L	
131	11	05	Pon	15 00	16 00	rk08xh	L	
132	12	05	Wto	9 00	123 00	eVLBI	L	
134	14	05	Czw	1 00	2 00	rg11aw	K	
134	14	05	Czw	5 00	6 00	rg11ax	K	
134	14	05	Czw	10 00	11 00	rk08xj	K	
139	19	05	Wto	23 00	24 00	rk08xk	L	
141	21	05	Czw	1 10	2 00	rk08xm	C	
141	21	05	Czw	4 00	5 00	rk08xn	L	
141	21	05	Czw	21 00	22 00	rk08xo	C>L	
142	22	05	Pia	2 45	3 40	rk08xp	C	
142	22	05	Pia	6 10	7 00	rg11ay	K	
147	27	05	Sro	22 00	23 00	rk08xq	C	
148	28	05	Czw	23 00	24 00	rk08xr	C>L	
149	29	05	Pia	22 50	23 40	rk08xs	L	
150	30	05	Sob	1 00	1 40	rk08xt	K	
150	30	05	Sob	3 00	3 40	rk08xu	L	
150	30	05	Sob	5 20	6 20	rk08xv	L	
150	30	05	Sob	12 00	13 00	rk08xw	L	
151	31	05	Nie	2 00	3 00	rg11az	K	

Total observing time: 69.4 hours in 34 experiments

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

<http://paulo.astro.uni.torun.pl/~pw/VLBI/schedules/may15.pdf>

rk08wstr

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

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

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 1 May 2015 Day 121 ---

----- 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

Table with columns: Time, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, SYNC. Rows show scan data for 17:00:00 to 18:00:00.

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: 8 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 50.798115	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 04.74941	0.00
	fake circumpolar target for a TS to look at			
* 1101+384	11 01 40.567856	* 11 04 27.313945	11 05 18.823077	0.00
J1104+3812	38 28 42.95187	* 38 12 31.79894	38 07 35.85831	0.00
MRK421	./rk08ws_sources.radioastron			
	AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 17168 observations, RA-A02-12			

#### 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)
3C286	132.0
1101+384	107.7

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

rk08wutr

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

Schedule for TORUN (Code Tr ) Page 2

RadioAstron AGN Survey

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 2 May 2015 Day 122 ---

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

Table with columns: Time, Source, LST, EL, AZ, HA, UP, ParA, Dwell, Disk, GBytes, SYNC. Rows include scan frequencies and detailed scan data for 1101+384.

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: 8 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 50.604485	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 05.00663	0.00
	fake circumpolar target for a TS to look at			
* 1101+384	11 01 40.567856	* 11 04 27.313945	11 05 18.800767	0.00
J1104+3812	38 28 42.95187	* 38 12 31.79894	38 07 36.03270	0.00
MRK421	./rk08wu_sources.radioastron			
	AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 17168 observations, RA-A02-12			

#### 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)
3C286	131.4
1101+384	106.8

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

**rk08wwtr**

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

Schedule for TORUN (Code Tr ) Page 2

RadioAstron AGN Survey

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 3 May 2015 Day 123 ---  
  
----- 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 1123+264 06 59 02 34.3 91.2 -4.5 -41.9 0 0 15 00 00  
15 14 30 --- 07 13 34 36.4 94.2 -4.2 -41.8 870 28 15 00 01  
  
15 15 00 1123+264 07 14 05 36.5 94.3 -4.2 -41.8 24 28 15 15 00  
15 29 30 --- 07 28 37 38.7 97.4 -4.0 -41.5 870 56 15 15 01  
  
15 30 00 1123+264 07 29 07 38.8 97.5 -4.0 -41.5 24 56 15 30 00  
15 44 30 --- 07 43 39 40.9 100.7 -3.7 -41.1 870 84 15 30 01  
  
15 45 00 1123+264 07 44 10 41.0 100.8 -3.7 -41.1 24 84 15 45 00  
16 00 00 --- 07 59 12 43.2 104.2 -3.5 -40.4 900 112 15 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: 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 50.432034	0.00
	85 16 41.77889 * 85 00 00.000000	84 55 05.21430	0.00
	fake circumpolar target for a TS to look at		
* 1123+264	11 23 14.869304 * 11 25 53.711924	11 26 42.986386	0.00
J1125+2610	26 26 49.99096 * 26 10 19.97856	26 05 15.59890	0.00
	./rk08ww_sources.radioastron AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 3323 observations, RA-A02-12		

#### 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)
1123+264	116.8

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

rk08wxtr

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

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

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 4 May 2015 Day 124 ---

----- 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

Table with 11 columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, SYNC. It lists scan data for source 1123+264 at various times.

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: 8 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: 7 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: 7

```

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 50.360588	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 05.29512	0.00
	fake circumpolar target for a TS to look at			
* 1123+264	11 23 14.869304	* 11 25 53.711924	11 26 42.981214	0.00
J1125+2610	26 26 49.99096	* 26 10 19.97856	26 05 15.64783	0.00
	./rk08wx_sources.radioastron			
	AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 3323 observations, RA-A02-12			

#### 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)
3C286	130.7
1123+264	116.5

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



```

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 50.301186	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 05.36022	0.00
	fake circumpolar target for a TS to look at			
* 1749+096	17 49 10.387929	* 17 51 32.818572	17 52 17.519356	0.00
J1751+0939	09 39 42.82575	* 09 39 00.72830	09 38 50.96361	0.00
	./rk08wy_sources.radioastron AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 144372 observations, RA-A02-12			

#### 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)
1749+096	126.9

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

rk08wztr

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Observing mode: L-band, dual-pol

Schedule for TORUN (Code Tr ) Page 2

RadioAstron AGN Survey

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 4 May 2015 Day 124 ---

----- 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

Table with 11 columns: Start UT, Stop UT, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, SYNC. It lists observation scans for 1800+440 on May 4, 2015.

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: 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 50.237576	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 05.42796	0.00
	fake circumpolar target for a TS to look at			
* 1800+440	18 00 03.197727	* 18 01 32.314821	18 02 00.957567	0.00
J1801+4404	44 04 18.35293	* 44 04 21.90023	44 04 19.65638	0.00
	./rk08wz_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 5984 observations, RA-A02-12			

#### 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)
1800+440	105.1

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

**rk08xatr**

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

Schedule for TORUN                      (Code Tr )    Page 2

RadioAstron AGN Survey

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 4 May 2015 Day 124 ---

----- 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 1547+507    11 03 38  47.6  63.3 -4.8   -57.7    0      0   19 00 00
19 14 30 ---          11 18 10  49.6  65.1 -4.5   -59.1   870    28   19 00 01

19 15 00 1547+507    11 18 41  49.6  65.2 -4.5   -59.1    24    28   19 15 00
19 25 00 ---          11 28 42  51.0  66.4 -4.4   -60.1   600    47   19 15 01
```

----- 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

```
19 30 00 1547+507    11 33 43  51.7  67.1 -4.3   -60.6   293    47   19 30 00
19 44 30 ---          11 48 15  53.7  68.9 -4.0   -61.9   870    75   19 30 01

19 45 00 1547+507    11 48 45  53.8  69.0 -4.0   -62.0    24    75   19 45 00
20 00 00 ---          12 03 48  55.9  70.9 -3.8   -63.3   900   104   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: 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

```

==== 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)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* 1547+507	15 47 52.271615	* 15 49 17.468556	15 49 45.245237	0.00
J1549+5038	50 47 09.25434	* 50 38 05.78805	50 35 20.77503	0.00

**rk08xbtr**

RADIOASTRON AGN SURVEY

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

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Survey

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    4 May 2015    Day 124 ---

----- 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					
22 00 00	1828+487	14 04 08	49.4	68.3	-4.4	-57.8	0	0	22 00 00
22 14 30	---	14 18 40	51.5	70.2	-4.2	-59.0	870	28	22 00 01
22 15 00	1828+487	14 19 10	51.5	70.3	-4.2	-59.0	24	28	22 15 00
22 29 30	---	14 33 43	53.6	72.3	-3.9	-60.2	870	56	22 15 01
22 30 00	1828+487	14 34 13	53.7	72.4	-3.9	-60.2	24	56	22 30 00
22 44 30	---	14 48 45	55.8	74.4	-3.7	-61.3	870	84	22 30 01
22 45 00	1828+487	14 49 15	55.8	74.5	-3.7	-61.3	24	84	22 45 00
23 00 00	---	15 04 18	58.0	76.6	-3.4	-62.4	900	112	22 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 ./rk08xb\_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)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 50.180960	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 05.48667	0.00
	fake circumpolar target for a TS to look at			
* 1828+487	18 28 13.501488	* 18 29 31.780879	18 29 57.116166	0.00
J1829+4844	48 42 40.18595	* 48 44 46.16038	48 45 19.75772	0.00
3C380	./rk08xb_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 87 observations, RA-A02-12			

#### 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)
3C286	130.1
1828+487	98.5

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

rk08xctr

RADIOASTRON AGN SURVEY

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

Schedule for TORUN (Code Tr ) Page 2

RadioAstron AGN Survey

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

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

Table with columns: Time, Source, LST, EL, AZ, HA, UP, ParA, Dwell, GBytes, SYNC. Rows show scan details for 1751+441 at various times.

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)	(Date)	Error (mas)	
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 50.164011	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 05.50397	0.00
	fake circumpolar target for a TS to look at			
* 1751+441	17 51 53.712584	* 17 53 22.647889	17 53 51.271926	0.00
J1753+4409	44 10 17.80399	* 44 09 45.68615	44 09 32.92016	0.00
	./rk08xc_sources.radioastron			
	AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 1851 observations, RA-A02-12			

#### 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)
3C286	130.1
1751+441	106.2

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= 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 50.139613	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 05.52868	0.00
	fake circumpolar target for a TS to look at			
* 1327+321	13 27 34.876201	* 13 29 52.864906	13 30 36.255448	0.00
J1329+3154	32 09 38.80938	* 31 54 11.05448	31 49 29.37734	0.00
	./rk08xd_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 617 observations, RA-A02-12			

#### 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)
3C286	130.0
1327+321	128.6

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

**rk08xetr**

RADIOASTRON AGN SURVEY

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

Schedule for TORUN (Code Tr ) Page 2

RadioAstron AGN Survey

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 5 May 2015 Day 125 ---

----- 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

15 00 00 1637+574   07 06 55 24.5 21.0 -9.5   -23.4   0        0  15 00 00
15 19 30 ---       07 26 28 25.6 23.6 -9.2   -26.4 1170    37  15 00 01

15 20 00 1637+574   07 26 59 25.6 23.7 -9.2   -26.5   24       37  15 20 00
15 40 00 ---       07 47 02 26.9 26.3 -8.9   -29.6 1200    76  15 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 ./rk08xe\_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 50.039641	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 05.62756	0.00
	fake circumpolar target for a TS to look at			
* 1637+574	16 37 17.425182	* 16 38 13.456297	16 38 32.575577	0.00
J1638+5720	57 26 15.76127	* 57 20 23.97898	57 18 35.69954	0.00
	./rk08xe_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 8888 observations, RA-A02-12			

#### 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)
1637+574    103.0

```

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

```

**rg11autr**

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Observing mode: K-band, dual-pol

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron Maser observations

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    5 May 2015    Day 125 ---

----- This is a fringe finder/clock offset calibrator 17.5 deg. from G34.26+0.1 -----

Next scan frequencies: 22228.00 22228.00 22228.00 22228.00  
Next BBC frequencies:    728.00    728.00    728.00    728.00  
Next scan bandwidths:    16.00    16.00    16.00    16.00

21 52 00	1749+096	14 00 03	26.6	110.7	-3.9	-34.7	0	0	21 52 00
21 57 00	---	14 05 04	27.3	111.9	-3.8	-34.4	300	10	21 52 01

----- Please, make sure PCAL is OFF for G34.26+0.1 maser observations. -----

22 00 00	G34.26+0.1	14 08 04	12.0	104.2	-4.8	-35.6	108	10	22 00 00
22 19 30	---	14 27 37	14.8	108.3	-4.4	-34.8	1170	47	22 00 01
22 20 00	G34.26+0.1	14 28 08	14.9	108.4	-4.4	-34.7	24	47	22 20 00
22 39 30	---	14 47 41	17.6	112.6	-4.1	-33.7	1170	84	22 20 01
22 40 00	G34.26+0.1	14 48 11	17.7	112.8	-4.1	-33.6	24	84	22 40 00
23 00 00	---	15 08 14	20.4	117.2	-3.8	-32.3	1200	123	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: ra1cm2.set  
Matching groups in ./rg11au\_freq.dat:  
tr1cm

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= 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:  1  Setup file default.  Used with PCAL = off
LO sum= 22228.00 22228.00 22228.00 22228.00
BBC fr=  728.00  728.00  728.00  728.00
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)	Source position (RA/Dec) (J2000)	(Date)	Error (mas)
* G34.26+0.1	18 50 46.281055	* 18 53 18.685000	18 54 06.203315	0.00
G34.26+0.1_H	01 11 12.36438	* 01 14 58.00000	01 16 12.34617	0.00
* 1749+096	17 49 10.387929	* 17 51 32.818572	17 52 17.558756	0.00
J1751+0939	09 39 42.82575	* 09 39 00.72830	09 38 51.25736	0.00

**rg1lavtr**

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Observing mode: L-band, dual-pol

Schedule for TORUN              (Code Tr )                                      Page    2

RadioAstron Maser observations

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    6 May 2015    Day 126 ---

----- This is a fringe finder/clock offset calibrator 19.4 deg. from W49N\_OH -----

Next scan frequencies: 1660.00 1660.00 1660.00 1660.00  
 Next BBC frequencies:    740.00    740.00    740.00    740.00  
 Next scan bandwidths:    16.00    16.00    16.00    16.00

```
00 52 00 1749+096          17 00 32 45.3 161.7 -0.9          -11.0    0          0    00 52 00
00 57 00 ---                  17 05 33 45.5 163.4 -0.8          -10.0    300        10    00 52 01
```

----- Please, make sure PCAL is OFF for W49N\_OH maser observations. -----

```
01 00 00 W49N_OH          17 08 34 39.6 139.3 -2.0          -23.4    116        10    01 00 00
01 19 30 ---                  17 28 07 41.4 145.2 -1.7          -20.3    1170        47    01 00 01

01 20 00 W49N_OH          17 28 37 41.4 145.3 -1.7          -20.2    24         47    01 20 00
01 39 30 ---                  17 48 10 43.0 151.5 -1.4          -16.9    1170        84    01 20 01

01 40 00 W49N_OH          17 48 40 43.0 151.7 -1.4          -16.8    24         84    01 40 00
02 00 00 ---                  18 08 44 44.3 158.3 -1.0          -13.0    1200       123    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:    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 = off  
 LO sum= 1660.00 1660.00 1660.00 1660.00  
 BBC fr= 740.00 740.00 740.00 740.00  
 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)		(Date)	Error
	(B1950)	(J2000)		(mas)
* W49N_OH	19 07 49.567892	* 19 10 13.180000	19 10 57.955249	0.00
	09 01 14.90739	* 09 06 12.20000	09 07 45.96941	0.00
* 1749+096	17 49 10.387929	* 17 51 32.818572	17 52 17.561999	0.00
J1751+0939	09 39 42.82575	* 09 39 00.72830	09 38 51.27954	0.00

**rk08xft**

RADIOASTRON AGN SURVEY

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

Schedule for TORUN                      (Code Tr )    Page    2

RadioAstron AGN Survey

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    8 May 2015    Day 128 ---

----- 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 00 00	0953+254	14 19 54	34.4	266.9	4.4	41.5	0	0	22 00 00
22 14 30	---	14 34 26	32.2	269.9	4.6	41.6	870	28	22 00 01
22 15 00	0953+254	14 34 56	32.2	270.0	4.6	41.6	24	28	22 15 00
22 29 30	---	14 49 29	30.0	272.9	4.9	41.5	870	56	22 15 01
22 30 00	0953+254	14 49 59	29.9	273.0	4.9	41.5	24	56	22 30 00
22 44 30	---	15 04 31	27.7	275.8	5.1	41.3	870	84	22 30 01
22 45 00	0953+254	15 05 01	27.6	275.9	5.1	41.3	24	84	22 45 00
23 00 00	---	15 20 04	25.4	278.7	5.4	41.0	900	112	22 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: 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 49.453328	0.00
	85 16 41.77889	* 85 00 00.000000	84 55 06.17816	0.00
	fake circumpolar target for a TS to look at			
* 0953+254	09 53 59.738485	* 09 56 49.875379	09 57 42.085464	0.00
J0956+2515	25 29 33.58568	* 25 15 16.04978	25 10 49.52091	0.00
OK290	./rk08xf_sources.radioastron AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 29017 observations, RA-A02-12			

#### 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)
0953+254	94.7

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

rk08xgtr

RADIOASTRON AGN SURVEY

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

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

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 11 May 2015 Day 131 ---

----- 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 1040+244 16 28 07 21.3 -78.0 5.7 40.0 0 0 00 00 00
00 14 30 --- 16 42 39 19.2 -75.2 6.0 39.5 870 28 00 00 01
00 15 00 1040+244 16 43 09 19.2 -75.1 6.0 39.5 24 28 00 15 00
00 25 00 --- 16 53 11 17.7 -73.3 6.2 39.0 600 47 00 15 01

----- 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

00 30 00 1040+244 16 58 12 17.0 -72.3 6.2 38.8 293 47 00 30 00
00 44 30 --- 17 12 44 14.9 -69.6 6.5 38.1 870 75 00 30 01
00 45 00 1040+244 17 13 14 14.8 -69.5 6.5 38.0 24 75 00 45 00
01 00 00 --- 17 28 17 12.8 -66.7 6.7 37.2 900 104 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: 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:  5  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:  5

```

Track assignments are:

```

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

```

==== 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)		(Date)	Error (mas)
	(B1950)	(J2000)		
* 1040+244	10 40 25.199377	* 10 43 09.035778	10 43 59.560233	0.00
J1043+2408	24 24 19.59847	* 24 08 35.40933	24 03 43.79211	0.00

**rk08xhtr**

RADIOASTRON AGN SURVEY  
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Observing mode: C/L-band, dual-pol

Schedule for TORUN              (Code Tr )    Page    2

RadioAstron AGN Survey

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 11 May 2015    Day 131 ---

----- 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	1005+066	07 30 35	33.2	130.8	-2.6		-27.2	0	0	15 00 00	
15 14 30	---	07 45 07	34.8	134.7	-2.4		-25.4	870	28	15 00 01	
15 15 00	1005+066	07 45 37	34.9	134.9	-2.4		-25.3	24	28	15 15 00	
15 29 30	---	08 00 09	36.3	138.9	-2.1		-23.4	870	56	15 15 01	
15 30 00	1005+066	08 00 39	36.4	139.1	-2.1		-23.3	24	56	15 30 00	
15 44 30	---	08 15 12	37.8	143.3	-1.9		-21.2	870	84	15 30 01	
15 45 00	1005+066	08 15 42	37.8	143.4	-1.9		-21.1	24	84	15 45 00	
16 00 00	---	08 30 44	39.1	147.9	-1.6		-18.7	900	112	15 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: 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 49.022467	0.00
	85 16 41.77889 * 85 00 00.000000	84 55 06.64166	0.00
	fake circumpolar target for a TS to look at		
* 1005+066	10 05 23.466064 * 10 08 00.816157	10 08 49.355146	0.00
J1008+0621	06 36 03.30797 * 06 21 21.21593	06 16 41.32141	0.00
	./rk08xh_sources.radioastron AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 317 observations, RA-A02-12		

#### 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)
3C147	43.9
1005+066	101.3

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

**eh027dtr**

E-EVN: EH027D, RSP12, EY022B

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Observing mode: realtime e-vlbi

Schedule for TORUN (Code Tr )

Page 2

e-EVN: eh027d, rsp12, ey022b

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 12 May 2015 Day 132 ---										
Next scan frequencies: 1610.49 1610.49 1610.49 1610.49 1642.49 1642.49 1642.49 1642.49										
1674.49 1674.49 1674.49 1674.49 1706.49 1706.49 1706.49 1706.49										
Next BBC frequencies: 689.51 689.51 689.51 689.51 657.51 657.51 657.51 657.51										
625.51 625.51 625.51 625.51 593.51 593.51 593.51 593.51										
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										
-----										
09 00 00	0528+134	01 33 32	28.9	106.8	-4.0		-36.2	0	0	09 00 00
09 15 00	---	01 48 34	31.0	110.2	-3.7		-35.4	900	115	09 00 01
09 15 40	0528+134	01 49 15	31.1	110.4	-3.7		-35.4	34	115	09 15 40
09 30 00	---	02 03 37	33.1	113.8	-3.5		-34.4	860	226	09 15 41
09 30 40	0528+134	02 04 17	33.2	113.9	-3.5		-34.4	34	226	09 30 40
09 45 00	---	02 18 39	35.1	117.4	-3.2		-33.2	860	336	09 30 41
09 45 40	0528+134	02 19 19	35.2	117.6	-3.2		-33.2	34	336	09 45 40
10 00 00	---	02 33 42	37.1	121.3	-3.0		-31.9	860	446	09 45 41
10 00 40	0528+134	02 34 22	37.2	121.4	-3.0		-31.8	34	446	10 00 40
10 15 00	---	02 48 44	39.0	125.2	-2.7		-30.3	860	556	10 00 41
10 15 40	0528+134	02 49 24	39.1	125.4	-2.7		-30.2	34	556	10 15 40
10 30 00	---	03 03 47	40.8	129.4	-2.5		-28.5	860	667	10 15 41
10 33 00	3C454.3	03 06 47	29.0	258.1	4.2		37.7	-93	667	10 33 00
10 45 00	---	03 18 49	27.2	260.7	4.4		38.1	627	759	10 33 01
10 45 40	3C454.3	03 19 29	27.1	260.8	4.4		38.1	34	759	10 45 40
11 00 00	---	03 33 52	25.0	263.8	4.7		38.4	860	869	10 45 41
11 00 40	3C454.3	03 34 32	24.9	264.0	4.7		38.5	34	869	11 00 40
11 15 00	---	03 48 54	22.8	266.9	4.9		38.6	860	979	11 00 41
11 15 40	3C454.3	03 49 34	22.7	267.0	4.9		38.7	34	979	11 15 40
11 30 00	---	04 03 57	20.5	269.9	5.2		38.7	860	1090	11 15 41
11 30 40	3C454.3	04 04 37	20.4	270.1	5.2		38.7	34	1090	11 30 40
11 45 00	---	04 18 59	18.2	272.9	5.4		38.7	860	1200	11 30 41
11 45 40	3C454.3	04 19 39	18.1	273.1	5.4		38.6	34	1200	11 45 40
12 00 00	---	04 34 02	16.0	275.9	5.7		38.5	860	1310	11 45 41
12 07 00	DA193	04 41 03	71.5	128.4	-1.3		-37.8	108	1310	12 07 00
12 15 00	---	04 49 04	72.4	132.4	-1.1		-35.3	480	1372	12 07 01

Schedule for TORUN (Code Tr )

Page 3

e-EVN: eh027d, rsp12, ey022b

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 12 May 2015 Day 132 ---										
12 15 40	DA193	04 49 44	72.5	132.7	-1.1		-35.1	33	1372	12 15 40
12 30 00	---	05 04 06	74.0	140.8	-0.9		-29.6	860	1482	12 15 41
12 30 40	DA193	05 04 47	74.1	141.2	-0.9		-29.3	33	1482	12 30 40
12 45 00	---	05 19 09	75.3	150.6	-0.6		-22.6	860	1592	12 30 41
12 45 40	DA193	05 19 49	75.3	151.1	-0.6		-22.2	33	1592	12 45 40
13 00 00	---	05 34 11	76.2	161.7	-0.4		-14.2	860	1703	12 45 41
13 00 40	DA193	05 34 52	76.2	162.3	-0.4		-13.8	32	1703	13 00 40
13 15 00	---	05 49 14	76.7	173.9	-0.1		-4.8	860	1813	13 00 41
13 18 00	4C39.25	05 52 14	51.1	88.9	-3.6		-50.6	-5	1813	13 18 00
13 30 00	---	06 04 16	52.9	91.3	-3.4		-50.5	715	1905	13 18 01
13 30 40	4C39.25	06 04 56	53.0	91.5	-3.4		-50.5	34	1905	13 30 40
13 45 00	---	06 19 19	55.1	94.5	-3.1		-50.4	860	2015	13 30 41
13 45 40	4C39.25	06 19 59	55.2	94.7	-3.1		-50.3	34	2015	13 45 40
14 00 00	---	06 34 21	57.4	97.9	-2.9		-49.9	860	2126	13 45 41
14 00 40	4C39.25	06 35 01	57.5	98.0	-2.9		-49.9	34	2126	14 00 40
14 15 00	---	06 49 24	59.6	101.5	-2.6		-49.2	860	2236	14 00 41
14 15 40	4C39.25	06 50 04	59.7	101.7	-2.6		-49.1	34	2236	14 15 40
14 30 00	---	07 04 26	61.8	105.4	-2.4		-48.1	860	2346	14 15 41
14 30 40	4C39.25	07 05 06	61.9	105.6	-2.4		-48.1	34	2346	14 30 40
14 45 00	---	07 19 29	63.9	109.8	-2.1		-46.6	860	2456	14 30 41
14 45 40	4C39.25	07 20 09	64.0	110.0	-2.1		-46.5	34	2456	14 45 40
15 00 00	---	07 34 31	66.0	114.6	-1.9		-44.6	860	2567	14 45 41
15 03 00	1156+295	07 37 32	37.3	89.6	-4.4		-43.4	58	2567	15 03 00
15 15 00	---	07 49 34	39.1	92.0	-4.2		-43.4	720	2659	15 03 01
15 18 00	M87	07 52 34	21.9	98.8	-4.7		-37.4	101	2659	15 18 00
15 30 00	---	08 04 36	23.7	101.4	-4.5		-37.1	720	2751	15 18 01
15 30 40	M87	08 05 16	23.8	101.5	-4.4		-37.0	34	2751	15 30 40
15 45 00	---	08 19 39	25.9	104.6	-4.2		-36.5	860	2862	15 30 41
15 45 40	M87	08 20 19	26.0	104.7	-4.2		-36.5	34	2862	15 45 40
16 00 00	---	08 34 41	28.1	107.9	-3.9		-35.8	860	2972	15 45 41

Schedule for TORUN (Code Tr )

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e-EVN: eh027d, rsp12, ey022b

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 12 May 2015 Day 132 ---										
16 00 40	M87	08 35 21	28.2	108.1	-3.9		-35.8	34	2972	16 00 40
16 15 00	---	08 49 43	30.2	111.4	-3.7		-34.9	860	3082	16 00 41
16 15 40	M87	08 50 24	30.3	111.5	-3.7		-34.9	34	3082	16 15 40
16 30 00	---	09 04 46	32.3	114.9	-3.4		-33.9	860	3192	16 15 41
16 30 40	M87	09 05 26	32.4	115.1	-3.4		-33.8	34	3192	16 30 40
16 45 00	---	09 19 48	34.3	118.6	-3.2		-32.7	860	3303	16 30 41
16 45 40	M87	09 20 28	34.4	118.7	-3.2		-32.6	34	3303	16 45 40
17 00 00	---	09 34 51	36.2	122.4	-2.9		-31.3	860	3413	16 45 41
17 00 40	M87	09 35 31	36.3	122.6	-2.9		-31.2	34	3413	17 00 40
17 15 00	---	09 49 53	38.1	126.4	-2.7		-29.7	860	3523	17 00 41
17 15 40	M87	09 50 33	38.2	126.6	-2.7		-29.6	34	3523	17 15 40
17 30 00	---	10 04 56	39.9	130.5	-2.4		-27.9	860	3633	17 15 41
17 30 40	M87	10 05 36	39.9	130.7	-2.4		-27.8	34	3633	17 30 40
17 45 00	---	10 19 58	41.5	134.8	-2.2		-25.8	860	3744	17 30 41
17 45 40	M87	10 20 38	41.6	135.0	-2.2		-25.7	34	3744	17 45 40
18 00 00	---	10 35 01	43.1	139.4	-1.9		-23.6	860	3854	17 45 41
18 00 40	M87	10 35 41	43.1	139.6	-1.9		-23.5	34	3854	18 00 40
18 15 00	---	10 50 03	44.5	144.1	-1.7		-21.1	860	3964	18 00 41
18 15 40	M87	10 50 43	44.5	144.3	-1.7		-21.0	34	3964	18 15 40
18 30 00	---	11 05 06	45.7	149.0	-1.4		-18.5	860	4074	18 15 41
18 30 40	M87	11 05 46	45.8	149.2	-1.4		-18.4	34	4074	18 30 40
18 45 00	---	11 20 08	46.8	154.0	-1.2		-15.6	860	4185	18 30 41
18 45 40	M87	11 20 48	46.8	154.3	-1.2		-15.5	34	4185	18 45 40
19 00 00	---	11 35 11	47.7	159.3	-0.9		-12.6	860	4295	18 45 41
19 00 40	M87	11 35 51	47.7	159.5	-0.9		-12.4	34	4295	19 00 40
19 15 00	---	11 50 13	48.4	164.7	-0.7		-9.3	860	4405	19 00 41
19 15 40	M87	11 50 53	48.4	164.9	-0.7		-9.2	34	4405	19 15 40
19 30 00	---	12 05 15	48.9	170.2	-0.4		-6.0	860	4515	19 15 41
19 30 40	M87	12 05 56	48.9	170.4	-0.4		-5.9	34	4515	19 30 40
19 45 00	---	12 20 18	49.1	175.8	-0.2		-2.6	860	4626	19 30 41

Schedule for TORUN (Code Tr )

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e-EVN: eh027d, rsp12, ey022b

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 12 May 2015 Day 132 ---										
19 45 40	M87	12 20 58	49.2	176.0	-0.2		-2.4	34	4626	19 45 40
20 00 00	---	12 35 20	49.2	181.4	0.1		0.9	860	4736	19 45 41
20 03 00	OQ208	12 38 21	60.3	137.5	-1.5		-27.4	76	4736	20 03 00
20 15 00	---	12 50 23	61.5	142.4	-1.3		-24.6	720	4828	20 03 01
20 18 00	M87	12 53 23	49.0	188.1	0.4		5.0	75	4828	20 18 00
20 30 00	---	13 05 25	48.7	192.6	0.6		7.7	720	4921	20 18 01
20 30 40	M87	13 06 05	48.6	192.8	0.6		7.8	34	4921	20 30 40
20 45 00	---	13 20 28	48.1	198.0	0.8		11.0	860	5031	20 30 41
20 45 40	M87	13 21 08	48.0	198.3	0.8		11.1	34	5031	20 45 40
21 00 00	---	13 35 30	47.3	203.3	1.1		14.1	860	5141	20 45 41
21 00 40	M87	13 36 10	47.2	203.6	1.1		14.2	34	5141	21 00 40
21 15 00	---	13 50 33	46.3	208.5	1.3		17.1	860	5251	21 00 41
21 15 40	M87	13 51 13	46.2	208.7	1.3		17.2	34	5251	21 15 40
21 30 00	---	14 05 35	45.1	213.5	1.6		19.8	860	5362	21 15 41
21 30 40	M87	14 06 15	45.1	213.7	1.6		19.9	34	5362	21 30 40
21 45 00	---	14 20 38	43.8	218.3	1.8		22.4	860	5472	21 30 41
21 45 40	M87	14 21 18	43.7	218.5	1.8		22.5	34	5472	21 45 40
22 00 00	---	14 35 40	42.3	222.9	2.1		24.7	860	5582	21 45 41
22 00 40	M87	14 36 20	42.2	223.1	2.1		24.8	34	5582	22 00 40
22 15 00	---	14 50 43	40.7	227.3	2.3		26.9	860	5692	22 00 41
22 15 40	M87	14 51 23	40.6	227.5	2.3		27.0	34	5692	22 15 40
22 30 00	---	15 05 45	39.0	231.6	2.6		28.8	860	5803	22 15 41
22 30 40	M87	15 06 25	38.9	231.7	2.6		28.9	34	5803	22 30 40
22 45 00	---	15 20 47	37.2	235.6	2.8		30.5	860	5913	22 30 41
22 45 40	M87	15 21 28	37.1	235.8	2.8		30.5	34	5913	22 45 40
23 00 00	---	15 35 50	35.3	239.5	3.1		32.0	860	6023	22 45 41
23 00 40	M87	15 36 30	35.2	239.7	3.1		32.0	34	6023	23 00 40
23 15 00	---	15 50 52	33.3	243.3	3.3		33.3	860	6133	23 00 41
23 15 40	M87	15 51 33	33.2	243.4	3.3		33.3	34	6133	23 15 40
23 30 00	---	16 05 55	31.3	246.9	3.6		34.4	860	6244	23 15 41

Schedule for TORUN (Code Tr )

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e-EVN: eh027d, rsp12, ey022b

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 12 May 2015 Day 132 ---										
23 30 40	M87	16 06 35	31.2	247.0	3.6		34.5	34	6244	23 30 40
23 45 00	---	16 20 57	29.1	250.4	3.8		35.4	860	6354	23 30 41
23 45 40	M87	16 21 37	29.1	250.5	3.8		35.4	34	6354	23 45 40
23 59 59	---	16 36 00	27.0	253.7	4.1		36.2	859	6464	23 45 41
--- Wed 13 May 2015 Day 133 ---										
00 03 00	1156+295	16 39 00	34.9	273.5	4.6		43.3	126	6464	00 03 00
00 09 00	---	16 45 01	34.0	274.7	4.7		43.3	360	6510	00 03 01
00 09 40	1156+295	16 45 41	33.9	274.8	4.8		43.3	34	6510	00 09 40
00 16 00	---	16 52 02	32.9	276.0	4.9		43.1	380	6559	00 09 41
00 19 00	M87	16 55 03	24.2	257.9	4.4		36.9	128	6559	00 19 00
00 30 00	---	17 06 05	22.6	260.2	4.6		37.3	660	6644	00 19 01
00 30 40	M87	17 06 45	22.5	260.4	4.6		37.3	34	6644	00 30 40
00 45 00	---	17 21 07	20.4	263.4	4.8		37.6	860	6754	00 30 41
00 45 40	M87	17 21 47	20.3	263.5	4.8		37.6	34	6754	00 45 40
01 00 00	---	17 36 10	18.1	266.4	5.1		37.8	860	6864	00 45 41
01 00 40	M87	17 36 50	18.0	266.6	5.1		37.8	34	6864	01 00 40
01 15 00	---	17 51 12	15.9	269.5	5.3		37.9	860	6974	01 00 41
01 15 40	M87	17 51 52	15.8	269.6	5.3		37.9	34	6974	01 15 40
01 30 00	---	18 06 15	13.6	272.5	5.6		37.9	860	7085	01 15 41
01 30 40	M87	18 06 55	13.5	272.6	5.6		37.9	34	7085	01 30 40
01 45 00	---	18 21 17	11.4	275.4	5.8		37.7	860	7195	01 30 41
01 45 40	M87	18 21 57	11.3	275.6	5.8		37.7	34	7195	01 45 40
02 00 00	---	18 36 20	9.1	278.4	6.1		37.4	860	7305	01 45 41
02 00 40	M87	18 37 00	9.0	278.5	6.1		37.4	34	7305	02 00 40
02 15 00	---	18 51 22	6.9	281.3	6.3		37.1	860	7415	02 00 41
02 15 40	M87	18 52 02	6.8	281.5	6.3		37.0	34	7415	02 15 40
02 30 00	---	19 06 24	4.7	284.3	6.6		36.6	860	7526	02 15 41
02 35 00	1749+096	19 11 25	43.7	207.5	1.3		16.3	130	7526	02 35 00
02 39 00	---	19 15 26	43.4	208.8	1.4		17.1	240	7556	02 35 01



Schedule for TORUN (Code Tr )

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e-EVN: eh027d, rsp12, ey022b

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 13 May 2015 Day 133 ---										
02 42 00	J1825-1718	19 18 26	18.7	193.1	0.9		8.2	74	7556	02 42 00
02 45 00	=1822-173	19 21 27	18.6	193.8	0.9		8.7	180	7579	02 42 01
02 45 00	J1819-1458	19 21 27	20.7	195.8	1.0		9.7	-22	7579	No stop
02 48 20	---	19 24 47	20.6	196.6	1.1		10.2	178	7605	02 45 01
02 48 20	J1825-1718	19 24 47	18.5	194.7	1.0		9.2	-22	7605	No stop
02 49 50	=1822-173	19 26 18	18.4	195.0	1.0		9.4	68	7617	02 48 21
02 49 50	J1819-1458	19 26 18	20.5	197.0	1.1		10.5	-22	7617	No stop
02 53 10	---	19 29 38	20.3	197.8	1.2		11.0	178	7642	02 49 51
02 54 00	J1825-1718	19 30 28	18.3	196.1	1.1		10.0	28	7642	02 54 00
02 55 00	=1822-173	19 31 29	18.2	196.3	1.1		10.2	60	7650	02 54 01
02 55 00	J1819-1458	19 31 29	20.2	198.3	1.2		11.3	-21	7650	No stop
02 58 20	---	19 34 49	20.1	199.1	1.2		11.8	179	7676	02 55 01
02 58 20	J1825-1718	19 34 49	18.1	197.2	1.1		10.7	-21	7676	No stop
02 59 50	=1822-173	19 36 19	18.0	197.5	1.2		10.9	69	7687	02 58 21
02 59 50	J1819-1458	19 36 19	20.0	199.5	1.3		12.0	-21	7687	No stop
03 03 10	---	19 39 40	19.8	200.4	1.3		12.5	179	7713	02 59 51
03 04 00	J1825-1718	19 40 30	17.8	198.5	1.2		11.5	29	7713	03 04 00
03 05 00	=1822-173	19 41 30	17.8	198.8	1.2		11.7	60	7720	03 04 01
03 05 00	J1819-1458	19 41 30	19.7	200.8	1.4		12.8	-21	7720	No stop
03 08 20	---	19 44 51	19.6	201.7	1.4		13.3	179	7746	03 05 01
03 08 20	J1825-1718	19 44 51	17.6	199.6	1.3		12.2	-21	7746	No stop
03 09 50	=1822-173	19 46 21	17.5	200.0	1.3		12.4	69	7758	03 08 21
03 09 50	J1819-1458	19 46 21	19.5	202.0	1.4		13.5	-21	7758	No stop
03 13 10	---	19 49 42	19.3	202.9	1.5		14.0	179	7783	03 09 51
03 14 00	J1825-1718	19 50 32	17.3	201.0	1.4		13.0	29	7783	03 14 00
03 15 00	=1822-173	19 51 32	17.2	201.2	1.4		13.2	60	7791	03 14 01
03 15 00	J1819-1458	19 51 32	19.2	203.3	1.5		14.2	-21	7791	No stop
03 18 20	---	19 54 52	19.0	204.1	1.6		14.7	179	7817	03 15 01
03 18 20	J1825-1718	19 54 52	17.1	202.1	1.5		13.7	-21	7817	No stop
03 19 50	=1822-173	19 56 23	17.0	202.4	1.5		13.9	69	7828	03 18 21

Schedule for TORUN (Code Tr )

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e-EVN: eh027d, rsp12, ey022b

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

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Disk: GBytes recorded to this point.

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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 13 May 2015 Day 133 ---										
03 19 50	J1819-1458	19 56 23	18.9	204.5	1.6		14.9	-21	7828	No stop
03 23 10	---	19 59 43	18.7	205.3	1.7		15.4	179	7854	03 19 51
03 24 00	J1825-1718	20 00 33	16.7	203.4	1.6		14.5	29	7854	03 24 00
03 25 00	=1822-173	20 01 33	16.7	203.7	1.6		14.6	60	7862	03 24 01
03 25 00	J1819-1458	20 01 33	18.6	205.8	1.7		15.7	-21	7862	No stop
03 28 20	---	20 04 54	18.3	206.6	1.7		16.2	179	7887	03 25 01
03 28 20	J1825-1718	20 04 54	16.5	204.5	1.6		15.1	-21	7887	No stop
03 29 50	=1822-173	20 06 24	16.4	204.8	1.7		15.3	69	7899	03 28 21
03 29 50	J1819-1458	20 06 24	18.2	207.0	1.8		16.4	-21	7899	No stop
03 33 10	---	20 09 45	18.0	207.8	1.8		16.8	179	7924	03 29 51
03 34 00	J1825-1718	20 10 35	16.1	205.8	1.7		15.9	29	7924	03 34 00
03 35 00	=1822-173	20 11 35	16.0	206.1	1.8		16.1	60	7932	03 34 01
03 37 00	J1907+0127	20 13 35	36.6	200.6	1.1		12.2	29	7932	03 37 00
03 40 00	=1904+013	20 16 36	36.5	201.5	1.1		12.7	180	7955	03 37 01
03 40 00	J1854+0306	20 16 36	37.4	206.0	1.4		15.3	-24	7955	No stop
03 43 20	---	20 19 57	37.2	207.1	1.4		15.9	176	7981	03 40 01
03 43 20	J1907+0127	20 19 57	36.3	202.5	1.2		13.3	-24	7981	No stop
03 44 50	=1904+013	20 21 27	36.2	203.0	1.2		13.6	66	7992	03 43 21
03 44 50	J1854+0306	20 21 27	37.1	207.5	1.4		16.1	-24	7992	No stop
03 48 10	---	20 24 47	36.9	208.5	1.5		16.7	176	8018	03 44 51
03 49 00	J1907+0127	20 25 37	35.9	204.2	1.3		14.3	26	8018	03 49 00
03 50 00	=1904+013	20 26 38	35.9	204.5	1.3		14.4	60	8026	03 49 01
03 50 00	J1854+0306	20 26 38	36.7	209.1	1.5		17.0	-24	8026	No stop
03 53 20	---	20 29 58	36.5	210.0	1.6		17.5	176	8051	03 50 01
03 53 20	J1907+0127	20 29 58	35.7	205.5	1.4		15.0	-24	8051	No stop
03 54 50	=1904+013	20 31 28	35.6	206.0	1.4		15.2	66	8063	03 53 21
03 54 50	J1854+0306	20 31 28	36.4	210.5	1.6		17.8	-24	8063	No stop
03 58 10	---	20 34 49	36.1	211.5	1.7		18.3	176	8088	03 54 51
03 59 00	J1907+0127	20 35 39	35.3	207.2	1.5		15.9	26	8088	03 59 00
04 00 00	=1904+013	20 36 39	35.2	207.5	1.5		16.1	60	8096	03 59 01

Schedule for TORUN (Code Tr )

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e-EVN: eh027d, rsp12, ey022b

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

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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 13 May 2015 Day 133 ---										
04 00 00	J1854+0306	20 36 39	36.0	212.0	1.7		18.6	-24	8096	No stop
04 03 20	---	20 40 00	35.7	213.0	1.8		19.1	176	8122	04 00 01
04 03 20	J1907+0127	20 40 00	35.0	208.5	1.5		16.6	-24	8122	No stop
04 04 50	=1904+013	20 41 30	34.9	208.9	1.6		16.9	66	8133	04 03 21
04 04 50	J1854+0306	20 41 30	35.6	213.4	1.8		19.3	-24	8133	No stop
04 08 10	---	20 44 51	35.3	214.4	1.8		19.9	176	8159	04 04 51
04 09 00	J1907+0127	20 45 41	34.6	210.1	1.6		17.5	26	8159	04 09 00
04 10 00	=1904+013	20 46 41	34.5	210.4	1.6		17.7	60	8167	04 09 01
04 10 00	J1854+0306	20 46 41	35.1	214.9	1.9		20.1	-24	8167	No stop
04 13 20	---	20 50 01	34.8	215.9	1.9		20.6	176	8192	04 10 01
04 13 20	J1907+0127	20 50 01	34.2	211.4	1.7		18.2	-24	8192	No stop
04 14 50	=1904+013	20 51 32	34.1	211.8	1.7		18.5	66	8204	04 13 21
04 14 50	J1854+0306	20 51 32	34.7	216.3	1.9		20.9	-24	8204	No stop
04 18 10	---	20 54 52	34.4	217.2	2.0		21.3	176	8229	04 14 51
04 19 00	J1907+0127	20 55 42	33.8	213.0	1.8		19.1	26	8229	04 19 00
04 20 00	=1904+013	20 56 43	33.7	213.3	1.8		19.2	60	8237	04 19 01
04 20 00	J1854+0306	20 56 43	34.2	217.8	2.0		21.6	-24	8237	No stop
04 23 20	---	21 00 03	33.9	218.7	2.1		22.1	176	8263	04 20 01
04 23 20	J1907+0127	21 00 03	33.4	214.2	1.9		19.7	-24	8263	No stop
04 24 50	=1904+013	21 01 33	33.3	214.6	1.9		20.0	66	8274	04 23 21
04 24 50	J1854+0306	21 01 33	33.8	219.1	2.1		22.3	-24	8274	No stop
04 28 10	---	21 04 54	33.5	220.0	2.2		22.8	176	8300	04 24 51
04 29 00	J1907+0127	21 05 44	32.9	215.8	2.0		20.6	26	8300	04 29 00
04 30 00	=1904+013	21 06 44	32.8	216.1	2.0		20.7	60	8308	04 29 01
04 35 00	3C454.3	21 11 45	48.0	141.5	-1.7		-22.9	134	8308	04 35 00
04 45 00	---	21 21 47	48.9	144.8	-1.5		-21.1	600	8385	04 35 01
04 45 40	3C454.3	21 22 27	48.9	145.1	-1.5		-21.0	34	8385	04 45 40
05 00 00	---	21 36 49	50.1	150.1	-1.3		-18.2	860	8495	04 45 41
05 00 40	3C454.3	21 37 29	50.1	150.3	-1.3		-18.0	34	8495	05 00 40
05 15 00	---	21 51 52	51.1	155.5	-1.0		-15.0	860	8605	05 00 41

Schedule for TORUN (Code Tr )

Page 10

e-EVN: eh027d, rsp12, ey022b

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 13 May 2015 Day 133 ---										
05 20 00	0234+285	21 56 52	34.2	86.1	-4.7		-43.2	145	8605	05 20 00
05 30 00	---	22 06 54	35.7	88.1	-4.5		-43.3	600	8682	05 20 01
05 30 40	0234+285	22 07 34	35.8	88.2	-4.5		-43.3	34	8682	05 30 40
05 45 00	---	22 21 56	37.9	91.1	-4.3		-43.3	860	8792	05 30 41
05 45 40	0234+285	22 22 37	38.0	91.2	-4.3		-43.3	34	8792	05 45 40
06 00 00	---	22 36 59	40.2	94.2	-4.0		-43.1	860	8903	05 45 41
06 00 40	0234+285	22 37 39	40.3	94.3	-4.0		-43.1	34	8903	06 00 40
06 15 00	---	22 52 01	42.4	97.4	-3.8		-42.8	860	9013	06 00 41
06 17 00	J0216-0118	22 54 02	21.3	123.9	-3.4		-29.9	27	9013	06 17 00
06 20 00	=0213-015	22 57 02	21.7	124.6	-3.3		-29.6	180	9036	06 17 01
06 20 00	MRK590	22 57 02	22.3	124.6	-3.3		-29.6	-14	9036	No stop
06 23 30	---	23 00 33	22.7	125.5	-3.2		-29.3	196	9063	06 20 01
06 23 30	J0216-0118	23 00 33	22.1	125.4	-3.3		-29.3	-14	9063	No stop
06 24 30	=0213-015	23 01 33	22.2	125.6	-3.3		-29.2	46	9070	06 23 31
06 24 30	MRK590	23 01 33	22.9	125.7	-3.2		-29.2	-14	9070	No stop
06 28 00	---	23 05 04	23.3	126.5	-3.2		-28.8	196	9097	06 24 31
06 28 30	J0216-0118	23 05 34	22.7	126.6	-3.2		-28.8	16	9097	06 28 30
06 29 00	=0213-015	23 06 04	22.8	126.7	-3.2		-28.8	30	9101	06 28 31
06 29 00	MRK590	23 06 04	23.4	126.8	-3.2		-28.8	-14	9101	No stop
06 32 30	---	23 09 34	23.8	127.6	-3.1		-28.4	196	9128	06 29 01
06 32 30	J0216-0118	23 09 34	23.2	127.5	-3.1		-28.4	-14	9128	No stop
06 33 30	=0213-015	23 10 34	23.3	127.8	-3.1		-28.3	46	9136	06 32 31
06 33 30	MRK590	23 10 34	23.9	127.9	-3.1		-28.3	-14	9136	No stop
06 37 00	---	23 14 05	24.4	128.7	-3.0		-27.9	196	9163	06 33 31
06 37 30	J0216-0118	23 14 35	23.8	128.7	-3.0		-27.9	16	9163	06 37 30
06 38 00	=0213-015	23 15 05	23.8	128.9	-3.0		-27.9	30	9167	06 37 31
06 38 00	MRK590	23 15 05	24.5	128.9	-3.0		-27.8	-14	9167	No stop
06 41 30	---	23 18 36	24.9	129.8	-2.9		-27.5	196	9194	06 38 01
06 41 30	J0216-0118	23 18 36	24.2	129.7	-3.0		-27.5	-14	9194	No stop
06 42 30	=0213-015	23 19 36	24.4	129.9	-3.0		-27.4	46	9201	06 41 31

Schedule for TORUN (Code Tr )

Page 11

e-EVN: eh027d, rsp12, ey022b

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 13 May 2015 Day 133 ---										
06 42 30	MRK590	23 19 36	25.0	130.0	-2.9		-27.4	-14	9201	No stop
06 46 00	---	23 23 07	25.4	130.9	-2.9		-27.0	196	9228	06 42 31
06 46 00	J0216-0118	23 23 07	24.8	130.8	-2.9		-27.0	-14	9228	No stop
06 47 00	=0213-015	23 24 07	24.9	131.0	-2.9		-26.9	46	9236	06 46 01
06 47 40	J0216-0105	23 24 47	25.1	131.1	-2.9		-26.9	30	9236	06 47 40
06 49 00	=0213-013	23 26 07	25.3	131.4	-2.8		-26.8	80	9246	06 47 41
06 49 00	J0216-0118	23 26 07	25.1	131.5	-2.8		-26.7	-10	9246	No stop
06 50 00	=0213-015	23 27 07	25.2	131.8	-2.8		-26.6	50	9254	06 49 01
06 50 00	MRK590	23 27 07	25.9	131.9	-2.8		-26.5	-14	9254	No stop
06 53 30	---	23 30 38	26.2	132.8	-2.7		-26.2	196	9281	06 50 01
06 53 30	J0216-0118	23 30 38	25.6	132.7	-2.8		-26.2	-14	9281	No stop
06 54 30	=0213-015	23 31 38	25.7	132.9	-2.8		-26.1	46	9288	06 53 31
06 54 30	MRK590	23 31 38	26.4	133.0	-2.7		-26.0	-14	9288	No stop
06 58 00	---	23 35 08	26.7	133.9	-2.7		-25.6	196	9315	06 54 31
06 58 30	J0216-0118	23 35 39	26.1	133.9	-2.7		-25.6	16	9315	06 58 30
06 59 00	=0213-015	23 36 09	26.2	134.0	-2.7		-25.6	30	9319	06 58 31
06 59 00	MRK590	23 36 09	26.8	134.2	-2.7		-25.5	-14	9319	No stop
07 02 30	---	23 39 39	27.2	135.1	-2.6		-25.1	196	9346	06 59 01
07 02 30	J0216-0118	23 39 39	26.6	134.9	-2.6		-25.2	-14	9346	No stop
07 03 30	=0213-015	23 40 39	26.7	135.2	-2.6		-25.0	46	9354	07 02 31
07 03 30	MRK590	23 40 39	27.3	135.3	-2.6		-25.0	-14	9354	No stop
07 07 00	---	23 44 10	27.7	136.2	-2.5		-24.6	196	9381	07 03 31
07 07 30	J0216-0118	23 44 40	27.1	136.2	-2.5		-24.6	16	9381	07 07 30
07 08 00	=0213-015	23 45 10	27.2	136.3	-2.5		-24.5	30	9385	07 07 31
07 08 00	MRK590	23 45 10	27.8	136.5	-2.5		-24.4	-14	9385	No stop
07 11 30	---	23 48 41	28.2	137.4	-2.4		-24.0	196	9412	07 08 01
07 11 30	J0216-0118	23 48 41	27.5	137.2	-2.5		-24.1	-14	9412	No stop
07 12 30	=0213-015	23 49 41	27.6	137.5	-2.5		-23.9	46	9419	07 11 31
07 12 30	MRK590	23 49 41	28.3	137.6	-2.4		-23.9	-14	9419	No stop
07 16 00	---	23 53 11	28.6	138.5	-2.4		-23.4	196	9446	07 12 31

Schedule for TORUN (Code Tr )

Page 12

e-EVN: eh027d, rsp12, ey022b

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 13 May 2015 Day 133 ---										
07 16 00	J0216-0118	23 53 11	28.0	138.4	-2.4		-23.5	-14	9446	No stop
07 17 00	=0213-015	23 54 12	28.1	138.7	-2.4		-23.4	46	9454	07 16 01
07 17 40	J0216-0105	23 54 52	28.3	138.7	-2.4		-23.4	30	9454	07 17 40
07 19 00	=0213-013	23 56 12	28.5	139.1	-2.3		-23.2	80	9464	07 17 41
07 19 00	J0216-0118	23 56 12	28.3	139.2	-2.3		-23.1	-10	9464	No stop
07 20 00	=0213-015	23 57 12	28.4	139.4	-2.3		-23.0	50	9472	07 19 01
07 20 00	MRK590	23 57 12	29.0	139.6	-2.3		-22.9	-14	9472	No stop
07 23 30	---	00 00 43	29.3	140.5	-2.2		-22.4	196	9499	07 20 01
07 23 30	J0216-0118	00 00 43	28.7	140.4	-2.3		-22.5	-14	9499	No stop
07 24 30	=0213-015	00 01 43	28.8	140.6	-2.3		-22.4	46	9506	07 23 31
07 24 30	MRK590	00 01 43	29.4	140.8	-2.2		-22.3	-14	9506	No stop
07 28 00	---	00 05 13	29.8	141.7	-2.2		-21.8	196	9533	07 24 31
07 28 30	J0216-0118	00 05 43	29.2	141.7	-2.2		-21.9	16	9533	07 28 30
07 29 00	=0213-015	00 06 14	29.2	141.8	-2.2		-21.8	30	9537	07 28 31
07 29 00	MRK590	00 06 14	29.9	142.0	-2.2		-21.7	-14	9537	No stop
07 32 30	---	00 09 44	30.2	142.9	-2.1		-21.2	196	9564	07 29 01
07 32 30	J0216-0118	00 09 44	29.5	142.8	-2.1		-21.3	-14	9564	No stop
07 33 30	=0213-015	00 10 44	29.6	143.0	-2.1		-21.2	46	9572	07 32 31
07 33 30	MRK590	00 10 44	30.3	143.2	-2.1		-21.1	-14	9572	No stop
07 37 00	---	00 14 15	30.6	144.2	-2.0		-20.6	196	9599	07 33 31
07 37 30	J0216-0118	00 14 45	30.0	144.1	-2.0		-20.6	16	9599	07 37 30
07 38 00	=0213-015	00 15 15	30.0	144.2	-2.0		-20.6	30	9603	07 37 31
07 38 00	MRK590	00 15 15	30.7	144.4	-2.0		-20.4	-14	9603	No stop
07 41 30	---	00 18 46	31.0	145.4	-1.9		-19.9	196	9629	07 38 01
07 41 30	J0216-0118	00 18 46	30.3	145.2	-2.0		-20.1	-14	9629	No stop
07 42 30	=0213-015	00 19 46	30.4	145.5	-2.0		-19.9	46	9637	07 41 31
07 42 30	MRK590	00 19 46	31.1	145.7	-1.9		-19.8	-14	9637	No stop
07 46 00	---	00 23 16	31.4	146.6	-1.9		-19.3	196	9664	07 42 31
07 46 00	J0216-0118	00 23 16	30.7	146.4	-1.9		-19.4	-14	9664	No stop
07 47 00	=0213-015	00 24 17	30.8	146.7	-1.9		-19.3	46	9672	07 46 01

Schedule for TORUN (Code Tr )

Page 13

e-EVN: eh027d, rsp12, ey022b

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 13 May 2015 Day 133 ---										
07 47 40	J0216-0105	00 24 57	31.1	146.8	-1.9		-19.2	30	9672	07 47 40
07 49 00	=0213-013	00 26 17	31.2	147.1	-1.8		-19.0	80	9682	07 47 41
07 49 00	J0216-0118	00 26 17	31.0	147.2	-1.8		-19.0	-10	9682	No stop
07 50 00	=0213-015	00 27 17	31.1	147.5	-1.8		-18.8	50	9690	07 49 01
07 50 00	MRK590	00 27 17	31.7	147.7	-1.8		-18.7	-14	9690	No stop
07 53 30	---	00 30 48	32.0	148.7	-1.7		-18.2	196	9717	07 50 01
07 53 30	J0216-0118	00 30 48	31.3	148.5	-1.8		-18.3	-14	9717	No stop
07 54 30	=0213-015	00 31 48	31.4	148.8	-1.8		-18.1	46	9724	07 53 31
07 54 30	MRK590	00 31 48	32.0	149.0	-1.7		-18.0	-14	9724	No stop
07 58 00	---	00 35 18	32.3	150.0	-1.7		-17.5	196	9751	07 54 31
07 58 30	J0216-0118	00 35 48	31.7	149.9	-1.7		-17.5	16	9751	07 58 30
07 59 00	=0213-015	00 36 19	31.8	150.0	-1.7		-17.5	30	9755	07 58 31
07 59 00	MRK590	00 36 19	32.4	150.3	-1.7		-17.3	-14	9755	No stop
08 02 30	---	00 39 49	32.6	151.3	-1.6		-16.8	196	9782	07 59 01
08 02 30	J0216-0118	00 39 49	32.0	151.0	-1.6		-16.9	-14	9782	No stop
08 03 30	=0213-015	00 40 49	32.1	151.3	-1.6		-16.8	46	9790	08 02 31
08 03 30	MRK590	00 40 49	32.7	151.6	-1.6		-16.6	-14	9790	No stop
08 07 00	---	00 44 20	33.0	152.6	-1.5		-16.1	196	9817	08 03 31
08 07 30	J0216-0118	00 44 50	32.4	152.4	-1.5		-16.1	16	9817	08 07 30
08 08 00	=0213-015	00 45 20	32.4	152.6	-1.5		-16.1	30	9820	08 07 31
08 08 00	MRK590	00 45 20	33.0	152.8	-1.5		-15.9	-14	9820	No stop
08 11 30	---	00 48 51	33.3	153.9	-1.4		-15.3	196	9847	08 08 01
08 11 30	J0216-0118	00 48 51	32.6	153.6	-1.5		-15.5	-14	9847	No stop
08 12 30	=0213-015	00 49 51	32.7	153.9	-1.5		-15.3	46	9855	08 11 31
08 12 30	MRK590	00 49 51	33.3	154.1	-1.4		-15.2	-14	9855	No stop
08 16 00	---	00 53 21	33.6	155.2	-1.4		-14.6	196	9882	08 12 31
08 16 00	J0216-0118	00 53 21	32.9	154.9	-1.4		-14.8	-14	9882	No stop
08 17 00	=0213-015	00 54 21	33.0	155.2	-1.4		-14.6	46	9890	08 16 01
08 17 40	J0216-0105	00 55 02	33.2	155.3	-1.4		-14.6	30	9890	08 17 40
08 19 00	=0213-013	00 56 22	33.3	155.7	-1.3		-14.3	80	9900	08 17 41

Schedule for TORUN (Code Tr )

Page 14

e-EVN: eh027d, rsp12, ey022b

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 13 May 2015 Day 133 ---										
08 19 00	J0216-0118	00 56 22	33.1	155.7	-1.3		-14.3	-10	9900	No stop
08 20 00	=0213-015	00 57 22	33.2	156.0	-1.3		-14.1	50	9908	08 19 01
08 23 00	0528+134	01 00 22	24.0	99.6	-4.5		-37.5	52	9908	08 23 00
08 30 00	---	01 07 24	25.1	101.1	-4.4		-37.3	420	9962	08 23 01
08 32 00	J0216-0118	01 09 24	33.9	159.6	-1.1		-12.1	-12	9962	08 32 00
08 35 00	=0213-015	01 12 24	34.0	160.4	-1.1		-11.6	168	9985	08 32 01
08 35 00	MRK590	01 12 24	34.6	160.8	-1.0		-11.4	-14	9985	No stop
08 38 30	---	01 15 55	34.8	161.8	-1.0		-10.8	196	10012	08 35 01
08 38 30	J0216-0118	01 15 55	34.2	161.5	-1.0		-11.0	-14	10012	No stop
08 39 30	=0213-015	01 16 55	34.2	161.8	-1.0		-10.8	46	10019	08 38 31
08 39 30	MRK590	01 16 55	34.8	162.1	-1.0		-10.6	-14	10019	No stop
08 43 00	---	01 20 26	35.0	163.2	-0.9		-10.0	196	10046	08 39 31
08 43 30	J0216-0118	01 20 56	34.4	163.0	-0.9		-10.1	16	10046	08 43 30
08 44 00	=0213-015	01 21 26	34.4	163.1	-0.9		-10.0	30	10050	08 43 31
08 44 00	MRK590	01 21 26	35.0	163.5	-0.9		-9.8	-14	10050	No stop
08 47 30	---	01 24 56	35.2	164.5	-0.8		-9.2	196	10077	08 44 01
08 47 30	J0216-0118	01 24 56	34.6	164.2	-0.9		-9.4	-14	10077	No stop
08 48 30	=0213-015	01 25 57	34.6	164.5	-0.8		-9.3	46	10085	08 47 31
08 48 30	MRK590	01 25 57	35.2	164.8	-0.8		-9.0	-14	10085	No stop
08 52 00	---	01 29 27	35.4	165.9	-0.8		-8.4	196	10112	08 48 31
08 52 30	J0216-0118	01 29 57	34.8	165.7	-0.8		-8.5	16	10112	08 52 30
08 53 00	=0213-015	01 30 27	34.8	165.8	-0.8		-8.5	30	10115	08 52 31
08 53 00	MRK590	01 30 27	35.4	166.2	-0.7		-8.2	-14	10115	No stop
08 56 30	---	01 33 58	35.5	167.3	-0.7		-7.6	196	10142	08 53 01
08 56 30	J0216-0118	01 33 58	34.9	166.9	-0.7		-7.8	-14	10142	No stop
08 57 30	=0213-015	01 34 58	35.0	167.2	-0.7		-7.7	46	10150	08 56 31
08 57 30	MRK590	01 34 58	35.5	167.6	-0.7		-7.4	-14	10150	No stop
09 01 00	---	01 38 29	35.7	168.6	-0.6		-6.8	196	10177	08 57 31
09 01 00	J0216-0118	01 38 29	35.1	168.3	-0.6		-7.0	-14	10177	No stop
09 02 00	=0213-015	01 39 29	35.1	168.6	-0.6		-6.8	46	10185	09 01 01



Schedule for TORUN (Code Tr )

Page 15

e-EVN: eh027d, rsp12, ey022b

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 13 May 2015 Day 133 ---										
09 02 40	J0216-0105	01 40 09	35.3	168.7	-0.6		-6.8	30	10185	09 02 40
09 04 00	=0213-013	01 41 29	35.4	169.1	-0.6		-6.5	80	10195	09 02 41
09 04 00	J0216-0118	01 41 29	35.2	169.2	-0.6		-6.5	-10	10195	No stop
09 05 00	=0213-015	01 42 29	35.2	169.5	-0.6		-6.3	50	10203	09 04 01
09 05 00	MRK590	01 42 29	35.8	169.9	-0.5		-6.1	-14	10203	No stop
09 08 30	---	01 46 00	35.9	170.9	-0.5		-5.4	196	10229	09 05 01
09 08 30	J0216-0118	01 46 00	35.3	170.5	-0.5		-5.7	-14	10229	No stop
09 09 30	=0213-015	01 47 00	35.3	170.8	-0.5		-5.5	46	10237	09 08 31
09 09 30	MRK590	01 47 00	35.9	171.2	-0.5		-5.2	-14	10237	No stop
09 13 00	---	01 50 31	36.0	172.3	-0.4		-4.6	196	10264	09 09 31
09 13 30	J0216-0118	01 51 01	35.4	172.1	-0.4		-4.8	16	10264	09 13 30
09 14 00	=0213-015	01 51 31	35.4	172.2	-0.4		-4.7	30	10268	09 13 31
09 14 00	MRK590	01 51 31	36.0	172.6	-0.4		-4.4	-14	10268	No stop
09 17 30	---	01 55 01	36.0	173.7	-0.3		-3.8	196	10295	09 14 01
09 17 30	J0216-0118	01 55 01	35.5	173.3	-0.4		-4.0	-14	10295	No stop
09 18 30	=0213-015	01 56 02	35.5	173.6	-0.3		-3.8	46	10303	09 17 31
09 18 30	MRK590	01 56 02	36.1	174.0	-0.3		-3.6	-14	10303	No stop
09 22 00	---	01 59 32	36.1	175.1	-0.3		-2.9	196	10329	09 18 31
09 22 30	J0216-0118	02 00 02	35.6	174.8	-0.3		-3.1	16	10329	09 22 30
09 23 00	=0213-015	02 00 32	35.6	175.0	-0.3		-3.0	30	10333	09 22 31
09 23 00	MRK590	02 00 32	36.1	175.4	-0.2		-2.7	-14	10333	No stop
09 26 30	---	02 04 03	36.2	176.5	-0.2		-2.1	196	10360	09 23 01
09 26 30	J0216-0118	02 04 03	35.6	176.1	-0.2		-2.4	-14	10360	No stop
09 27 30	=0213-015	02 05 03	35.6	176.4	-0.2		-2.2	46	10368	09 26 31
09 27 30	MRK590	02 05 03	36.2	176.8	-0.2		-1.9	-14	10368	No stop
09 31 00	---	02 08 34	36.2	177.9	-0.1		-1.3	196	10395	09 27 31
09 31 00	J0216-0118	02 08 34	35.6	177.4	-0.1		-1.5	-14	10395	No stop
09 32 00	=0213-015	02 09 34	35.7	177.8	-0.1		-1.3	46	10403	09 31 01
09 32 40	J0216-0105	02 10 14	35.9	177.9	-0.1		-1.2	30	10403	09 32 40
09 34 00	=0213-013	02 11 34	35.9	178.3	-0.1		-1.0	80	10413	09 32 41

Schedule for TORUN (Code Tr )

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e-EVN: eh027d, rsp12, ey022b

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 13 May 2015 Day 133 ---										
09 34 00	J0216-0118	02 11 34	35.7	178.4	-0.1		-1.0	-10	10413	No stop
09 35 00	=0213-015	02 12 34	35.7	178.7	-0.1		-0.8	50	10420	09 34 01
09 35 00	MRK590	02 12 34	36.2	179.1	-0.0		-0.5	-13	10420	No stop
09 38 30	---	02 16 05	36.2	180.2	0.0		0.1	197	10447	09 35 01
09 38 30	J0216-0118	02 16 05	35.7	179.8	-0.0		-0.1	-13	10447	No stop
09 39 30	=0213-015	02 17 05	35.7	180.1	0.0		0.0	47	10455	09 38 31
09 39 30	MRK590	02 17 05	36.2	180.5	0.0		0.3	-13	10455	No stop
09 43 00	---	02 20 36	36.2	181.6	0.1		1.0	197	10482	09 39 31
09 43 30	J0216-0118	02 21 06	35.7	181.3	0.1		0.8	17	10482	09 43 30
09 44 00	=0213-015	02 21 36	35.7	181.5	0.1		0.9	30	10486	09 43 31
09 44 00	MRK590	02 21 36	36.2	181.9	0.1		1.2	-13	10486	No stop
09 47 30	---	02 25 06	36.2	183.0	0.2		1.8	197	10513	09 44 01
09 47 30	J0216-0118	02 25 06	35.6	182.5	0.1		1.5	-13	10513	No stop
09 48 30	=0213-015	02 26 06	35.6	182.8	0.2		1.7	47	10520	09 47 31
09 48 30	MRK590	02 26 06	36.2	183.3	0.2		2.0	-13	10520	No stop
09 52 00	---	02 29 37	36.1	184.4	0.2		2.7	197	10547	09 48 31
09 52 30	J0216-0118	02 30 07	35.6	184.1	0.2		2.4	17	10547	09 52 30
09 53 00	=0213-015	02 30 37	35.6	184.2	0.2		2.5	30	10551	09 52 31
09 53 00	MRK590	02 30 37	36.1	184.7	0.3		2.8	-13	10551	No stop
09 56 30	---	02 34 08	36.1	185.8	0.3		3.5	197	10578	09 53 01
09 56 30	J0216-0118	02 34 08	35.6	185.3	0.3		3.2	-13	10578	No stop
09 57 30	=0213-015	02 35 08	35.5	185.6	0.3		3.4	47	10586	09 56 31
09 57 30	MRK590	02 35 08	36.0	186.1	0.3		3.7	-13	10586	No stop
10 01 00	---	02 38 39	36.0	187.2	0.4		4.3	197	10613	09 57 31
10 01 00	J0216-0118	02 38 39	35.5	186.7	0.4		4.0	-13	10613	No stop
10 02 00	=0213-015	02 39 39	35.5	187.0	0.4		4.2	47	10620	10 01 01
10 02 40	J0216-0105	02 40 19	35.7	187.2	0.4		4.3	30	10620	10 02 40
10 04 00	=0213-013	02 41 39	35.6	187.6	0.4		4.6	80	10631	10 02 41
10 04 00	J0216-0118	02 41 39	35.4	187.6	0.4		4.6	-10	10631	No stop
10 05 00	=0213-015	02 42 39	35.4	187.9	0.4		4.7	50	10638	10 04 01

Schedule for TORUN (Code Tr )

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e-EVN: eh027d, rsp12, ey022b

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.

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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 13 May 2015 Day 133 ---										
10 05 00	MRK590	02 42 39	35.9	188.4	0.5		5.1	-13	10638	No stop
10 08 30	---	02 46 10	35.8	189.5	0.5		5.7	197	10665	10 05 01
10 08 30	J0216-0118	02 46 10	35.3	189.0	0.5		5.4	-13	10665	No stop
10 09 30	=0213-015	02 47 10	35.3	189.3	0.5		5.6	47	10673	10 08 31
10 09 30	MRK590	02 47 10	35.8	189.8	0.5		5.9	-13	10673	No stop
10 13 00	---	02 50 41	35.7	190.9	0.6		6.5	197	10700	10 09 31
10 13 30	J0216-0118	02 51 11	35.2	190.5	0.6		6.3	17	10700	10 13 30
10 14 00	=0213-015	02 51 41	35.2	190.7	0.6		6.4	30	10704	10 13 31
10 14 00	MRK590	02 51 41	35.7	191.2	0.6		6.7	-13	10704	No stop
10 17 30	---	02 55 11	35.6	192.3	0.7		7.3	197	10731	10 14 01
10 17 30	J0216-0118	02 55 11	35.1	191.7	0.6		7.0	-13	10731	No stop
10 18 30	=0213-015	02 56 11	35.1	192.0	0.7		7.2	47	10738	10 17 31
10 18 30	MRK590	02 56 11	35.5	192.6	0.7		7.5	-13	10738	No stop
10 22 00	---	02 59 42	35.4	193.7	0.7		8.2	197	10765	10 18 31
10 22 30	J0216-0118	03 00 12	34.9	193.3	0.7		7.9	17	10765	10 22 30
10 23 00	=0213-015	03 00 42	34.9	193.4	0.7		8.0	30	10769	10 22 31
10 23 00	MRK590	03 00 42	35.4	194.0	0.8		8.3	-13	10769	No stop
10 26 30	---	03 04 13	35.2	195.0	0.8		9.0	197	10796	10 23 01
10 26 30	J0216-0118	03 04 13	34.8	194.5	0.8		8.6	-13	10796	No stop
10 27 30	=0213-015	03 05 13	34.7	194.8	0.8		8.8	47	10804	10 26 31
10 27 30	MRK590	03 05 13	35.2	195.3	0.8		9.1	-13	10804	No stop
10 31 00	---	03 08 43	35.1	196.4	0.9		9.8	197	10831	10 27 31
10 31 00	J0216-0118	03 08 43	34.6	195.8	0.9		9.4	-13	10831	No stop
10 32 00	=0213-015	03 09 44	34.6	196.1	0.9		9.6	47	10838	10 31 01
10 32 40	J0216-0105	03 10 24	34.7	196.3	0.9		9.7	30	10838	10 32 40
10 34 00	=0213-013	03 11 44	34.7	196.7	0.9		10.0	80	10849	10 32 41
10 34 00	J0216-0118	03 11 44	34.5	196.7	0.9		9.9	-10	10849	No stop
10 35 00	=0213-015	03 12 44	34.4	197.0	0.9		10.1	50	10856	10 34 01
10 35 00	MRK590	03 12 44	34.9	197.6	1.0		10.5	-13	10856	No stop
10 38 30	---	03 16 15	34.7	198.6	1.0		11.1	197	10883	10 35 01

Schedule for TORUN (Code Tr )

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e-EVN: eh027d, rsp12, ey022b

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

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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 13 May 2015 Day 133 ---										
10 38 30	J0216-0118	03 16 15	34.3	198.1	1.0		10.7	-13	10883	No stop
10 39 30	=0213-015	03 17 15	34.2	198.4	1.0		10.9	47	10891	10 38 31
10 39 30	MRK590	03 17 15	34.7	198.9	1.0		11.2	-13	10891	No stop
10 43 00	---	03 20 45	34.5	200.0	1.1		11.8	197	10918	10 39 31
10 43 30	J0216-0118	03 21 16	34.0	199.5	1.1		11.6	17	10918	10 43 30
10 44 00	=0213-015	03 21 46	34.0	199.7	1.1		11.7	30	10922	10 43 31
10 44 00	MRK590	03 21 46	34.4	200.3	1.1		12.0	-13	10922	No stop
10 47 30	---	03 25 16	34.3	201.3	1.2		12.6	197	10949	10 44 01
10 47 30	J0216-0118	03 25 16	33.8	200.7	1.1		12.3	-13	10949	No stop
10 48 30	=0213-015	03 26 16	33.8	201.0	1.2		12.4	47	10956	10 47 31
10 48 30	MRK590	03 26 16	34.2	201.6	1.2		12.8	-13	10956	No stop
10 52 00	---	03 29 47	34.0	202.6	1.2		13.4	197	10983	10 48 31
10 52 30	J0216-0118	03 30 17	33.5	202.2	1.2		13.1	17	10983	10 52 30
10 53 00	=0213-015	03 30 47	33.5	202.3	1.2		13.2	30	10987	10 52 31
10 53 00	MRK590	03 30 47	33.9	202.9	1.3		13.5	-13	10987	No stop
10 56 30	---	03 34 18	33.7	204.0	1.3		14.1	197	11014	10 53 01
10 56 30	J0216-0118	03 34 18	33.3	203.4	1.3		13.8	-13	11014	No stop
10 57 30	=0213-015	03 35 18	33.3	203.7	1.3		13.9	47	11022	10 56 31
10 57 30	MRK590	03 35 18	33.7	204.3	1.3		14.3	-12	11022	No stop
11 01 00	---	03 38 48	33.5	205.3	1.4		14.9	198	11049	10 57 31
11 01 00	J0216-0118	03 38 48	33.0	204.7	1.4		14.5	-13	11049	No stop
11 02 00	=0213-015	03 39 49	33.0	205.0	1.4		14.7	47	11056	11 01 01
11 02 40	J0216-0105	03 40 29	33.1	205.2	1.4		14.8	30	11056	11 02 40
11 04 00	=0213-013	03 41 49	33.1	205.6	1.4		15.0	80	11067	11 02 41
11 04 00	J0216-0118	03 41 49	32.8	205.5	1.4		15.0	-10	11067	No stop
11 05 00	=0213-015	03 42 49	32.8	205.8	1.4		15.2	50	11074	11 04 01
11 05 00	MRK590	03 42 49	33.2	206.4	1.5		15.5	-12	11074	No stop
11 08 30	---	03 46 20	33.0	207.4	1.5		16.1	198	11101	11 05 01
11 08 30	J0216-0118	03 46 20	32.5	206.8	1.5		15.7	-12	11101	No stop
11 09 30	=0213-015	03 47 20	32.5	207.1	1.5		15.9	48	11109	11 08 31

Schedule for TORUN (Code Tr )

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e-EVN: eh027d, rsp12, ey022b

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

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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 13 May 2015 Day 133 ---										
11 09 30	MRK590	03 47 20	32.9	207.7	1.5		16.2	-12	11109	No stop
11 13 00	---	03 50 50	32.6	208.7	1.6		16.8	198	11136	11 09 31
11 13 30	J0216-0118	03 51 20	32.2	208.3	1.6		16.5	18	11136	11 13 30
11 14 00	=0213-015	03 51 51	32.2	208.4	1.6		16.6	30	11140	11 13 31
11 14 00	MRK590	03 51 51	32.6	209.0	1.6		16.9	-12	11140	No stop
11 17 30	---	03 55 21	32.3	210.0	1.7		17.5	198	11167	11 14 01
11 17 30	J0216-0118	03 55 21	31.9	209.4	1.6		17.1	-12	11167	No stop
11 18 30	=0213-015	03 56 21	31.8	209.7	1.7		17.3	48	11174	11 17 31
11 18 30	MRK590	03 56 21	32.2	210.3	1.7		17.6	-12	11174	No stop
11 22 00	---	03 59 52	32.0	211.3	1.7		18.2	198	11201	11 18 31
11 22 30	J0216-0118	04 00 22	31.5	210.8	1.7		17.9	18	11201	11 22 30
11 23 00	=0213-015	04 00 52	31.5	210.9	1.7		18.0	30	11205	11 22 31
11 23 00	MRK590	04 00 52	31.9	211.6	1.8		18.3	-12	11205	No stop
11 26 30	---	04 04 23	31.6	212.5	1.8		18.8	198	11232	11 23 01
11 26 30	J0216-0118	04 04 23	31.2	211.9	1.8		18.5	-12	11232	No stop
11 27 30	=0213-015	04 05 23	31.1	212.2	1.8		18.7	48	11240	11 26 31
11 27 30	MRK590	04 05 23	31.5	212.8	1.8		19.0	-12	11240	No stop
11 31 00	---	04 08 53	31.2	213.8	1.9		19.5	198	11267	11 27 31
11 31 00	J0216-0118	04 08 53	30.9	213.2	1.9		19.2	-12	11267	No stop
11 32 00	=0213-015	04 09 53	30.8	213.4	1.9		19.3	48	11274	11 31 01
11 32 40	J0216-0105	04 10 34	30.9	213.7	1.9		19.4	30	11274	11 32 40
11 34 00	=0213-013	04 11 54	30.8	214.0	1.9		19.6	80	11285	11 32 41
11 34 00	J0216-0118	04 11 54	30.6	214.0	1.9		19.6	-10	11285	No stop
11 35 00	=0213-015	04 12 54	30.5	214.3	1.9		19.8	50	11292	11 34 01
11 35 00	MRK590	04 12 54	30.9	214.9	2.0		20.1	-12	11292	No stop
11 38 30	---	04 16 25	30.6	215.8	2.0		20.6	198	11319	11 35 01
11 38 30	J0216-0118	04 16 25	30.2	215.2	2.0		20.3	-12	11319	No stop
11 39 30	=0213-015	04 17 25	30.1	215.5	2.0		20.4	48	11327	11 38 31
11 39 30	MRK590	04 17 25	30.5	216.1	2.0		20.7	-12	11327	No stop
11 43 00	---	04 20 55	30.2	217.1	2.1		21.2	198	11354	11 39 31

Schedule for TORUN (Code Tr )

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e-EVN: eh027d, rsp12, ey022b

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

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Start UT	Source	Start / Stop				Early	Disk	TPStart		
Stop UT		LST	EL	AZ	HA	UP	ParA	Dwell	GBytes	SYNC
-----										
--- Wed 13 May 2015 Day 133 ---										
11 43 30	J0216-0118	04 21 25	29.8	216.6	2.1		21.0	18	11354	11 43 30
11 44 00	=0213-015	04 21 55	29.7	216.7	2.1		21.0	30	11358	11 43 31
11 44 00	MRK590	04 21 55	30.1	217.3	2.1		21.4	-12	11358	No stop
11 47 30	---	04 25 26	29.8	218.3	2.2		21.8	198	11385	11 44 01
11 47 30	J0216-0118	04 25 26	29.4	217.6	2.1		21.5	-12	11385	No stop
11 48 30	=0213-015	04 26 26	29.3	217.9	2.2		21.7	48	11392	11 47 31
11 48 30	MRK590	04 26 26	29.7	218.5	2.2		22.0	-12	11392	No stop
11 52 00	---	04 29 57	29.3	219.5	2.2		22.4	198	11419	11 48 31
11 52 30	J0216-0118	04 30 27	28.9	219.0	2.2		22.2	18	11419	11 52 30
11 53 00	=0213-015	04 30 57	28.9	219.1	2.2		22.3	30	11423	11 52 31
11 53 00	MRK590	04 30 57	29.2	219.7	2.3		22.6	-12	11423	No stop
11 56 30	---	04 34 28	28.9	220.7	2.3		23.0	198	11450	11 53 01
11 56 30	J0216-0118	04 34 28	28.6	220.0	2.3		22.7	-12	11450	No stop
11 57 30	=0213-015	04 35 28	28.5	220.3	2.3		22.9	48	11458	11 56 31
11 57 30	MRK590	04 35 28	28.8	220.9	2.3		23.2	-12	11458	No stop
12 01 00	---	04 38 58	28.5	221.8	2.4		23.6	198	11485	11 57 31
12 01 00	J0216-0118	04 38 58	28.1	221.2	2.4		23.3	-12	11485	No stop
12 02 00	=0213-015	04 39 58	28.0	221.5	2.4		23.4	48	11492	12 01 01
12 02 40	J0216-0105	04 40 39	28.2	221.7	2.4		23.6	30	11492	12 02 40
12 04 00	=0213-013	04 41 59	28.0	222.1	2.4		23.7	80	11503	12 02 41
12 04 00	J0216-0118	04 41 59	27.8	222.0	2.4		23.7	-10	11503	No stop
12 05 00	=0213-015	04 42 59	27.7	222.2	2.4		23.8	50	11510	12 04 01
12 05 00	MRK590	04 42 59	28.1	222.9	2.5		24.1	-12	11510	No stop
12 08 30	---	04 46 29	27.7	223.8	2.5		24.6	198	11537	12 05 01
12 08 30	J0216-0118	04 46 29	27.4	223.1	2.5		24.3	-12	11537	No stop
12 09 30	=0213-015	04 47 30	27.3	223.4	2.5		24.4	48	11545	12 08 31
12 09 30	MRK590	04 47 30	27.6	224.0	2.5		24.7	-12	11545	No stop
12 13 00	---	04 51 00	27.2	224.9	2.6		25.1	198	11572	12 09 31
12 13 30	J0216-0118	04 51 30	26.8	224.4	2.6		24.9	18	11572	12 13 30
12 14 00	=0213-015	04 52 00	26.8	224.6	2.6		24.9	30	11576	12 13 31

Schedule for TORUN (Code Tr )

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e-EVN: eh027d, rsp12, ey022b

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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 13 May 2015 Day 133 ---										
12 14 00	MRK590	04 52 00	27.1	225.2	2.6		25.2	-12	11576	No stop
12 17 30	---	04 55 31	26.7	226.1	2.7		25.6	198	11603	12 14 01
12 17 30	J0216-0118	04 55 31	26.4	225.4	2.6		25.3	-12	11603	No stop
12 18 30	=0213-015	04 56 31	26.3	225.7	2.7		25.5	48	11610	12 17 31
12 18 30	MRK590	04 56 31	26.6	226.3	2.7		25.8	-12	11610	No stop
12 22 00	---	05 00 02	26.2	227.2	2.7		26.2	198	11637	12 18 31
12 22 30	J0216-0118	05 00 32	25.9	226.7	2.7		25.9	18	11637	12 22 30
12 23 00	=0213-015	05 01 02	25.8	226.8	2.7		26.0	30	11641	12 22 31
12 23 00	MRK590	05 01 02	26.1	227.5	2.8		26.3	-12	11641	No stop
12 26 30	---	05 04 32	25.7	228.3	2.8		26.7	198	11668	12 23 01
12 26 30	J0216-0118	05 04 32	25.4	227.7	2.8		26.4	-12	11668	No stop
12 27 30	=0213-015	05 05 33	25.3	227.9	2.8		26.5	48	11676	12 26 31
12 27 30	MRK590	05 05 33	25.6	228.6	2.8		26.8	-12	11676	No stop
12 31 00	---	05 09 03	25.2	229.5	2.9		27.2	198	11703	12 27 31
12 31 00	J0216-0118	05 09 03	24.9	228.8	2.9		26.9	-12	11703	No stop
12 32 00	=0213-015	05 10 03	24.8	229.1	2.9		27.0	48	11710	12 31 01
12 32 40	J0216-0105	05 10 43	24.9	229.3	2.9		27.1	30	11710	12 32 40
12 34 00	=0213-013	05 12 04	24.8	229.6	2.9		27.2	80	11720	12 32 41
12 34 00	J0216-0118	05 12 04	24.6	229.6	2.9		27.2	-10	11720	No stop
12 35 00	=0213-015	05 13 04	24.5	229.8	2.9		27.3	50	11728	12 34 01
12 35 00	MRK590	05 13 04	24.8	230.4	3.0		27.6	-12	11728	No stop
12 38 30	---	05 16 34	24.4	231.3	3.0		27.9	198	11755	12 35 01
12 38 30	J0216-0118	05 16 34	24.1	230.7	3.0		27.7	-12	11755	No stop
12 39 30	=0213-015	05 17 35	24.0	230.9	3.0		27.8	48	11763	12 38 31
12 39 30	MRK590	05 17 35	24.2	231.5	3.0		28.0	-12	11763	No stop
12 43 00	---	05 21 05	23.8	232.4	3.1		28.4	198	11790	12 39 31
12 43 30	J0216-0118	05 21 35	23.5	231.9	3.1		28.2	18	11790	12 43 30
12 44 00	=0213-015	05 22 05	23.4	232.0	3.1		28.2	30	11794	12 43 31
12 44 00	MRK590	05 22 05	23.7	232.6	3.1		28.5	-12	11794	No stop
12 47 30	---	05 25 36	23.3	233.5	3.2		28.9	198	11820	12 44 01

Schedule for TORUN (Code Tr )

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e-EVN: eh027d, rsp12, ey022b

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 13 May 2015 Day 133 ---

```
12 47 30  J0216-0118  05 25 36  23.0 232.8  3.1      28.6  -12  11820  No stop
12 48 30  =0213-015   05 26 36  22.9 233.1  3.2      28.7   48  11828  12 47 31

12 52 30  0528+134   05 30 37  50.4 179.5 -0.0     -0.3  116  11828  12 52 30
13 00 00  ---          05 38 08  50.4 182.4  0.1      1.5  450  11886  12 52 31
```

SETUP FILE INFORMATION:

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

==== Setup file: sess215.L1024e

```
Setup group:      8      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 L0=  2300.00  2300.00  2300.00  2300.00  2300.00  2300.00  2300.00  2300.00  2300.00
          2300.00  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
          L        L        U        U        L        L        L        L        U        U
IF SB =   L        L        L        L        L        L        L        L        L        L
          L        L        L        L        L        L        L        L        L        L
Pol.  =   RCP      LCP      RCP      LCP      RCP      LCP      RCP      LCP
          RCP      LCP      RCP      LCP      RCP      LCP      RCP      LCP
BBC   =     1        5        1        5        2        6        2        6
          3        7        3        7        4        8        4        8
BBC SB=  U        U        L        L        U        U        L        L
          U        U        L        L        U        U        L        L
IF    =   A1       B1       A1       B1       A1       B1       A1       B1
          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
L0 sum=  1610.49  1610.49  1610.49  1610.49  1642.49  1642.49  1642.49  1642.49
          1674.49  1674.49  1674.49  1674.49  1706.49  1706.49  1706.49  1706.49
BBC fr=   689.51  689.51  689.51  689.51  657.51  657.51  657.51  657.51
          625.51  625.51  625.51  625.51  593.51  593.51  593.51  593.51
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:  7
```



Track assignments are:

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

barrel=roll\_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* J1819-1458	18 16 42.492557	* 18 19 34.100000	18 20 27.874335	0.00
	-14 59 22.81612	*-14 58 03.57000	-14 57 28.99105	0.00
* J1854+0306	18 51 32.792594	* 18 54 02.900000	18 54 49.904019	0.00
	03 12 25.14494	* 03 16 14.00000	03 17 29.57939	0.00
* MRK590	02 12 00.370793	* 02 14 33.562000	02 15 19.484229	0.00
	-00 59 57.51500	*-00 46 00.09000	-00 41 53.89060	0.00
* J0216-0118	02 13 32.824065	* 02 16 05.663869	02 16 51.469296	0.21
0213-015	-01 31 57.11210	*-01 18 03.39715	-01 13 58.34328	0.50
	/aps3/opt/share/sched_11.3U1/catalogs/sources.vlba rfc_2012b Petrov, 2012, unpublished 118 observations			
* J0216-0105	02 13 39.235191	* 02 16 12.211953	02 16 58.061769	0.24
0213-013	-01 19 12.27625	*-01 05 18.82460	-01 01 13.88108	0.66
	/aps3/opt/share/sched_11.3U1/catalogs/sources.vlba rfc_2012b Petrov, 2012, unpublished 154 observations			
J0237+2848	02 34 55.589591	* 02 37 52.405678	02 38 45.735037	0.11
* 0234+285	28 35 11.40773	* 28 48 08.98998	28 51 54.07989	0.10
J0237+28	/aps3/opt/share/sched_11.3U1/catalogs/sources.vlba rfc_2012b Petrov, 2012, unpublished 56811 observations			
J0530+1331	05 28 06.759218	* 05 30 56.416749	05 31 47.492070	0.10
* 0528+134	13 29 42.28877	* 13 31 55.14944	13 32 21.66578	0.10
J0530+13	/aps3/opt/share/sched_11.3U1/catalogs/sources.vlba rfc_2012b Petrov, 2012, unpublished 138123 observations			
J0555+3948	05 52 01.407174	* 05 55 30.805616	05 56 33.883782	0.13
0552+398	39 48 21.94578	* 39 48 49.16493	39 48 48.68523	0.10
* DA193	/aps3/opt/share/sched_11.3U1/catalogs/sources.vlba rfc_2012b Petrov, 2012, unpublished 376994 observations			
J0927+3902	09 23 55.319217	* 09 27 03.013938	09 28 00.180052	0.13
0923+392	39 15 23.56637	* 39 02 20.85177	38 58 20.89969	0.10
* 4C39.25	/aps3/opt/share/sched_11.3U1/catalogs/sources.vlba rfc_2012b Petrov, 2012, unpublished 239566 observations			
J1159+2914	11 56 57.786211	* 11 59 31.833912	12 00 19.707766	0.11
* 1156+295	29 31 25.73868	* 29 14 43.82678	29 09 38.63647	0.10
J1159+29	/aps3/opt/share/sched_11.3U1/catalogs/sources.vlba rfc_2012b Petrov, 2012, unpublished 64535 observations			
J1230+1223	12 28 17.569280	* 12 30 49.423382	12 31 36.935755	0.10
3C274	12 40 01.74884	* 12 23 28.04366	12 18 21.77440	0.10
1228+126	/aps3/opt/share/sched_11.3U1/catalogs/sources.vlba rfc_2012b Petrov, 2012, unpublished 47163 observations			
J1230+12				
* M87				

J1407+2827	14 04 45.615156	* 14 07 00.394414	14 07 42.942256	0.24
1404+286	28 41 29.23519	* 28 27 14.69022	28 22 56.47887	0.34
J1407+28	/aps3/opt/share/sched_11.3U1/catalogs/sources.vlba			
* OQ208	GSFC 2011B astro solution	66461 Observations		
J1751+0939	17 49 10.387929	* 17 51 32.818572	17 52 17.719496	0.10
* 1749+096	09 39 42.82574	* 09 39 00.72829	09 38 52.18126	0.10
J1751+09	/aps3/opt/share/sched_11.3U1/catalogs/sources.vlba			
	rfc_2012b Petrov, 2012, unpublished 133560 observations			
* J1825-1718	18 22 42.013853	* 18 25 36.532305	18 26 31.177978	0.15
1822-173	-17 20 35.29012	*-17 18 49.84900	-17 18 06.51041	0.25
	/aps3/opt/share/sched_11.3U1/catalogs/sources.vlba			
	rfc_2012b Petrov, 2012, unpublished 561 observations			
* J1907+0127	19 04 39.788400	* 19 07 11.996158	19 07 59.578027	0.24
1904+013	01 22 24.59956	* 01 27 08.96154	01 28 41.93209	0.31
	/aps3/opt/share/sched_11.3U1/catalogs/sources.vlba			
	rfc_2012b Petrov, 2012, unpublished 171 observations			
J2253+1608	22 51 29.519738	* 22 53 57.747937	22 54 43.063302	0.68
* 3C454.3	15 52 54.34810	* 16 08 53.56093	16 13 41.90646	0.72
2251+158	/aps3/opt/share/sched_11.3U1/catalogs/sources.vlba			
J2253+16	GSFC 2011B astro solution	39747 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)
J1819-1458	136.3
J1854+0306	122.4
MRK590	24.4
J0216-0118	24.6
J0216-0105	24.4
0234+285	13.9
0528+134	32.5
DA193	40.4
4C39.25	80.5
1156+295	112.8
M87	128.9
OQ208	130.4
1749+096	132.8
J1825-1718	135.2
J1907+0127	120.1
3C454.3	62.5

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

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