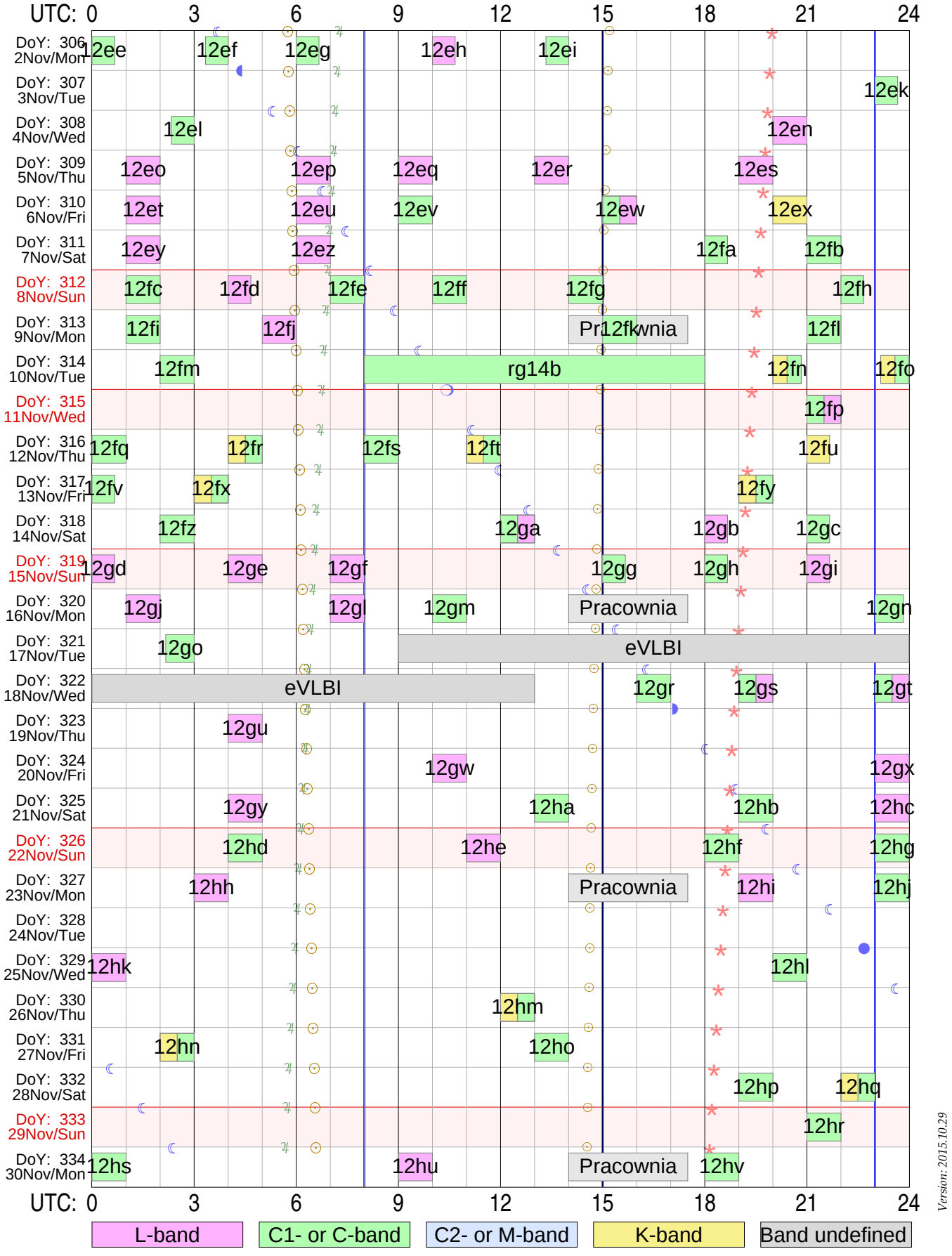
Tr VLBI plan for Nov 2015



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: 118.3 hours in 89 experiments scheduled

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

Version: 2015.10.29

Strona zostawiona celowo pusta

RadioAstron & EVN Experiments

Nov 2015

Uytkownik 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`

```
Year  Date   UTstart UTstop Exper.  xxComment
2015 D  M DoW  hh mm  hh mm  name
306  2 11 Pon   0 00   0 40  rk12ee "C        "
306  2 11 Pon   3 20   4 00  rk12ef "C        "
306  2 11 Pon   6 00   6 40  rk12eg "C        "
306  2 11 Pon  10 00  10 40  rk12eh "L        "
306  2 11 Pon  13 20  14 00  rk12ei "C        "
307  3 11 Wto  23 00  23 40  rk12ek "C        "
308  4 11 Sro   2 20   3 00  rk12el "C        "
308  4 11 Sro  20 00  21 00  rk12en "L        "
309  5 11 Czw   1 00   2 00  rk12eo "L        "
309  5 11 Czw   6 00   7 00  rk12ep "L        "
309  5 11 Czw   9 00  10 00  rk12eq "L        "
309  5 11 Czw  13 00  14 00  rk12er "L        "
309  5 11 Czw  19 00  20 00  rk12es "L        "
310  6 11 Pia   1 00   2 00  rk12et "L        "
310  6 11 Pia   6 00   7 00  rk12eu "L        "
310  6 11 Pia   9 00  10 00  rk12ev "C        "
310  6 11 Pia  15 00  16 00  rk12ew "C>L      "
310  6 11 Pia  20 00  21 00  rk12ex "K        "
311  7 11 Sob   1 00   2 00  rk12ey "L        "
311  7 11 Sob   6 00   7 00  rk12ez "L        "
311  7 11 Sob  18 00  18 40  rk12fa "C        "
311  7 11 Sob  21 00  22 00  rk12fb "C        "
312  8 11 Nie   1 00   2 00  rk12fc "C        "
312  8 11 Nie   4 00   4 40  rk12fd "L        "
312  8 11 Nie   7 00   8 00  rk12fe "C        "
312  8 11 Nie  10 00  11 00  rk12ff "C        "
312  8 11 Nie  14 00  15 00  rk12fg "C        "
312  8 11 Nie  22 00  22 40  rk12fh "C        "
313  9 11 Pon   1 00   2 00  rk12fi "C        "
313  9 11 Pon   5 00   6 00  rk12fj "L        "
313  9 11 Pon  15 00  16 00  rk12fk "C        "
313  9 11 Pon  21 00  22 00  rk12fl "C        "
314 10 11 Wto   2 00   3 00  rk12fm "C        "
314 10 11 Wto   8 00  18 00  rg14b  "C        "
314 10 11 Wto  20 00  20 50  rk12fn "K>C      "
314 10 11 Wto  23 10  24 00  rk12fo "K>C      "
315 11 11 Sro  21 00  22 00  rk12fp "C>L      "
316 12 11 Czw   0 00   1 00  rk12fq "C        "
316 12 11 Czw   4 00   5 00  rk12fr "K>C      "
316 12 11 Czw   8 00   9 00  rk12fs "C        "
```

```
316 12 11 Czw  11 00  12 00  rk12ft "K>C      "
316 12 11 Czw  21 00  21 40  rk12fu "K        "
317 13 11 Pia   0 00   0 40  rk12fv "C        "
317 13 11 Pia   3 00   4 00  rk12fx "K>C      "
317 13 11 Pia  19 00  20 00  rk12fy "K>C      "
318 14 11 Sob   2 00   3 00  rk12fz "C        "
318 14 11 Sob  12 00  13 00  rk12ga "C>L      "
318 14 11 Sob  18 00  18 40  rk12gb "L        "
318 14 11 Sob  21 00  21 40  rk12gc "C        "
319 15 11 Nie   0 00   0 40  rk12gd "L        "
319 15 11 Nie   4 00   5 00  rk12ge "L        "
319 15 11 Nie   7 00   8 00  rk12gf "L        "
319 15 11 Nie  15 00  15 40  rk12gg "C        "
319 15 11 Nie  18 00  18 40  rk12gh "C        "
319 15 11 Nie  21 00  21 40  rk12gi "L        "
320 16 11 Pon   1 00   2 00  rk12gj "L        "
320 16 11 Pon   7 00   8 00  rk12gl "L        "
320 16 11 Pon  10 00  11 00  rk12gm "C        "
320 16 11 Pon  23 00  23 50  rk12gn "C        "
321 17 11 Wto   2 10   3 00  rk12go "C        "
312 17 11 Wto   9  0 113 00     eVLBI     ""
322 18 11 Sro  16 00  17 00  rk12gr "C        "
322 18 11 Sro  19 00  20 00  rk12gs "C>L      "
322 18 11 Sro  23 00  24 00  rk12gt "C>L      "
323 19 11 Czw   4 00   5 00  rk12gu "L        "
324 20 11 Pia  10 00  11 00  rk12gw "L        "
324 20 11 Pia  23 00  24 00  rk12gx "L        "
325 21 11 Sob   4 00   5 00  rk12gy "L        "
325 21 11 Sob  13 00  14 00  rk12ha "C        "
325 21 11 Sob  19 00  20 00  rk12hb "C        "
325 21 11 Sob  23 00  24 00  rk12hc "L        "
326 22 11 Nie   4 00   5 00  rk12hd "C        "
326 22 11 Nie  11 00  12 00  rk12he "L        "
326 22 11 Nie  18 00  19 00  rk12hf "C        "
326 22 11 Nie  23 00  24 00  rk12hg "C        "
327 23 11 Pon   3 00   4 00  rk12hh "L        "
327 23 11 Pon  19 00  20 00  rk12hi "L        "
327 23 11 Pon  23 00  24 00  rk12hj "C        "
329 25 11 Sro   0 00   1 00  rk12hk "L        "
329 25 11 Sro  20 00  21 00  rk12hl "C        "
330 26 11 Czw  12 00  13 00  rk12hm "K>C      "
331 27 11 Pia   2 00   3 00  rk12hn "K>C      "
331 27 11 Pia  13 00  14 00  rk12ho "C        "
332 28 11 Sob  19 00  20 00  rk12hp "C        "
332 28 11 Sob  22 00  23 00  rk12hq "K>C      "
333 29 11 Nie  21 00  22 00  rk12hr "C        "
334 30 11 Pon   0 00   1 00  rk12hs "C        "
334 30 11 Pon   9 00  10 00  rk12hu "L        "
334 30 11 Pon  18 00  19 00  rk12hv "C        "
```

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

`http://paulo.astro.uni.torun.pl/~pw/VLBI/schedules/nov15.pdf`

rk12eetr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 2 Nov 2015 Day 306 ---										
---------- 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	1823+689	03 58 04	35.0	-15.0	9.6		25.7	0	0	00 00 00
00 19 30	---	04 17 37	34.2	-13.1	9.9		22.3	1170	37	00 00 01
00 20 00	1823+689	04 18 07	34.2	-13.0	9.9		22.2	24	37	00 20 00
00 40 00	---	04 38 10	33.6	-11.0	10.2		18.6	1200	76	00 20 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 30.323316	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 30.71536	0.00
	fake circumpolar target for a TS to look at			
* 1823+689	18 23 51.691232	* 18 23 32.853904	18 23 24.801803	0.00
J1823+6857	68 56 09.10322	* 68 57 52.61250	68 58 51.20475	0.00
	./rk12ee_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 1793 observations, RA-AO3-04, RA-AO2-12			

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)
1823+689	93.2

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the longest VLBA baselines
at a solar distance of 60deg 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

rk12eftr

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 2 Nov 2015 Day 306 ---										
---------- C-band VLBI scans ----------										
Next scan frequencies:		4836.00	4836.00	4836.00	4836.00					
Next BBC frequencies:		736.00	736.00	736.00	736.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
03 20 00	0836+710	07 18 37	69.9	20.1	-1.4		-141.0	0	0	03 20 00
03 39 30	---	07 38 10	70.8	16.2	-1.1		-149.3	1170	37	03 20 01
03 40 00	0836+710	07 38 40	70.9	16.1	-1.1		-149.5	24	37	03 40 00
04 00 00	---	07 58 43	71.6	11.5	-0.7		-158.6	1200	76	03 40 01

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

======== Setup file: ra6cm2.set

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 30.346767	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 30.66638	0.00
	fake circumpolar target for a TS to look at			
* 0836+710	08 36 21.556646	* 08 41 24.365284	08 42 58.167831	0.00
J0841+7053	71 04 22.42740	* 70 53 42.17302	70 49 52.78035	0.00
	./rk12ef_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 4321 observations, RA-AO3-04, RA-AO2-12			

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)
  0836+710           102.6

 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 60deg 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
```

rk12egtr

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 2 Nov 2015 Day 306 ---										
---------- 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					
06 00 00	0716+714	09 59 03	65.1	-28.6	2.6		116.4	0	0	06 00 00
06 19 30	---	10 18 36	63.7	-30.0	2.9		110.4	1170	37	06 00 01
06 20 00	0716+714	10 19 06	63.7	-30.0	2.9		110.3	24	37	06 20 00
06 40 00	---	10 39 10	62.1	-31.1	3.3		104.6	1200	76	06 20 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 30.365647	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 30.62741	0.00
	fake circumpolar target for a TS to look at			
* 0716+714	07 16 13.029739	* 07 21 53.448474	07 23 41.353416	0.00
J0721+7120	71 26 15.17406	* 71 20 36.36340	71 18 20.51408	0.00
	./rk12eg_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 42370 observations, RA-AO3-04, RA-AO2-1			

EFFECT OF SOLAR CORONA

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

Source	Sun distance (deg)
0716+714	109.0

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 60deg 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

rk12ehtr

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 2 Nov 2015 Day 306 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
10 00 00	0951+693	13 59 42	58.4	-36.7	4.0		88.6	0	0	10 00 00
10 19 30	---	14 19 16	56.7	-36.5	4.4		84.2	1170	37	10 00 01
10 20 00	0951+693	14 19 46	56.6	-36.4	4.4		84.1	24	37	10 20 00
10 40 00	---	14 39 49	54.8	-36.0	4.7		79.8	1200	76	10 20 01

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

======== Setup file: ra18cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 30.394148	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 30.56935	0.00
	fake circumpolar target for a TS to look at			
* 0951+693	09 51 27.310821	* 09 55 33.173065	09 56 47.689267	0.00
J0955+6903	69 18 08.14417	* 69 03 55.06083	68 59 03.32808	0.00
M81	./rk12eh_sources.radioastron			
	rfc_2013d Petrov, 2013, unpublished 3429 observations, RA-AO3-07			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
 0951+693            96.2

 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 60deg 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
```

rk12eitr

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 2 Nov 2015 Day 306 ---										
---------- 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					
13 20 00	1957+405	17 20 15	60.6	98.4	-2.7		-51.7	0	0	13 20 00
13 39 30	---	17 39 49	63.4	103.4	-2.3		-50.5	1170	37	13 20 01
13 40 00	1957+405	17 40 19	63.5	103.5	-2.3		-50.5	24	37	13 40 00
14 00 00	---	18 00 22	66.4	109.3	-2.0		-48.4	1200	76	13 40 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 30.418052	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 30.52131	0.00
	fake circumpolar target for a TS to look at			
* 1957+405	19 57 44.440786	* 19 59 28.356463	20 00 01.053876	0.00
J1959+4044	40 35 46.36320	* 40 44 02.09701	40 47 05.39911	0.00
CYGNUS-A	./rk12ei_sources.radioastron			
CYG-A	AGN, rfc_2013d Petrov, 2013, unpublished 293 observations, RA-AO3-04, RA-AO2-12			

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)
  1957+405            94.1

 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 60deg 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
```

rk12ektr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 3 Nov 2015 Day 307 ---										
---------- C-band VLBI scans ----------										
Next scan frequencies:		4836.00	4836.00	4836.00	4836.00					
Next BBC frequencies:		736.00	736.00	736.00	736.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
23 00 00	0110+318	03 05 47	61.0	235.1	1.9		35.6	0	0	23 00 00
23 19 30	---	03 25 20	58.5	241.7	2.2		38.7	1170	37	23 00 01
23 20 00	0110+318	03 25 50	58.5	241.8	2.2		38.7	24	37	23 20 00
23 40 00	---	03 45 54	55.7	247.8	2.5		41.1	1200	76	23 20 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 30.664268	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 30.05482	0.00
	fake circumpolar target for a TS to look at			
* 0110+318	01 10 03.762608	* 01 12 50.333038	01 13 44.878691	0.00
J0112+3208	31 52 23.76437	* 32 08 17.43261	32 13 25.02715	0.00
	./rk12ek_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 72 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0110+318           154.8

 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 60deg 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
```

rk12eltr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 4 Nov 2015 Day 308 ---										
---------- 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					
02 20 00	0454-234	06 26 20	11.1	200.7	1.5		13.3	0	0	02 20 00
02 39 30	---	06 45 53	10.0	205.1	1.8		16.1	1170	37	02 20 01
02 40 00	0454-234	06 46 23	10.0	205.2	1.8		16.2	24	37	02 40 00
03 00 00	---	07 06 27	8.6	209.6	2.1		18.9	1200	76	02 40 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 30.688849	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 30.01048	0.00
	fake circumpolar target for a TS to look at			
* 0454-234	04 54 57.297216	* 04 57 03.179228	04 57 44.155177	0.00
J0457-2324	-23 29 28.31965	*-23 24 52.02024	-23 23 25.93643	0.00
	./rk12el_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 69420 observations, RA-AO3-04, RA-AO2-1			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0454-234           128.1

 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 60deg 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
```

rk12entr

RadioAstron AGN Survey

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 4 Nov 2015 Day 308 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
20 00 00	2309+454	00 09 14	78.3	237.3	0.9		46.5	0	0	20 00 00
20 14 30	---	00 23 47	76.4	244.9	1.2		51.3	870	28	20 00 01
20 15 00	2309+454	00 24 17	76.3	245.1	1.2		51.4	23	28	20 15 00
20 29 30	---	00 38 49	74.3	251.1	1.4		54.6	870	56	20 15 01
20 30 00	2309+454	00 39 19	74.2	251.3	1.4		54.7	24	56	20 30 00
20 44 30	---	00 53 51	72.1	256.2	1.7		56.8	870	84	20 30 01
20 45 00	2309+454	00 54 22	72.1	256.4	1.7		56.9	24	84	20 45 00
21 00 00	---	01 09 24	69.8	260.7	1.9		58.2	900	112	20 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: 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)                        Error
                        (B1950)             (J2000)             (Date)            (mas)

* FAKERA             11 57 21.769299   * 12 00 00.000000     12 00 30.818162       0.00
                     85 16 41.77889    * 85 00 00.00000      84 54 29.78183        0.00
                     fake circumpolar target for a TS to look at

* 2309+454           23 09 28.211645   * 23 11 47.408972     23 12 33.163046       0.00
  J2311+4543         45 27 37.24974    * 45 43 56.01648      45 49 23.96272        0.00
                     ./rk12en_sources.radioastron
                     AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 2633 observations, RA-AO3-04, RA



EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  2309+454           127.5

 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 60deg 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
```

rk12eotr

RadioAstron AGN Survey

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 5 Nov 2015 Day 309 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
01 00 00	0007+106	05 10 03	18.0	264.4	5.0		37.5	0	0	01 00 00
01 14 30	---	05 24 36	15.8	267.4	5.2		37.7	870	28	01 00 01
01 15 00	0007+106	05 25 06	15.8	267.5	5.2		37.7	24	28	01 15 00
01 29 30	---	05 39 38	13.6	270.4	5.5		37.7	870	56	01 15 01
01 30 00	0007+106	05 40 08	13.5	270.5	5.5		37.7	24	56	01 30 00
01 44 30	---	05 54 41	11.3	273.4	5.7		37.6	870	84	01 30 01
01 45 00	0007+106	05 55 11	11.2	273.5	5.7		37.6	24	84	01 45 00
02 00 00	---	06 10 13	9.0	276.5	6.0		37.4	900	112	01 45 01

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

======== Setup file: 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 30.854708	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 29.71833	0.00
	fake circumpolar target for a TS to look at			
* 0007+106	00 07 56.721989	* 00 10 31.005907	00 11 20.918096	0.00
J0010+1058	10 41 48.22044	* 10 58 29.50423	11 03 53.97375	0.00
	./rk12eo_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 3268 observations, RA-A03-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0007+106           143.7

 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 60deg 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
```

rk12eptr

RadioAstron AGN Survey

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 5 Nov 2015 Day 309 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
06 00 00	0529+075	10 10 53	18.4	257.8	4.6		36.3	0	0	06 00 00
06 14 30	---	10 25 25	16.2	260.8	4.9		36.7	870	28	06 00 01
06 15 00	0529+075	10 25 55	16.2	260.9	4.9		36.7	24	28	06 15 00
06 29 30	---	10 40 28	14.0	263.9	5.1		37.0	870	56	06 15 01
06 30 00	0529+075	10 40 58	13.9	264.0	5.1		37.0	24	56	06 30 00
06 44 30	---	10 55 30	11.7	267.0	5.4		37.2	870	84	06 30 01
06 45 00	0529+075	10 56 00	11.7	267.1	5.4		37.2	24	84	06 45 00
07 00 00	---	11 11 03	9.4	270.1	5.6		37.3	900	112	06 45 01

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

======== Setup file: ra18cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 30.891106	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 29.65545	0.00
	fake circumpolar target for a TS to look at			
* 0529+075	05 29 56.495315	* 05 32 38.998458	05 33 31.452136	0.00
J0532+0732	07 30 38.14404	* 07 32 43.34492	07 33 15.67039	0.00
	./rk12ep_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 107 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0529+075           136.9

 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 60deg 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
```

rk12eqtr

RadioAstron AGN Survey

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 5 Nov 2015 Day 309 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
09 00 00	0838+133	13 11 22	24.0	259.8	4.5		37.4	0	0	09 00 00
09 14 30	---	13 25 55	21.8	262.8	4.7		37.7	870	28	09 00 01
09 15 00	0838+133	13 26 25	21.7	262.9	4.7		37.7	24	28	09 15 00
09 29 30	---	13 40 57	19.6	265.9	5.0		38.0	870	56	09 15 01
09 30 00	0838+133	13 41 27	19.5	266.0	5.0		38.0	24	56	09 30 00
09 44 30	---	13 56 00	17.3	268.9	5.2		38.1	870	84	09 30 01
09 45 00	0838+133	13 56 30	17.2	269.0	5.2		38.1	24	84	09 45 00
10 00 00	---	14 11 32	15.0	272.0	5.5		38.0	900	112	09 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: 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 30.912864	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 29.61801	0.00
	fake circumpolar target for a TS to look at			
* 0838+133	08 38 01.723597	* 08 40 47.588427	08 41 40.006186	0.00
J0840+1312	13 23 05.67979	* 13 12 23.56368	13 08 52.93365	0.00
	./rk12eq_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 196 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0838+133            93.3

 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 60deg 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
```

rk12ertr

RadioAstron AGN Survey

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 5 Nov 2015 Day 309 ---										
---------- 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					
13 00 00	0836+710	17 12 02	39.5	-19.8	8.5		38.3	0	0	13 00 00
13 14 30	---	17 26 34	38.8	-18.6	8.7		35.6	870	28	13 00 01
13 15 00	0836+710	17 27 04	38.7	-18.5	8.7		35.5	25	28	13 15 00
13 29 30	---	17 41 37	38.1	-17.3	9.0		32.9	870	56	13 15 01
13 30 00	0836+710	17 42 07	38.1	-17.2	9.0		32.8	25	56	13 30 00
13 44 30	---	17 56 39	37.4	-15.9	9.2		30.1	870	84	13 30 01
13 45 00	0836+710	17 57 09	37.4	-15.9	9.2		30.0	25	84	13 45 00
14 00 00	---	18 12 12	36.8	-14.5	9.5		27.3	900	112	13 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: 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 30.941772	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 29.56841	0.00
	fake circumpolar target for a TS to look at			
* 0836+710	08 36 21.556646	* 08 41 24.365284	08 42 58.455379	0.00
J0841+7053	71 04 22.42740	* 70 53 42.17302	70 49 52.55835	0.00
	./rk12er_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 4321 observations, RA-AO3-04, RA-AO2-12			

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)
  0836+710           104.7

 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 60deg 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
```

rk12estr

RadioAstron AGN Survey

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 5 Nov 2015 Day 309 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
19 00 00	0014+813	23 13 01	61.0	4.8	-1.1		-159.6	0	0	19 00 00
19 14 30	---	23 27 33	61.2	3.8	-0.8		-164.1	870	28	19 00 01
19 15 00	0014+813	23 28 03	61.2	3.7	-0.8		-164.3	25	28	19 15 00
19 29 30	---	23 42 36	61.3	2.7	-0.6		-168.8	870	56	19 15 01
19 30 00	0014+813	23 43 06	61.3	2.6	-0.6		-169.0	25	56	19 30 00
19 44 30	---	23 57 38	61.4	1.6	-0.3		-173.5	870	84	19 30 01
19 45 00	0014+813	23 58 08	61.4	1.5	-0.3		-173.7	25	84	19 45 00
20 00 00	---	00 13 11	61.4	0.4	-0.1		-178.4	900	112	19 45 01

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

======== Setup file: 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 30.984892	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 29.49467	0.00
	fake circumpolar target for a TS to look at			
* 0014+813	00 14 04.461856	* 00 17 08.474899	00 18 19.111713	0.00
J0017+8135	81 18 28.65820	* 81 35 08.13656	81 40 37.20913	0.00
	./rk12es_sources.radioastron			
	HIGHz, rfc_2013d Petrov, 2013, unpublished 73794 observations, RA-AO3-03, RA-AO2			

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)
  0014+813           112.4

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg 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
```

rk12ettr

RadioAstron AGN Survey

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Observing mode: L/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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 6 Nov 2015 Day 310 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
01 00 00	0007+106	05 14 00	17.4	265.2	5.0		37.6	0	0	01 00 00
01 14 30	---	05 28 32	15.2	268.2	5.3		37.7	870	28	01 00 01
01 15 00	0007+106	05 29 02	15.2	268.3	5.3		37.7	24	28	01 15 00
01 29 30	---	05 43 35	13.0	271.2	5.5		37.7	870	56	01 15 01
01 30 00	0007+106	05 44 05	12.9	271.3	5.5		37.7	24	56	01 30 00
01 44 30	---	05 58 37	10.7	274.2	5.8		37.6	870	84	01 30 01
01 45 00	0007+106	05 59 07	10.7	274.3	5.8		37.6	24	84	01 45 00
02 00 00	---	06 14 10	8.4	277.3	6.0		37.4	900	112	01 45 01

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

======== Setup file: 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 31.027699	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 29.42165	0.00
	fake circumpolar target for a TS to look at			
* 0007+106	00 07 56.721989	* 00 10 31.005907	00 11 20.907495	0.00
J0010+1058	10 41 48.22044	* 10 58 29.50423	11 03 53.95574	0.00
	./rk12et_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 3268 observations, RA-A03-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0007+106           142.8

 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 60deg 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
```

rk12eutr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 6 Nov 2015 Day 310 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
06 00 00	0529+075	10 14 49	17.8	258.6	4.7		36.4	0	0	06 00 00
06 14 30	---	10 29 22	15.6	261.6	4.9		36.8	870	28	06 00 01
06 15 00	0529+075	10 29 52	15.6	261.7	4.9		36.8	24	28	06 15 00
06 29 30	---	10 44 24	13.4	264.7	5.2		37.1	870	56	06 15 01
06 30 00	0529+075	10 44 54	13.3	264.8	5.2		37.1	24	56	06 30 00
06 44 30	---	10 59 27	11.1	267.8	5.4		37.2	870	84	06 30 01
06 45 00	0529+075	10 59 57	11.1	267.9	5.4		37.3	24	84	06 45 00
07 00 00	---	11 14 59	8.8	270.9	5.7		37.3	900	112	06 45 01

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

======== Setup file: ra18cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.063115	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 29.36132	0.00
	fake circumpolar target for a TS to look at			
* 0529+075	05 29 56.495315	* 05 32 38.998458	05 33 31.471607	0.00
J0532+0732	07 30 38.14404	* 07 32 43.34492	07 33 15.61130	0.00
	./rk12eu_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 107 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0529+075           137.8

 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 60deg 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
```

rk12evtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 6 Nov 2015 Day 310 ---										
---------- 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					
09 00 00	0851+202	13 15 19	30.9	262.4	4.3		39.3	0	0	09 00 00
09 14 30	---	13 29 51	28.7	265.5	4.6		39.6	870	28	09 00 01
09 15 00	0851+202	13 30 21	28.6	265.6	4.6		39.6	24	28	09 15 00
09 29 30	---	13 44 54	26.5	268.6	4.8		39.7	870	56	09 15 01
09 30 00	0851+202	13 45 24	26.4	268.7	4.8		39.7	24	56	09 30 00
09 44 30	---	13 59 56	24.2	271.6	5.1		39.7	870	84	09 30 01
09 45 00	0851+202	14 00 26	24.1	271.7	5.1		39.7	24	84	09 45 00
10 00 00	---	14 15 29	21.9	274.6	5.3		39.6	900	112	09 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: 1 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.084247	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 29.32532	0.00
	fake circumpolar target for a TS to look at			
* 0851+202	08 51 57.250618	* 08 54 48.874930	08 55 42.976432	0.00
J0854+2006	20 17 58.41733	* 20 06 30.64078	20 02 43.36894	0.00
OJ287	./rk12ev_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 213710 observations, RA-AO3-04, RA-AO3-			

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)
  0851+202            92.9

 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 60deg 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
```

rk12ewtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 6 Nov 2015 Day 310 ---										
---------- C-band VLBI scans ----------										
Next scan frequencies:		4836.00	4836.00	4836.00	4836.00					
Next BBC frequencies:		736.00	736.00	736.00	736.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
15 00 00	0106+612	19 16 18	45.3	42.4	-5.9		-58.5	0	0	15 00 00
15 14 30	---	19 30 50	46.8	43.7	-5.7		-60.8	870	28	15 00 01
15 15 00	0106+612	19 31 20	46.8	43.7	-5.7		-60.9	24	28	15 15 00
15 25 00	---	19 41 22	47.9	44.6	-5.5		-62.5	600	47	15 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					
15 30 00	0106+612	19 46 23	48.4	45.0	-5.4		-63.3	294	47	15 30 00
15 44 30	---	20 00 55	50.0	46.1	-5.2		-65.7	870	75	15 30 01
15 45 00	0106+612	20 01 25	50.0	46.1	-5.2		-65.7	24	75	15 45 00
16 00 00	---	20 16 28	51.7	47.2	-4.9		-68.2	900	104	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: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off


======== Setup file: ra18cm2.set

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

 Disk used to record data.
```

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.126241	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 29.25376	0.00
	fake circumpolar target for a TS to look at			
* 0106+612	01 06 36.621798	* 01 09 46.344314	01 10 50.260579	0.00
J0109+6133	61 17 32.64124	* 61 33 30.45573	61 38 41.08099	0.00
	./rk12ew_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 321 observations, RA-AO3-04, RA-AO2-12			

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)
  0106+612           131.3

 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 60deg 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
```

rk12extr

RadioAstron AGN Survey

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Observing mode: 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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 6 Nov 2015 Day 310 ---										
---------- 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					
20 00 00	1957+405	00 17 07	46.0	-79.3	4.3		51.2	0	0	20 00 00
20 14 30	---	00 31 40	43.9	-76.8	4.5		50.5	870	28	20 00 01
20 15 00	1957+405	00 32 10	43.8	-76.7	4.5		50.5	24	28	20 15 00
20 29 30	---	00 46 42	41.7	-74.3	4.8		49.8	870	56	20 15 01
20 30 00	1957+405	00 47 12	41.6	-74.2	4.8		49.7	24	56	20 30 00
20 44 30	---	01 01 45	39.5	-71.9	5.0		48.9	870	84	20 30 01
20 45 00	1957+405	01 02 15	39.5	-71.8	5.0		48.9	24	84	20 45 00
21 00 00	---	01 17 17	37.3	-69.4	5.3		47.9	900	112	20 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 ./rk12ex_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:   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 31.160952	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 29.19451	0.00
	fake circumpolar target for a TS to look at			
* 1957+405	19 57 44.440786	* 19 59 28.356463	20 00 00.939888	0.00
J1959+4044	40 35 46.36320	* 40 44 02.09701	40 47 04.98777	0.00
CYGNUS-A	./rk12ex_sources.radioastron			
CYG-A	AGN, rfc_2013d Petrov, 2013, unpublished 293 observations, RA-AO3-04, RA-AO2-12			

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)
  1957+405            91.9

 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 60deg 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
```

rk12eytr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 7 Nov 2015 Day 311 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
01 00 00	0829+046	05 17 57	27.2	122.7	-3.2		-30.5	0	0	01 00 00
01 14 30	---	05 32 29	29.0	126.2	-3.0		-29.1	870	28	01 00 01
01 15 00	0829+046	05 32 59	29.1	126.4	-3.0		-29.0	24	28	01 15 00
01 29 30	---	05 47 31	30.8	130.0	-2.8		-27.5	870	56	01 15 01
01 30 00	0829+046	05 48 01	30.8	130.2	-2.7		-27.4	24	56	01 30 00
01 44 30	---	06 02 34	32.5	134.0	-2.5		-25.7	870	84	01 30 01
01 45 00	0829+046	06 03 04	32.5	134.1	-2.5		-25.6	24	84	01 45 00
02 00 00	---	06 18 06	34.1	138.2	-2.2		-23.7	900	112	01 45 01

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

======== Setup file: ra18cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.195402	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 29.13558	0.00
	fake circumpolar target for a TS to look at			
* 0829+046	08 29 10.894139	* 08 31 48.876958	08 32 38.978398	0.00
J0831+0429	04 39 50.82946	* 04 29 39.08580	04 26 20.78593	0.00
	./rk12ey_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 1604 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0829+046            94.8

 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 60deg 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
```

rk12eztr

RadioAstron AGN Survey

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 7 Nov 2015 Day 311 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
06 00 00	0529+075	10 18 46	17.2	259.4	4.8		36.5	0	0	06 00 00
06 14 30	---	10 33 18	15.1	262.4	5.0		36.9	870	28	06 00 01
06 15 00	0529+075	10 33 48	15.0	262.5	5.0		36.9	24	28	06 15 00
06 29 30	---	10 48 21	12.8	265.5	5.2		37.1	870	56	06 15 01
06 30 00	0529+075	10 48 51	12.7	265.6	5.3		37.2	24	56	06 30 00
06 44 30	---	11 03 23	10.6	268.5	5.5		37.3	870	84	06 30 01
06 45 00	0529+075	11 03 53	10.5	268.6	5.5		37.3	24	84	06 45 00
07 00 00	---	11 18 56	8.2	271.6	5.8		37.3	900	112	06 45 01

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

======== Setup file: ra18cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.229589	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 29.07692	0.00
	fake circumpolar target for a TS to look at			
* 0529+075	05 29 56.495315	* 05 32 38.998458	05 33 31.489837	0.00
J0532+0732	07 30 38.14404	* 07 32 43.34492	07 33 15.53935	0.00
	./rk12ez_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 107 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0529+075           138.7

 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 60deg 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
```

rk12fatr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 7 Nov 2015 Day 311 ---										
---------- 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					
18 00 00	2005+403	22 20 44	64.4	254.1	2.2		49.5	0	0	18 00 00
18 19 30	---	22 40 17	61.6	259.3	2.5		50.9	1170	37	18 00 01
18 20 00	2005+403	22 40 47	61.5	259.4	2.5		51.0	24	37	18 20 00
18 40 00	---	23 00 51	58.5	264.2	2.9		51.8	1200	76	18 20 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.311134	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 28.93600	0.00
	fake circumpolar target for a TS to look at			
* 2005+403	20 05 59.558893	* 20 07 44.944844	20 08 18.045412	0.00
J2007+4029	40 21 01.80221	* 40 29 48.60406	40 33 01.14053	0.00
	./rk12fa_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 169 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  2005+403            92.9

 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 60deg 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
```

rk12fbtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 7 Nov 2015 Day 311 ---										
---------- 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					
21 00 00	0836+710	01 21 14	43.3	25.0	-7.4		-50.7	0	0	21 00 00
21 14 30	---	01 35 46	44.3	26.0	-7.1		-53.4	870	28	21 00 01
21 15 00	0836+710	01 36 16	44.3	26.1	-7.1		-53.5	24	28	21 15 00
21 29 30	---	01 50 49	45.3	27.1	-6.9		-56.3	870	56	21 15 01
21 30 00	0836+710	01 51 19	45.3	27.1	-6.9		-56.4	24	56	21 30 00
21 44 30	---	02 05 51	46.3	28.0	-6.6		-59.1	870	84	21 30 01
21 45 00	0836+710	02 06 21	46.4	28.0	-6.6		-59.2	24	84	21 45 00
22 00 00	---	02 21 24	47.5	28.9	-6.4		-62.1	900	112	21 45 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.330596	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 28.90211	0.00
	fake circumpolar target for a TS to look at			
* 0836+710	08 36 21.556646	* 08 41 24.365284	08 42 58.628595	0.00
J0841+7053	71 04 22.42740	* 70 53 42.17302	70 49 52.44681	0.00
	./rk12fb_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 4321 observations, RA-AO3-04, RA-AO2-12			

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)
  0836+710           106.1

 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 60deg 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
```

rk12fctr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 8 Nov 2015 Day 312 ---										
---------- C-band VLBI scans ----------										
Next scan frequencies:		4836.00	4836.00	4836.00	4836.00					
Next BBC frequencies:		736.00	736.00	736.00	736.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
01 00 00	0007+106	05 21 53	16.2	266.8	5.2		37.7	0	0	01 00 00
01 14 30	---	05 36 25	14.1	269.8	5.4		37.7	870	28	01 00 01
01 15 00	0007+106	05 36 56	14.0	269.9	5.4		37.7	24	28	01 15 00
01 29 30	---	05 51 28	11.8	272.8	5.7		37.7	870	56	01 15 01
01 30 00	0007+106	05 51 58	11.7	272.9	5.7		37.7	24	56	01 30 00
01 44 30	---	06 06 30	9.6	275.7	5.9		37.5	870	84	01 30 01
01 45 00	0007+106	06 07 00	9.5	275.8	5.9		37.5	24	84	01 45 00
02 00 00	---	06 22 03	7.2	278.8	6.2		37.2	900	112	01 45 01

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

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.357151	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 28.85570	0.00
	fake circumpolar target for a TS to look at			
* 0007+106	00 07 56.721989	* 00 10 31.005907	00 11 20.883338	0.00
J0010+1058	10 41 48.22044	* 10 58 29.50423	11 03 53.89457	0.00
	./rk12fc_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 3268 observations, RA-A03-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0007+106           140.8

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg 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
```

rk12fdtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 8 Nov 2015 Day 312 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
04 00 00	0951+693	08 22 23	70.7	25.7	-1.6		-133.3	0	0	04 00 00
04 19 30	---	08 41 56	71.9	21.7	-1.2		-141.7	1170	37	04 00 01
04 20 00	0951+693	08 42 26	71.9	21.6	-1.2		-141.9	24	37	04 20 00
04 40 00	---	09 02 29	72.9	16.6	-0.9		-151.4	1200	76	04 20 01

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

======== Setup file: ra18cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.377518	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 28.81995	0.00
	fake circumpolar target for a TS to look at			
* 0951+693	09 51 27.310821	* 09 55 33.173065	09 56 48.081233	0.00
J0955+6903	69 18 08.14417	* 69 03 55.06083	68 59 02.36426	0.00
M81	./rk12fd_sources.radioastron			
	rfc_2013d Petrov, 2013, unpublished 3429 observations, RA-AO3-07			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
 0951+693            99.7

 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 60deg 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
```

rk12fetr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 8 Nov 2015 Day 312 ---										
---------- 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					
07 00 00	0730+504	11 22 52	55.5	-71.0	3.8		62.8	0	0	07 00 00
07 14 30	---	11 37 25	53.5	-69.2	4.0		61.5	870	28	07 00 01
07 15 00	0730+504	11 37 55	53.4	-69.1	4.0		61.5	24	28	07 15 00
07 29 30	---	11 52 27	51.4	-67.3	4.3		60.2	870	56	07 15 01
07 30 00	0730+504	11 52 57	51.3	-67.2	4.3		60.1	24	56	07 30 00
07 44 30	---	12 07 30	49.3	-65.3	4.5		58.7	870	84	07 30 01
07 45 00	0730+504	12 08 00	49.3	-65.3	4.5		58.7	24	84	07 45 00
08 00 00	---	12 23 02	47.2	-63.4	4.8		57.2	900	112	07 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:   1  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   1

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.396704	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 28.78615	0.00
	fake circumpolar target for a TS to look at			
* 0730+504	07 30 04.386239	* 07 33 52.520582	07 35 05.074341	0.00
J0733+5022	50 28 40.45211	* 50 22 09.06206	50 19 43.39538	0.00
	./rk12fe_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 574 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0730+504           114.9

 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 60deg 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
```

rk12fftr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 8 Nov 2015 Day 312 ---										
---------- 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					
10 00 00	0838+133	14 23 22	13.2	274.4	5.7		37.9	0	0	10 00 00
10 14 30	---	14 37 54	11.0	277.2	5.9		37.7	870	28	10 00 01
10 15 00	0838+133	14 38 24	11.0	277.3	5.9		37.7	24	28	10 15 00
10 29 30	---	14 52 57	8.8	280.2	6.2		37.4	870	56	10 15 01
10 30 00	0838+133	14 53 27	8.7	280.3	6.2		37.4	24	56	10 30 00
10 44 30	---	15 07 59	6.6	283.1	6.4		36.9	870	84	10 30 01
10 45 00	0838+133	15 08 29	6.5	283.2	6.4		36.9	24	84	10 45 00
11 00 00	---	15 23 32	4.3	286.2	6.7		36.3	900	112	10 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: 1 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.416360	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 28.75139	0.00
	fake circumpolar target for a TS to look at			
* 0838+133	08 38 01.723597	* 08 40 47.588427	08 41 40.086593	0.00
J0840+1312	13 23 05.67979	* 13 12 23.56368	13 08 52.58249	0.00
	./rk12ff_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 196 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0838+133            96.3

 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 60deg 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
```

rk12fgtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 8 Nov 2015 Day 312 ---										
---------- 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					
14 00 00	0224+671	18 24 01	38.1	24.6	-8.1		-40.6	0	0	14 00 00
14 14 30	---	18 38 34	39.1	25.9	-7.9		-43.1	870	28	14 00 01
14 15 00	0224+671	18 39 04	39.1	26.0	-7.9		-43.2	24	28	14 15 00
14 29 30	---	18 53 36	40.1	27.3	-7.6		-45.7	870	56	14 15 01
14 30 00	0224+671	18 54 06	40.1	27.3	-7.6		-45.8	24	56	14 30 00
14 44 30	---	19 08 39	41.1	28.5	-7.4		-48.4	870	84	14 30 01
14 45 00	0224+671	19 09 09	41.2	28.6	-7.4		-48.5	24	84	14 45 00
15 00 00	---	19 24 11	42.3	29.8	-7.1		-51.1	900	112	14 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:   1  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   1

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299 85 16 41.77889 fake circumpolar target for a TS to look at	* 12 00 00.000000 * 85 00 00.00000	12 00 31.442450 84 54 28.70503	0.00 0.00
* 0224+671 J0228+6721	02 24 41.169053 67 07 39.70870 ./rk12fg_sources.radioastron AGN, rfc_2013d Petrov, 2013, unpublished 3946 observations, RA-AO3-04	* 02 28 50.051490 * 67 21 03.02933	02 30 14.018061 67 25 15.05586	0.00 0.00

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)
  0224+671           129.0

 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 60deg 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
```

rk12fhtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 8 Nov 2015 Day 312 ---										
---------- 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	0951+693	02 25 20	41.5	26.2	-7.5		-47.6	0	0	22 00 00
22 19 30	---	02 44 53	42.8	27.7	-7.2		-51.2	1170	37	22 00 01
22 20 00	0951+693	02 45 23	42.9	27.8	-7.2		-51.3	24	37	22 20 00
22 40 00	---	03 05 27	44.3	29.3	-6.9		-54.9	1200	76	22 20 01

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

======== Setup file: ra18cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.494799	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 28.61125	0.00
	fake circumpolar target for a TS to look at			
* 0951+693	09 51 27.310821	* 09 55 33.173065	09 56 48.127237	0.00
J0955+6903	69 18 08.14417	* 69 03 55.06083	68 59 02.24646	0.00
M81	./rk12fh_sources.radioastron			
	rfc_2013d Petrov, 2013, unpublished 3429 observations, RA-AO3-07			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0951+693           100.2

 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 60deg 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
```

rk12fitr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 9 Nov 2015 Day 313 ---										
---------- C-band VLBI scans ----------										
Next scan frequencies:		4836.00	4836.00	4836.00	4836.00					
Next BBC frequencies:		736.00	736.00	736.00	736.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
01 00 00	0007+106	05 25 50	15.6	267.6	5.2		37.7	0	0	01 00 00
01 14 30	---	05 40 22	13.5	270.6	5.5		37.7	870	28	01 00 01
01 15 00	0007+106	05 40 52	13.4	270.7	5.5		37.7	24	28	01 15 00
01 29 30	---	05 55 24	11.2	273.5	5.7		37.6	870	56	01 15 01
01 30 00	0007+106	05 55 55	11.1	273.6	5.7		37.6	24	56	01 30 00
01 44 30	---	06 10 27	9.0	276.5	6.0		37.4	870	84	01 30 01
01 45 00	0007+106	06 10 57	8.9	276.6	6.0		37.4	24	84	01 45 00
02 00 00	---	06 25 59	6.7	279.6	6.2		37.1	900	112	01 45 01

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

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.513577	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 28.57735	0.00
	fake circumpolar target for a TS to look at			
* 0007+106	00 07 56.721989	* 00 10 31.005907	00 11 20.871263	0.00
J0010+1058	10 41 48.22044	* 10 58 29.50423	11 03 53.86070	0.00
	./rk12fi_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 3268 observations, RA-A03-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0007+106           139.8

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg 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
```

rk12fjtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 9 Nov 2015 Day 313 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
05 00 00	0016+731	09 26 29	40.1	-14.8	9.1		32.7	0	0	05 00 00
05 14 30	---	09 41 01	39.5	-13.6	9.3		30.0	870	28	05 00 01
05 15 00	0016+731	09 41 32	39.5	-13.6	9.3		29.9	25	28	05 15 00
05 29 30	---	09 56 04	39.0	-12.4	9.6		27.1	870	56	05 15 01
05 30 00	0016+731	09 56 34	39.0	-12.4	9.6		27.1	25	56	05 30 00
05 44 30	---	10 11 06	38.6	-11.2	9.8		24.3	870	84	05 30 01
05 45 00	0016+731	10 11 36	38.5	-11.2	9.8		24.2	25	84	05 45 00
06 00 00	---	10 26 39	38.1	-9.9	10.1		21.4	900	112	05 45 01

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

======== Setup file: 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)                        Error
                        (B1950)             (J2000)             (Date)            (mas)

* FAKERA             11 57 21.769299   * 12 00 00.000000     12 00 31.539245       0.00
                     85 16 41.77889    * 85 00 00.00000      84 54 28.53078        0.00
                     fake circumpolar target for a TS to look at

* 0016+731           00 16 54.195077   * 00 19 45.786355     00 20 46.123121       0.00
  J0019+7327         73 10 51.40716    * 73 27 30.01760      73 32 59.82208        0.00
                     ./rk12fj_sources.radioastron
                     AGN, rfc_2013d Petrov, 2013, unpublished 63799 observations, RA-AO3-04, RA-AO2-1



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)
  0016+731           119.2

 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 60deg 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
```

rk12fktr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 9 Nov 2015 Day 313 ---										
---------- C-band VLBI scans ----------										
Next scan frequencies:		4836.00	4836.00	4836.00	4836.00					
Next BBC frequencies:		736.00	736.00	736.00	736.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
15 00 00	2209+236	19 28 08	47.6	116.9	-2.7		-35.9	0	0	15 00 00
15 14 30	---	19 42 40	49.5	121.0	-2.5		-34.3	870	28	15 00 01
15 15 00	2209+236	19 43 10	49.6	121.2	-2.5		-34.2	24	28	15 15 00
15 29 30	---	19 57 42	51.4	125.5	-2.3		-32.3	870	56	15 15 01
15 30 00	2209+236	19 58 13	51.4	125.7	-2.2		-32.3	24	56	15 30 00
15 44 30	---	20 12 45	53.2	130.3	-2.0		-30.1	870	84	15 30 01
15 45 00	2209+236	20 13 15	53.2	130.5	-2.0		-30.0	24	84	15 45 00
16 00 00	---	20 28 17	54.9	135.6	-1.7		-27.4	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: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.603068	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 28.41389	0.00
	fake circumpolar target for a TS to look at			
* 2209+236	22 09 45.687917	* 22 12 05.966312	22 12 50.918552	0.00
J2212+2355	23 40 49.85180	* 23 55 40.54374	24 00 40.35700	0.00
	./rk12fk_sources.radioastron			
	AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 17068 observations, RA-A03-04, R			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  2209+236           113.5

 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 60deg 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
```

rk12fltr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 9 Nov 2015 Day 313 ---										
---------- 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					
21 00 00	1803+784	01 29 07	47.6	-15.9	7.5		55.4	0	0	21 00 00
21 14 30	---	01 43 39	47.0	-15.3	7.7		52.3	870	28	21 00 01
21 15 00	1803+784	01 44 09	46.9	-15.2	7.7		52.2	25	28	21 15 00
21 29 30	---	01 58 42	46.4	-14.6	8.0		49.1	870	56	21 15 01
21 30 00	1803+784	01 59 12	46.4	-14.5	8.0		49.0	25	56	21 30 00
21 44 30	---	02 13 44	45.8	-13.8	8.2		45.9	870	84	21 30 01
21 45 00	1803+784	02 14 14	45.8	-13.8	8.2		45.8	25	84	21 45 00
22 00 00	---	02 29 17	45.3	-13.0	8.5		42.7	900	112	21 45 01

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

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.641192	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 28.34334	0.00
	fake circumpolar target for a TS to look at			
* 1803+784	18 03 39.193524	* 18 00 45.683902	17 59 45.630374	0.00
J1800+7828	78 27 54.29744	* 78 28 04.01838	78 28 27.30592	0.00
	./rk12fl_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 217073 observations, RA-AO3-04, RA-AO2-			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1803+784            98.7

 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 60deg 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
```

rk12fmtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 10 Nov 2015 Day 314 ---										
---------- 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					
02 00 00	0119+115	06 29 56	17.4	266.8	5.1		37.8	0	0	02 00 00
02 14 30	---	06 44 28	15.2	269.7	5.4		37.9	870	28	02 00 01
02 15 00	0119+115	06 44 59	15.1	269.8	5.4		37.9	24	28	02 15 00
02 29 30	---	06 59 31	12.9	272.7	5.6		37.8	870	56	02 15 01
02 30 00	0119+115	07 00 01	12.9	272.8	5.6		37.8	24	56	02 30 00
02 44 30	---	07 14 33	10.7	275.6	5.9		37.6	870	84	02 30 01
02 45 00	0119+115	07 15 03	10.6	275.7	5.9		37.6	24	84	02 45 00
03 00 00	---	07 30 06	8.4	278.7	6.1		37.3	900	112	02 45 01

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

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299 85 16 41.77889 fake circumpolar target for a TS to look at	* 12 00 00.000000 * 85 00 00.00000	12 00 31.672910 84 54 28.28425	0.00 0.00
* 0119+115 J0121+1149	01 19 03.080127 11 34 09.31507 ./rk12fm_sources.radioastron AGN, rfc_2013d Petrov, 2013, unpublished 47881 observations, RA-AO3-04, RA-AO2-1	* 01 21 41.595043 * 11 49 50.41305	01 22 33.078113 11 54 51.35911	0.00 0.00

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)
  0119+115           156.0

 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 60deg 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
```

eg089btr

RadioAstron Imaging of high-redshift quasars

PI: *Leonid Gurvits*

Address: Joint Institute for VLBI in Europe
Observing mode: C-band, dual-pol

Schedule for TORUN (Code Tr) Page 2
RadioAstron Imaging of high-redshift quasars
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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 10 Nov 2015 Day 314 ---										
---------- C-band VLBI scans. Space segment 01 ----------										
Next scan frequencies:		4836.00	4836.00	4836.00	4836.00					
Next BBC frequencies:		636.00	636.00	636.00	636.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
08 00 00	0014+813	12 30 55	44.8	0.6-11.8			-2.7	0	0	08 00 00
08 19 20	---	12 50 18	44.8	1.6-11.5			-6.8	1160	37	08 00 01
08 20 20	0014+813	12 51 19	44.8	1.7-11.5			-7.0	55	37	08 20 20
08 39 40	---	13 10 42	45.0	2.7-11.1			-11.1	1160	74	08 20 21
08 40 40	0014+813	13 11 42	45.0	2.7-11.1			-11.3	55	74	08 40 40
09 00 00	---	13 31 05	45.1	3.7-10.8			-15.4	1160	112	08 40 41
---------- C-band VLBI scans. Ground-only segment 01 ----------										
09 01 00	0014+813	13 32 05	45.1	3.7-10.8			-15.6	55	112	09 01 00
09 11 00	---	13 42 07	45.2	4.2-10.6			-17.8	600	131	09 01 01
09 11 30	0014+813	13 42 37	45.2	4.2-10.6			-17.9	25	131	09 11 30
09 21 00	---	13 52 08	45.4	4.7-10.4			-19.9	570	149	09 11 31
09 21 30	0014+813	13 52 39	45.4	4.7-10.4			-20.0	25	149	09 21 30
09 31 00	---	14 02 10	45.5	5.2-10.3			-22.0	570	167	09 21 31
09 31 30	0014+813	14 02 40	45.5	5.2-10.3			-22.1	25	167	09 31 30
09 41 00	---	14 12 12	45.6	5.7-10.1			-24.2	570	186	09 31 31
09 41 30	0014+813	14 12 42	45.6	5.7-10.1			-24.3	25	186	09 41 30
09 51 00	---	14 22 13	45.8	6.1 -9.9			-26.3	570	204	09 41 31
09 51 30	0014+813	14 22 44	45.8	6.2 -9.9			-26.4	25	204	09 51 30
10 01 00	---	14 32 15	45.9	6.6 -9.8			-28.5	570	222	09 51 31
10 01 30	0014+813	14 32 45	46.0	6.6 -9.8			-28.6	25	222	10 01 30
10 11 00	---	14 42 17	46.1	7.1 -9.6			-30.6	570	240	10 01 31
10 11 30	0014+813	14 42 47	46.1	7.1 -9.6			-30.7	25	240	10 11 30
10 21 00	---	14 52 18	46.3	7.5 -9.4			-32.8	570	259	10 11 31
10 21 30	0014+813	14 52 48	46.3	7.5 -9.4			-32.9	25	259	10 21 30
10 31 00	---	15 02 20	46.5	7.9 -9.3			-34.9	570	277	10 21 31

Schedule for TORUN (Code Tr) Page 3

RadioAstron Imaging of high-redshift quasars

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 10 Nov 2015 Day 314 ---										
10 31 30	0014+813	15 02 50	46.5	8.0	-9.3		-35.0	25	277	10 31 30
10 41 00	---	15 12 22	46.7	8.4	-9.1		-37.1	570	295	10 31 31
10 41 30	0014+813	15 12 52	46.7	8.4	-9.1		-37.2	25	295	10 41 30
10 51 00	---	15 22 23	47.0	8.8	-8.9		-39.3	570	313	10 41 31
10 51 30	0014+813	15 22 53	47.0	8.8	-8.9		-39.4	25	313	10 51 30
11 01 00	---	15 32 25	47.2	9.2	-8.8		-41.5	570	332	10 51 31
11 01 30	0014+813	15 32 55	47.2	9.2	-8.8		-41.6	25	332	11 01 30
11 11 00	---	15 42 27	47.4	9.6	-8.6		-43.7	570	350	11 01 31
11 11 30	0014+813	15 42 57	47.5	9.6	-8.6		-43.8	25	350	11 11 30
11 21 00	---	15 52 28	47.7	10.0	-8.4		-45.8	570	368	11 11 31
11 24 00	2200+420	15 55 29	31.6	60.1	-6.1		-44.8	65	368	11 24 00
11 34 00	---	16 05 30	32.9	61.6	-6.0		-45.6	600	387	11 24 01
11 36 00	2021+614	16 07 31	56.1	49.7	-4.2		-74.9	19	387	11 36 00
11 46 00	---	16 17 32	57.3	50.2	-4.1		-76.7	600	407	11 36 01
11 48 00	0014+813	16 19 33	48.4	10.9	-8.0		-51.8	26	407	11 48 00
11 58 00	---	16 29 34	48.7	11.3	-7.8		-54.1	600	426	11 48 01
---------- C-band VLBI scans. Space segment 02 ----------										
12 00 00	0014+813	16 31 35	48.8	11.3	-7.8		-54.5	115	426	12 00 00
12 19 20	---	16 50 58	49.4	11.9	-7.5		-58.9	1160	463	12 00 01
12 20 20	0014+813	16 51 58	49.4	11.9	-7.4		-59.1	55	463	12 20 20
12 39 40	---	17 11 21	50.0	12.5	-7.1		-63.5	1160	500	12 20 21
12 40 40	0014+813	17 12 21	50.0	12.5	-7.1		-63.7	55	500	12 40 40
13 00 00	---	17 31 44	50.7	12.9	-6.8		-68.2	1160	537	12 40 41
---------- C-band VLBI scans. Ground-only segment 02 ----------										
13 01 00	0014+813	17 32 45	50.7	13.0	-6.8		-68.4	55	537	13 01 00
13 10 30	---	17 42 16	51.0	13.1	-6.6		-70.6	570	556	13 01 01
13 11 00	0014+813	17 42 46	51.1	13.2	-6.6		-70.7	25	556	13 11 00
13 20 30	---	17 52 18	51.4	13.3	-6.4		-72.9	570	574	13 11 01
13 21 00	0014+813	17 52 48	51.4	13.3	-6.4		-73.1	25	574	13 21 00
13 30 30	---	18 02 19	51.7	13.5	-6.3		-75.3	570	592	13 21 01
13 31 00	0014+813	18 02 50	51.8	13.5	-6.3		-75.4	25	592	13 31 00
13 40 30	---	18 12 21	52.1	13.6	-6.1		-77.7	570	611	13 31 01

Schedule for TORUN (Code Tr) Page 4

RadioAstron Imaging of high-redshift quasars

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 10 Nov 2015 Day 314 ---										
13 41 00	0014+813	18 12 51	52.1	13.6	-6.1		-77.8	25	611	13 41 00
13 50 30	---	18 22 23	52.4	13.7	-5.9		-80.1	570	629	13 41 01
13 51 00	0014+813	18 22 53	52.5	13.7	-5.9		-80.2	25	629	13 51 00
14 00 30	---	18 32 24	52.8	13.8	-5.8		-82.5	570	647	13 51 01
14 01 00	0014+813	18 32 54	52.8	13.8	-5.8		-82.6	25	647	14 01 00
14 10 30	---	18 42 26	53.2	13.9	-5.6		-84.9	570	665	14 01 01
14 11 00	0014+813	18 42 56	53.2	13.9	-5.6		-85.0	25	665	14 11 00
14 20 30	---	18 52 28	53.5	13.9	-5.4		-87.3	570	684	14 11 01
14 24 00	2021+614	18 55 58	75.6	44.8	-1.4		-116.9	114	684	14 24 00
14 34 00	---	19 06 00	76.7	42.4	-1.3		-121.4	600	703	14 24 01
14 36 00	0014+813	19 08 00	54.1	13.9	-5.2		-91.2	21	703	14 36 00
14 45 30	---	19 17 32	54.4	13.9	-5.0		-93.6	570	721	14 36 01
14 46 00	0014+813	19 18 02	54.5	13.9	-5.0		-93.7	25	721	14 46 00
14 55 30	---	19 27 33	54.8	13.9	-4.8		-96.1	570	739	14 46 01
14 56 00	0014+813	19 28 04	54.8	13.9	-4.8		-96.2	25	739	14 56 00
15 05 30	---	19 37 35	55.2	13.8	-4.7		-98.6	570	758	14 56 01
15 06 00	0014+813	19 38 05	55.2	13.8	-4.7		-98.8	25	758	15 06 00
15 15 30	---	19 47 37	55.5	13.7	-4.5		-101.2	570	776	15 06 01
15 16 00	0014+813	19 48 07	55.5	13.7	-4.5		-101.3	25	776	15 16 00
15 25 30	---	19 57 38	55.9	13.5	-4.3		-103.8	570	794	15 16 01
15 26 00	0014+813	19 58 08	55.9	13.5	-4.3		-103.9	25	794	15 26 00
15 35 30	---	20 07 40	56.2	13.4	-4.2		-106.4	570	812	15 26 01
15 36 00	0014+813	20 08 10	56.2	13.4	-4.2		-106.5	25	812	15 36 00
15 45 30	---	20 17 42	56.6	13.2	-4.0		-109.1	570	831	15 36 01
15 46 00	0014+813	20 18 12	56.6	13.2	-4.0		-109.2	25	831	15 46 00
15 55 30	---	20 27 43	56.9	12.9	-3.8		-111.7	570	849	15 46 01
15 56 00	0014+813	20 28 13	56.9	12.9	-3.8		-111.9	25	849	15 56 00
16 05 30	---	20 37 45	57.2	12.7	-3.7		-114.4	570	867	15 56 01
16 06 00	0014+813	20 38 15	57.3	12.7	-3.7		-114.6	25	867	16 06 00
16 15 30	---	20 47 47	57.6	12.4	-3.5		-117.2	570	886	16 06 01

Schedule for TORUN (Code Tr) Page 5

RadioAstron Imaging of high-redshift quasars

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 10 Nov 2015 Day 314 ---										
16 16 00	0014+813	20 48 17	57.6	12.4	-3.5		-117.3	25	886	16 16 00
16 25 30	---	20 57 48	57.9	12.1	-3.3		-119.9	570	904	16 16 01
16 26 00	0014+813	20 58 18	57.9	12.0	-3.3		-120.1	25	904	16 26 00
16 35 30	---	21 07 50	58.2	11.7	-3.2		-122.7	570	922	16 26 01
16 40 40	2200+420	21 13 01	76.4	136.9	-0.8		-33.7	46	922	16 40 40
16 50 40	---	21 23 02	77.3	143.8	-0.7		-28.6	600	941	16 40 41
---------- C-band VLBI scans. Space segment 03 ----------										
17 00 00	0014+813	21 32 24	58.9	10.7	-2.8		-129.6	279	941	17 00 00
17 19 20	---	21 51 47	59.4	9.8	-2.4		-135.2	1160	979	17 00 01
17 20 20	0014+813	21 52 47	59.5	9.7	-2.4		-135.5	55	979	17 20 20
17 39 40	---	22 12 10	59.9	8.7	-2.1		-141.2	1160	1016	17 20 21
17 40 40	0014+813	22 13 11	59.9	8.6	-2.1		-141.5	55	1016	17 40 40
18 00 00	---	22 32 34	60.3	7.5	-1.8		-147.3	1160	1053	17 40 41

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: 7 Station: TORUN Total bit rate: 256
Format: MARK5B Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: DBBC_DDC Speedup factor: 1.00

Disk used to record data.

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

 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=    636.00   636.00   636.00   636.00
  Bandwd=     16.00    16.00    16.00    16.00
   Matching frequency sets:   5

  Track assignments are:
   track1=   2,  4,  6,  8
   barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* 0014+813	00 14 04.461856	* 00 17 08.474899	00 18 18.733698	0.00
J0017+8135	81 18 28.65820	* 81 35 08.13656	81 40 38.44535	0.00
	./eg089b_sources.radioastron			
	HIGHz, rfc_2013d Petrov, 2013, unpublished 73794 observations, RA-AO3-03, RA-AO2			
* 2021+614	20 21 13.300234	* 20 22 06.681752	20 22 23.399707	0.00
J2022+6136	61 27 18.15575	* 61 36 58.80476	61 40 30.26475	0.00
	./eg089b_sources.radioastron			
	AGN, CSO, rfc_2013d Petrov, 2013, unpublished 3249 observations, RA-AO3-04, RA-A			
* 2200+420	22 00 39.362504	* 22 02 43.291371	22 03 23.330436	0.00
J2202+4216	42 02 08.59073	* 42 16 39.97987	42 21 38.35966	0.00
BLLAC	./eg089b_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 59417 observations, RA-AO3-04, RA-AO2-1			

rk12fntr

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 / Stop Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 10 Nov 2015 Day 314 ---									
---------- 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					
20 00 00 2021+614	00 32 53	56.6	-50.0	4.2		75.7	0	0	20 00 00
20 12 00 ---	00 44 55	55.2	-49.3	4.4		73.6	720	23	20 00 01
20 12 30 2021+614	00 45 26	55.2	-49.2	4.4		73.5	24	23	20 12 30
20 20 00 ---	00 52 57	54.3	-48.8	4.5		72.2	450	37	20 12 31
---------- 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					
20 25 00 2021+614	00 57 58	53.8	-48.5	4.6		71.4	294	37	20 25 00
20 37 00 ---	01 10 00	52.4	-47.7	4.8		69.3	720	60	20 25 01
20 37 30 2021+614	01 10 30	52.4	-47.6	4.8		69.3	24	60	20 37 30
20 50 00 ---	01 23 02	51.0	-46.8	5.0		67.2	750	84	20 37 31

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 ./rk12fn_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


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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299 85 16 41.77889 fake circumpolar target for a TS to look at	* 12 00 00.000000 * 85 00 00.00000	12 00 31.786950 84 54 28.06942	0.00 0.00
* 2021+614	20 21 13.300234	* 20 22 06.681752	20 22 23.378762	0.00
J2022+6136	61 27 18.15575 ./rk12fn_sources.radioastron AGN, CSO, rfc_2013d Petrov, 2013, unpublished 3249 observations, RA-AO3-04, RA-A	* 61 36 58.80476	61 40 30.24477	0.00

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)
  2021+614           100.5

 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 60deg 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
```

rk12fotr

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 / Stop	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 10 Nov 2015 Day 314 ---										
---------- 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					
23 10 00	2005+403	03 43 25	19.6	-47.6	7.6		35.7	0	0	23 10 00
23 22 00	---	03 55 27	18.3	-45.6	7.8		34.4	720	23	23 10 01
23 22 30	2005+403	03 55 57	18.3	-45.5	7.8		34.3	24	23	23 22 30
23 30 00	---	04 03 28	17.5	-44.3	7.9		33.5	450	37	23 22 31
---------- 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					
23 35 00	2005+403	04 08 29	16.9	-43.4	8.0		32.9	294	37	23 35 00
23 47 00	---	04 20 31	15.7	-41.4	8.2		31.5	720	60	23 35 01
23 47 30	2005+403	04 21 01	15.7	-41.3	8.2		31.5	24	60	23 47 30
23 59 59	---	04 33 33	14.5	-39.2	8.4		30.0	749	84	23 47 31

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 ./rk12fo_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


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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.807160	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 28.03107	0.00
	fake circumpolar target for a TS to look at			
* 2005+403	20 05 59.558893	* 20 07 44.944844	20 08 17.962392	0.00
J2007+4029	40 21 01.80221	* 40 29 48.60406	40 33 00.88596	0.00
	./rk12fo_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 169 observations, RA-A03-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  2005+403            91.2

 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 60deg 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
```

rk12fptr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 11 Nov 2015 Day 315 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
21 00 00	2251+158	01 37 00	41.4	236.4	2.7		31.4	0	0	21 00 00
21 14 30	---	01 51 32	39.6	240.2	2.9		32.9	870	28	21 00 01
21 15 00	2251+158	01 52 02	39.5	240.4	3.0		32.9	24	28	21 15 00
21 29 30	---	02 06 35	37.6	244.1	3.2		34.2	870	56	21 15 01
21 30 00	2251+158	02 07 05	37.5	244.2	3.2		34.3	24	56	21 30 00
21 44 30	---	02 21 37	35.5	247.8	3.4		35.4	870	84	21 30 01
21 45 00	2251+158	02 22 07	35.4	247.9	3.5		35.4	24	84	21 45 00
22 00 00	---	02 37 10	33.3	251.5	3.7		36.4	900	112	21 45 01

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

======== Setup file: ra18cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.948749	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 27.76182	0.00
	fake circumpolar target for a TS to look at			
* 2251+158	22 51 29.519741	* 22 53 57.747940	22 54 45.331990	0.00
J2253+1608	15 52 54.34791	* 16 08 53.56074	16 14 10.58397	0.00
3C454.3	./rk12fp_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 40570 observations, RA-AO3-04, RA-AO2-1			

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)
  2251+158           120.0

 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 60deg 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
```

rk12fqtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 12 Nov 2015 Day 316 ---										
---------- 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	0007+106	04 37 29	22.8	257.6	4.4		36.7	0	0	00 00 00
00 14 30	---	04 52 02	20.7	260.7	4.7		37.1	870	28	00 00 01
00 15 00	0007+106	04 52 32	20.6	260.8	4.7		37.2	24	28	00 15 00
00 29 30	---	05 07 04	18.5	263.8	4.9		37.5	870	56	00 15 01
00 30 00	0007+106	05 07 34	18.4	263.9	4.9		37.5	24	56	00 30 00
00 44 30	---	05 22 07	16.2	266.9	5.2		37.7	870	84	00 30 01
00 45 00	0007+106	05 22 37	16.1	267.0	5.2		37.7	24	84	00 45 00
01 00 00	---	05 37 39	13.9	270.0	5.4		37.7	900	112	00 45 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.968543	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 27.72429	0.00
	fake circumpolar target for a TS to look at			
* 0007+106	00 07 56.721989	* 00 10 31.005907	00 11 20.842924	0.00
J0010+1058	10 41 48.22044	* 10 58 29.50423	11 03 53.79809	0.00
	./rk12fq_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 3268 observations, RA-A03-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0007+106           137.0

 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 60deg 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
```

rk12frtr

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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 / Stop Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 12 Nov 2015 Day 316 ---									
---------- 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					
04 00 00 0224+671	08 38 09	46.9	-34.2	6.1		61.5	0	0	04 00 00
04 14 30 ---	08 52 41	45.7	-33.2	6.4		58.8	870	28	04 00 01
04 15 00 0224+671	08 53 11	45.7	-33.1	6.4		58.8	24	28	04 15 00
04 24 30 ---	09 02 43	44.9	-32.4	6.5		57.0	570	46	04 15 01
---------- 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					
04 30 00 0224+671	09 08 14	44.5	-32.0	6.6		56.1	324	46	04 30 00
04 44 30 ---	09 22 46	43.3	-30.9	6.9		53.5	870	74	04 30 01
04 45 00 0224+671	09 23 16	43.3	-30.9	6.9		53.4	24	74	04 45 00
05 00 00 ---	09 38 19	42.1	-29.7	7.1		50.7	900	103	04 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 ./rk12fr_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


======== Setup file: ra6cm2.set

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

 Disk used to record data.
```

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 31.995115	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 27.67403	0.00
	fake circumpolar target for a TS to look at			
* 0224+671	02 24 41.169053	* 02 28 50.051490	02 30 14.042436	0.00
J0228+6721	67 07 39.70870	* 67 21 03.02933	67 25 16.04203	0.00
	./rk12fr_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 3946 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0224+671           129.8

 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 60deg 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
```

rk12fstr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 12 Nov 2015 Day 316 ---										
---------- 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					
08 00 00	0838+133	12 38 48	28.7	252.7	4.0		36.1	0	0	08 00 00
08 14 30	---	12 53 21	26.6	255.9	4.2		36.7	870	28	08 00 01
08 15 00	0838+133	12 53 51	26.5	256.0	4.2		36.8	24	28	08 15 00
08 29 30	---	13 08 23	24.4	259.1	4.4		37.3	870	56	08 15 01
08 30 00	0838+133	13 08 53	24.3	259.2	4.5		37.3	24	56	08 30 00
08 44 30	---	13 23 26	22.2	262.3	4.7		37.7	870	84	08 30 01
08 45 00	0838+133	13 23 56	22.1	262.4	4.7		37.7	24	84	08 45 00
09 00 00	---	13 38 58	19.9	265.5	5.0		37.9	900	112	08 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: 1 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 32.021913	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 27.62352	0.00
	fake circumpolar target for a TS to look at			
* 0838+133	08 38 01.723597	* 08 40 47.588427	08 41 40.200001	0.00
J0840+1312	13 23 05.67979	* 13 12 23.56368	13 08 51.97807	0.00
	./rk12fs_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 196 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0838+133           100.3

 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 60deg 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
```

rk12fttr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 12 Nov 2015 Day 316 ---										
---------- 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					
11 00 00	2200+420	15 39 18	29.5	57.6	-6.4		-43.3	0	0	11 00 00
11 14 30	---	15 53 50	31.4	59.8	-6.2		-44.6	870	28	11 00 01
11 15 00	2200+420	15 54 20	31.4	59.9	-6.2		-44.7	24	28	11 15 00
11 24 30	---	16 03 52	32.7	61.4	-6.0		-45.5	570	46	11 15 01
---------- 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					
11 30 00	2200+420	16 09 23	33.4	62.2	-5.9		-46.0	323	46	11 30 00
11 44 30	---	16 23 55	35.3	64.5	-5.7		-47.2	870	74	11 30 01
11 45 00	2200+420	16 24 25	35.4	64.5	-5.6		-47.2	24	74	11 45 00
12 00 00	---	16 39 28	37.5	66.9	-5.4		-48.4	900	103	11 45 01

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

======== Setup file: ra1cm2.set
Matching groups in ./rk12ft_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


======== 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
```

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 32.042170	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 27.58547	0.00
	fake circumpolar target for a TS to look at			
* 2200+420	22 00 39.362504	* 22 02 43.291371	22 03 23.284744	0.00
J2202+4216	42 02 08.59073	* 42 16 39.97987	42 21 38.45577	0.00
BLLAC	./rk12ft_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 59417 observations, RA-AO3-04, RA-AO2-1			

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)
  2200+420           111.7

 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 60deg 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
```

rk12futr

RadioAstron AGN Survey

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Observing mode: 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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 12 Nov 2015 Day 316 ---										
---------- 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					
21 00 00	2200+420	01 40 56	52.9	275.8	3.6		54.0	0	0	21 00 00
21 19 30	---	02 00 30	49.9	279.2	4.0		53.3	1170	37	21 00 01
21 20 00	2200+420	02 01 00	49.9	279.3	4.0		53.3	24	37	21 20 00
21 40 00	---	02 21 03	46.9	282.6	4.3		52.5	1200	76	21 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 ./rk12fu_freq.dat:
tr1cm

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=  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 = 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:   1

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 32.111355	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 27.45664	0.00
	fake circumpolar target for a TS to look at			
* 2200+420	22 00 39.362504	* 22 02 43.291371	22 03 23.276479	0.00
J2202+4216	42 02 08.59073	* 42 16 39.97987	42 21 38.47760	0.00
BLLAC	./rk12fu_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 59417 observations, RA-AO3-04, RA-AO2-1			

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)
  2200+420           111.4

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg 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
```

rk12fvtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 13 Nov 2015 Day 317 ---										
---------- 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	0110+318	04 41 26	47.7	261.7	3.5		44.6	0	0	00 00 00
00 15 00	---	04 56 28	45.5	265.0	3.7		45.0	900	29	00 00 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 20 00	0110+318	05 01 29	44.7	266.1	3.8		45.1	293	29	00 20 00
00 40 00	---	05 21 33	41.7	270.2	4.1		45.2	1200	67	00 20 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

 Disk used to record data.
```

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

 The following frequency sets based on these setups were used.

 Frequency Set:   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 32.132294	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 27.41804	0.00
	fake circumpolar target for a TS to look at			
* 0110+318	01 10 03.762608	* 01 12 50.333038	01 13 44.832163	0.00
J0112+3208	31 52 23.76437	* 32 08 17.43261	32 13 25.95098	0.00
	./rk12fv_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 72 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0110+318           149.8

 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 60deg 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
```

rk12fxtr

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 / Stop Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 13 Nov 2015 Day 317 ---									
---------- 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					
03 00 00 0722+145	07 41 56	51.2	186.1	0.3		3.8	0	0	03 00 00
03 14 30 ---	07 56 28	50.8	191.7	0.5		7.2	870	28	03 00 01
03 15 00 0722+145	07 56 58	50.8	191.8	0.5		7.3	24	28	03 15 00
03 25 00 ---	08 07 00	50.5	195.6	0.7		9.6	600	47	03 15 01
---------- 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					
03 30 00 0722+145	08 12 01	50.2	197.5	0.8		10.7	293	47	03 30 00
03 44 30 ---	08 26 33	49.5	202.8	1.0		13.9	870	75	03 30 01
03 45 00 0722+145	08 27 03	49.5	203.0	1.0		14.0	24	75	03 45 00
04 00 00 ---	08 42 05	48.5	208.4	1.3		17.1	900	104	03 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 ./rk12fx_freq.dat:
tr1cm

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off


======== Setup file: ra6cm2.set

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

 Disk used to record data.
```

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

 The following frequency sets based on these setups were used.

 Frequency Set:   7  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:   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)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 32.152820	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 27.38040	0.00
	fake circumpolar target for a TS to look at			
* 0722+145	07 22 26.966166	* 07 25 16.807764	07 26 11.181345	0.00
J0725+1425	14 31 12.28332	* 14 25 13.74657	14 23 09.86848	0.00
	./rk12fx_sources.radioastron			
	AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 2417 observations, RA-AO3-04, RA			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0722+145           119.1

 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 60deg 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
```

rk12fytr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 13 Nov 2015 Day 317 ---										
---------- K-band VLBI scans ----------										
Next scan frequencies:		22236.00	22236.00	22236.00	22236.00					
Next BBC frequencies:		736.00	736.00	736.00	736.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
19 00 00	2200+420	23 44 33	70.0	247.7	1.7		48.7	0	0	19 00 00
19 14 30	---	23 59 06	68.0	252.5	1.9		50.8	870	28	19 00 01
19 15 00	2200+420	23 59 36	67.9	252.7	1.9		50.9	24	28	19 15 00
19 24 30	---	00 09 07	66.5	255.5	2.1		51.9	570	46	19 15 01
---------- 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					
19 30 00	2200+420	00 14 38	65.7	257.1	2.2		52.4	323	46	19 30 00
19 44 30	---	00 29 11	63.6	260.9	2.4		53.4	870	74	19 30 01
19 45 00	2200+420	00 29 41	63.5	261.0	2.4		53.4	24	74	19 45 00
20 00 00	---	00 44 43	61.3	264.5	2.7		54.0	900	103	19 45 01

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

======== Setup file: ra1cm2.set
Matching groups in ./rk12fy_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


======== Setup file: ra6cm2.set

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

 Disk used to record data.
```

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 32.268612	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 27.17228	0.00
	fake circumpolar target for a TS to look at			
* 2200+420	22 00 39.362504	* 22 02 43.291371	22 03 23.259090	0.00
J2202+4216	42 02 08.59073	* 42 16 39.97987	42 21 38.52547	0.00
BLLAC	./rk12fy_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 59417 observations, RA-AO3-04, RA-AO2-1			

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)
  2200+420           110.9

 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 60deg 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
```

rk12fztr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 14 Nov 2015 Day 318 ---										
---------- 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					
02 00 00	0110+318	06 45 42	29.2	-74.2	5.5		43.1	0	0	02 00 00
02 14 30	---	07 00 15	27.1	-71.6	5.8		42.4	870	28	02 00 01
02 15 00	0110+318	07 00 45	27.1	-71.5	5.8		42.3	24	28	02 15 00
02 29 30	---	07 15 17	25.0	-69.0	6.0		41.5	870	56	02 15 01
02 30 00	0110+318	07 15 47	25.0	-68.9	6.0		41.5	24	56	02 30 00
02 44 30	---	07 30 20	22.9	-66.4	6.3		40.6	870	84	02 30 01
02 45 00	0110+318	07 30 50	22.9	-66.3	6.3		40.5	24	84	02 45 00
03 00 00	---	07 45 52	20.8	-63.7	6.5		39.5	900	112	02 45 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 32.321105	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 27.08056	0.00
	fake circumpolar target for a TS to look at			
* 0110+318	01 10 03.762608	* 01 12 50.333038	01 13 44.832724	0.00
J0112+3208	31 52 23.76437	* 32 08 17.43261	32 13 26.08387	0.00
	./rk12fz_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 72 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0110+318           149.1

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg 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
```

rk12gatr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 14 Nov 2015 Day 318 ---										
---------- C-band VLBI scans ----------										
Next scan frequencies:		4836.00	4836.00	4836.00	4836.00					
Next BBC frequencies:		736.00	736.00	736.00	736.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
12 00 00	0730+504	16 47 21	19.3	-26.9	9.2		25.2	0	0	12 00 00
12 14 30	---	17 01 53	18.3	-24.6	9.4		23.1	870	28	12 00 01
12 15 00	0730+504	17 02 23	18.3	-24.6	9.5		23.0	24	28	12 15 00
12 25 00	---	17 12 25	17.7	-23.0	9.6		21.6	600	47	12 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					
12 30 00	0730+504	17 17 26	17.4	-22.2	9.7		20.8	294	47	12 30 00
12 44 30	---	17 31 58	16.6	-19.9	9.9		18.7	870	75	12 30 01
12 45 00	0730+504	17 32 28	16.6	-19.9	10.0		18.6	24	75	12 45 00
13 00 00	---	17 47 31	15.9	-17.5	10.2		16.4	900	104	12 45 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off


======== 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)                        Error
                      (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 00 32.398173       0.00
                    85 16 41.77889    * 85 00 00.00000      84 54 26.94915        0.00
                    fake circumpolar target for a TS to look at

* 0730+504          07 30 04.386239   * 07 33 52.520582     07 35 05.340183       0.00
  J0733+5022        50 28 40.45211    * 50 22 09.06206      50 19 43.22986        0.00
                    ./rk12ga_sources.radioastron
                    AGN, rfc_2013d Petrov, 2013, unpublished 574 observations, RA-AO3-04



EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0730+504           120.2

 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 60deg 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
```

rk12gbtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 14 Nov 2015 Day 318 ---										
---------- 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					
18 00 00	1803+784	22 48 20	55.1	-19.4	4.8		92.1	0	0	18 00 00
18 19 30	---	23 07 53	54.1	-19.4	5.1		87.3	1170	37	18 00 01
18 20 00	1803+784	23 08 23	54.1	-19.4	5.1		87.2	25	37	18 20 00
18 40 00	---	23 28 27	53.1	-19.3	5.5		82.4	1200	76	18 20 01

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

======== Setup file: ra18cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 32.446287	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 26.86915	0.00
	fake circumpolar target for a TS to look at			
* 1803+784	18 03 39.193524	* 18 00 45.683902	17 59 45.199940	0.00
J1800+7828	78 27 54.29744	* 78 28 04.01838	78 28 26.20700	0.00
	./rk12gb_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 217073 observations, RA-AO3-04, RA-AO2-			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1803+784            99.4

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg 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
```

rk12gctr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 14 Nov 2015 Day 318 ---										
---------- 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					
21 00 00	0007+106	01 48 50	43.7	214.0	1.6		20.0	0	0	21 00 00
21 19 30	---	02 08 23	41.9	220.1	2.0		23.2	1170	37	21 00 01
21 20 00	0007+106	02 08 53	41.8	220.3	2.0		23.3	24	37	21 20 00
21 40 00	---	02 28 56	39.8	226.2	2.3		26.2	1200	76	21 20 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 32.470363	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 26.82971	0.00
	fake circumpolar target for a TS to look at			
* 0007+106	00 07 56.721989	* 00 10 31.005907	00 11 20.828704	0.00
J0010+1058	10 41 48.22044	* 10 58 29.50423	11 03 53.82049	0.00
	./rk12gc_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 3268 observations, RA-A03-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0007+106           134.1

 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 60deg 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
```

rk12gdtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 15 Nov 2015 Day 319 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
00 00 00	0110+318	04 49 19	46.5	263.5	3.6		44.8	0	0	00 00 00
00 19 30	---	05 08 52	43.6	267.6	3.9		45.2	1170	37	00 00 01
00 20 00	0110+318	05 09 22	43.5	267.7	3.9		45.2	24	37	00 20 00
00 40 00	---	05 29 26	40.5	271.7	4.3		45.2	1200	76	00 20 01

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

======== Setup file: ra18cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                        Error
                        (B1950)             (J2000)             (Date)            (mas)

* FAKERA             11 57 21.769299   * 12 00 00.000000     12 00 32.494669       0.00
                     85 16 41.77889    * 85 00 00.00000      84 54 26.79030        0.00
                     fake circumpolar target for a TS to look at

* 0110+318           01 10 03.762608   * 01 12 50.333038     01 13 44.833566       0.00
  J0112+3208         31 52 23.76437    * 32 08 17.43261      32 13 26.20468        0.00
                     ./rk12gd_sources.radioastron
                     AGN, rfc_2013d Petrov, 2013, unpublished 72 observations, RA-AO3-04



EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0110+318           148.5

 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 60deg 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
```

rk12getr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 15 Nov 2015 Day 319 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
04 00 00	0224+671	08 49 59	45.9	-33.4	6.3		59.3	0	0	04 00 00
04 14 30	---	09 04 31	44.7	-32.3	6.6		56.7	870	28	04 00 01
04 15 00	0224+671	09 05 01	44.7	-32.3	6.6		56.6	24	28	04 15 00
04 29 30	---	09 19 33	43.6	-31.2	6.8		54.1	870	56	04 15 01
04 30 00	0224+671	09 20 03	43.5	-31.1	6.8		54.0	24	56	04 30 00
04 44 30	---	09 34 36	42.4	-30.0	7.1		51.4	870	84	04 30 01
04 45 00	0224+671	09 35 06	42.4	-29.9	7.1		51.3	24	84	04 45 00
05 00 00	---	09 50 08	41.3	-28.7	7.3		48.7	900	112	04 45 01

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

======== Setup file: ra18cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

 Frequency Set:   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 32.526750	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 26.73891	0.00
	fake circumpolar target for a TS to look at			
* 0224+671	02 24 41.169053	* 02 28 50.051490	02 30 14.078548	0.00
J0228+6721	67 07 39.70870	* 67 21 03.02933	67 25 16.95884	0.00
	./rk12ge_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 3946 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0224+671           130.3

 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 60deg 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
```

rk12gftr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 15 Nov 2015 Day 319 ---										
---------- 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					
07 00 00	2021+614	11 50 28	31.9	26.1	-8.5		-33.9	0	0	07 00 00
07 14 30	---	12 05 00	32.9	27.8	-8.3		-36.2	870	28	07 00 01
07 15 00	2021+614	12 05 31	32.9	27.9	-8.3		-36.3	24	28	07 15 00
07 29 30	---	12 20 03	34.0	29.5	-8.0		-38.6	870	56	07 15 01
07 30 00	2021+614	12 20 33	34.0	29.6	-8.0		-38.6	24	56	07 30 00
07 44 30	---	12 35 05	35.1	31.2	-7.8		-40.9	870	84	07 30 01
07 45 00	2021+614	12 35 36	35.2	31.2	-7.8		-41.0	24	84	07 45 00
08 00 00	---	12 50 38	36.4	32.9	-7.5		-43.4	900	112	07 45 01

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

======== Setup file: ra18cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

 Frequency Set:   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)                        Error
                      (B1950)             (J2000)             (Date)             (mas)

* FAKERA            11 57 21.769299   * 12 00 00.000000     12 00 32.551586       0.00
                    85 16 41.77889    * 85 00 00.00000      84 54 26.69962        0.00
                    fake circumpolar target for a TS to look at

* 2021+614          20 21 13.300234   * 20 22 06.681752     20 22 23.197113       0.00
  J2022+6136        61 27 18.15575    * 61 36 58.80476      61 40 30.04319        0.00
                    ./rk12gf_sources.radioastron
                    AGN, CSO, rfc_2013d Petrov, 2013, unpublished 3249 observations, RA-AO3-04, RA-A



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)
  2021+614            99.5

 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 60deg 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
```

rk12ggtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 15 Nov 2015 Day 319 ---										
---------- C-band VLBI scans ----------										
Next scan frequencies:		4836.00	4836.00	4836.00	4836.00					
Next BBC frequencies:		736.00	736.00	736.00	736.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
15 00 00	2200+420	19 51 47	65.7	102.8	-2.2		-52.4	0	0	15 00 00
15 19 30	---	20 11 20	68.5	108.6	-1.9		-50.4	1170	37	15 00 01
15 20 00	2200+420	20 11 50	68.6	108.8	-1.9		-50.3	24	37	15 20 00
15 40 00	---	20 31 54	71.4	116.0	-1.5		-46.9	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: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 32.619637	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 26.59413	0.00
	fake circumpolar target for a TS to look at			
* 2200+420	22 00 39.362504	* 22 02 43.291371	22 03 23.224535	0.00
J2202+4216	42 02 08.59073	* 42 16 39.97987	42 21 38.60819	0.00
BLLAC	./rk12gg_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 59417 observations, RA-AO3-04, RA-AO2-1			

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)
  2200+420           109.8

 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 60deg 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
```

rk12ghtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 15 Nov 2015 Day 319 ---										
---------- 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					
18 00 00	2201+315	22 52 17	67.0	207.1	0.8		18.8	0	0	18 00 00
18 19 30	---	23 11 50	65.5	216.7	1.1		25.0	1170	37	18 00 01
18 20 00	2201+315	23 12 20	65.4	216.9	1.1		25.1	23	37	18 20 00
18 40 00	---	23 32 23	63.4	225.6	1.5		30.4	1200	76	18 20 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 32.645305	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 26.55516	0.00
	fake circumpolar target for a TS to look at			
* 2201+315	22 01 01.441997	* 22 03 14.975788	22 03 57.758368	0.00
J2203+3145	31 31 05.87498	* 31 45 38.26991	31 50 34.85598	0.00
	./rk12gh_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 33331 observations, RA-AO3-04, RA-AO2-1			

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)
  2201+315           108.2

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg 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
```

rk12gitr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 15 Nov 2015 Day 319 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
21 00 00	2107+353	01 52 46	38.9	279.9	4.7		46.7	0	0	21 00 00
21 19 30	---	02 12 19	36.0	283.4	5.0		45.9	1170	37	21 00 01
21 20 00	2107+353	02 12 49	35.9	283.5	5.0		45.9	24	37	21 20 00
21 40 00	---	02 32 53	33.0	286.9	5.4		45.0	1200	76	21 20 01

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

======== Setup file: ra18cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off



POSITIONS OF SOURCES USED IN RECORDING SCANS

  Source                          Source position (RA/Dec)                          Error
                        (B1950)             (J2000)             (Date)             (mas)

* FAKERA             11 57 21.769299   * 12 00 00.000000     12 00 32.671191       0.00
                     85 16 41.77889    * 85 00 00.00000      84 54 26.51631        0.00
                     fake circumpolar target for a TS to look at

* 2107+353          21 07 30.448847   * 21 09 31.878723     21 10 10.416113       0.00
  J2109+3532        35 20 43.22902    * 35 32 57.59753      35 37 13.37739        0.00
                     ./rk12gi_sources.radioastron
                     AGN, rfc_2013d Petrov, 2013, unpublished 135 observations, RA-AO3-04, RA-AO2-12



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)
  2107+353            98.1

 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 60deg 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
```

rk12gjtr

RadioAstron AGN Survey

PI: *Yuri Kovalev*

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 16 Nov 2015 Day 320 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
01 00 00	0951+693	05 53 26	58.4	36.7	-4.1		-88.5	0	0	01 00 00
01 14 30	---	06 07 58	59.7	36.6	-3.8		-91.9	870	28	01 00 01
01 15 00	0951+693	06 08 28	59.7	36.6	-3.8		-92.0	24	28	01 15 00
01 29 30	---	06 23 00	61.0	36.5	-3.6		-95.6	870	56	01 15 01
01 30 00	0951+693	06 23 30	61.1	36.5	-3.6		-95.7	24	56	01 30 00
01 44 30	---	06 38 03	62.3	36.1	-3.3		-99.4	870	84	01 30 01
01 45 00	0951+693	06 38 33	62.4	36.1	-3.3		-99.5	24	84	01 45 00
02 00 00	---	06 53 35	63.7	35.5	-3.1		-103.6	900	112	01 45 01

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

======== Setup file: ra18cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 32.705307	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 26.46579	0.00
	fake circumpolar target for a TS to look at			
* 0951+693	09 51 27.310821	* 09 55 33.173065	09 56 48.634012	0.00
J0955+6903	69 18 08.14417	* 69 03 55.06083	68 59 00.99730	0.00
M81	./rk12gj_sources.radioastron			
	rfc_2013d Petrov, 2013, unpublished 3429 observations, RA-AO3-07			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0951+693           104.4

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg 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
```

rk12gltr

RadioAstron AGN Survey

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 16 Nov 2015 Day 320 ---										
---------- 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					
07 00 00	0716+714	11 54 25	56.2	-32.2	4.5		85.9	0	0	07 00 00
07 14 30	---	12 08 57	55.0	-32.0	4.8		82.6	870	28	07 00 01
07 15 00	0716+714	12 09 27	55.0	-31.9	4.8		82.5	24	28	07 15 00
07 29 30	---	12 24 00	53.8	-31.6	5.0		79.3	870	56	07 15 01
07 30 00	0716+714	12 24 30	53.8	-31.6	5.0		79.2	24	56	07 30 00
07 44 30	---	12 39 02	52.6	-31.2	5.3		76.1	870	84	07 30 01
07 45 00	0716+714	12 39 32	52.6	-31.2	5.3		76.0	24	84	07 45 00
08 00 00	---	12 54 35	51.4	-30.7	5.5		72.8	900	112	07 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: 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)                          Error
                        (B1950)             (J2000)             (Date)             (mas)

* FAKERA              11 57 21.769299   * 12 00 00.000000     12 00 32.758250       0.00
                      85 16 41.77889    * 85 00 00.00000      84 54 26.38890        0.00
                      fake circumpolar target for a TS to look at

* 0716+714           07 16 13.029739   * 07 21 53.448474     07 23 42.473477       0.00
  J0721+7120          71 26 15.17406    * 71 20 36.36340      71 18 21.33905        0.00
                      ./rk12gl_sources.radioastron
                      AGN, rfc_2013d Petrov, 2013, unpublished 42370 observations, RA-AO3-04, RA-AO2-1



EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0716+714           117.2

 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 60deg 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
```

rk12gmtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 16 Nov 2015 Day 320 ---										
---------- 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					
10 00 00	0716+714	14 54 54	43.1	-23.9	7.5		49.3	0	0	10 00 00
10 14 30	---	15 09 27	42.2	-22.8	7.8		46.5	870	28	10 00 01
10 15 00	0716+714	15 09 57	42.2	-22.8	7.8		46.4	24	28	10 15 00
10 29 30	---	15 24 29	41.3	-21.7	8.0		43.7	870	56	10 15 01
10 30 00	0716+714	15 24 59	41.3	-21.6	8.0		43.6	25	56	10 30 00
10 44 30	---	15 39 32	40.5	-20.5	8.3		41.0	870	84	10 30 01
10 45 00	0716+714	15 40 02	40.5	-20.4	8.3		40.9	25	84	10 45 00
11 00 00	---	15 55 04	39.7	-19.2	8.5		38.1	900	112	10 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:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299 85 16 41.77889 fake circumpolar target for a TS to look at	* 12 00 00.000000 * 85 00 00.00000	12 00 32.785019 84 54 26.35071	0.00 0.00
* 0716+714 J0721+7120	07 16 13.029739 71 26 15.17406 ./rk12gm_sources.radioastron AGN, rfc_2013d Petrov, 2013, unpublished 42370 observations, RA-AO3-04, RA-AO2-1	* 07 21 53.448474 * 71 20 36.36340	07 23 42.484625 71 18 21.35147	0.00 0.00

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0716+714           117.2

 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 60deg 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
```

rk12gntr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 16 Nov 2015 Day 320 ---										
---------- C-band VLBI scans ----------										
Next scan frequencies:		4836.00	4836.00	4836.00	4836.00					
Next BBC frequencies:		736.00	736.00	736.00	736.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
23 00 00	2209+236	03 57 02	21.3	-78.0	5.7		40.0	0	0	23 00 00
23 12 00	---	04 09 04	19.5	-75.7	5.9		39.6	720	23	23 00 01
23 12 30	2209+236	04 09 34	19.5	-75.6	5.9		39.6	24	23	23 12 30
23 24 30	---	04 21 36	17.7	-73.4	6.1		39.0	720	46	23 12 31
23 25 00	2209+236	04 22 06	17.7	-73.3	6.2		39.0	24	46	23 25 00
23 37 00	---	04 34 08	15.9	-71.1	6.4		38.4	720	69	23 25 01
23 37 30	2209+236	04 34 39	15.9	-71.0	6.4		38.4	24	69	23 37 30
23 50 00	---	04 47 11	14.1	-68.6	6.6		37.7	750	93	23 37 31

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 32.902720	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 26.18807	0.00
	fake circumpolar target for a TS to look at			
* 2209+236	22 09 45.687917	* 22 12 05.966312	22 12 50.814254	0.00
J2212+2355	23 40 49.85180	* 23 55 40.54374	24 00 40.41480	0.00
	./rk12gn_sources.radioastron			
	AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 17068 observations, RA-A03-04, R			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  2209+236           107.5

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg 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
```

rk12gotr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
---------- 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					
02 10 00	0215+015	07 07 34	12.0	256.7	4.8		35.8	0	0	02 10 00
02 22 00	---	07 19 36	10.3	259.2	5.0		36.2	720	23	02 10 01
02 22 30	0215+015	07 20 06	10.2	259.3	5.0		36.2	24	23	02 22 30
02 34 30	---	07 32 08	8.4	261.7	5.2		36.5	720	46	02 22 31
02 35 00	0215+015	07 32 38	8.3	261.8	5.2		36.5	24	46	02 35 00
02 47 00	---	07 44 40	6.6	264.3	5.4		36.7	720	69	02 35 01
02 47 30	0215+015	07 45 10	6.5	264.4	5.4		36.7	24	69	02 47 30
03 00 00	---	07 57 42	4.6	266.9	5.7		36.9	750	93	02 47 31

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 32.931946	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 26.14896	0.00
	fake circumpolar target for a TS to look at			
* 0215+015	02 15 14.130235	* 02 17 48.954755	02 18 39.284169	0.00
J0217+0144	01 31 00.16093	* 01 44 49.69903	01 49 10.63447	0.00
	./rk12go_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 14210 observations, RA-AO3-04, RA-AO2-1			

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)
  0215+015           155.9

 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 60deg 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
```

em113tr

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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Observing mode: realtime e-vlbi

Schedule for TORUN (Code Tr) Page 2
e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
Next scan frequencies:		4942.49	4942.49	4942.49	4942.49	4974.49	4974.49	4974.49	4974.49	
		5006.49	5006.49	5006.49	5006.49	5038.49	5038.49	5038.49	5038.49	
Next BBC frequencies:		742.49	742.49	742.49	742.49	774.49	774.49	774.49	774.49	
		806.49	806.49	806.49	806.49	838.49	838.49	838.49	838.49	
Next scan bandwidths:		16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	
		16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	
09 00 00	OQ208	13 58 41	65.2	175.3	-0.2		-3.2	0	0	09 00 00
09 15 00	---	14 13 43	65.3	183.2	0.1		2.2	900	115	09 00 01
09 15 40	OQ208	14 14 24	65.3	183.5	0.1		2.4	33	115	09 15 40
09 30 00	---	14 28 46	65.0	191.0	0.4		7.5	860	226	09 15 41
09 30 40	OQ208	14 29 26	65.0	191.4	0.4		7.7	33	226	09 30 40
09 45 00	---	14 43 48	64.4	198.6	0.6		12.6	860	336	09 30 41
09 45 40	OQ208	14 44 28	64.4	199.0	0.6		12.8	33	336	09 45 40
10 00 00	---	14 58 51	63.5	205.9	0.9		17.4	860	446	09 45 41
10 00 40	OQ208	14 59 31	63.5	206.2	0.9		17.6	33	446	10 00 40
10 15 00	---	15 13 53	62.4	212.8	1.1		21.7	860	556	10 00 41
10 15 40	OQ208	15 14 33	62.4	213.1	1.1		21.9	33	556	10 15 40
10 30 00	---	15 28 56	61.1	219.2	1.4		25.6	860	667	10 15 41
10 30 40	OQ208	15 29 36	61.0	219.5	1.4		25.7	33	667	10 30 40
10 45 00	---	15 43 58	59.6	225.2	1.6		28.9	860	777	10 30 41
10 45 40	OQ208	15 44 38	59.5	225.4	1.6		29.1	33	777	10 45 40
11 00 00	---	15 59 01	57.9	230.7	1.9		31.9	860	887	10 45 41
11 03 00	3C345	16 02 01	74.9	147.9	-0.7		-24.6	-1	887	11 03 00
11 15 00	---	16 14 03	75.8	156.4	-0.5		-18.2	719	979	11 03 01

11 15 40	3C345	16 14 43	75.8	156.9	-0.5	-17.9	32	979	11 15 40
11 30 00	---	16 29 06	76.5	168.1	-0.2	-9.3	860	1090	11 15 41
11 30 40	3C345	16 29 46	76.5	168.7	-0.2	-8.8	32	1090	11 30 40
11 45 00	---	16 44 08	76.7	180.5	0.0	0.4	860	1200	11 30 41
11 45 40	3C345	16 44 48	76.7	181.1	0.0	0.9	32	1200	11 45 40
12 00 00	---	16 59 11	76.4	192.9	0.3	10.1	860	1310	11 45 41
12 00 40	3C345	16 59 51	76.4	193.5	0.3	10.5	32	1310	12 00 40
12 15 00	---	17 14 13	75.7	204.6	0.5	19.0	860	1421	12 00 41

Schedule for TORUN (Code Tr) Page 3

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
12 15 40	3C345	17 14 53	75.7	205.1	0.5		19.3	33	1421	12 15 40
12 30 00	---	17 29 15	74.6	215.0	0.8		26.6	860	1531	12 15 41
12 30 40	3C345	17 29 56	74.5	215.4	0.8		26.9	33	1531	12 30 40
12 45 00	---	17 44 18	73.1	224.0	1.0		32.9	860	1641	12 30 41
12 45 40	3C345	17 44 58	73.1	224.4	1.0		33.1	33	1641	12 45 40
13 00 00	---	17 59 20	71.5	231.8	1.3		37.9	860	1751	12 45 41
13 07 00	BLLAC	18 06 22	50.0	80.8	-4.0		-53.3	103	1751	13 07 00
13 12 00	---	18 11 22	50.7	81.7	-3.9		-53.5	300	1790	13 07 01
13 13 20	J2136+4301	18 12 43	55.3	85.6	-3.4		-55.1	49	1790	13 13 20
13 16 20	---	18 15 43	55.7	86.2	-3.4		-55.1	180	1813	13 13 21
13 16 20	SSCYG	18 15 43	55.1	84.2	-3.5		-55.7	-17	1813	No stop
13 18 30	---	18 17 53	55.4	84.6	-3.4		-55.7	113	1829	13 16 21
13 18 30	J2136+4301	18 17 53	56.0	86.6	-3.3		-55.2	-18	1829	No stop
13 19 50	---	18 19 14	56.2	86.8	-3.3		-55.2	62	1840	13 18 31
13 19 50	SSCYG	18 19 14	55.6	84.8	-3.4		-55.8	-17	1840	No stop
13 22 00	---	18 21 24	55.9	85.2	-3.4		-55.8	113	1856	13 19 51
13 22 00	J2136+4301	18 21 24	56.6	87.2	-3.3		-55.2	-18	1856	No stop
13 23 20	---	18 22 44	56.8	87.5	-3.2		-55.3	62	1867	13 22 01
13 23 20	SSCYG	18 22 44	56.1	85.5	-3.3		-55.8	-18	1867	No stop
13 25 20	---	18 24 45	56.4	85.8	-3.3		-55.9	102	1882	13 23 21
13 26 20	J2136+4301	18 25 45	57.2	88.1	-3.2		-55.3	42	1882	13 26 20
13 27 50	---	18 27 15	57.5	88.3	-3.2		-55.3	90	1894	13 26 21
13 27 50	SSCYG	18 27 15	56.8	86.3	-3.3		-55.9	-18	1894	No stop
13 30 00	---	18 29 25	57.1	86.7	-3.2		-56.0	112	1910	13 27 51
13 30 00	J2136+4301	18 29 25	57.8	88.8	-3.1		-55.3	-18	1910	No stop
13 31 20	---	18 30 46	58.0	89.0	-3.1		-55.3	62	1921	13 30 01
13 31 20	SSCYG	18 30 46	57.3	87.0	-3.2		-56.0	-18	1921	No stop
13 33 30	---	18 32 56	57.7	87.4	-3.2		-56.0	112	1937	13 31 21
13 33 30	J2136+4301	18 32 56	58.3	89.5	-3.1		-55.3	-18	1937	No stop
13 34 50	---	18 34 16	58.5	89.7	-3.0		-55.3	62	1947	13 33 31

Schedule for TORUN (Code Tr) Page 4

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
13 34 50	J2153+4322	18 34 16	56.1	85.8	-3.3		-55.6	-23	1947	No stop
13 36 20	---	18 35 46	56.3	86.1	-3.3		-55.6	67	1959	13 34 51
13 37 20	J2136+4301	18 36 46	58.9	90.2	-3.0		-55.3	37	1959	13 37 20
13 38 50	---	18 38 17	59.1	90.5	-3.0		-55.3	90	1971	13 37 21
13 38 50	SSCYG	18 38 17	58.5	88.4	-3.1		-56.1	-18	1971	No stop
13 41 00	---	18 40 27	58.8	88.8	-3.0		-56.1	112	1987	13 38 51
13 41 00	J2136+4301	18 40 27	59.4	91.0	-2.9		-55.3	-18	1987	No stop
13 42 20	---	18 41 47	59.6	91.2	-2.9		-55.3	62	1997	13 41 01
13 42 20	SSCYG	18 41 47	59.0	89.1	-3.0		-56.1	-18	1997	No stop
13 44 30	---	18 43 58	59.3	89.5	-3.0		-56.1	112	2014	13 42 21
13 44 30	J2136+4301	18 43 58	60.0	91.7	-2.9		-55.3	-18	2014	No stop
13 45 50	---	18 45 18	60.2	92.0	-2.9		-55.3	62	2024	13 44 31
13 45 50	SSCYG	18 45 18	59.5	89.8	-3.0		-56.1	-18	2024	No stop
13 47 50	---	18 47 18	59.8	90.2	-2.9		-56.1	102	2040	13 45 51
13 48 50	J2136+4301	18 48 18	60.6	92.6	-2.8		-55.2	42	2040	13 48 50
13 50 20	---	18 49 49	60.8	92.9	-2.8		-55.2	90	2051	13 48 51
13 50 20	SSCYG	18 49 49	60.2	90.7	-2.9		-56.1	-18	2051	No stop
13 52 30	---	18 51 59	60.5	91.1	-2.9		-56.1	112	2068	13 50 21
13 52 30	J2136+4301	18 51 59	61.2	93.4	-2.8		-55.2	-19	2068	No stop
13 53 50	---	18 53 19	61.4	93.7	-2.7		-55.2	61	2078	13 52 31
13 53 50	SSCYG	18 53 19	60.7	91.4	-2.8		-56.1	-18	2078	No stop
13 56 00	---	18 55 30	61.1	91.8	-2.8		-56.1	112	2095	13 53 51
13 56 00	J2136+4301	18 55 30	61.7	94.2	-2.7		-55.1	-19	2095	No stop
13 57 20	---	18 56 50	61.9	94.4	-2.7		-55.1	61	2105	13 56 01
13 57 20	J2153+4322	18 56 50	59.5	90.2	-3.0		-55.8	-23	2105	No stop
13 58 50	---	18 58 20	59.7	90.5	-2.9		-55.8	67	2117	13 57 21
13 59 50	J2136+4301	18 59 20	62.3	95.0	-2.6		-55.0	36	2117	13 59 50
14 01 20	---	19 00 50	62.5	95.3	-2.6		-55.0	90	2128	13 59 51
14 01 20	SSCYG	19 00 50	61.9	93.0	-2.7		-56.0	-19	2128	No stop
14 03 30	---	19 03 01	62.2	93.4	-2.7		-56.0	111	2145	14 01 21

Schedule for TORUN (Code Tr) Page 5

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
14 03 30	J2136+4301	19 03 01	62.8	95.8	-2.6		-54.9	-19	2145	No stop
14 04 50	---	19 04 21	63.0	96.2	-2.5		-54.9	61	2155	14 03 31
14 04 50	SSCYG	19 04 21	62.4	93.7	-2.6		-55.9	-19	2155	No stop
14 07 00	---	19 06 31	62.7	94.2	-2.6		-55.9	111	2172	14 04 51
14 07 00	J2136+4301	19 06 31	63.3	96.7	-2.5		-54.8	-19	2172	No stop
14 08 20	---	19 07 52	63.5	97.0	-2.5		-54.7	61	2182	14 07 01
14 08 20	SSCYG	19 07 52	62.9	94.5	-2.6		-55.8	-19	2182	No stop
14 10 20	---	19 09 52	63.2	95.0	-2.6		-55.8	101	2197	14 08 21
14 11 20	J2136+4301	19 10 52	64.0	97.7	-2.4		-54.6	41	2197	14 11 20
14 12 50	---	19 12 22	64.2	98.1	-2.4		-54.5	90	2209	14 11 21
14 12 50	SSCYG	19 12 22	63.6	95.5	-2.5		-55.7	-19	2209	No stop
14 15 00	---	19 14 33	63.9	96.0	-2.5		-55.6	111	2226	14 12 51
14 15 00	J2136+4301	19 14 33	64.5	98.6	-2.4		-54.4	-19	2226	No stop
14 16 20	---	19 15 53	64.7	98.9	-2.4		-54.3	61	2236	14 15 01
14 16 20	SSCYG	19 15 53	64.1	96.3	-2.5		-55.6	-19	2236	No stop
14 18 30	---	19 18 03	64.4	96.8	-2.4		-55.5	111	2253	14 16 21
14 18 30	J2136+4301	19 18 03	65.1	99.5	-2.3		-54.2	-20	2253	No stop
14 19 50	---	19 19 23	65.2	99.8	-2.3		-54.1	60	2263	14 18 31
14 19 50	J2153+4322	19 19 23	62.9	95.0	-2.6		-55.5	-25	2263	No stop
14 21 20	---	19 20 54	63.1	95.3	-2.6		-55.5	65	2274	14 19 51
14 22 20	J2136+4301	19 21 54	65.6	100.5	-2.3		-54.0	35	2274	14 22 20
14 23 50	---	19 23 24	65.8	100.8	-2.2		-53.9	90	2286	14 22 21
14 23 50	SSCYG	19 23 24	65.2	98.1	-2.3		-55.3	-20	2286	No stop
14 26 00	---	19 25 34	65.6	98.7	-2.3		-55.1	110	2303	14 23 51
14 26 00	J2136+4301	19 25 34	66.2	101.4	-2.2		-53.7	-20	2303	No stop
14 27 20	---	19 26 55	66.4	101.8	-2.2		-53.6	60	2313	14 26 01
14 27 20	SSCYG	19 26 55	65.8	99.0	-2.3		-55.1	-20	2313	No stop
14 29 30	---	19 29 05	66.1	99.6	-2.2		-54.9	110	2329	14 27 21
14 29 30	J2136+4301	19 29 05	66.7	102.4	-2.1		-53.5	-20	2329	No stop
14 30 50	---	19 30 25	66.9	102.7	-2.1		-53.3	60	2340	14 29 31

Schedule for TORUN (Code Tr) Page 6

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
14 30 50	SSCYG	19 30 25	66.3	99.9	-2.2		-54.9	-20	2340	No stop
14 32 50	---	19 32 26	66.6	100.4	-2.2		-54.7	100	2355	14 30 51
14 33 50	J2136+4301	19 33 26	67.3	103.6	-2.1		-53.1	40	2355	14 33 50
14 35 20	---	19 34 56	67.5	104.0	-2.0		-52.9	90	2367	14 33 51
14 35 20	SSCYG	19 34 56	66.9	101.1	-2.1		-54.5	-20	2367	No stop
14 37 30	---	19 37 06	67.3	101.7	-2.1		-54.4	110	2383	14 35 21
14 37 30	J2136+4301	19 37 06	67.8	104.6	-2.0		-52.7	-21	2383	No stop
14 38 50	---	19 38 27	68.0	105.0	-2.0		-52.6	59	2394	14 37 31
14 38 50	SSCYG	19 38 27	67.5	102.0	-2.1		-54.3	-20	2394	No stop
14 41 00	---	19 40 37	67.8	102.7	-2.0		-54.1	110	2410	14 38 51
14 41 00	J2136+4301	19 40 37	68.4	105.7	-1.9		-52.4	-21	2410	No stop
14 42 20	---	19 41 57	68.5	106.1	-1.9		-52.2	59	2421	14 41 01
14 42 20	J2153+4322	19 41 57	66.2	100.4	-2.2		-54.5	-26	2421	No stop
14 43 50	---	19 43 27	66.4	100.8	-2.2		-54.4	64	2432	14 42 21
14 44 50	J2136+4301	19 44 28	68.9	106.9	-1.9		-51.9	33	2432	14 44 50
14 46 20	---	19 45 58	69.1	107.3	-1.9		-51.7	90	2444	14 44 51
14 47 40	BLLAC	19 47 18	65.0	101.6	-2.3		-52.7	50	2444	14 47 40
14 50 40	---	19 50 19	65.5	102.4	-2.2		-52.5	180	2467	14 47 41
14 52 00	J2136+4301	19 51 39	69.9	109.2	-1.8		-51.0	50	2467	14 52 00
14 55 00	---	19 54 39	70.4	110.2	-1.7		-50.5	180	2490	14 52 01
14 55 00	SSCYG	19 54 39	69.8	106.8	-1.8		-52.6	-21	2490	No stop
14 57 10	---	19 56 50	70.1	107.5	-1.8		-52.3	109	2506	14 55 01
14 57 10	J2136+4301	19 56 50	70.7	111.0	-1.7		-50.2	-22	2506	No stop
14 58 30	---	19 58 10	70.9	111.5	-1.6		-49.9	58	2517	14 57 11
14 58 30	SSCYG	19 58 10	70.3	108.0	-1.8		-52.1	-21	2517	No stop
15 00 40	---	20 00 20	70.6	108.7	-1.7		-51.8	109	2533	14 58 31
15 00 40	J2136+4301	20 00 20	71.2	112.2	-1.6		-49.6	-22	2533	No stop
15 02 00	---	20 01 40	71.3	112.7	-1.6		-49.3	58	2544	15 00 41
15 02 00	SSCYG	20 01 40	70.8	109.2	-1.7		-51.6	-22	2544	No stop
15 04 00	---	20 03 41	71.1	109.8	-1.7		-51.3	98	2559	15 02 01

Schedule for TORUN (Code Tr) Page 7

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
15 05 00	J2136+4301	20 04 41	71.8	113.9	-1.5		-48.8	38	2559	15 05 00
15 06 30	---	20 06 11	72.0	114.5	-1.5		-48.5	90	2571	15 05 01
15 06 30	SSCYG	20 06 11	71.4	110.7	-1.6		-50.9	-22	2571	No stop
15 08 40	---	20 08 21	71.8	111.5	-1.6		-50.6	108	2587	15 06 31
15 08 40	J2136+4301	20 08 21	72.3	115.3	-1.5		-48.0	-23	2587	No stop
15 10 00	---	20 09 42	72.4	115.9	-1.5		-47.7	57	2597	15 08 41
15 10 00	SSCYG	20 09 42	71.9	112.0	-1.6		-50.3	-22	2597	No stop
15 12 10	---	20 11 52	72.2	112.8	-1.5		-49.9	108	2614	15 10 01
15 12 10	J2136+4301	20 11 52	72.7	116.8	-1.4		-47.3	-23	2614	No stop
15 13 30	---	20 13 12	72.9	117.3	-1.4		-47.0	57	2624	15 12 11
15 13 30	J2153+4322	20 13 12	70.7	109.8	-1.7		-51.1	-30	2624	No stop
15 15 00	---	20 14 43	71.0	110.3	-1.7		-50.9	60	2636	15 13 31
15 16 00	J2136+4301	20 15 43	73.2	118.4	-1.4		-46.3	29	2636	15 16 00
15 17 30	---	20 17 13	73.4	119.1	-1.3		-46.0	90	2647	15 16 01
15 17 30	SSCYG	20 17 13	73.0	114.9	-1.4		-48.8	-23	2647	No stop
15 19 40	---	20 19 23	73.3	115.8	-1.4		-48.3	107	2664	15 17 31
15 19 40	J2136+4301	20 19 23	73.7	120.0	-1.3		-45.4	-24	2664	No stop
15 21 00	---	20 20 44	73.9	120.7	-1.3		-45.0	56	2674	15 19 41
15 21 00	SSCYG	20 20 44	73.4	116.4	-1.4		-48.0	-23	2674	No stop
15 23 10	---	20 22 54	73.7	117.3	-1.3		-47.5	107	2691	15 21 01
15 23 10	J2136+4301	20 22 54	74.2	121.7	-1.2		-44.4	-24	2691	No stop
15 24 30	---	20 24 14	74.3	122.3	-1.2		-44.0	56	2701	15 23 11
15 24 30	SSCYG	20 24 14	73.9	117.9	-1.3		-47.2	-23	2701	No stop
15 26 30	---	20 26 14	74.2	118.8	-1.3		-46.7	97	2717	15 24 31
15 27 30	J2136+4301	20 27 15	74.7	123.8	-1.2		-43.1	36	2717	15 27 30
15 29 00	---	20 28 45	74.9	124.6	-1.1		-42.6	90	2728	15 27 31
15 29 00	SSCYG	20 28 45	74.5	120.0	-1.2		-46.0	-24	2728	No stop
15 31 10	---	20 30 55	74.8	121.0	-1.2		-45.3	106	2745	15 29 01
15 31 10	J2136+4301	20 30 55	75.2	125.7	-1.1		-41.9	-25	2745	No stop
15 32 30	---	20 32 15	75.3	126.4	-1.1		-41.4	55	2755	15 31 11

Schedule for TORUN (Code Tr) Page 8

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
15 32 30	SSCYG	20 32 15	75.0	121.7	-1.2		-44.9	-24	2755	No stop
15 34 40	---	20 34 26	75.2	122.8	-1.1		-44.3	106	2772	15 32 31
15 34 40	J2136+4301	20 34 26	75.6	127.6	-1.0		-40.6	-25	2772	No stop
15 36 00	---	20 35 46	75.8	128.4	-1.0		-40.1	55	2782	15 34 41
15 36 00	J2153+4322	20 35 46	73.8	118.6	-1.3		-46.6	-34	2782	No stop
15 37 30	---	20 37 16	74.0	119.3	-1.3		-46.2	56	2794	15 36 01
15 38 30	J2136+4301	20 38 16	76.1	129.8	-1.0		-39.2	25	2794	15 38 30
15 40 00	---	20 39 47	76.2	130.7	-1.0		-38.6	90	2805	15 38 31
15 40 00	SSCYG	20 39 47	75.9	125.6	-1.1		-42.5	-25	2805	No stop
15 42 10	---	20 41 57	76.2	126.8	-1.0		-41.7	105	2822	15 40 01
15 42 10	J2136+4301	20 41 57	76.5	132.0	-0.9		-37.6	-26	2822	No stop
15 43 30	---	20 43 17	76.6	132.9	-0.9		-37.1	54	2832	15 42 11
15 43 30	SSCYG	20 43 17	76.3	127.6	-1.0		-41.2	-25	2832	No stop
15 45 40	---	20 45 28	76.6	128.8	-1.0		-40.3	105	2849	15 43 31
15 45 40	J2136+4301	20 45 28	76.9	134.3	-0.9		-36.1	-26	2849	No stop
15 47 00	---	20 46 48	77.0	135.1	-0.8		-35.5	54	2859	15 45 41
15 47 00	SSCYG	20 46 48	76.7	129.6	-0.9		-39.7	-26	2859	No stop
15 49 00	---	20 48 48	77.0	130.9	-0.9		-38.9	94	2874	15 47 01
15 50 00	J2136+4301	20 49 48	77.3	137.2	-0.8		-34.0	33	2874	15 50 00
15 51 30	---	20 51 19	77.5	138.2	-0.8		-33.2	90	2886	15 50 01
15 51 30	SSCYG	20 51 19	77.2	132.5	-0.9		-37.8	-26	2886	No stop
15 53 40	---	20 53 29	77.5	133.9	-0.8		-36.7	104	2903	15 51 31
15 53 40	J2136+4301	20 53 29	77.7	139.8	-0.7		-32.1	-27	2903	No stop
15 55 00	---	20 54 49	77.8	140.7	-0.7		-31.4	53	2913	15 53 41
15 55 00	SSCYG	20 54 49	77.6	134.8	-0.8		-36.1	-26	2913	No stop
15 57 10	---	20 56 59	77.9	136.3	-0.8		-35.0	104	2929	15 55 01
15 57 10	J2136+4301	20 56 59	78.0	142.4	-0.7		-30.1	-28	2929	No stop
15 58 30	---	20 58 20	78.1	143.4	-0.6		-29.4	52	2940	15 57 11
15 58 30	J2153+4322	20 58 20	76.6	130.4	-0.9		-39.0	-40	2940	No stop
16 00 00	---	20 59 50	76.8	131.3	-0.9		-38.4	50	2951	15 58 31

Schedule for TORUN (Code Tr) Page 9

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
16 01 00	J2136+4301	21 00 50	78.3	145.4	-0.6		-27.9	18	2951	16 01 00
16 02 30	---	21 02 20	78.5	146.6	-0.6		-26.9	90	2963	16 01 01
16 02 30	SSCYG	21 02 20	78.4	140.2	-0.7		-32.1	-27	2963	No stop
16 04 40	---	21 04 31	78.6	141.9	-0.6		-30.8	103	2979	16 02 31
16 04 40	J2136+4301	21 04 31	78.6	148.4	-0.5		-25.6	-29	2979	No stop
16 06 00	---	21 05 51	78.8	149.5	-0.5		-24.7	51	2990	16 04 41
16 06 00	SSCYG	21 05 51	78.7	143.0	-0.6		-30.0	-27	2990	No stop
16 08 10	---	21 08 01	78.9	144.7	-0.6		-28.6	103	3006	16 06 01
16 08 10	J2136+4301	21 08 01	78.9	151.4	-0.5		-23.2	-29	3006	No stop
16 09 30	---	21 09 21	79.0	152.5	-0.5		-22.3	51	3017	16 08 11
16 09 30	SSCYG	21 09 21	79.0	145.8	-0.6		-27.8	-28	3017	No stop
16 11 30	---	21 11 22	79.2	147.5	-0.5		-26.5	92	3032	16 09 31
16 12 30	J2136+4301	21 12 22	79.2	155.3	-0.4		-20.1	31	3032	16 12 30
16 14 00	---	21 13 52	79.3	156.6	-0.4		-19.0	90	3044	16 12 31
16 14 00	SSCYG	21 13 52	79.4	149.7	-0.5		-24.7	-28	3044	No stop
16 16 10	---	21 16 03	79.5	151.7	-0.5		-23.2	102	3060	16 14 01
16 16 10	J2136+4301	21 16 03	79.4	158.7	-0.3		-17.4	-30	3060	No stop
16 17 30	---	21 17 23	79.5	160.0	-0.3		-16.4	50	3070	16 16 11
16 17 30	SSCYG	21 17 23	79.6	152.9	-0.4		-22.2	-28	3070	No stop
16 19 40	---	21 19 33	79.8	155.0	-0.4		-20.5	102	3087	16 17 31
16 19 40	J2136+4301	21 19 33	79.6	162.1	-0.3		-14.7	-30	3087	No stop
16 21 00	---	21 20 53	79.7	163.4	-0.3		-13.6	50	3097	16 19 41
16 21 00	J2153+4322	21 20 53	78.9	146.6	-0.6		-27.1	-47	3097	No stop
16 22 30	---	21 22 24	79.0	147.9	-0.5		-26.1	43	3109	16 21 01
16 23 30	J2136+4301	21 23 24	79.8	165.9	-0.2		-11.6	10	3109	16 23 30
16 25 00	---	21 24 54	79.8	167.4	-0.2		-10.3	90	3120	16 23 31
16 26 20	BLLAC	21 26 14	77.6	146.3	-0.6		-26.8	22	3120	16 26 20
16 29 20	---	21 29 15	77.8	148.6	-0.6		-25.0	180	3144	16 26 21
16 30 40	J2136+4301	21 30 35	80.0	173.2	-0.1		-5.6	16	3144	16 30 40
16 33 40	---	21 33 35	80.0	176.4	-0.1		-3.0	180	3167	16 30 41

Schedule for TORUN (Code Tr) Page 10

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
16 33 40	SSCYG	21 33 35	80.4	169.3	-0.2		-8.8	-28	3167	No stop
16 35 50	---	21 35 46	80.5	171.7	-0.1		-6.9	102	3183	16 33 41
16 35 50	J2136+4301	21 35 46	80.0	178.7	-0.0		-1.1	-30	3183	No stop
16 37 10	---	21 37 06	80.0	180.1	0.0		0.1	50	3194	16 35 51
16 37 10	SSCYG	21 37 06	80.5	173.1	-0.1		-5.7	-28	3194	No stop
16 39 20	---	21 39 16	80.5	175.5	-0.1		-3.7	102	3210	16 37 11
16 39 20	J2136+4301	21 39 16	80.0	182.4	0.0		1.9	-30	3210	No stop
16 40 40	---	21 40 37	80.0	183.8	0.1		3.1	50	3220	16 39 21
16 40 40	SSCYG	21 40 37	80.6	177.0	-0.0		-2.5	-28	3220	No stop
16 42 40	---	21 42 37	80.6	179.2	-0.0		-0.7	92	3236	16 40 41
16 43 40	J2136+4301	21 43 37	80.0	186.9	0.1		5.7	31	3236	16 43 40
16 45 10	---	21 45 07	79.9	188.5	0.1		7.0	90	3247	16 43 41
16 45 10	SSCYG	21 45 07	80.6	182.0	0.0		1.6	-27	3247	No stop
16 47 20	---	21 47 18	80.5	184.4	0.1		3.6	103	3264	16 45 11
16 47 20	J2136+4301	21 47 18	79.9	190.7	0.2		8.8	-28	3264	No stop
16 48 40	---	21 48 38	79.8	192.1	0.2		9.9	52	3274	16 47 21
16 48 40	SSCYG	21 48 38	80.5	185.8	0.1		4.8	-27	3274	No stop
16 50 50	---	21 50 48	80.5	188.2	0.1		6.8	103	3291	16 48 41
16 50 50	J2136+4301	21 50 48	79.8	194.3	0.2		11.7	-28	3291	No stop
16 52 10	---	21 52 08	79.7	195.6	0.3		12.8	52	3301	16 50 51
16 52 10	J2153+4322	21 52 08	80.4	177.4	-0.0		-2.1	-50	3301	No stop
16 53 40	---	21 53 39	80.4	179.1	-0.0		-0.8	40	3313	16 52 11
16 54 40	J2136+4301	21 54 39	79.6	198.1	0.3		14.8	7	3313	16 54 40
16 56 10	---	21 56 09	79.5	199.5	0.3		16.0	90	3324	16 54 41
16 56 10	SSCYG	21 56 09	80.3	193.9	0.2		11.5	-25	3324	No stop
16 58 20	---	21 58 20	80.3	196.2	0.2		13.4	105	3341	16 56 11
16 58 20	J2136+4301	21 58 20	79.4	201.6	0.4		17.6	-26	3341	No stop
16 59 40	---	21 59 40	79.3	202.9	0.4		18.6	54	3351	16 58 21
16 59 40	SSCYG	21 59 40	80.2	197.6	0.3		14.5	-25	3351	No stop
17 01 50	---	22 01 50	80.1	199.8	0.3		16.3	105	3368	16 59 41

Schedule for TORUN (Code Tr) Page 11

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
17 01 50	J2136+4301	22 01 50	79.2	204.9	0.4		20.2	-26	3368	No stop
17 03 10	---	22 03 10	79.1	206.1	0.4		21.2	54	3378	17 01 51
17 03 10	SSCYG	22 03 10	80.0	201.1	0.3		17.4	-24	3378	No stop
17 05 10	---	22 05 11	79.9	203.1	0.4		19.0	96	3394	17 03 11
17 06 10	J2136+4301	22 06 11	78.9	208.8	0.5		23.3	35	3394	17 06 10
17 07 40	---	22 07 41	78.8	210.1	0.5		24.3	90	3405	17 06 11
17 07 40	SSCYG	22 07 41	79.7	205.5	0.4		21.0	-23	3405	No stop
17 09 50	---	22 09 51	79.6	207.6	0.4		22.6	107	3422	17 07 41
17 09 50	J2136+4301	22 09 51	78.6	211.9	0.5		25.8	-24	3422	No stop
17 11 10	---	22 11 12	78.5	213.0	0.6		26.6	56	3432	17 09 51
17 11 10	SSCYG	22 11 12	79.5	208.8	0.5		23.6	-23	3432	No stop
17 13 20	---	22 13 22	79.3	210.7	0.5		25.1	107	3449	17 11 11
17 13 20	J2136+4301	22 13 22	78.3	214.8	0.6		28.0	-23	3449	No stop
17 14 40	---	22 14 42	78.2	215.8	0.6		28.8	57	3459	17 13 21
17 14 40	J2153+4322	22 14 42	79.8	201.2	0.3		17.4	-43	3459	No stop
17 16 10	---	22 16 12	79.7	202.6	0.4		18.6	47	3470	17 14 41
17 17 10	J2136+4301	22 17 13	78.0	217.7	0.7		30.2	15	3470	17 17 10
17 18 40	---	22 18 43	77.9	218.9	0.7		31.1	90	3482	17 17 11
17 18 40	SSCYG	22 18 43	78.9	215.3	0.6		28.7	-21	3482	No stop
17 20 50	---	22 20 53	78.7	217.1	0.6		30.0	109	3499	17 18 41
17 20 50	J2136+4301	22 20 53	77.6	220.5	0.7		32.3	-22	3499	No stop
17 22 10	---	22 22 13	77.5	221.4	0.8		33.0	58	3509	17 20 51
17 22 10	SSCYG	22 22 13	78.6	218.1	0.6		30.8	-21	3509	No stop
17 24 20	---	22 24 24	78.4	219.8	0.7		32.1	109	3526	17 22 11
17 24 20	J2136+4301	22 24 24	77.3	222.9	0.8		34.1	-21	3526	No stop
17 25 40	---	22 25 44	77.2	223.8	0.8		34.7	59	3536	17 24 21
17 25 40	SSCYG	22 25 44	78.3	220.8	0.7		32.9	-20	3536	No stop
17 27 40	---	22 27 44	78.1	222.3	0.7		34.0	100	3551	17 25 41
17 28 40	J2136+4301	22 28 44	76.8	225.8	0.9		36.2	39	3551	17 28 40
17 30 10	---	22 30 15	76.7	226.8	0.9		36.8	90	3563	17 28 41

Schedule for TORUN (Code Tr) Page 12

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
17 30 10	SSCYG	22 30 15	77.8	224.1	0.8		35.3	-19	3563	No stop
17 32 20	---	22 32 25	77.6	225.6	0.8		36.4	111	3579	17 30 11
17 32 20	J2136+4301	22 32 25	76.4	228.2	0.9		37.8	-20	3579	No stop
17 33 40	---	22 33 45	76.3	229.0	0.9		38.3	60	3590	17 32 21
17 33 40	SSCYG	22 33 45	77.4	226.5	0.8		37.0	-19	3590	No stop
17 35 50	---	22 35 56	77.2	227.9	0.9		38.0	111	3606	17 33 41
17 35 50	J2136+4301	22 35 56	76.0	230.3	1.0		39.2	-19	3606	No stop
17 37 10	---	22 37 16	75.9	231.0	1.0		39.8	61	3617	17 35 51
17 37 10	J2153+4322	22 37 16	78.1	220.6	0.7		32.6	-35	3617	No stop
17 38 40	---	22 38 46	77.9	221.7	0.7		33.4	55	3628	17 37 11
17 39 40	J2136+4301	22 39 46	75.6	232.5	1.0		40.7	24	3628	17 39 40
17 41 10	---	22 41 17	75.4	233.3	1.1		41.2	90	3640	17 39 41
17 41 10	SSCYG	22 41 17	76.6	231.2	1.0		40.3	-18	3640	No stop
17 43 20	---	22 43 27	76.3	232.5	1.0		41.2	112	3656	17 41 11
17 43 20	J2136+4301	22 43 27	75.1	234.4	1.1		42.0	-18	3656	No stop
17 44 40	---	22 44 47	75.0	235.1	1.1		42.5	62	3667	17 43 21
17 44 40	SSCYG	22 44 47	76.2	233.2	1.0		41.7	-17	3667	No stop
17 46 50	---	22 46 57	75.9	234.4	1.1		42.5	113	3683	17 44 41
17 46 50	J2136+4301	22 46 57	74.7	236.3	1.2		43.2	-18	3683	No stop
17 48 10	---	22 48 18	74.5	236.9	1.2		43.6	62	3694	17 46 51
17 48 10	SSCYG	22 48 18	75.7	235.2	1.1		42.9	-17	3694	No stop
17 50 10	---	22 50 18	75.5	236.2	1.1		43.6	103	3709	17 48 11
17 51 10	J2136+4301	22 51 18	74.2	238.4	1.2		44.5	42	3709	17 51 10
17 52 40	---	22 52 48	74.0	239.1	1.3		44.9	90	3720	17 51 11
17 52 40	SSCYG	22 52 48	75.2	237.5	1.2		44.4	-18	3720	No stop
17 54 50	---	22 54 59	74.9	238.6	1.2		45.1	112	3737	17 52 41
17 54 50	J2136+4301	22 54 59	73.7	240.1	1.3		45.5	-18	3737	No stop
17 56 10	---	22 56 19	73.5	240.7	1.3		45.8	62	3747	17 54 51
17 56 10	SSCYG	22 56 19	74.7	239.2	1.2		45.5	-18	3747	No stop
17 58 20	---	22 58 29	74.4	240.3	1.3		46.1	112	3764	17 56 11

Schedule for TORUN (Code Tr) Page 13

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
17 58 20	J2136+4301	22 58 29	73.2	241.7	1.4		46.4	-18	3764	No stop
17 59 40	---	22 59 50	73.0	242.3	1.4		46.7	62	3774	17 58 21
17 59 40	J2153+4322	22 59 50	75.5	234.8	1.1		42.5	-29	3774	No stop
18 01 10	---	23 01 20	75.4	235.6	1.1		43.1	61	3786	17 59 41
18 02 10	J2136+4301	23 02 20	72.7	243.3	1.4		47.3	30	3786	18 02 10
18 03 40	---	23 03 50	72.5	243.9	1.4		47.6	90	3797	18 02 11
18 05 00	J2136+4301	23 05 10	72.3	244.5	1.5		47.9	73	3797	18 05 00
18 08 00	---	23 08 11	71.9	245.7	1.5		48.5	180	3820	18 05 01
18 08 00	SSCYG	23 08 11	73.1	244.5	1.4		48.5	-18	3820	No stop
18 10 10	---	23 10 21	72.9	245.4	1.5		49.0	112	3837	18 08 01
18 10 10	J2136+4301	23 10 21	71.6	246.5	1.6		49.0	-18	3837	No stop
18 11 30	---	23 11 42	71.4	247.0	1.6		49.2	62	3847	18 10 11
18 11 30	SSCYG	23 11 42	72.7	245.9	1.5		49.3	-18	3847	No stop
18 13 40	---	23 13 52	72.4	246.8	1.5		49.7	112	3864	18 11 31
18 13 40	J2136+4301	23 13 52	71.1	247.8	1.6		49.6	-18	3864	No stop
18 15 00	---	23 15 12	70.9	248.3	1.6		49.8	62	3874	18 13 41
18 15 00	SSCYG	23 15 12	72.2	247.3	1.5		50.0	-18	3874	No stop
18 17 00	---	23 17 12	71.9	248.1	1.6		50.4	102	3890	18 15 01
18 18 00	J2136+4301	23 18 13	70.5	249.4	1.7		50.3	42	3890	18 18 00
18 19 30	---	23 19 43	70.3	249.9	1.7		50.6	90	3901	18 18 01
18 19 30	SSCYG	23 19 43	71.6	249.0	1.6		50.8	-18	3901	No stop
18 21 40	---	23 21 53	71.3	249.8	1.6		51.2	112	3918	18 19 31
18 21 40	J2136+4301	23 21 53	70.0	250.6	1.7		50.9	-18	3918	No stop
18 23 00	---	23 23 13	69.8	251.1	1.8		51.1	62	3928	18 21 41
18 23 00	SSCYG	23 23 13	71.1	250.2	1.7		51.4	-18	3928	No stop
18 25 10	---	23 25 24	70.8	251.0	1.7		51.7	112	3945	18 23 01
18 25 10	J2136+4301	23 25 24	69.5	251.8	1.8		51.4	-18	3945	No stop
18 26 30	---	23 26 44	69.3	252.2	1.8		51.6	62	3955	18 25 11
18 26 30	J2153+4322	23 26 44	72.0	247.0	1.5		49.6	-25	3955	No stop
18 28 00	---	23 28 14	71.8	247.5	1.6		49.9	65	3967	18 26 31

Schedule for TORUN (Code Tr) Page 14

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
18 29 00	J2136+4301	23 29 14	69.0	253.0	1.9		51.9	34	3967	18 29 00
18 30 30	---	23 30 45	68.7	253.5	1.9		52.1	90	3978	18 29 01
18 30 30	SSCYG	23 30 45	70.0	252.7	1.8		52.4	-18	3978	No stop
18 32 40	---	23 32 55	69.7	253.4	1.8		52.7	112	3995	18 30 31
18 32 40	J2136+4301	23 32 55	68.4	254.2	1.9		52.3	-18	3995	No stop
18 34 00	---	23 34 15	68.2	254.6	2.0		52.4	62	4005	18 32 41
18 34 00	SSCYG	23 34 15	69.5	253.9	1.8		52.9	-18	4005	No stop
18 36 10	---	23 36 26	69.2	254.5	1.9		53.1	112	4022	18 34 01
18 36 10	J2136+4301	23 36 26	67.9	255.2	2.0		52.7	-18	4022	No stop
18 37 30	---	23 37 46	67.7	255.6	2.0		52.8	62	4032	18 36 11
18 37 30	SSCYG	23 37 46	69.0	254.9	1.9		53.3	-18	4032	No stop
18 39 30	---	23 39 46	68.7	255.5	1.9		53.5	102	4047	18 37 31
18 40 30	J2136+4301	23 40 46	67.3	256.5	2.1		53.1	42	4047	18 40 30
18 42 00	---	23 42 17	67.1	256.9	2.1		53.2	90	4059	18 40 31
18 42 00	SSCYG	23 42 17	68.3	256.3	2.0		53.7	-18	4059	No stop
18 44 10	---	23 44 27	68.0	256.9	2.0		53.9	112	4076	18 42 01
18 44 10	J2136+4301	23 44 27	66.8	257.5	2.1		53.4	-18	4076	No stop
18 45 30	---	23 45 47	66.6	257.9	2.1		53.5	62	4086	18 44 11
18 45 30	SSCYG	23 45 47	67.8	257.3	2.0		54.1	-18	4086	No stop
18 47 40	---	23 47 57	67.5	257.9	2.1		54.2	112	4103	18 45 31
18 47 40	J2136+4301	23 47 57	66.2	258.4	2.2		53.7	-18	4103	No stop
18 49 00	---	23 49 18	66.0	258.8	2.2		53.8	62	4113	18 47 41
18 49 00	J2153+4322	23 49 18	68.8	254.6	1.9		52.9	-24	4113	No stop
18 50 30	---	23 50 48	68.6	255.0	1.9		53.1	66	4124	18 49 01
18 51 30	J2136+4301	23 51 48	65.7	259.5	2.2		54.0	36	4124	18 51 30
18 53 00	---	23 53 18	65.4	259.8	2.3		54.1	90	4136	18 51 31
18 53 00	SSCYG	23 53 18	66.7	259.3	2.2		54.7	-18	4136	No stop
18 55 10	---	23 55 29	66.4	259.9	2.2		54.8	112	4153	18 53 01
18 55 10	J2136+4301	23 55 29	65.1	260.4	2.3		54.2	-18	4153	No stop
18 56 30	---	23 56 49	64.9	260.7	2.3		54.3	62	4163	18 55 11

Schedule for TORUN (Code Tr) Page 15

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
18 56 30	SSCYG	23 56 49	66.2	260.2	2.2		54.9	-18	4163	No stop
18 58 40	---	23 58 59	65.9	260.8	2.3		55.0	112	4179	18 56 31
18 58 40	J2136+4301	23 58 59	64.6	261.3	2.4		54.4	-18	4179	No stop
19 00 00	---	00 00 19	64.4	261.6	2.4		54.5	62	4190	18 58 41
19 00 00	SSCYG	00 00 19	65.7	261.1	2.3		55.1	-18	4190	No stop
19 02 00	---	00 02 20	65.4	261.6	2.3		55.2	102	4205	19 00 01
19 03 00	J2136+4301	00 03 20	64.0	262.3	2.4		54.6	42	4205	19 03 00
19 04 30	---	00 04 50	63.7	262.7	2.5		54.7	90	4217	19 03 01
19 04 30	SSCYG	00 04 50	65.0	262.2	2.4		55.3	-18	4217	No stop
19 06 40	---	00 07 01	64.7	262.8	2.4		55.4	112	4233	19 04 31
19 06 40	J2136+4301	00 07 01	63.4	263.2	2.5		54.8	-18	4233	No stop
19 08 00	---	00 08 21	63.2	263.5	2.5		54.8	62	4244	19 06 41
19 08 00	SSCYG	00 08 21	64.5	263.1	2.4		55.5	-18	4244	No stop
19 10 10	---	00 10 31	64.2	263.6	2.5		55.6	112	4260	19 08 01
19 10 10	J2136+4301	00 10 31	62.9	264.0	2.6		54.9	-18	4260	No stop
19 11 30	---	00 11 51	62.7	264.3	2.6		54.9	62	4270	19 10 11
19 11 30	J2153+4322	00 11 51	65.5	260.8	2.3		54.8	-24	4270	No stop
19 13 00	---	00 13 22	65.3	261.2	2.3		54.8	66	4282	19 11 31
19 14 00	J2136+4301	00 14 22	62.3	264.9	2.6		55.0	35	4282	19 14 00
19 15 30	---	00 15 52	62.1	265.2	2.6		55.1	90	4294	19 14 01
19 15 30	SSCYG	00 15 52	63.4	264.8	2.5		55.8	-18	4294	No stop
19 17 40	---	00 18 02	63.0	265.3	2.6		55.8	112	4310	19 15 31
19 17 40	J2136+4301	00 18 02	61.8	265.7	2.7		55.1	-18	4310	No stop
19 19 00	---	00 19 23	61.6	266.0	2.7		55.1	62	4320	19 17 41
19 19 00	SSCYG	00 19 23	62.8	265.6	2.6		55.9	-18	4320	No stop
19 21 10	---	00 21 33	62.5	266.1	2.6		55.9	112	4337	19 19 01
19 21 10	J2136+4301	00 21 33	61.2	266.5	2.7		55.2	-18	4337	No stop
19 22 30	---	00 22 53	61.0	266.8	2.8		55.2	62	4347	19 21 11
19 22 30	SSCYG	00 22 53	62.3	266.4	2.7		55.9	-18	4347	No stop
19 24 30	---	00 24 54	62.0	266.8	2.7		56.0	102	4363	19 22 31

Schedule for TORUN (Code Tr) Page 16

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
19 25 30	J2136+4301	00 25 54	60.6	267.4	2.8		55.3	42	4363	19 25 30
19 27 00	---	00 27 24	60.4	267.7	2.8		55.3	90	4374	19 25 31
19 27 00	SSCYG	00 27 24	61.6	267.4	2.7		56.0	-18	4374	No stop
19 29 10	---	00 29 34	61.3	267.8	2.8		56.0	112	4391	19 27 01
19 29 10	J2136+4301	00 29 34	60.0	268.2	2.9		55.3	-18	4391	No stop
19 30 30	---	00 30 55	59.8	268.5	2.9		55.3	62	4401	19 29 11
19 30 30	SSCYG	00 30 55	61.1	268.1	2.8		56.1	-18	4401	No stop
19 32 40	---	00 33 05	60.8	268.6	2.8		56.1	112	4418	19 30 31
19 32 40	J2136+4301	00 33 05	59.5	268.9	2.9		55.3	-18	4418	No stop
19 34 00	---	00 34 25	59.3	269.2	3.0		55.3	62	4428	19 32 41
19 34 00	J2153+4322	00 34 25	62.1	266.1	2.7		55.6	-24	4428	No stop
19 35 30	---	00 35 55	61.9	266.4	2.7		55.7	66	4440	19 34 01
19 36 30	J2136+4301	00 36 55	58.9	269.7	3.0		55.3	35	4440	19 36 30
19 38 00	---	00 38 26	58.7	270.0	3.0		55.3	90	4451	19 36 31
19 39 20	BLLAC	00 39 46	62.0	263.4	2.6		53.8	51	4451	19 39 20
19 42 20	---	00 42 46	61.6	264.1	2.7		53.9	180	4474	19 39 21
19 43 40	J2136+4301	00 44 07	57.9	271.1	3.1		55.3	51	4474	19 43 40
19 46 40	---	00 47 07	57.4	271.7	3.2		55.3	180	4497	19 43 41
19 46 40	SSCYG	00 47 07	58.7	271.4	3.1		56.1	-18	4497	No stop
19 48 50	---	00 49 18	58.3	271.8	3.1		56.1	112	4514	19 46 41
19 48 50	J2136+4301	00 49 18	57.1	272.1	3.2		55.3	-18	4514	No stop
19 50 10	---	00 50 38	56.9	272.4	3.2		55.3	62	4524	19 48 51
19 50 10	SSCYG	00 50 38	58.1	272.0	3.1		56.1	-18	4524	No stop
19 52 20	---	00 52 48	57.8	272.5	3.2		56.0	112	4541	19 50 11
19 52 20	J2136+4301	00 52 48	56.6	272.8	3.3		55.2	-18	4541	No stop
19 53 40	---	00 54 08	56.4	273.0	3.3		55.2	62	4551	19 52 21
19 53 40	SSCYG	00 54 08	57.6	272.7	3.2		56.0	-18	4551	No stop
19 55 40	---	00 56 09	57.3	273.1	3.2		56.0	102	4567	19 53 41
19 56 40	J2136+4301	00 57 09	55.9	273.6	3.3		55.2	42	4567	19 56 40
19 58 10	---	00 58 39	55.7	273.9	3.4		55.1	90	4578	19 56 41

Schedule for TORUN (Code Tr) Page 17

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
19 58 10	SSCYG	00 58 39	56.9	273.6	3.3		55.9	-18	4578	No stop
20 00 20	---	01 00 49	56.6	274.0	3.3		55.9	112	4595	19 58 11
20 00 20	J2136+4301	01 00 49	55.3	274.3	3.4		55.1	-18	4595	No stop
20 01 40	---	01 02 10	55.1	274.5	3.4		55.1	62	4605	20 00 21
20 01 40	SSCYG	01 02 10	56.4	274.2	3.3		55.9	-18	4605	No stop
20 03 50	---	01 04 20	56.1	274.6	3.3		55.8	112	4622	20 01 41
20 03 50	J2136+4301	01 04 20	54.8	274.9	3.5		55.0	-18	4622	No stop
20 05 10	---	01 05 40	54.6	275.2	3.5		55.0	62	4632	20 03 51
20 05 10	J2153+4322	01 05 40	57.4	272.5	3.2		55.7	-24	4632	No stop
20 06 40	---	01 07 10	57.2	272.8	3.2		55.7	66	4644	20 05 11
20 07 40	J2136+4301	01 08 11	54.2	275.6	3.5		54.9	35	4644	20 07 40
20 09 10	---	01 09 41	54.0	275.9	3.5		54.9	90	4655	20 07 41
20 09 10	SSCYG	01 09 41	55.3	275.6	3.4		55.7	-18	4655	No stop
20 11 20	---	01 11 51	55.0	275.9	3.5		55.7	112	4672	20 09 11
20 11 20	J2136+4301	01 11 51	53.7	276.3	3.6		54.8	-18	4672	No stop
20 12 40	---	01 13 11	53.5	276.5	3.6		54.8	62	4682	20 11 21
20 12 40	SSCYG	01 13 11	54.8	276.2	3.5		55.6	-18	4682	No stop
20 14 50	---	01 15 22	54.4	276.6	3.5		55.6	112	4699	20 12 41
20 14 50	J2136+4301	01 15 22	53.2	276.9	3.6		54.7	-18	4699	No stop
20 16 10	---	01 16 42	53.0	277.1	3.7		54.7	62	4709	20 14 51
20 16 10	SSCYG	01 16 42	54.2	276.8	3.6		55.5	-18	4709	No stop
20 18 10	---	01 18 42	53.9	277.2	3.6		55.5	102	4724	20 16 11
20 19 10	J2136+4301	01 19 43	52.5	277.7	3.7		54.6	42	4724	20 19 10
20 20 40	---	01 21 13	52.3	277.9	3.7		54.6	90	4736	20 19 11
20 20 40	SSCYG	01 21 13	53.6	277.6	3.6		55.4	-18	4736	No stop
20 22 50	---	01 23 23	53.2	278.0	3.7		55.3	112	4753	20 20 41
20 22 50	J2136+4301	01 23 23	52.0	278.3	3.8		54.5	-18	4753	No stop
20 24 10	---	01 24 43	51.8	278.5	3.8		54.4	62	4763	20 22 51
20 24 10	SSCYG	01 24 43	53.0	278.2	3.7		55.2	-18	4763	No stop
20 26 20	---	01 26 54	52.7	278.6	3.7		55.2	112	4779	20 24 11

Schedule for TORUN (Code Tr) Page 18

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
20 26 20	J2136+4301	01 26 54	51.5	278.9	3.8		54.3	-18	4779	No stop
20 27 40	---	01 28 14	51.3	279.1	3.9		54.3	62	4790	20 26 21
20 27 40	J2153+4322	01 28 14	54.1	276.6	3.6		55.3	-24	4790	No stop
20 29 10	---	01 29 44	53.8	276.8	3.6		55.2	66	4801	20 27 41
20 30 10	J2136+4301	01 30 44	50.9	279.6	3.9		54.2	35	4801	20 30 10
20 31 40	---	01 32 15	50.7	279.8	3.9		54.1	90	4813	20 30 11
20 31 40	SSCYG	01 32 15	51.9	279.5	3.8		55.0	-18	4813	No stop
20 33 50	---	01 34 25	51.6	279.8	3.9		54.9	112	4829	20 31 41
20 33 50	J2136+4301	01 34 25	50.3	280.2	4.0		54.1	-18	4829	No stop
20 35 10	---	01 35 45	50.2	280.4	4.0		54.0	62	4840	20 33 51
20 35 10	SSCYG	01 35 45	51.4	280.1	3.9		54.8	-18	4840	No stop
20 37 20	---	01 37 55	51.1	280.4	3.9		54.7	112	4856	20 35 11
20 37 20	J2136+4301	01 37 55	49.8	280.8	4.0		53.9	-18	4856	No stop
20 38 40	---	01 39 16	49.6	281.0	4.0		53.8	62	4867	20 37 21
20 38 40	SSCYG	01 39 16	50.9	280.6	3.9		54.7	-18	4867	No stop
20 40 40	---	01 41 16	50.6	281.0	4.0		54.6	102	4882	20 38 41
20 41 40	J2136+4301	01 42 16	49.2	281.5	4.1		53.7	42	4882	20 41 40
20 43 10	---	01 43 46	49.0	281.7	4.1		53.6	90	4894	20 41 41
20 43 10	SSCYG	01 43 46	50.2	281.4	4.0		54.5	-18	4894	No stop
20 45 20	---	01 45 57	49.9	281.7	4.0		54.4	112	4910	20 43 11
20 45 20	J2136+4301	01 45 57	48.7	282.1	4.1		53.5	-18	4910	No stop
20 46 40	---	01 47 17	48.5	282.3	4.2		53.5	62	4920	20 45 21
20 46 40	SSCYG	01 47 17	49.7	282.0	4.1		54.3	-18	4920	No stop
20 48 50	---	01 49 27	49.4	282.3	4.1		54.2	112	4937	20 46 41
20 48 50	J2136+4301	01 49 27	48.1	282.7	4.2		53.4	-18	4937	No stop
20 50 10	---	01 50 48	47.9	282.9	4.2		53.3	62	4947	20 48 51
20 50 10	J2153+4322	01 50 48	50.7	280.4	3.9		54.5	-24	4947	No stop
20 51 40	---	01 52 18	50.5	280.7	4.0		54.4	66	4959	20 50 11
20 52 40	J2136+4301	01 53 18	47.6	283.3	4.3		53.2	36	4959	20 52 40
20 54 10	---	01 54 48	47.4	283.5	4.3		53.1	90	4970	20 52 41

Schedule for TORUN (Code Tr) Page 19

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
20 54 10	SSCYG	01 54 48	48.6	283.2	4.2		53.9	-18	4970	No stop
20 56 20	---	01 56 59	48.3	283.5	4.2		53.8	112	4987	20 54 11
20 56 20	J2136+4301	01 56 59	47.0	283.9	4.3		53.0	-18	4987	No stop
20 57 40	---	01 58 19	46.8	284.1	4.4		52.9	62	4997	20 56 21
20 57 40	SSCYG	01 58 19	48.1	283.7	4.2		53.7	-18	4997	No stop
20 59 50	---	02 00 29	47.8	284.1	4.3		53.6	112	5014	20 57 41
20 59 50	J2136+4301	02 00 29	46.5	284.4	4.4		52.8	-18	5014	No stop
21 01 10	---	02 01 49	46.3	284.7	4.4		52.7	62	5024	20 59 51
21 01 10	SSCYG	02 01 49	47.6	284.3	4.3		53.5	-18	5024	No stop
21 03 10	---	02 03 50	47.3	284.6	4.3		53.4	102	5040	21 01 11
21 04 10	J2136+4301	02 04 50	45.9	285.1	4.5		52.6	42	5040	21 04 10
21 05 40	---	02 06 20	45.7	285.4	4.5		52.5	90	5051	21 04 11
21 05 40	SSCYG	02 06 20	46.9	285.0	4.4		53.3	-18	5051	No stop
21 07 50	---	02 08 30	46.6	285.4	4.4		53.2	112	5068	21 05 41
21 07 50	J2136+4301	02 08 30	45.4	285.7	4.5		52.3	-18	5068	No stop
21 09 10	---	02 09 51	45.2	285.9	4.5		52.3	62	5078	21 07 51
21 09 10	SSCYG	02 09 51	46.4	285.6	4.4		53.1	-18	5078	No stop
21 11 20	---	02 12 01	46.1	285.9	4.5		53.0	112	5095	21 09 11
21 11 20	J2136+4301	02 12 01	44.9	286.3	4.6		52.1	-18	5095	No stop
21 12 40	---	02 13 21	44.7	286.5	4.6		52.1	62	5105	21 11 21
21 12 40	J2153+4322	02 13 21	47.4	284.1	4.3		53.4	-24	5105	No stop
21 14 10	---	02 14 52	47.2	284.4	4.3		53.3	66	5117	21 12 41
21 15 10	J2136+4301	02 15 52	44.3	286.9	4.6		51.9	36	5117	21 15 10
21 16 40	---	02 17 22	44.1	287.1	4.7		51.8	90	5128	21 15 11
21 18 00	BLLAC	02 18 42	47.3	282.3	4.3		52.6	54	5128	21 18 00
21 21 00	---	02 21 43	46.8	282.7	4.3		52.4	180	5151	21 18 01
21 22 20	J2136+4301	02 23 03	43.3	288.0	4.8		51.5	53	5151	21 22 20
21 25 20	---	02 26 03	42.8	288.5	4.8		51.3	180	5174	21 22 21
21 25 20	SSCYG	02 26 03	44.1	288.1	4.7		52.1	-18	5174	No stop
21 27 30	---	02 28 14	43.8	288.4	4.7		51.9	112	5191	21 25 21

Schedule for TORUN (Code Tr) Page 20

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
21 27 30	J2136+4301	02 28 14	42.5	288.8	4.9		51.1	-18	5191	No stop
21 28 50	---	02 29 34	42.3	289.0	4.9		51.0	62	5201	21 27 31
21 28 50	SSCYG	02 29 34	43.6	288.6	4.8		51.9	-18	5201	No stop
21 31 00	---	02 31 44	43.3	289.0	4.8		51.7	112	5218	21 28 51
21 31 00	J2136+4301	02 31 44	42.0	289.4	4.9		50.9	-18	5218	No stop
21 32 20	---	02 33 05	41.9	289.6	4.9		50.8	62	5228	21 31 01
21 32 20	SSCYG	02 33 05	43.1	289.2	4.8		51.6	-18	5228	No stop
21 34 20	---	02 35 05	42.8	289.5	4.9		51.5	102	5244	21 32 21
21 35 20	J2136+4301	02 36 05	41.4	290.0	5.0		50.6	42	5244	21 35 20
21 36 50	---	02 37 35	41.2	290.3	5.0		50.5	90	5255	21 35 21
21 36 50	SSCYG	02 37 35	42.5	289.9	4.9		51.3	-18	5255	No stop
21 39 00	---	02 39 46	42.2	290.2	4.9		51.2	112	5272	21 36 51
21 39 00	J2136+4301	02 39 46	40.9	290.6	5.0		50.3	-18	5272	No stop
21 40 20	---	02 41 06	40.7	290.8	5.1		50.2	62	5282	21 39 01
21 40 20	SSCYG	02 41 06	42.0	290.4	5.0		51.1	-18	5282	No stop
21 42 30	---	02 43 16	41.7	290.7	5.0		50.9	112	5299	21 40 21
21 42 30	J2136+4301	02 43 16	40.4	291.1	5.1		50.1	-18	5299	No stop
21 43 50	---	02 44 36	40.2	291.4	5.1		50.0	62	5309	21 42 31
21 43 50	J2153+4322	02 44 36	42.9	289.0	4.8		51.5	-24	5309	No stop
21 45 20	---	02 46 07	42.7	289.3	4.9		51.4	66	5320	21 43 51
21 46 20	J2136+4301	02 47 07	39.9	291.7	5.2		49.8	36	5320	21 46 20
21 47 50	---	02 48 37	39.7	292.0	5.2		49.7	90	5332	21 46 21
21 47 50	SSCYG	02 48 37	40.9	291.6	5.1		50.5	-18	5332	No stop
21 50 00	---	02 50 47	40.6	291.9	5.1		50.4	112	5349	21 47 51
21 50 00	J2136+4301	02 50 47	39.4	292.3	5.2		49.5	-18	5349	No stop
21 51 20	---	02 52 08	39.2	292.5	5.3		49.5	62	5359	21 50 01
21 51 20	SSCYG	02 52 08	40.4	292.1	5.1		50.3	-18	5359	No stop
21 53 30	---	02 54 18	40.1	292.4	5.2		50.1	112	5376	21 51 21
21 53 30	J2136+4301	02 54 18	38.9	292.8	5.3		49.3	-18	5376	No stop
21 54 50	---	02 55 38	38.7	293.0	5.3		49.2	62	5386	21 53 31

Schedule for TORUN (Code Tr) Page 21

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
21 54 50	SSCYG	02 55 38	39.9	292.6	5.2		50.0	-18	5386	No stop
21 56 50	---	02 57 39	39.7	292.9	5.2		49.9	102	5401	21 54 51
21 57 50	J2136+4301	02 58 39	38.3	293.5	5.4		49.0	42	5401	21 57 50
21 59 20	---	03 00 09	38.1	293.7	5.4		48.8	90	5413	21 57 51
21 59 20	SSCYG	03 00 09	39.3	293.3	5.3		49.7	-18	5413	No stop
22 01 30	---	03 02 19	39.0	293.6	5.3		49.5	112	5429	21 59 21
22 01 30	J2136+4301	03 02 19	37.8	294.1	5.4		48.7	-18	5429	No stop
22 02 50	---	03 03 40	37.6	294.3	5.4		48.6	62	5440	22 01 31
22 02 50	SSCYG	03 03 40	38.8	293.8	5.3		49.4	-18	5440	No stop
22 05 00	---	03 05 50	38.5	294.2	5.4		49.2	112	5456	22 02 51
22 05 00	J2136+4301	03 05 50	37.3	294.6	5.5		48.4	-18	5456	No stop
22 06 20	---	03 07 10	37.1	294.8	5.5		48.3	62	5467	22 05 01
22 06 20	J2153+4322	03 07 10	39.7	292.5	5.2		49.9	-24	5467	No stop
22 07 50	---	03 08 40	39.5	292.7	5.2		49.7	66	5478	22 06 21
22 08 50	J2136+4301	03 09 41	36.8	295.2	5.5		48.1	36	5478	22 08 50
22 10 20	---	03 11 11	36.6	295.4	5.6		48.0	90	5490	22 08 51
22 10 20	SSCYG	03 11 11	37.8	295.0	5.5		48.8	-18	5490	No stop
22 12 30	---	03 13 21	37.5	295.3	5.5		48.6	112	5506	22 10 21
22 12 30	J2136+4301	03 13 21	36.3	295.7	5.6		47.8	-18	5506	No stop
22 13 50	---	03 14 41	36.1	295.9	5.6		47.7	62	5517	22 12 31
22 13 50	SSCYG	03 14 41	37.3	295.5	5.5		48.5	-18	5517	No stop
22 16 00	---	03 16 52	37.0	295.8	5.6		48.3	112	5533	22 13 51
22 16 00	J2136+4301	03 16 52	35.8	296.3	5.7		47.5	-18	5533	No stop
22 17 20	---	03 18 12	35.6	296.5	5.7		47.4	62	5544	22 16 01
22 17 20	SSCYG	03 18 12	36.8	296.0	5.6		48.2	-18	5544	No stop
22 19 20	---	03 20 12	36.6	296.3	5.6		48.1	102	5559	22 17 21
22 20 20	J2136+4301	03 21 12	35.2	296.9	5.7		47.2	42	5559	22 20 20
22 21 50	---	03 22 43	35.0	297.2	5.8		47.0	90	5570	22 20 21
22 21 50	SSCYG	03 22 43	36.2	296.7	5.7		47.9	-18	5570	No stop
22 24 00	---	03 24 53	35.9	297.0	5.7		47.7	112	5587	22 21 51

Schedule for TORUN (Code Tr) Page 22

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
22 24 00	J2136+4301	03 24 53	34.7	297.5	5.8		46.9	-18	5587	No stop
22 25 20	---	03 26 13	34.5	297.7	5.8		46.7	62	5597	22 24 01
22 25 20	SSCYG	03 26 13	35.8	297.2	5.7		47.6	-18	5597	No stop
22 27 30	---	03 28 24	35.5	297.6	5.8		47.4	112	5614	22 25 21
22 27 30	J2136+4301	03 28 24	34.3	298.0	5.9		46.6	-18	5614	No stop
22 28 50	---	03 29 44	34.1	298.2	5.9		46.4	62	5624	22 27 31
22 28 50	J2153+4322	03 29 44	36.7	295.9	5.6		48.1	-23	5624	No stop
22 30 20	---	03 31 14	36.5	296.1	5.6		48.0	67	5636	22 28 51
22 31 20	J2136+4301	03 32 14	33.8	298.6	5.9		46.2	36	5636	22 31 20
22 32 50	---	03 33 44	33.6	298.8	5.9		46.1	90	5647	22 31 21
22 32 50	SSCYG	03 33 44	34.8	298.4	5.8		46.9	-18	5647	No stop
22 35 00	---	03 35 55	34.5	298.7	5.9		46.7	112	5664	22 32 51
22 35 00	J2136+4301	03 35 55	33.3	299.2	6.0		45.9	-18	5664	No stop
22 36 20	---	03 37 15	33.1	299.4	6.0		45.8	62	5674	22 35 01
22 36 20	SSCYG	03 37 15	34.3	298.9	5.9		46.6	-18	5674	No stop
22 38 30	---	03 39 25	34.0	299.2	5.9		46.4	112	5691	22 36 21
22 38 30	J2136+4301	03 39 25	32.8	299.7	6.0		45.6	-18	5691	No stop
22 39 50	---	03 40 46	32.6	299.9	6.1		45.5	62	5701	22 38 31
22 39 50	SSCYG	03 40 46	33.8	299.4	6.0		46.3	-18	5701	No stop
22 41 50	---	03 42 46	33.6	299.7	6.0		46.1	102	5717	22 39 51
22 42 50	J2136+4301	03 43 46	32.2	300.4	6.1		45.2	42	5717	22 42 50
22 44 20	---	03 45 16	32.1	300.6	6.1		45.1	90	5728	22 42 51
22 44 20	SSCYG	03 45 16	33.3	300.1	6.0		45.9	-18	5728	No stop
22 46 30	---	03 47 27	33.0	300.4	6.1		45.7	112	5745	22 44 21
22 46 30	J2136+4301	03 47 27	31.8	300.9	6.2		44.9	-18	5745	No stop
22 47 50	---	03 48 47	31.6	301.1	6.2		44.8	62	5755	22 46 31
22 47 50	SSCYG	03 48 47	32.8	300.6	6.1		45.6	-18	5755	No stop
22 50 00	---	03 50 57	32.5	301.0	6.1		45.4	112	5772	22 47 51
22 50 00	J2136+4301	03 50 57	31.3	301.5	6.2		44.6	-18	5772	No stop
22 51 20	---	03 52 18	31.1	301.7	6.3		44.4	62	5782	22 50 01

Schedule for TORUN (Code Tr) Page 23

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
22 51 20	J2153+4322	03 52 18	33.7	299.3	6.0		46.2	-23	5782	No stop
22 52 50	---	03 53 48	33.5	299.5	6.0		46.0	67	5794	22 51 21
22 53 50	J2136+4301	03 54 48	30.8	302.0	6.3		44.2	37	5794	22 53 50
22 55 20	---	03 56 18	30.6	302.3	6.3		44.1	90	5805	22 53 51
22 56 40	BLLAC	03 57 38	33.4	297.8	5.9		45.9	55	5805	22 56 40
22 59 40	---	04 00 39	33.0	298.3	6.0		45.7	180	5828	22 56 41
23 01 00	J2136+4301	04 01 59	29.9	303.1	6.4		43.5	55	5828	23 01 00
23 04 00	---	04 05 00	29.5	303.6	6.5		43.2	180	5851	23 01 01
23 04 00	SSCYG	04 05 00	30.7	303.1	6.4		44.1	-17	5851	No stop
23 06 10	---	04 07 10	30.5	303.4	6.4		43.9	113	5868	23 04 01
23 06 10	J2136+4301	04 07 10	29.3	303.9	6.5		43.0	-18	5868	No stop
23 07 30	---	04 08 30	29.1	304.1	6.5		42.9	62	5878	23 06 11
23 07 30	SSCYG	04 08 30	30.3	303.6	6.4		43.7	-17	5878	No stop
23 09 40	---	04 10 41	30.0	303.9	6.5		43.5	113	5895	23 07 31
23 09 40	J2136+4301	04 10 41	28.8	304.5	6.6		42.7	-18	5895	No stop
23 11 00	---	04 12 01	28.7	304.7	6.6		42.6	62	5905	23 09 41
23 11 00	SSCYG	04 12 01	29.9	304.1	6.5		43.4	-17	5905	No stop
23 13 00	---	04 14 01	29.6	304.4	6.5		43.2	103	5920	23 11 01
23 14 00	J2136+4301	04 15 01	28.3	305.1	6.6		42.3	42	5920	23 14 00
23 15 30	---	04 16 31	28.1	305.4	6.7		42.1	90	5932	23 14 01
23 15 30	SSCYG	04 16 31	29.3	304.8	6.6		43.0	-17	5932	No stop
23 17 40	---	04 18 42	29.0	305.2	6.6		42.7	113	5949	23 15 31
23 17 40	J2136+4301	04 18 42	27.9	305.7	6.7		41.9	-18	5949	No stop
23 19 00	---	04 20 02	27.7	305.9	6.7		41.8	62	5959	23 17 41
23 19 00	SSCYG	04 20 02	28.9	305.4	6.6		42.6	-17	5959	No stop
23 21 10	---	04 22 12	28.6	305.7	6.6		42.4	113	5976	23 19 01
23 21 10	J2136+4301	04 22 12	27.4	306.2	6.8		41.6	-18	5976	No stop
23 22 30	---	04 23 33	27.3	306.4	6.8		41.4	62	5986	23 21 11
23 22 30	J2153+4322	04 23 33	29.7	304.0	6.5		43.3	-23	5986	No stop
23 24 00	---	04 25 03	29.5	304.3	6.5		43.1	67	5997	23 22 31

Schedule for TORUN (Code Tr) Page 24

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
23 25 00	J2136+4301	04 26 03	27.0	306.8	6.8		41.2	37	5997	23 25 00
23 26 30	---	04 27 33	26.8	307.1	6.8		41.0	90	6009	23 25 01
23 26 30	SSCYG	04 27 33	28.0	306.5	6.7		41.9	-17	6009	No stop
23 28 40	---	04 29 44	27.7	306.8	6.8		41.6	113	6026	23 26 31
23 28 40	J2136+4301	04 29 44	26.5	307.4	6.9		40.8	-18	6026	No stop
23 30 00	---	04 31 04	26.4	307.6	6.9		40.7	62	6036	23 28 41
23 30 00	SSCYG	04 31 04	27.5	307.0	6.8		41.5	-17	6036	No stop
23 32 10	---	04 33 14	27.3	307.4	6.8		41.3	113	6053	23 30 01
23 32 10	J2136+4301	04 33 14	26.1	307.9	6.9		40.4	-18	6053	No stop
23 33 30	---	04 34 34	25.9	308.1	7.0		40.3	62	6063	23 32 11
23 33 30	SSCYG	04 34 34	27.1	307.6	6.9		41.1	-17	6063	No stop
23 35 30	---	04 36 35	26.9	307.9	6.9		40.9	103	6078	23 33 31
23 36 30	J2136+4301	04 37 35	25.6	308.6	7.0		40.0	42	6078	23 36 30
23 38 00	---	04 39 05	25.4	308.8	7.0		39.8	90	6090	23 36 31
23 38 00	SSCYG	04 39 05	26.6	308.3	6.9		40.7	-17	6090	No stop
23 40 10	---	04 41 16	26.3	308.6	7.0		40.4	113	6106	23 38 01
23 40 10	J2136+4301	04 41 16	25.2	309.2	7.1		39.6	-18	6106	No stop
23 41 30	---	04 42 36	25.0	309.4	7.1		39.5	62	6117	23 40 11
23 41 30	SSCYG	04 42 36	26.2	308.8	7.0		40.3	-17	6117	No stop
23 43 40	---	04 44 46	25.9	309.1	7.0		40.1	113	6133	23 41 31
23 43 40	J2136+4301	04 44 46	24.8	309.7	7.1		39.2	-18	6133	No stop
23 45 00	---	04 46 06	24.6	309.9	7.2		39.1	62	6144	23 43 41
23 45 00	J2153+4322	04 46 06	26.9	307.5	6.9		41.0	-22	6144	No stop
23 46 30	---	04 47 37	26.7	307.7	6.9		40.9	68	6155	23 45 01
23 47 30	J2136+4301	04 48 37	24.3	310.3	7.2		38.8	37	6155	23 47 30
23 49 00	---	04 50 07	24.1	310.6	7.2		38.7	90	6167	23 47 31
23 49 00	SSCYG	04 50 07	25.3	310.0	7.1		39.5	-17	6167	No stop
23 51 10	---	04 52 17	25.0	310.3	7.1		39.3	113	6183	23 49 01
23 51 10	J2136+4301	04 52 17	23.9	310.9	7.3		38.4	-18	6183	No stop
23 52 30	---	04 53 38	23.7	311.1	7.3		38.3	62	6194	23 51 11

Schedule for TORUN (Code Tr) Page 25

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Tue 17 Nov 2015 Day 321 ---										
23 52 30	SSCYG	04 53 38	24.9	310.5	7.2		39.1	-17	6194	No stop
23 54 40	---	04 55 48	24.6	310.8	7.2		38.9	113	6210	23 52 31
23 54 40	J2136+4301	04 55 48	23.5	311.4	7.3		38.1	-18	6210	No stop
23 56 00	---	04 57 08	23.3	311.7	7.3		37.9	62	6220	23 54 41
23 56 00	SSCYG	04 57 08	24.5	311.1	7.2		38.8	-17	6220	No stop
23 58 00	---	04 59 08	24.3	311.4	7.3		38.5	103	6236	23 56 01
--- Start: Tue 17 Nov 2015 Day 321 -- Stop: Wed 18 Nov 2015 Day 322 ---										
23 59 00	J2136+4301	05 00 09	23.0	312.1	7.4		37.6	42	6236	23 59 00
00 00 30	---	05 01 39	22.8	312.4	7.4		37.4	90	6247	23 59 01
00 00 30	SSCYG	05 01 39	24.0	311.8	7.3		38.3	-17	6247	No stop
00 02 40	---	05 03 49	23.7	312.1	7.3		38.0	113	6264	00 00 31
00 02 40	J2136+4301	05 03 49	22.6	312.7	7.4		37.2	-17	6264	No stop
00 04 00	---	05 05 09	22.5	312.9	7.5		37.0	63	6274	00 02 41
00 04 00	SSCYG	05 05 09	23.6	312.3	7.4		37.9	-17	6274	No stop
00 06 10	---	05 07 20	23.4	312.6	7.4		37.6	113	6291	00 04 01
00 06 10	J2136+4301	05 07 20	22.2	313.3	7.5		36.8	-17	6291	No stop
00 07 30	---	05 08 40	22.1	313.5	7.5		36.6	63	6301	00 06 11
00 07 30	J2153+4322	05 08 40	24.3	311.0	7.2		38.7	-22	6301	No stop
00 09 00	---	05 10 10	24.1	311.2	7.3		38.5	68	6313	00 07 31
00 10 00	J2136+4301	05 11 10	21.8	313.9	7.6		36.4	38	6313	00 10 00
00 11 30	---	05 12 41	21.6	314.1	7.6		36.2	90	6324	00 10 01
00 11 30	SSCYG	05 12 41	22.8	313.5	7.5		37.0	-17	6324	No stop
00 13 40	---	05 14 51	22.5	313.8	7.5		36.8	113	6341	00 11 31
00 13 40	J2136+4301	05 14 51	21.4	314.5	7.6		36.0	-17	6341	No stop
00 15 00	---	05 16 11	21.3	314.7	7.7		35.8	63	6351	00 13 41
00 15 00	SSCYG	05 16 11	22.4	314.0	7.5		36.6	-17	6351	No stop
00 17 10	---	05 18 22	22.2	314.4	7.6		36.4	113	6368	00 15 01
00 17 10	J2136+4301	05 18 22	21.0	315.0	7.7		35.6	-17	6368	No stop
00 18 30	---	05 19 42	20.9	315.2	7.7		35.4	63	6378	00 17 11

Schedule for TORUN (Code Tr) Page 26

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
00 18 30	SSCYG	05 19 42	22.0	314.6	7.6		36.2	-17	6378	No stop
00 20 30	---	05 21 42	21.8	314.9	7.6		36.0	103	6394	00 18 31
00 21 30	J2136+4301	05 22 42	20.6	315.7	7.8		35.1	43	6394	00 21 30
00 23 00	---	05 24 13	20.4	315.9	7.8		34.9	90	6405	00 21 31
00 23 00	SSCYG	05 24 13	21.5	315.3	7.7		35.7	-17	6405	No stop
00 25 10	---	05 26 23	21.3	315.6	7.7		35.5	113	6422	00 23 01
00 25 10	J2136+4301	05 26 23	20.2	316.3	7.8		34.6	-17	6422	No stop
00 26 30	---	05 27 43	20.0	316.5	7.8		34.5	63	6432	00 25 11
00 26 30	SSCYG	05 27 43	21.2	315.8	7.7		35.3	-17	6432	No stop
00 28 40	---	05 29 53	20.9	316.2	7.8		35.1	113	6449	00 26 31
00 28 40	J2136+4301	05 29 53	19.8	316.9	7.9		34.2	-17	6449	No stop
00 30 00	---	05 31 14	19.7	317.1	7.9		34.1	63	6459	00 28 41
00 30 00	J2153+4322	05 31 14	21.8	314.5	7.6		36.2	-22	6459	No stop
00 31 30	---	05 32 44	21.6	314.7	7.6		36.0	68	6470	00 30 01
00 32 30	J2136+4301	05 33 44	19.4	317.5	7.9		33.8	38	6470	00 32 30
00 34 00	---	05 35 14	19.3	317.7	8.0		33.6	90	6482	00 32 31
00 34 00	SSCYG	05 35 14	20.4	317.0	7.9		34.5	-17	6482	No stop
00 36 10	---	05 37 25	20.2	317.4	7.9		34.2	113	6499	00 34 01
00 36 10	J2136+4301	05 37 25	19.1	318.1	8.0		33.3	-17	6499	No stop
00 37 30	---	05 38 45	18.9	318.3	8.0		33.2	63	6509	00 36 11
00 37 30	SSCYG	05 38 45	20.0	317.6	7.9		34.0	-17	6509	No stop
00 39 40	---	05 40 55	19.8	317.9	8.0		33.8	113	6526	00 37 31
00 39 40	J2136+4301	05 40 55	18.7	318.6	8.1		32.9	-17	6526	No stop
00 41 00	---	05 42 16	18.6	318.8	8.1		32.8	63	6536	00 39 41
00 41 00	SSCYG	05 42 16	19.7	318.2	8.0		33.6	-17	6536	No stop
00 43 00	---	05 44 16	19.5	318.5	8.0		33.4	103	6551	00 41 01
00 44 00	J2136+4301	05 45 16	18.3	319.3	8.1		32.4	43	6551	00 44 00
00 45 30	---	05 46 46	18.1	319.6	8.2		32.2	90	6563	00 44 01
00 45 30	SSCYG	05 46 46	19.2	318.9	8.1		33.1	-17	6563	No stop
00 47 40	---	05 48 57	19.0	319.2	8.1		32.8	113	6579	00 45 31

Schedule for TORUN (Code Tr) Page 27

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
00 47 40	J2136+4301	05 48 57	17.9	319.9	8.2		32.0	-17	6579	No stop
00 49 00	---	05 50 17	17.8	320.1	8.2		31.8	63	6590	00 47 41
00 50 20	BLLAC	05 51 37	19.7	315.7	7.8		34.6	56	6590	00 50 20
00 53 20	---	05 54 38	19.4	316.1	7.9		34.3	180	6613	00 50 21
01 09 20	J1746+6226	06 10 40	25.6	363.1	-11.6		-4.0	855	6613	01 09 20
01 12 20	=1745+624	06 13 41	25.7	363.5	-11.5		-4.5	180	6636	01 09 21
01 13 20	J1806+6141	06 14 41	24.8	361.1	-11.9		-1.4	41	6636	01 13 20
01 16 20	=1805+616	06 17 41	24.8	361.5	-11.8		-1.9	180	6659	01 13 21
01 16 20	J1815+6127	06 17 41	24.6	360.3	-12.0		-0.3	-15	6659	No stop
01 19 50	=1815+614	06 21 12	24.6	360.7	-11.9		-0.9	195	6686	01 16 21
01 20 20	J1806+6141	06 21 42	24.8	362.0	-11.7		-2.5	15	6686	01 20 20
01 21 20	=1805+616	06 22 42	24.8	362.1	-11.7		-2.7	60	6694	01 20 21
01 21 20	151027A	06 22 42	24.5	361.7	-11.8		-2.1	-12	6694	No stop
01 24 50	---	06 26 13	24.5	362.1	-11.7		-2.7	198	6720	01 21 21
01 24 50	J1806+6141	06 26 13	24.9	362.6	-11.7		-3.3	-12	6720	No stop
01 26 20	=1805+616	06 27 43	24.9	362.8	-11.6		-3.5	78	6732	01 24 51
01 26 20	151027A	06 27 43	24.5	362.3	-11.7		-2.9	-12	6732	No stop
01 29 50	---	06 31 14	24.5	362.8	-11.6		-3.5	198	6759	01 26 21
01 30 20	J1806+6141	06 31 44	24.9	363.3	-11.6		-4.2	18	6759	01 30 20
01 31 20	=1805+616	06 32 44	24.9	363.4	-11.6		-4.3	60	6767	01 30 21
01 31 20	151027A	06 32 44	24.5	363.0	-11.6		-3.7	-12	6767	No stop
01 34 50	---	06 36 14	24.6	363.4	-11.6		-4.3	198	6794	01 31 21
01 34 50	J1806+6141	06 36 14	24.9	363.9	-11.5		-4.9	-12	6794	No stop
01 36 20	=1805+616	06 37 45	25.0	364.1	-11.5		-5.2	78	6805	01 34 51
01 36 20	151027A	06 37 45	24.6	363.6	-11.5		-4.6	-12	6805	No stop
01 39 50	---	06 41 15	24.6	364.1	-11.5		-5.1	198	6832	01 36 21
01 40 20	J1806+6141	06 41 45	25.0	364.6	-11.4		-5.8	18	6832	01 40 20
01 41 20	=1805+616	06 42 45	25.0	364.7	-11.4		-6.0	60	6840	01 40 21
01 41 20	151027A	06 42 45	24.6	364.3	-11.5		-5.4	-12	6840	No stop
01 44 50	---	06 46 16	24.7	364.8	-11.4		-6.0	198	6867	01 41 21

Schedule for TORUN (Code Tr) Page 28

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
01 44 50	J1806+6141	06 46 16	25.1	365.2	-11.3		-6.6	-12	6867	No stop
01 46 20	=1805+616	06 47 46	25.1	365.4	-11.3		-6.8	78	6878	01 44 51
01 46 20	151027A	06 47 46	24.7	365.0	-11.4		-6.2	-12	6878	No stop
01 49 50	---	06 51 17	24.8	365.4	-11.3		-6.8	198	6905	01 46 21
01 50 20	J1806+6141	06 51 47	25.1	365.9	-11.2		-7.5	18	6905	01 50 20
01 51 20	=1805+616	06 52 47	25.2	366.0	-11.2		-7.7	60	6913	01 50 21
01 51 20	151027A	06 52 47	24.8	365.6	-11.3		-7.0	-12	6913	No stop
01 54 50	---	06 56 18	24.8	366.1	-11.2		-7.6	198	6940	01 51 21
01 54 50	J1806+6141	06 56 18	25.2	366.5	-11.2		-8.2	-12	6940	No stop
01 56 20	=1805+616	06 57 48	25.2	366.7	-11.1		-8.5	78	6951	01 54 51
01 56 20	151027A	06 57 48	24.9	366.3	-11.2		-7.9	-12	6951	No stop
01 59 50	---	07 01 18	24.9	366.7	-11.1		-8.4	198	6978	01 56 21
02 00 20	J1806+6141	07 01 49	25.3	367.2	-11.1		-9.1	18	6978	02 00 20
02 01 20	=1805+616	07 02 49	25.3	367.3	-11.1		-9.3	60	6986	02 00 21
02 01 20	151027A	07 02 49	24.9	366.9	-11.1		-8.7	-12	6986	No stop
02 04 50	---	07 06 19	25.0	367.4	-11.1		-9.3	198	7013	02 01 21
02 04 50	J1806+6141	07 06 19	25.4	367.8	-11.0		-9.9	-12	7013	No stop
02 06 20	=1805+616	07 07 50	25.4	368.0	-11.0		-10.1	78	7024	02 04 51
02 06 20	151027A	07 07 50	25.0	367.6	-11.0		-9.5	-12	7024	No stop
02 09 50	---	07 11 20	25.1	368.0	-11.0		-10.1	198	7051	02 06 21
02 10 20	J1806+6141	07 11 50	25.5	368.5	-10.9		-10.8	18	7051	02 10 20
02 11 20	=1805+616	07 12 50	25.5	368.6	-10.9		-11.0	60	7059	02 10 21
02 11 20	J1815+6127	07 12 50	25.1	367.5	-11.0		-9.4	-15	7059	No stop
02 14 50	=1815+614	07 16 21	25.2	367.9	-11.0		-10.0	195	7086	02 11 21
02 15 20	J1806+6141	07 16 51	25.6	369.1	-10.8		-11.6	15	7086	02 15 20
02 16 20	=1805+616	07 17 51	25.7	369.3	-10.8		-11.8	60	7094	02 15 21
02 16 20	151027A	07 17 51	25.2	368.9	-10.9		-11.2	-12	7094	No stop
02 19 50	---	07 21 22	25.3	369.3	-10.8		-11.7	198	7120	02 16 21
02 19 50	J1806+6141	07 21 22	25.7	369.7	-10.8		-12.4	-12	7120	No stop
02 21 20	=1805+616	07 22 52	25.8	369.9	-10.7		-12.6	78	7132	02 19 51

Schedule for TORUN (Code Tr) Page 29

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
02 21 20	151027A	07 22 52	25.4	369.5-10.8			-12.0	-12	7132	No stop
02 24 50	---	07 26 23	25.5	370.0-10.7			-12.6	198	7159	02 21 21
02 25 20	J1806+6141	07 26 53	25.9	370.4-10.7			-13.3	17	7159	02 25 20
02 26 20	=1805+616	07 27 53	25.9	370.6-10.6			-13.4	60	7167	02 25 21
02 26 20	151027A	07 27 53	25.5	370.2-10.7			-12.8	-12	7167	No stop
02 29 50	---	07 31 23	25.6	370.6-10.6			-13.4	198	7194	02 26 21
02 29 50	J1806+6141	07 31 23	26.0	371.0-10.6			-14.0	-13	7194	No stop
02 31 20	=1805+616	07 32 54	26.1	371.2-10.6			-14.3	77	7205	02 29 51
02 31 20	151027A	07 32 54	25.6	370.8-10.6			-13.6	-13	7205	No stop
02 34 50	---	07 36 24	25.7	371.3-10.6			-14.2	197	7232	02 31 21
02 35 20	J1806+6141	07 36 54	26.2	371.7-10.5			-14.9	17	7232	02 35 20
02 36 20	=1805+616	07 37 54	26.2	371.8-10.5			-15.1	60	7240	02 35 21
02 36 20	151027A	07 37 54	25.8	371.5-10.5			-14.4	-13	7240	No stop
02 39 50	---	07 41 25	25.9	371.9-10.5			-15.0	197	7267	02 36 21
02 39 50	J1806+6141	07 41 25	26.3	372.3-10.4			-15.6	-13	7267	No stop
02 41 20	=1805+616	07 42 55	26.4	372.5-10.4			-15.9	77	7278	02 39 51
02 41 20	151027A	07 42 55	25.9	372.1-10.5			-15.3	-13	7278	No stop
02 44 50	---	07 46 26	26.0	372.6-10.4			-15.8	197	7305	02 41 21
02 45 20	J1806+6141	07 46 56	26.5	373.0-10.3			-16.6	17	7305	02 45 20
02 46 20	=1805+616	07 47 56	26.5	373.1-10.3			-16.7	60	7313	02 45 21
02 46 20	151027A	07 47 56	26.1	372.8-10.4			-16.1	-13	7313	No stop
02 49 50	---	07 51 27	26.2	373.2-10.3			-16.6	197	7340	02 46 21
02 49 50	J1806+6141	07 51 27	26.7	373.6-10.3			-17.3	-13	7340	No stop
02 51 20	=1805+616	07 52 57	26.7	373.8-10.2			-17.5	77	7351	02 49 51
02 51 20	151027A	07 52 57	26.3	373.4-10.3			-16.9	-13	7351	No stop
02 54 50	---	07 56 28	26.4	373.9-10.2			-17.5	197	7378	02 51 21
02 55 20	J1806+6141	07 56 58	26.9	374.3-10.2			-18.2	17	7378	02 55 20
02 56 20	=1805+616	07 57 58	26.9	374.4-10.1			-18.4	60	7386	02 55 21
02 56 20	151027A	07 57 58	26.4	374.1-10.2			-17.7	-13	7386	No stop
02 59 50	---	08 01 28	26.6	374.5-10.1			-18.3	197	7413	02 56 21

Schedule for TORUN (Code Tr) Page 30

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
02 59 50	J1806+6141	08 01 28	27.0	374.8	-10.1		-18.9	-13	7413	No stop
03 01 20	=1805+616	08 02 59	27.1	375.0	-10.1		-19.2	77	7424	02 59 51
03 01 20	151027A	08 02 59	26.6	374.7	-10.1		-18.5	-13	7424	No stop
03 04 50	---	08 06 29	26.8	375.1	-10.1		-19.1	197	7451	03 01 21
03 05 20	J1806+6141	08 06 59	27.2	375.5	-10.0		-19.8	17	7451	03 05 20
03 06 20	=1805+616	08 07 59	27.3	375.7	-10.0		-20.0	60	7459	03 05 21
03 06 20	J1815+6127	08 07 59	26.7	374.6	-10.1		-18.4	-14	7459	No stop
03 09 50	=1815+614	08 11 30	26.8	375.0	-10.1		-19.0	196	7486	03 06 21
03 10 20	J1806+6141	08 12 00	27.5	376.2	-9.9		-20.6	16	7486	03 10 20
03 11 20	=1805+616	08 13 00	27.5	376.3	-9.9		-20.8	60	7494	03 10 21
03 11 20	151027A	08 13 00	27.0	376.0	-10.0		-20.2	-13	7494	No stop
03 14 50	---	08 16 31	27.2	376.4	-9.9		-20.7	197	7520	03 11 21
03 14 50	J1806+6141	08 16 31	27.6	376.7	-9.8		-21.4	-13	7520	No stop
03 16 20	=1805+616	08 18 01	27.7	376.9	-9.8		-21.6	77	7532	03 14 51
03 16 20	151027A	08 18 01	27.2	376.6	-9.9		-21.0	-13	7532	No stop
03 19 50	---	08 21 32	27.4	377.0	-9.8		-21.5	197	7559	03 16 21
03 20 20	J1806+6141	08 22 02	27.9	377.4	-9.7		-22.3	17	7559	03 20 20
03 21 20	=1805+616	08 23 02	27.9	377.5	-9.7		-22.4	60	7567	03 20 21
03 21 20	151027A	08 23 02	27.5	377.2	-9.8		-21.8	-13	7567	No stop
03 24 50	---	08 26 32	27.6	377.7	-9.7		-22.3	197	7594	03 21 21
03 24 50	J1806+6141	08 26 32	28.1	378.0	-9.7		-23.0	-13	7594	No stop
03 26 20	=1805+616	08 28 03	28.2	378.2	-9.6		-23.2	77	7605	03 24 51
03 26 20	151027A	08 28 03	27.7	377.8	-9.7		-22.6	-13	7605	No stop
03 29 50	---	08 31 33	27.8	378.3	-9.6		-23.1	197	7632	03 26 21
03 30 20	J1806+6141	08 32 03	28.4	378.6	-9.6		-23.9	17	7632	03 30 20
03 31 20	=1805+616	08 33 03	28.4	378.8	-9.6		-24.0	60	7640	03 30 21
03 31 20	151027A	08 33 03	27.9	378.5	-9.6		-23.4	-13	7640	No stop
03 34 50	---	08 36 34	28.1	378.9	-9.6		-24.0	197	7667	03 31 21
03 34 50	J1806+6141	08 36 34	28.6	379.2	-9.5		-24.6	-13	7667	No stop
03 36 20	=1805+616	08 38 04	28.6	379.4	-9.5		-24.9	77	7678	03 34 51

Schedule for TORUN (Code Tr) Page 31

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
03 36 20	151027A	08 38 04	28.2	379.1	-9.5		-24.2	-13	7678	No stop
03 39 50	---	08 41 35	28.3	379.5	-9.5		-24.8	197	7705	03 36 21
03 40 20	J1806+6141	08 42 05	28.8	379.9	-9.4		-25.5	17	7705	03 40 20
03 41 20	=1805+616	08 43 05	28.9	380.0	-9.4		-25.7	60	7713	03 40 21
03 41 20	151027A	08 43 05	28.4	379.7	-9.4		-25.0	-13	7713	No stop
03 44 50	---	08 46 36	28.6	380.1	-9.4		-25.6	197	7740	03 41 21
03 44 50	J1806+6141	08 46 36	29.1	380.4	-9.3		-26.2	-13	7740	No stop
03 46 20	=1805+616	08 48 06	29.2	380.6	-9.3		-26.5	77	7751	03 44 51
03 46 20	151027A	08 48 06	28.7	380.3	-9.4		-25.8	-13	7751	No stop
03 49 50	---	08 51 37	28.9	380.8	-9.3		-26.4	197	7778	03 46 21
03 50 20	J1806+6141	08 52 07	29.4	381.1	-9.2		-27.1	17	7778	03 50 20
03 51 20	=1805+616	08 53 07	29.4	381.2	-9.2		-27.3	60	7786	03 50 21
03 51 20	151027A	08 53 07	28.9	380.9	-9.3		-26.6	-13	7786	No stop
03 54 50	---	08 56 37	29.1	381.4	-9.2		-27.2	197	7813	03 51 21
03 54 50	J1806+6141	08 56 37	29.6	381.6	-9.2		-27.8	-13	7813	No stop
03 56 20	=1805+616	08 58 08	29.7	381.8	-9.1		-28.1	77	7824	03 54 51
03 56 20	151027A	08 58 08	29.2	381.6	-9.2		-27.4	-13	7824	No stop
03 59 50	---	09 01 38	29.4	382.0	-9.1		-28.0	197	7851	03 56 21
04 00 20	J1806+6141	09 02 08	29.9	382.3	-9.1		-28.7	17	7851	04 00 20
04 01 20	=1805+616	09 03 08	30.0	382.4	-9.1		-28.9	60	7859	04 00 21
04 01 20	J1815+6127	09 03 08	29.3	381.4	-9.2		-27.3	-15	7859	No stop
04 04 50	=1815+614	09 06 39	29.5	381.9	-9.2		-27.9	195	7886	04 01 21
04 05 20	J1806+6141	09 07 09	30.2	382.9	-9.0		-29.5	15	7886	04 05 20
04 06 20	=1805+616	09 08 09	30.3	383.0	-9.0		-29.7	60	7894	04 05 21
04 07 20	J1746+6226	09 09 09	32.2	385.0	-8.6		-33.3	39	7894	04 07 20
04 10 20	=1745+624	09 12 10	32.4	385.4	-8.6		-33.8	180	7917	04 07 21
04 11 20	J1806+6141	09 13 10	30.6	383.6	-8.9		-30.5	39	7917	04 11 20
04 12 20	=1805+616	09 14 10	30.6	383.7	-8.9		-30.7	60	7924	04 11 21
04 12 20	151027A	09 14 10	30.1	383.5	-8.9		-30.0	-13	7924	No stop
04 15 50	---	09 17 41	30.3	383.9	-8.9		-30.5	197	7951	04 12 21

Schedule for TORUN (Code Tr) Page 32

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
04 15 50	J1806+6141	09 17 41	30.9	384.2	-8.8		-31.2	-13	7951	No stop
04 17 20	=1805+616	09 19 11	30.9	384.3	-8.8		-31.5	77	7963	04 15 51
04 17 20	151027A	09 19 11	30.4	384.1	-8.8		-30.8	-13	7963	No stop
04 20 50	---	09 22 42	30.7	384.5	-8.8		-31.3	197	7990	04 17 21
04 21 20	J1806+6141	09 23 12	31.2	384.8	-8.7		-32.1	17	7990	04 21 20
04 22 20	=1805+616	09 24 12	31.3	384.9	-8.7		-32.3	60	7997	04 21 21
04 22 20	151027A	09 24 12	30.7	384.7	-8.8		-31.6	-13	7997	No stop
04 25 50	---	09 27 42	31.0	385.1	-8.7		-32.1	197	8024	04 22 21
04 25 50	J1806+6141	09 27 42	31.5	385.3	-8.6		-32.8	-13	8024	No stop
04 27 20	=1805+616	09 29 13	31.6	385.5	-8.6		-33.1	77	8036	04 25 51
04 27 20	151027A	09 29 13	31.1	385.3	-8.7		-32.4	-13	8036	No stop
04 30 50	---	09 32 43	31.3	385.7	-8.6		-32.9	197	8063	04 27 21
04 31 20	J1806+6141	09 33 13	31.8	386.0	-8.6		-33.7	17	8063	04 31 20
04 32 20	=1805+616	09 34 14	31.9	386.1	-8.5		-33.8	60	8070	04 31 21
04 32 20	151027A	09 34 14	31.4	385.9	-8.6		-33.2	-13	8070	No stop
04 35 50	---	09 37 44	31.6	386.3	-8.5		-33.7	197	8097	04 32 21
04 35 50	J1806+6141	09 37 44	32.1	386.5	-8.5		-34.4	-13	8097	No stop
04 37 20	=1805+616	09 39 14	32.2	386.7	-8.5		-34.6	77	8109	04 35 51
04 37 20	151027A	09 39 14	31.7	386.5	-8.5		-34.0	-13	8109	No stop
04 40 50	---	09 42 45	32.0	386.9	-8.5		-34.5	197	8136	04 37 21
04 41 20	J1806+6141	09 43 15	32.5	387.1	-8.4		-35.3	17	8136	04 41 20
04 42 20	=1805+616	09 44 15	32.6	387.2	-8.4		-35.4	60	8144	04 41 21
04 42 20	151027A	09 44 15	32.1	387.1	-8.4		-34.7	-13	8144	No stop
04 45 50	---	09 47 46	32.3	387.5	-8.4		-35.3	197	8170	04 42 21
04 45 50	J1806+6141	09 47 46	32.8	387.6	-8.3		-36.0	-13	8170	No stop
04 47 20	=1805+616	09 49 16	32.9	387.8	-8.3		-36.2	77	8182	04 45 51
04 47 20	151027A	09 49 16	32.4	387.6	-8.3		-35.5	-13	8182	No stop
04 50 50	---	09 52 47	32.7	388.0	-8.3		-36.1	197	8209	04 47 21
04 51 20	J1806+6141	09 53 17	33.2	388.3	-8.2		-36.9	17	8209	04 51 20
04 52 20	=1805+616	09 54 17	33.3	388.4	-8.2		-37.0	60	8217	04 51 21

Schedule for TORUN (Code Tr) Page 33

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
04 52 20	151027A	09 54 17	32.8	388.2	-8.3		-36.3	-13	8217	No stop
04 55 50	---	09 57 47	33.0	388.6	-8.2		-36.9	197	8244	04 52 21
04 55 50	J1806+6141	09 57 47	33.5	388.8	-8.1		-37.6	-13	8244	No stop
04 57 20	=1805+616	09 59 18	33.6	389.0	-8.1		-37.8	77	8255	04 55 51
04 57 20	151027A	09 59 18	33.1	388.8	-8.2		-37.1	-13	8255	No stop
05 00 50	---	10 02 48	33.4	389.2	-8.1		-37.7	197	8282	04 57 21
05 01 20	J1806+6141	10 03 18	33.9	389.4	-8.1		-38.4	17	8282	05 01 20
05 02 20	=1805+616	10 04 18	34.0	389.5	-8.0		-38.6	60	8290	05 01 21
05 02 20	J1815+6127	10 04 18	33.2	388.6	-8.2		-37.0	-16	8290	No stop
05 05 50	=1815+614	10 07 49	33.4	389.0	-8.1		-37.6	194	8317	05 02 21
05 06 20	J1806+6141	10 08 19	34.3	390.0	-8.0		-39.2	14	8317	05 06 20
05 07 20	=1805+616	10 09 19	34.4	390.1	-8.0		-39.4	60	8324	05 06 21
05 07 20	151027A	10 09 19	33.9	389.9	-8.0		-38.7	-13	8324	No stop
05 10 50	---	10 12 50	34.1	390.3	-8.0		-39.2	197	8351	05 07 21
05 10 50	J1806+6141	10 12 50	34.7	390.5	-7.9		-39.9	-14	8351	No stop
05 12 20	=1805+616	10 14 20	34.8	390.6	-7.9		-40.2	76	8363	05 10 51
05 12 20	151027A	10 14 20	34.2	390.5	-7.9		-39.5	-13	8363	No stop
05 15 50	---	10 17 51	34.5	390.9	-7.9		-40.0	197	8390	05 12 21
05 16 20	J1806+6141	10 18 21	35.1	391.1	-7.8		-40.8	16	8390	05 16 20
05 17 20	=1805+616	10 19 21	35.2	391.2	-7.8		-41.0	60	8397	05 16 21
05 17 20	151027A	10 19 21	34.6	391.0	-7.8		-40.3	-13	8397	No stop
05 20 50	---	10 22 51	34.9	391.4	-7.8		-40.8	197	8424	05 17 21
05 20 50	J1806+6141	10 22 51	35.4	391.6	-7.7		-41.5	-14	8424	No stop
05 22 20	=1805+616	10 24 22	35.5	391.7	-7.7		-41.8	76	8436	05 20 51
05 22 20	151027A	10 24 22	35.0	391.6	-7.8		-41.0	-13	8436	No stop
05 25 50	---	10 27 52	35.3	392.0	-7.7		-41.6	197	8463	05 22 21
05 26 20	J1806+6141	10 28 22	35.9	392.2	-7.6		-42.4	16	8463	05 26 20
05 27 20	=1805+616	10 29 23	35.9	392.3	-7.6		-42.5	60	8470	05 26 21
05 27 20	151027A	10 29 23	35.4	392.2	-7.7		-41.8	-13	8470	No stop
05 30 50	---	10 32 53	35.7	392.5	-7.6		-42.4	197	8497	05 27 21

Schedule for TORUN (Code Tr) Page 34

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
05 30 50	J1806+6141	10 32 53	36.2	392.6	-7.6		-43.1	-14	8497	No stop
05 32 20	=1805+616	10 34 23	36.4	392.8	-7.5		-43.3	76	8509	05 30 51
05 32 20	151027A	10 34 23	35.8	392.7	-7.6		-42.6	-13	8509	No stop
05 35 50	---	10 37 54	36.1	393.1	-7.5		-43.1	197	8536	05 32 21
05 36 20	J1806+6141	10 38 24	36.7	393.2	-7.5		-44.0	16	8536	05 36 20
05 37 20	=1805+616	10 39 24	36.8	393.3	-7.5		-44.1	60	8544	05 36 21
05 37 20	151027A	10 39 24	36.2	393.2	-7.5		-43.4	-13	8544	No stop
05 40 50	---	10 42 55	36.5	393.6	-7.5		-43.9	197	8570	05 37 21
05 40 50	J1806+6141	10 42 55	37.1	393.7	-7.4		-44.7	-14	8570	No stop
05 42 20	=1805+616	10 44 25	37.2	393.9	-7.4		-44.9	76	8582	05 40 51
05 42 20	151027A	10 44 25	36.6	393.8	-7.4		-44.2	-13	8582	No stop
05 45 50	---	10 47 56	36.9	394.2	-7.4		-44.7	197	8609	05 42 21
05 46 20	J1806+6141	10 48 26	37.5	394.3	-7.3		-45.5	16	8609	05 46 20
05 47 20	=1805+616	10 49 26	37.6	394.4	-7.3		-45.7	60	8617	05 46 21
05 47 20	151027A	10 49 26	37.1	394.3	-7.3		-44.9	-13	8617	No stop
05 50 50	---	10 52 56	37.4	394.7	-7.3		-45.5	197	8644	05 47 21
05 50 50	J1806+6141	10 52 56	37.9	394.8	-7.2		-46.2	-14	8644	No stop
05 52 20	=1805+616	10 54 27	38.0	394.9	-7.2		-46.5	76	8655	05 50 51
05 52 20	151027A	10 54 27	37.5	394.8	-7.3		-45.7	-13	8655	No stop
05 55 50	---	10 57 57	37.8	395.2	-7.2		-46.3	197	8682	05 52 21
05 56 20	J1806+6141	10 58 27	38.4	395.3	-7.1		-47.1	16	8682	05 56 20
05 57 20	=1805+616	10 59 27	38.5	395.4	-7.1		-47.3	60	8690	05 56 21
05 57 20	J1815+6127	10 59 27	37.5	394.7	-7.3		-45.7	-16	8690	No stop
06 00 50	=1815+614	11 02 58	37.8	395.1	-7.2		-46.2	194	8717	05 57 21
06 01 20	J1806+6141	11 03 28	38.8	395.8	-7.0		-47.9	14	8717	06 01 20
06 02 20	=1805+616	11 04 28	38.9	396.0	-7.0		-48.0	60	8724	06 01 21
06 02 20	151027A	11 04 28	38.4	395.9	-7.1		-47.3	-13	8724	No stop
06 05 50	---	11 07 59	38.7	396.3	-7.0		-47.8	197	8751	06 02 21
06 05 50	J1806+6141	11 07 59	39.2	396.3	-7.0		-48.6	-14	8751	No stop
06 07 20	=1805+616	11 09 29	39.3	396.5	-6.9		-48.8	76	8763	06 05 51

Schedule for TORUN (Code Tr) Page 35

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
06 07 20	151027A	11 09 29	38.8	396.4	-7.0		-48.1	-13	8763	No stop
06 10 50	---	11 13 00	39.1	396.8	-7.0		-48.6	197	8790	06 07 21
06 11 20	J1806+6141	11 13 30	39.7	396.9	-6.9		-49.4	16	8790	06 11 20
06 12 20	=1805+616	11 14 30	39.8	397.0	-6.9		-49.6	60	8797	06 11 21
06 12 20	151027A	11 14 30	39.3	396.9	-6.9		-48.8	-13	8797	No stop
06 15 50	---	11 18 01	39.6	397.3	-6.9		-49.4	197	8824	06 12 21
06 15 50	J1806+6141	11 18 01	40.1	397.3	-6.8		-50.1	-14	8824	No stop
06 17 20	=1805+616	11 19 31	40.3	397.5	-6.8		-50.4	76	8836	06 15 51
06 17 20	151027A	11 19 31	39.7	397.4	-6.8		-49.6	-13	8836	No stop
06 20 50	---	11 23 01	40.0	397.8	-6.8		-50.1	197	8863	06 17 21
06 21 20	J1806+6141	11 23 31	40.6	397.9	-6.7		-51.0	16	8863	06 21 20
06 22 20	=1805+616	11 24 32	40.7	398.0	-6.7		-51.2	60	8870	06 21 21
06 22 20	151027A	11 24 32	40.2	397.9	-6.8		-50.4	-13	8870	No stop
06 25 50	---	11 28 02	40.5	398.3	-6.7		-50.9	197	8897	06 22 21
06 25 50	J1806+6141	11 28 02	41.0	398.3	-6.6		-51.7	-14	8897	No stop
06 27 20	=1805+616	11 29 32	41.2	398.4	-6.6		-51.9	76	8909	06 25 51
06 27 20	151027A	11 29 32	40.6	398.4	-6.7		-51.2	-13	8909	No stop
06 30 50	---	11 33 03	41.0	398.8	-6.6		-51.7	197	8936	06 27 21
06 31 20	J1806+6141	11 33 33	41.6	398.8	-6.5		-52.6	16	8936	06 31 20
06 32 20	=1805+616	11 34 33	41.6	398.9	-6.5		-52.7	60	8944	06 31 21
06 32 20	151027A	11 34 33	41.1	398.9	-6.6		-51.9	-13	8944	No stop
06 35 50	---	11 38 04	41.4	399.3	-6.5		-52.5	197	8970	06 32 21
06 35 50	J1806+6141	11 38 04	42.0	399.3	-6.5		-53.3	-14	8970	No stop
06 37 20	=1805+616	11 39 34	42.1	399.4	-6.4		-53.5	76	8982	06 35 51
06 37 20	151027A	11 39 34	41.6	399.4	-6.5		-52.7	-13	8982	No stop
06 40 50	---	11 43 05	41.9	399.8	-6.4		-53.3	197	9009	06 37 21
06 41 20	J1806+6141	11 43 35	42.5	399.8	-6.4		-54.1	16	9009	06 41 20
06 42 20	=1805+616	11 44 35	42.6	399.9	-6.4		-54.3	60	9017	06 41 21
06 42 20	151027A	11 44 35	42.1	399.9	-6.4		-53.5	-13	9017	No stop
06 45 50	---	11 48 05	42.4	400.2	-6.4		-54.0	197	9044	06 42 21

Schedule for TORUN (Code Tr) Page 36

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
06 45 50	J1806+6141	11 48 05	42.9	400.2	-6.3		-54.9	-14	9044	No stop
06 47 20	=1805+616	11 49 36	43.1	400.4	-6.3		-55.1	76	9055	06 45 51
06 47 20	151027A	11 49 36	42.5	400.4	-6.3		-54.3	-13	9055	No stop
06 50 50	---	11 53 06	42.9	400.7	-6.3		-54.8	197	9082	06 47 21
06 51 20	J1806+6141	11 53 36	43.5	400.7	-6.2		-55.7	16	9082	06 51 20
06 52 20	=1805+616	11 54 37	43.6	400.8	-6.2		-55.9	60	9090	06 51 21
06 52 20	J1815+6127	11 54 37	42.5	400.2	-6.4		-54.2	-17	9090	No stop
06 55 50	=1815+614	11 58 07	42.9	400.5	-6.3		-54.8	193	9117	06 52 21
06 56 20	J1806+6141	11 58 37	44.0	401.2	-6.1		-56.5	13	9117	06 56 20
06 57 20	=1805+616	11 59 37	44.1	401.3	-6.1		-56.7	60	9124	06 56 21
06 58 20	J1746+6226	12 00 38	46.6	402.2	-5.8		-60.7	37	9124	06 58 20
07 01 20	=1745+624	12 03 38	46.9	402.4	-5.7		-61.2	180	9147	06 58 21
07 02 20	J1806+6141	12 04 38	44.6	401.7	-6.0		-57.4	37	9147	07 02 20
07 03 20	=1805+616	12 05 38	44.7	401.8	-6.0		-57.6	60	9155	07 02 21
07 03 20	151027A	12 05 38	44.1	401.9	-6.1		-56.8	-13	9155	No stop
07 06 50	---	12 09 09	44.5	402.2	-6.0		-57.3	197	9182	07 03 21
07 06 50	J1806+6141	12 09 09	45.0	402.1	-6.0		-58.2	-14	9182	No stop
07 08 20	=1805+616	12 10 39	45.2	402.3	-5.9		-58.4	76	9194	07 06 51
07 08 20	151027A	12 10 39	44.6	402.3	-6.0		-57.5	-13	9194	No stop
07 11 50	---	12 14 10	45.0	402.6	-5.9		-58.1	197	9220	07 08 21
07 12 20	J1806+6141	12 14 40	45.6	402.6	-5.9		-59.0	16	9220	07 12 20
07 13 20	=1805+616	12 15 40	45.7	402.7	-5.8		-59.2	60	9228	07 12 21
07 13 20	151027A	12 15 40	45.1	402.8	-5.9		-58.3	-13	9228	No stop
07 16 50	---	12 19 11	45.5	403.1	-5.8		-58.9	197	9255	07 13 21
07 16 50	J1806+6141	12 19 11	46.0	403.0	-5.8		-59.7	-14	9255	No stop
07 18 20	=1805+616	12 20 41	46.2	403.1	-5.8		-60.0	76	9267	07 16 51
07 18 20	151027A	12 20 41	45.7	403.2	-5.8		-59.1	-13	9267	No stop
07 21 50	---	12 24 11	46.0	403.5	-5.8		-59.7	197	9294	07 18 21
07 22 20	J1806+6141	12 24 41	46.6	403.5	-5.7		-60.6	16	9294	07 22 20
07 23 20	=1805+616	12 25 42	46.7	403.6	-5.7		-60.8	60	9301	07 22 21

Schedule for TORUN (Code Tr) Page 37

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
07 23 20	151027A	12 25 42	46.2	403.7	-5.7		-59.9	-13	9301	No stop
07 26 50	---	12 29 12	46.5	404.0	-5.7		-60.4	197	9328	07 23 21
07 26 50	J1806+6141	12 29 12	47.1	403.9	-5.6		-61.3	-14	9328	No stop
07 28 20	=1805+616	12 30 42	47.2	404.0	-5.6		-61.6	76	9340	07 26 51
07 28 20	151027A	12 30 42	46.7	404.1	-5.7		-60.7	-13	9340	No stop
07 31 50	---	12 34 13	47.1	404.4	-5.6		-61.2	197	9367	07 28 21
07 32 20	J1806+6141	12 34 43	47.7	404.3	-5.5		-62.2	16	9367	07 32 20
07 33 20	=1805+616	12 35 43	47.8	404.4	-5.5		-62.4	60	9374	07 32 21
07 33 20	151027A	12 35 43	47.2	404.5	-5.6		-61.5	-13	9374	No stop
07 36 50	---	12 39 14	47.6	404.8	-5.5		-62.0	197	9401	07 33 21
07 36 50	J1806+6141	12 39 14	48.1	404.7	-5.5		-62.9	-14	9401	No stop
07 38 20	=1805+616	12 40 44	48.3	404.8	-5.4		-63.2	76	9413	07 36 51
07 38 20	151027A	12 40 44	47.7	404.9	-5.5		-62.3	-13	9413	No stop
07 41 50	---	12 44 15	48.1	405.2	-5.4		-62.8	197	9440	07 38 21
07 42 20	J1806+6141	12 44 45	48.7	405.1	-5.4		-63.8	16	9440	07 42 20
07 43 20	=1805+616	12 45 45	48.8	405.2	-5.3		-64.0	60	9447	07 42 21
07 43 20	151027A	12 45 45	48.3	405.4	-5.4		-63.1	-13	9447	No stop
07 46 50	---	12 49 15	48.7	405.6	-5.3		-63.6	197	9474	07 43 21
07 46 50	J1806+6141	12 49 15	49.2	405.5	-5.3		-64.5	-14	9474	No stop
07 48 20	=1805+616	12 50 46	49.4	405.6	-5.3		-64.8	76	9486	07 46 51
07 48 20	151027A	12 50 46	48.8	405.8	-5.3		-63.9	-13	9486	No stop
07 51 50	---	12 54 16	49.2	406.0	-5.3		-64.4	197	9513	07 48 21
07 52 20	J1806+6141	12 54 46	49.8	405.9	-5.2		-65.4	16	9513	07 52 20
07 53 20	=1805+616	12 55 47	49.9	406.0	-5.2		-65.6	60	9520	07 52 21
07 53 20	J1815+6127	12 55 47	48.8	405.6	-5.3		-63.9	-17	9520	No stop
07 56 50	=1815+614	12 59 17	49.2	405.8	-5.3		-64.4	193	9547	07 53 21
07 57 20	J1806+6141	12 59 47	50.3	406.3	-5.1		-66.2	13	9547	07 57 20
07 58 20	=1805+616	13 00 47	50.4	406.4	-5.1		-66.4	60	9555	07 57 21
07 58 20	151027A	13 00 47	49.9	406.6	-5.2		-65.5	-13	9555	No stop
08 01 50	---	13 04 18	50.3	406.8	-5.1		-66.0	197	9582	07 58 21

Schedule for TORUN (Code Tr) Page 38

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
08 01 50	J1806+6141	13 04 18	50.8	406.6	-5.0		-67.0	-14	9582	No stop
08 03 20	=1805+616	13 05 48	51.0	406.7	-5.0		-67.2	76	9594	08 01 51
08 03 20	151027A	13 05 48	50.5	406.9	-5.1		-66.3	-13	9594	No stop
08 06 50	---	13 09 19	50.8	407.2	-5.0		-66.8	197	9620	08 03 21
08 07 20	J1806+6141	13 09 49	51.4	407.0	-4.9		-67.9	16	9620	08 07 20
08 08 20	=1805+616	13 10 49	51.5	407.1	-4.9		-68.0	60	9628	08 07 21
08 08 20	151027A	13 10 49	51.0	407.3	-5.0		-67.1	-13	9628	No stop
08 11 50	---	13 14 20	51.4	407.6	-4.9		-67.6	197	9655	08 08 21
08 11 50	J1806+6141	13 14 20	51.9	407.3	-4.9		-68.6	-13	9655	No stop
08 13 20	=1805+616	13 15 50	52.1	407.4	-4.8		-68.9	77	9667	08 11 51
08 13 20	151027A	13 15 50	51.6	407.7	-4.9		-67.9	-13	9667	No stop
08 16 50	---	13 19 20	52.0	407.9	-4.8		-68.5	197	9694	08 13 21
08 17 20	J1806+6141	13 19 50	52.5	407.7	-4.8		-69.5	17	9694	08 17 20
08 18 20	=1805+616	13 20 51	52.6	407.8	-4.8		-69.7	60	9701	08 17 21
08 18 20	151027A	13 20 51	52.1	408.0	-4.8		-68.7	-13	9701	No stop
08 21 50	---	13 24 21	52.5	408.3	-4.8		-69.3	197	9728	08 18 21
08 21 50	J1806+6141	13 24 21	53.0	408.0	-4.7		-70.3	-13	9728	No stop
08 23 20	=1805+616	13 25 51	53.2	408.1	-4.7		-70.5	77	9740	08 21 51
08 23 20	151027A	13 25 51	52.7	408.4	-4.7		-69.5	-13	9740	No stop
08 26 50	---	13 29 22	53.1	408.6	-4.7		-70.1	197	9767	08 23 21
08 27 20	J1806+6141	13 29 52	53.6	408.4	-4.6		-71.2	17	9767	08 27 20
08 28 20	=1805+616	13 30 52	53.8	408.4	-4.6		-71.4	60	9774	08 27 21
08 28 20	151027A	13 30 52	53.2	408.7	-4.7		-70.3	-13	9774	No stop
08 31 50	---	13 34 23	53.6	409.0	-4.6		-70.9	197	9801	08 28 21
08 31 50	J1806+6141	13 34 23	54.2	408.7	-4.5		-72.0	-13	9801	No stop
08 33 20	=1805+616	13 35 53	54.3	408.8	-4.5		-72.2	77	9813	08 31 51
08 33 20	151027A	13 35 53	53.8	409.1	-4.6		-71.2	-13	9813	No stop
08 36 50	---	13 39 24	54.2	409.3	-4.5		-71.8	197	9840	08 33 21
08 37 20	J1806+6141	13 39 54	54.8	409.0	-4.4		-72.9	17	9840	08 37 20
08 38 20	=1805+616	13 40 54	54.9	409.1	-4.4		-73.1	60	9847	08 37 21

Schedule for TORUN (Code Tr) Page 39

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
08 38 20	151027A	13 40 54	54.4	409.4	-4.5		-72.0	-13	9847	No stop
08 41 50	---	13 44 25	54.8	409.6	-4.4		-72.6	197	9874	08 38 21
08 41 50	J1806+6141	13 44 25	55.3	409.3	-4.4		-73.7	-13	9874	No stop
08 43 20	=1805+616	13 45 55	55.5	409.4	-4.3		-73.9	77	9886	08 41 51
08 43 20	151027A	13 45 55	55.0	409.7	-4.4		-72.9	-13	9886	No stop
08 46 50	---	13 49 25	55.4	409.9	-4.3		-73.5	197	9913	08 43 21
08 47 20	J1806+6141	13 49 55	55.9	409.6	-4.3		-74.6	17	9913	08 47 20
08 48 20	=1805+616	13 50 56	56.0	409.6	-4.3		-74.8	60	9920	08 47 21
08 48 20	J1815+6127	13 50 56	54.9	409.5	-4.4		-72.9	-17	9920	No stop
08 51 50	=1815+614	13 54 26	55.3	409.7	-4.4		-73.5	193	9947	08 48 21
08 52 20	J1806+6141	13 54 56	56.5	409.9	-4.2		-75.5	13	9947	08 52 20
08 53 20	=1805+616	13 55 56	56.6	409.9	-4.2		-75.7	60	9955	08 52 21
08 53 20	151027A	13 55 56	56.1	410.3	-4.2		-74.6	-13	9955	No stop
08 56 50	---	13 59 27	56.5	410.5	-4.2		-75.2	197	9982	08 53 21
08 56 50	J1806+6141	13 59 27	57.0	410.1	-4.1		-76.3	-13	9982	No stop
08 58 20	=1805+616	14 00 57	57.2	410.2	-4.1		-76.6	77	9994	08 56 51
08 58 20	151027A	14 00 57	56.7	410.6	-4.2		-75.4	-13	9994	No stop
09 01 50	---	14 04 28	57.1	410.8	-4.1		-76.1	197	10020	08 58 21
09 02 20	J1806+6141	14 04 58	57.6	410.4	-4.0		-77.3	17	10020	09 02 20
09 03 20	=1805+616	14 05 58	57.8	410.4	-4.0		-77.5	60	10028	09 02 21
09 03 20	151027A	14 05 58	57.3	410.8	-4.1		-76.3	-13	10028	No stop
09 06 50	---	14 09 29	57.7	411.0	-4.0		-76.9	197	10055	09 03 21
09 06 50	J1806+6141	14 09 29	58.2	410.6	-3.9		-78.1	-13	10055	No stop
09 08 20	=1805+616	14 10 59	58.3	410.7	-3.9		-78.4	77	10067	09 06 51
09 08 20	151027A	14 10 59	57.9	411.1	-4.0		-77.2	-13	10067	No stop
09 11 50	---	14 14 29	58.3	411.3	-3.9		-77.8	197	10094	09 08 21
09 12 20	J1806+6141	14 15 00	58.8	410.8	-3.9		-79.1	17	10094	09 12 20
09 13 20	=1805+616	14 16 00	58.9	410.9	-3.8		-79.3	60	10101	09 12 21
09 13 20	151027A	14 16 00	58.4	411.3	-3.9		-78.1	-13	10101	No stop
09 16 50	---	14 19 30	58.9	411.5	-3.8		-78.7	197	10128	09 13 21

Schedule for TORUN (Code Tr) Page 40

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
09 16 50	J1806+6141	14 19 30	59.3	411.0	-3.8		-79.9	-13	10128	No stop
09 18 20	=1805+616	14 21 01	59.5	411.1	-3.8		-80.2	77	10140	09 16 51
09 18 20	151027A	14 21 01	59.0	411.6	-3.8		-79.0	-13	10140	No stop
09 21 50	---	14 24 31	59.4	411.7	-3.8		-79.6	197	10167	09 18 21
09 22 20	J1806+6141	14 25 01	60.0	411.2	-3.7		-81.0	17	10167	09 22 20
09 23 20	=1805+616	14 26 01	60.1	411.3	-3.7		-81.1	60	10174	09 22 21
09 23 20	151027A	14 26 01	59.6	411.8	-3.7		-79.9	-13	10174	No stop
09 26 50	---	14 29 32	60.0	411.9	-3.7		-80.6	197	10201	09 23 21
09 26 50	J1806+6141	14 29 32	60.5	411.4	-3.6		-81.8	-13	10201	No stop
09 28 20	=1805+616	14 31 02	60.7	411.5	-3.6		-82.1	77	10213	09 26 51
09 28 20	151027A	14 31 02	60.2	412.0	-3.7		-80.8	-13	10213	No stop
09 31 50	---	14 34 33	60.6	412.1	-3.6		-81.5	197	10240	09 28 21
09 32 20	J1806+6141	14 35 03	61.2	411.6	-3.5		-82.9	17	10240	09 32 20
09 33 20	=1805+616	14 36 03	61.3	411.6	-3.5		-83.1	60	10247	09 32 21
09 33 20	151027A	14 36 03	60.8	412.2	-3.6		-81.8	-13	10247	No stop
09 36 50	---	14 39 34	61.2	412.3	-3.5		-82.4	197	10274	09 33 21
09 36 50	J1806+6141	14 39 34	61.7	411.7	-3.4		-83.7	-13	10274	No stop
09 38 20	=1805+616	14 41 04	61.9	411.8	-3.4		-84.0	77	10286	09 36 51
09 38 20	151027A	14 41 04	61.4	412.3	-3.5		-82.7	-13	10286	No stop
09 41 50	---	14 44 34	61.8	412.5	-3.4		-83.4	197	10313	09 38 21
09 42 20	J1806+6141	14 45 04	62.3	411.8	-3.4		-84.8	17	10313	09 42 20
09 43 20	=1805+616	14 46 05	62.5	411.9	-3.3		-85.0	60	10320	09 42 21
09 43 20	J1815+6127	14 46 05	61.3	412.1	-3.5		-82.8	-17	10320	No stop
09 46 50	=1815+614	14 49 35	61.8	412.2	-3.4		-83.5	193	10347	09 43 21
09 47 20	J1806+6141	14 50 05	62.9	412.0	-3.3		-85.9	13	10347	09 47 20
09 48 20	=1805+616	14 51 05	63.1	412.0	-3.3		-86.1	60	10355	09 47 21
09 48 20	151027A	14 51 05	62.6	412.6	-3.3		-84.7	-13	10355	No stop
09 51 50	---	14 54 36	63.0	412.7	-3.3		-85.4	197	10382	09 48 21
09 51 50	J1806+6141	14 54 36	63.5	412.0	-3.2		-86.8	-13	10382	No stop
09 53 20	=1805+616	14 56 06	63.6	412.1	-3.2		-87.1	77	10394	09 51 51

Schedule for TORUN (Code Tr) Page 41

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
09 53 20	151027A	14 56 06	63.2	412.7	-3.2		-85.7	-13	10394	No stop
09 56 50	---	14 59 37	63.6	412.8	-3.2		-86.4	197	10420	09 53 21
09 57 20	J1806+6141	15 00 07	64.1	412.1	-3.1		-87.9	17	10420	09 57 20
09 58 20	=1805+616	15 01 07	64.2	412.1	-3.1		-88.1	60	10428	09 57 21
09 58 20	151027A	15 01 07	63.8	412.8	-3.1		-86.7	-13	10428	No stop
10 01 50	---	15 04 38	64.2	412.9	-3.1		-87.4	197	10455	09 58 21
10 01 50	J1806+6141	15 04 38	64.7	412.1	-3.0		-88.9	-13	10455	No stop
10 03 20	=1805+616	15 06 08	64.8	412.1	-3.0		-89.2	77	10467	10 01 51
10 03 20	151027A	15 06 08	64.4	412.9	-3.1		-87.7	-13	10467	No stop
10 06 50	---	15 09 38	64.8	412.9	-3.0		-88.5	197	10494	10 03 21
10 07 20	J1806+6141	15 10 09	65.3	412.1	-2.9		-90.1	17	10494	10 07 20
10 08 20	=1805+616	15 11 09	65.4	412.1	-2.9		-90.3	60	10501	10 07 21
10 08 20	151027A	15 11 09	65.0	412.9	-3.0		-88.8	-13	10501	No stop
10 11 50	---	15 14 39	65.4	412.9	-2.9		-89.6	197	10528	10 08 21
10 11 50	J1806+6141	15 14 39	65.8	412.1	-2.9		-91.1	-13	10528	No stop
10 13 20	=1805+616	15 16 10	66.0	412.1	-2.8		-91.4	77	10540	10 11 51
10 13 20	151027A	15 16 10	65.6	412.9	-2.9		-89.9	-13	10540	No stop
10 16 50	---	15 19 40	66.0	412.9	-2.8		-90.7	197	10567	10 13 21
10 17 20	J1806+6141	15 20 10	66.5	412.1	-2.8		-92.4	17	10567	10 17 20
10 18 20	=1805+616	15 21 10	66.6	412.1	-2.8		-92.6	60	10574	10 17 21
10 18 20	151027A	15 21 10	66.2	412.9	-2.8		-91.0	-13	10574	No stop
10 21 50	---	15 24 41	66.6	412.9	-2.8		-91.8	197	10601	10 18 21
10 21 50	J1806+6141	15 24 41	67.0	412.0	-2.7		-93.4	-13	10601	No stop
10 23 20	=1805+616	15 26 11	67.2	412.0	-2.7		-93.8	77	10613	10 21 51
10 23 20	151027A	15 26 11	66.8	412.9	-2.7		-92.1	-14	10613	No stop
10 26 50	---	15 29 42	67.2	412.8	-2.7		-93.0	196	10640	10 23 21
10 27 20	J1806+6141	15 30 12	67.7	411.9	-2.6		-94.7	16	10640	10 27 20
10 28 20	=1805+616	15 31 12	67.8	411.9	-2.6		-95.0	60	10647	10 27 21
10 28 20	151027A	15 31 12	67.4	412.8	-2.6		-93.3	-14	10647	No stop
10 31 50	---	15 34 43	67.8	412.8	-2.6		-94.1	196	10674	10 28 21

Schedule for TORUN (Code Tr) Page 42

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
10 31 50	J1806+6141	15 34 43	68.2	411.8	-2.5		-95.9	-14	10674	No stop
10 33 20	=1805+616	15 36 13	68.4	411.7	-2.5		-96.2	76	10686	10 31 51
10 33 20	151027A	15 36 13	68.0	412.7	-2.6		-94.5	-14	10686	No stop
10 36 50	---	15 39 43	68.4	412.6	-2.5		-95.4	196	10713	10 33 21
10 37 20	J1806+6141	15 40 13	68.9	411.6	-2.4		-97.3	16	10713	10 37 20
10 38 20	=1805+616	15 41 14	69.0	411.5	-2.4		-97.5	60	10720	10 37 21
10 38 20	J1815+6127	15 41 14	67.9	412.5	-2.6		-94.6	-17	10720	No stop
10 41 50	=1815+614	15 44 44	68.3	412.4	-2.5		-95.5	193	10747	10 38 21
10 42 20	J1806+6141	15 45 14	69.5	411.3	-2.4		-98.6	13	10747	10 42 20
10 43 20	=1805+616	15 46 14	69.6	411.3	-2.3		-98.8	60	10755	10 42 21
10 44 20	J1746+6226	15 47 15	71.8	407.4	-2.0		-107.2	38	10755	10 44 20
10 50 20	=1745+624	15 53 16	72.5	406.7	-1.9		-109.2	360	10801	10 44 21
11 00 00	J1254+1141	16 02 57	34.3	239.9	3.1		32.0	229	10801	11 00 00
11 03 00	=1252+119	16 05 58	33.9	240.6	3.2		32.3	180	10824	11 00 01
11 03 00	J1246+1153	16 05 58	33.0	242.8	3.3		33.1	-18	10824	No stop
11 06 30	---	16 09 28	32.5	243.6	3.4		33.3	192	10851	11 03 01
11 07 10	J1254+1141	16 10 08	33.3	241.7	3.2		32.7	22	10851	11 07 10
11 08 00	=1252+119	16 10 59	33.2	241.9	3.3		32.7	50	10858	11 07 11
11 08 00	M60-UCD1	16 10 59	31.7	244.6	3.4		33.6	-20	10858	No stop
11 11 30	---	16 14 29	31.2	245.4	3.5		33.9	190	10885	11 08 01
11 11 30	J1254+1141	16 14 29	32.7	242.7	3.3		33.0	-19	10885	No stop
11 13 00	=1252+119	16 15 59	32.5	243.1	3.3		33.1	71	10896	11 11 31
11 13 00	M60-UCD1	16 15 59	31.0	245.8	3.5		34.0	-20	10896	No stop
11 16 30	---	16 19 30	30.6	246.6	3.6		34.2	190	10923	11 13 01
11 17 10	J1254+1141	16 20 10	32.0	244.1	3.4		33.5	21	10923	11 17 10
11 18 00	=1252+119	16 21 00	31.9	244.3	3.4		33.5	50	10929	11 17 11
11 18 00	M60-UCD1	16 21 00	30.3	246.9	3.6		34.3	-20	10929	No stop
11 21 30	---	16 24 31	29.9	247.8	3.7		34.6	190	10956	11 18 01
11 21 30	J1254+1141	16 24 31	31.4	245.2	3.5		33.8	-19	10956	No stop
11 23 00	=1252+119	16 26 01	31.2	245.5	3.5		33.9	71	10968	11 21 31

Schedule for TORUN (Code Tr) Page 43

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
11 23 00	M60-UCD1	16 26 01	29.7	248.1	3.7		34.7	-20	10968	No stop
11 26 30	---	16 29 32	29.2	248.9	3.8		34.9	190	10995	11 23 01
11 27 10	J1254+1141	16 30 12	30.6	246.5	3.6		34.2	21	10995	11 27 10
11 28 00	=1252+119	16 31 02	30.5	246.7	3.6		34.3	50	11001	11 27 11
11 28 00	M60-UCD1	16 31 02	29.0	249.3	3.8		35.0	-19	11001	No stop
11 31 30	---	16 34 32	28.5	250.1	3.8		35.2	191	11028	11 28 01
11 31 30	J1254+1141	16 34 32	30.0	247.5	3.7		34.5	-19	11028	No stop
11 33 00	=1252+119	16 36 03	29.8	247.9	3.7		34.6	71	11040	11 31 31
11 33 00	M60-UCD1	16 36 03	28.2	250.4	3.9		35.3	-20	11040	No stop
11 36 30	---	16 39 33	27.7	251.2	3.9		35.5	190	11067	11 33 01
11 37 10	J1254+1141	16 40 13	29.2	248.8	3.7		34.9	21	11067	11 37 10
11 38 00	=1252+119	16 41 03	29.1	249.0	3.8		34.9	50	11073	11 37 11
11 38 00	M60-UCD1	16 41 03	27.5	251.5	3.9		35.6	-20	11073	No stop
11 41 30	---	16 44 34	27.0	252.3	4.0		35.7	190	11100	11 38 01
11 41 30	J1254+1141	16 44 34	28.6	249.8	3.8		35.1	-19	11100	No stop
11 43 00	=1252+119	16 46 04	28.4	250.2	3.8		35.2	71	11111	11 41 31
11 43 00	M60-UCD1	16 46 04	26.8	252.7	4.0		35.8	-20	11111	No stop
11 46 30	---	16 49 35	26.3	253.4	4.1		36.0	190	11138	11 43 01
11 47 10	J1254+1141	16 50 15	27.8	251.1	3.9		35.5	21	11138	11 47 10
11 48 00	=1252+119	16 51 05	27.7	251.3	3.9		35.5	50	11145	11 47 11
11 48 00	M60-UCD1	16 51 05	26.1	253.8	4.1		36.1	-20	11145	No stop
11 51 30	---	16 54 36	25.6	254.5	4.2		36.2	190	11172	11 48 01
11 51 30	J1254+1141	16 54 36	27.2	252.1	4.0		35.7	-19	11172	No stop
11 53 00	=1252+119	16 56 06	27.0	252.4	4.0		35.8	71	11183	11 51 31
11 53 00	M60-UCD1	16 56 06	25.4	254.9	4.2		36.3	-20	11183	No stop
11 56 30	---	16 59 36	24.9	255.6	4.3		36.4	190	11210	11 53 01
11 57 10	J1254+1141	17 00 17	26.4	253.4	4.1		36.0	21	11210	11 57 10
11 58 00	=1252+119	17 01 07	26.2	253.6	4.1		36.0	50	11217	11 57 11
11 58 00	J1246+1153	17 01 07	25.2	255.5	4.2		36.4	-17	11217	No stop
12 01 30	---	17 04 37	24.7	256.2	4.3		36.6	193	11244	11 58 01

Schedule for TORUN (Code Tr) Page 44

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
12 02 10	J1254+1141	17 05 17	25.6	254.5	4.2		36.2	23	11244	12 02 10
12 03 00	=1252+119	17 06 08	25.5	254.7	4.2		36.2	50	11250	12 02 11
12 03 00	M60-UCD1	17 06 08	23.9	257.0	4.4		36.7	-20	11250	No stop
12 06 30	---	17 09 38	23.4	257.8	4.4		36.8	190	11277	12 03 01
12 06 30	J1254+1141	17 09 38	25.0	255.4	4.2		36.4	-19	11277	No stop
12 08 00	=1252+119	17 11 08	24.8	255.8	4.3		36.5	71	11288	12 06 31
12 08 00	M60-UCD1	17 11 08	23.2	258.1	4.4		36.9	-20	11288	No stop
12 11 30	---	17 14 39	22.7	258.9	4.5		37.0	190	11315	12 08 01
12 12 10	J1254+1141	17 15 19	24.2	256.7	4.3		36.6	20	11315	12 12 10
12 13 00	=1252+119	17 16 09	24.1	256.8	4.3		36.6	50	11322	12 12 11
12 13 00	M60-UCD1	17 16 09	22.4	259.2	4.5		37.0	-20	11322	No stop
12 16 30	---	17 19 40	21.9	259.9	4.6		37.1	190	11349	12 13 01
12 16 30	J1254+1141	17 19 40	23.5	257.6	4.4		36.8	-20	11349	No stop
12 18 00	=1252+119	17 21 10	23.3	257.9	4.4		36.8	70	11360	12 16 31
12 18 00	M60-UCD1	17 21 10	21.7	260.2	4.6		37.2	-20	11360	No stop
12 21 30	---	17 24 41	21.2	261.0	4.7		37.3	190	11387	12 18 01
12 22 10	J1254+1141	17 25 21	22.7	258.8	4.5		37.0	20	11387	12 22 10
12 23 00	=1252+119	17 26 11	22.6	259.0	4.5		37.0	50	11394	12 22 11
12 23 00	M60-UCD1	17 26 11	21.0	261.3	4.7		37.3	-20	11394	No stop
12 26 30	---	17 29 41	20.4	262.0	4.8		37.4	190	11420	12 23 01
12 26 30	J1254+1141	17 29 41	22.1	259.7	4.6		37.1	-20	11420	No stop
12 28 00	=1252+119	17 31 12	21.8	260.0	4.6		37.1	70	11432	12 26 31
12 28 00	M60-UCD1	17 31 12	20.2	262.3	4.8		37.4	-20	11432	No stop
12 31 30	---	17 34 42	19.7	263.1	4.8		37.5	190	11459	12 28 01
12 32 10	J1254+1141	17 35 22	21.2	260.9	4.7		37.3	20	11459	12 32 10
12 33 00	=1252+119	17 36 12	21.1	261.1	4.7		37.3	50	11465	12 32 11
12 33 00	M60-UCD1	17 36 12	19.5	263.4	4.9		37.5	-20	11465	No stop
12 36 30	---	17 39 43	18.9	264.1	4.9		37.6	190	11492	12 33 01
12 36 30	J1254+1141	17 39 43	20.6	261.8	4.7		37.4	-20	11492	No stop
12 38 00	=1252+119	17 41 13	20.4	262.1	4.8		37.4	70	11504	12 36 31

Schedule for TORUN (Code Tr) Page 45

e-EVN: em113 (trigger), rg007 (ToO), rsk02 (short)

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
12 38 00	M60-UCD1	17 41 13	18.7	264.4	4.9		37.6	-20	11504	No stop
12 41 30	---	17 44 44	18.2	265.1	5.0		37.6	190	11531	12 38 01
12 42 10	J1254+1141	17 45 24	19.7	263.0	4.8		37.5	20	11531	12 42 10
12 43 00	=1252+119	17 46 14	19.6	263.2	4.8		37.5	50	11537	12 42 11
12 43 00	M60-UCD1	17 46 14	18.0	265.4	5.0		37.7	-20	11537	No stop
12 46 30	---	17 49 45	17.4	266.1	5.1		37.7	190	11564	12 43 01
12 46 30	J1254+1141	17 49 45	19.1	263.9	4.9		37.6	-20	11564	No stop
12 48 00	=1252+119	17 51 15	18.9	264.2	4.9		37.6	70	11576	12 46 31
12 48 00	M60-UCD1	17 51 15	17.2	266.4	5.1		37.7	-20	11576	No stop
12 51 30	---	17 54 46	16.7	267.2	5.2		37.8	190	11602	12 48 01
12 52 10	J1254+1141	17 55 26	18.2	265.1	5.0		37.6	20	11602	12 52 10
12 53 00	=1252+119	17 56 16	18.1	265.2	5.0		37.7	50	11609	12 52 11
12 53 00	J1246+1153	17 56 16	17.1	267.0	5.1		37.8	-17	11609	No stop
12 56 30	---	17 59 46	16.5	267.7	5.2		37.8	193	11636	12 53 01
12 57 10	J1254+1141	18 00 26	17.5	266.1	5.1		37.7	23	11636	12 57 10
13 00 00	=1252+119	18 03 17	17.1	266.6	5.1		37.7	170	11658	12 57 11

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

======== Setup file: sess315.C1024

Setup group: 5 Station: TORUN Total bit rate: 1024
Format: MARK5B Bits per sample: 2 Sample rate: 32.000
Number of channels: 16 DBE type: DBBC_DDC Speedup factor: 1.00

Disk used to record data.

1st LO=	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00
	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00
Net SB=	L	L	U	U	L	L	U	U
	L	L	U	U	L	L	U	U
IF SB =	U	U	U	U	U	U	U	U
	U	U	U	U	U	U	U	U
Pol. =	RCP	LCP	RCP	LCP	RCP	LCP	RCP	LCP
	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=	L	L	U	U	L	L	U	U
	L	L	U	U	L	L	U	U
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: 5 Setup file default. Used with PCAL = off

LO sum=	4942.49	4942.49	4942.49	4942.49	4974.49	4974.49	4974.49	4974.49
	5006.49	5006.49	5006.49	5006.49	5038.49	5038.49	5038.49	5038.49
BBC fr=	742.49	742.49	742.49	742.49	774.49	774.49	774.49	774.49
	806.49	806.49	806.49	806.49	838.49	838.49	838.49	838.49
Bandwd=	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00

Matching frequency sets: 5

Track assignments are:
track1= 18, 26, 2, 10, 20, 28, 4, 12, 22, 30, 6, 14, 24, 32, 8, 16
barrel=roll_off

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* SSCYG	21 40 45.113836	* 21 42 42.966981	21 43 20.761365	0.00
	43 21 25.31303	* 43 35 10.39526	43 39 55.46161	0.00
* J2136+4301	21 34 26.856197	* 21 36 24.006386	21 37 01.504455	0.00
	42 48 13.34971	* 43 01 42.47310	43 06 22.60279	0.00
* J2153+4322	21 51 50.295751	* 21 53 50.959121	21 54 29.754231	0.00
	43 08 42.84439	* 43 22 54.50087	43 27 47.51144	0.00
* 151027A	18 09 25.040766	* 18 09 56.691000	18 10 04.434488	0.00
	61 20 30.64966	* 61 21 13.03000	61 21 48.80771	0.00
* M60-UCD1	12 41 04.783766	* 12 43 35.980000	12 44 22.775606	0.00
	11 57 30.97968	* 11 41 06.00000	11 35 57.89259	0.00
* J1246+1153	12 44 02.787715	* 12 46 33.756100	12 47 20.464239	0.00
	12 10 10.44371	* 11 53 47.92900	11 48 40.73155	0.00
* J1254+1141	12 52 07.716960	* 12 54 38.255602	12 55 24.800508	0.11
1252+119	11 57 20.86446	* 11 41 05.89490	11 36 01.64982	0.11
J1254+11	/aps3/opt/share/sched_11.3U1/catalogs/sources.vlba			
	rfc_2012b Petrov, 2012, unpublished 1446 observations			
J1407+2827	14 04 45.615156	* 14 07 00.394414	14 07 41.384833	0.24

```
  1404+286          28 41 29.23519    * 28 27 14.69022      28 22 50.03514        0.34
  J1407+28          /aps3/opt/share/sched_11.3U1/catalogs/sources.vlba
* OQ208             GSFC 2011B astro solution     66461 Observations

  J1642+3948        16 41 17.606228   * 16 42 58.809965     16 43 28.983055       0.77
* 3C345             39 54 10.81496    * 39 48 36.99402      39 47 08.22539        0.52
  1641+399          /aps3/opt/share/sched_11.3U1/catalogs/sources.vlba
  J1642+39          GSFC 2011B astro solution     52621 Observations

* J1746+6226        17 45 48.087282   * 17 46 14.034133     17 46 19.630889       0.22
  1745+624          62 27 55.74936    * 62 26 54.73830      62 26 56.11481        0.10
  J1746+62          /aps3/opt/share/sched_11.3U1/catalogs/sources.vlba
                    rfc_2012b Petrov, 2012, unpublished 33435 observations

* J1806+6141        18 05 50.088378   * 18 06 19.945896     18 06 27.056763       2.07
  1805+616          61 40 51.66588    * 61 41 18.32974      61 41 48.88271        0.74
                    /aps3/opt/share/sched_11.3U1/catalogs/sources.vlba
                    GSFC 2011B astro solution        30 Observations

* J1815+6127        18 15 05.464436   * 18 15 36.791944     18 15 44.489224       6.64
  1815+614          61 26 04.51478    * 61 27 11.64777      61 27 55.60827        2.26
                    /aps3/opt/share/sched_11.3U1/catalogs/sources.vlba
                    GSFC 2011B astro solution        27 Observations

  J2202+4216        22 00 39.362504   * 22 02 43.291371     22 03 23.188508       0.14
* BLLAC             42 02 08.59073    * 42 16 39.97987      42 21 38.64309        0.10
  2200+420          /aps3/opt/share/sched_11.3U1/catalogs/sources.vlba
  J2202+42          rfc_2012b Petrov, 2012, unpublished 59418 observations
  VR422201
```

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)
SSCYG	105.1
J2136+4301	103.8
J2153+4322	107.0
151027A	86.4
M60-UCD1	51.4
J1246+1153	50.9
J1254+1141	49.2
OQ208	51.6
3C345	61.2
J1746+6226	85.8
J1806+6141	86.4
J1815+6127	86.9
BLLAC	108.4

Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
that the Sun will cause amplitude reductions on the longest VLBA baselines
at a solar distance of 60deg 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

rk12grtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
---------- C-band VLBI scans ----------										
Next scan frequencies:		4836.00	4836.00	4836.00	4836.00					
Next BBC frequencies:		736.00	736.00	736.00	736.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
16 00 00	2251+158	21 03 46	47.2	138.9	-1.8		-24.3	0	0	16 00 00
16 14 30	---	21 18 19	48.6	143.6	-1.6		-21.8	870	28	16 00 01
16 15 00	2251+158	21 18 49	48.6	143.8	-1.6		-21.7	24	28	16 15 00
16 29 30	---	21 33 21	49.8	148.8	-1.4		-18.9	870	56	16 15 01
16 30 00	2251+158	21 33 51	49.9	149.0	-1.3		-18.8	24	56	16 30 00
16 44 30	---	21 48 24	50.9	154.2	-1.1		-15.8	870	84	16 30 01
16 45 00	2251+158	21 48 54	50.9	154.4	-1.1		-15.7	24	84	16 45 00
17 00 00	---	22 03 56	51.8	160.0	-0.8		-12.3	900	112	16 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:   1  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   1

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 33.290291	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 25.70579	0.00
	fake circumpolar target for a TS to look at			
* 2251+158	22 51 29.519741	* 22 53 57.747940	22 54 45.260160	0.00
J2253+1608	15 52 54.34791	* 16 08 53.56074	16 14 10.60997	0.00
3C454.3	./rk12gr_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 40570 observations, RA-AO3-04, RA-AO2-1			

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)
  2251+158           113.7

 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 60deg 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
```

rk12gstr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
---------- 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	0716+714	00 04 16	43.8	24.7	-7.3		-51.5	0	0	19 00 00
19 14 30	---	00 18 48	44.7	25.7	-7.1		-54.2	870	28	19 00 01
19 15 00	0716+714	00 19 19	44.8	25.7	-7.1		-54.3	24	28	19 15 00
19 25 00	---	00 29 20	45.4	26.3	-6.9		-56.3	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	0716+714	00 34 21	45.8	26.7	-6.8		-57.2	294	47	19 30 00
19 44 30	---	00 48 53	46.7	27.5	-6.6		-60.0	870	75	19 30 01
19 45 00	0716+714	00 49 23	46.8	27.6	-6.6		-60.1	24	75	19 45 00
20 00 00	---	01 04 26	47.8	28.4	-6.3		-63.1	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: 1 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off


======== 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)                        Error
                        (B1950)             (J2000)             (Date)            (mas)

* FAKERA              11 57 21.769299   * 12 00 00.000000     12 00 33.318966       0.00
                      85 16 41.77889    * 85 00 00.00000      84 54 25.67283        0.00
                      fake circumpolar target for a TS to look at

* 0716+714           07 16 13.029739   * 07 21 53.448474     07 23 42.685354       0.00
  J0721+7120          71 26 15.17406    * 71 20 36.36340      71 18 21.64011        0.00
                      ./rk12gs_sources.radioastron
                      AGN, rfc_2013d Petrov, 2013, unpublished 42370 observations, RA-AO3-04, RA-AO2-1


EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0716+714           118.5

 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 60deg 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
```

rk12gttr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 18 Nov 2015 Day 322 ---										
---------- C-band VLBI scans ----------										
Next scan frequencies:		4836.00	4836.00	4836.00	4836.00					
Next BBC frequencies:		736.00	736.00	736.00	736.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
23 00 00	1823+689	04 04 55	34.7	-14.3	9.7		24.5	0	0	23 00 00
23 14 30	---	04 19 28	34.2	-12.9	9.9		21.9	870	28	23 00 01
23 15 00	1823+689	04 19 58	34.2	-12.8	9.9		21.9	24	28	23 15 00
23 25 00	---	04 30 00	33.8	-11.8	10.1		20.1	600	47	23 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					
23 30 00	1823+689	04 35 00	33.7	-11.3	10.2		19.2	294	47	23 30 00
23 44 30	---	04 49 33	33.3	-9.8	10.4		16.6	870	75	23 30 01
23 45 00	1823+689	04 50 03	33.3	-9.8	10.4		16.5	24	75	23 45 00
23 59 59	---	05 05 05	32.9	-8.2	10.7		13.9	899	104	23 45 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off


======== Setup file: ra18cm2.set

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

 Disk used to record data.
```

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 33.357166	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 25.62941	0.00
	fake circumpolar target for a TS to look at			
* 1823+689	18 23 51.691232	* 18 23 32.853904	18 23 23.954902	0.00
J1823+6857	68 56 09.10322	* 68 57 52.61250	68 58 47.45376	0.00
	./rk12gt_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 1793 observations, RA-AO3-04, RA-AO2-12			

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)
  1823+689            93.3

 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 60deg 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
```

rk12gutr

RadioAstron AGN Survey

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 19 Nov 2015 Day 323 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
04 00 00	1803+784	09 05 45	44.5	11.7	-8.9		-37.6	0	0	04 00 00
04 14 30	---	09 20 17	45.0	12.5	-8.7		-40.6	870	28	04 00 01
04 15 00	1803+784	09 20 47	45.0	12.5	-8.6		-40.7	25	28	04 15 00
04 29 30	---	09 35 20	45.5	13.3	-8.4		-43.8	870	56	04 15 01
04 30 00	1803+784	09 35 50	45.5	13.3	-8.4		-43.9	25	56	04 30 00
04 44 30	---	09 50 22	46.0	14.1	-8.2		-46.9	870	84	04 30 01
04 45 00	1803+784	09 50 52	46.0	14.1	-8.1		-47.0	25	84	04 45 00
05 00 00	---	10 05 55	46.6	14.8	-7.9		-50.2	900	112	04 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: 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)                        Error
                        (B1950)             (J2000)             (Date)            (mas)

* FAKERA             11 57 21.769299   * 12 00 00.000000     12 00 33.404819       0.00
                     85 16 41.77889    * 85 00 00.00000      84 54 25.57597        0.00
                     fake circumpolar target for a TS to look at

* 1803+784           18 03 39.193524   * 18 00 45.683902     17 59 44.835728       0.00
  J1800+7828         78 27 54.29744    * 78 28 04.01838      78 28 24.91331        0.00
                     ./rk12gu_sources.radioastron
                     AGN, rfc_2013d Petrov, 2013, unpublished 217073 observations, RA-AO3-04, RA-AO2-



EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  1803+784            99.9

 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 60deg 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
```

rk12gwtr

RadioAstron AGN Survey

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 20 Nov 2015 Day 324 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
10 00 00	0224+671	15 10 40	30.8	4.5-11.3			-7.0	0	0	10 00 00
10 14 30	---	15 25 13	31.0	6.1-11.1			-9.6	870	28	10 00 01
10 15 00	0224+671	15 25 43	31.0	6.2-11.1			-9.7	24	28	10 15 00
10 29 30	---	15 40 15	31.2	7.8-10.8			-12.2	870	56	10 15 01
10 30 00	0224+671	15 40 45	31.2	7.8-10.8			-12.3	24	56	10 30 00
10 44 30	---	15 55 18	31.6	9.4-10.6			-14.8	870	84	10 30 01
10 45 00	0224+671	15 55 48	31.6	9.5-10.6			-14.9	24	84	10 45 00
11 00 00	---	16 10 50	32.0	11.1-10.3			-17.5	900	112	10 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: 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)                        Error
                        (B1950)             (J2000)             (Date)            (mas)

* FAKERA             11 57 21.769299   * 12 00 00.000000     12 00 33.685240       0.00
                     85 16 41.77889    * 85 00 00.00000      84 54 25.27353        0.00
                     fake circumpolar target for a TS to look at

* 0224+671           02 24 41.169053   * 02 28 50.051490     02 30 14.073606       0.00
  J0228+6721         67 07 39.70870    * 67 21 03.02933      67 25 18.60780        0.00
                     ./rk12gw_sources.radioastron
                     AGN, rfc_2013d Petrov, 2013, unpublished 3946 observations, RA-AO3-04



EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0224+671           130.9

 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 60deg 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
```

rk12gxtr

RadioAstron AGN Survey

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 20 Nov 2015 Day 324 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
23 00 00	2309+454	04 12 49	42.9	-66.9	5.0		52.4	0	0	23 00 00
23 14 30	---	04 27 21	41.0	-64.8	5.2		51.2	870	28	23 00 01
23 15 00	2309+454	04 27 51	40.9	-64.7	5.3		51.2	24	28	23 15 00
23 29 30	---	04 42 23	38.9	-62.6	5.5		49.9	870	56	23 15 01
23 30 00	2309+454	04 42 54	38.9	-62.6	5.5		49.9	24	56	23 30 00
23 44 30	---	04 57 26	36.9	-60.5	5.7		48.6	870	84	23 30 01
23 45 00	2309+454	04 57 56	36.9	-60.4	5.8		48.5	24	84	23 45 00
23 59 59	---	05 12 58	34.9	-58.2	6.0		47.1	899	112	23 45 01

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

======== Setup file: ra18cm2.set

Setup group: 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)                          Error
                        (B1950)             (J2000)             (Date)             (mas)

* FAKERA             11 57 21.769299   * 12 00 00.000000     12 00 33.802015       0.00
                     85 16 41.77889    * 85 00 00.00000      84 54 25.15070        0.00
                     fake circumpolar target for a TS to look at

* 2309+454           23 09 28.211645   * 23 11 47.408972     23 12 32.832459       0.00
  J2311+4543         45 27 37.24974    * 45 43 56.01648      45 49 25.53706        0.00
                     ./rk12gx_sources.radioastron
                     AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 2633 observations, RA-AO3-04, RA



EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  2309+454           119.3

 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 60deg 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
```

rk12gytr

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 21 Nov 2015 Day 325 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
04 00 00	0219+428	09 13 38	26.9	-53.0	6.8		41.1	0	0	04 00 00
04 14 30	---	09 28 10	25.1	-50.8	7.1		39.6	870	28	04 00 01
04 15 00	0219+428	09 28 40	25.1	-50.7	7.1		39.5	24	28	04 15 00
04 29 30	---	09 43 13	23.4	-48.4	7.3		38.0	870	56	04 15 01
04 30 00	0219+428	09 43 43	23.4	-48.4	7.3		37.9	24	56	04 30 00
04 44 30	---	09 58 15	21.8	-46.1	7.6		36.3	870	84	04 30 01
04 45 00	0219+428	09 58 45	21.7	-46.0	7.6		36.3	24	84	04 45 00
05 00 00	---	10 13 48	20.1	-43.6	7.8		34.5	900	112	04 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: 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)                        Error
                        (B1950)             (J2000)             (Date)            (mas)

* FAKERA             11 57 21.769299   * 12 00 00.000000     12 00 33.845944       0.00
                     85 16 41.77889    * 85 00 00.00000      84 54 25.10443        0.00
                     fake circumpolar target for a TS to look at

* 0219+428           02 19 29.982909   * 02 22 39.611495     02 23 42.068346       0.00
  J0222+4302         42 48 29.80835    * 43 02 07.79884      43 06 28.88537        0.00
                     ./rk12gy_sources.radioastron
                     AGN, rfc_2013d Petrov, 2013, unpublished 1093 observations, RA-A03-04



EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0219+428           151.1

 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 60deg 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
```

rk12hatr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 21 Nov 2015 Day 325 ---										
---------- 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					
13 00 00	2010+723	18 15 07	67.1	21.7	-1.9		-132.4	0	0	13 00 00
13 14 30	---	18 29 39	67.8	19.6	-1.7		-137.7	870	28	13 00 01
13 15 00	2010+723	18 30 09	67.9	19.6	-1.7		-137.9	24	28	13 15 00
13 29 30	---	18 44 41	68.5	17.3	-1.4		-143.5	870	56	13 15 01
13 30 00	2010+723	18 45 12	68.6	17.2	-1.4		-143.7	24	56	13 30 00
13 44 30	---	18 59 44	69.2	14.7	-1.2		-149.5	870	84	13 30 01
13 45 00	2010+723	19 00 14	69.2	14.6	-1.2		-149.7	24	84	13 45 00
14 00 00	---	19 15 16	69.7	11.7	-0.9		-156.0	900	112	13 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:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 33.923548	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 25.02213	0.00
	fake circumpolar target for a TS to look at			
* 2010+723	20 10 16.209319	* 20 09 52.303862	20 09 43.197282	0.00
J2009+7229	72 20 20.74133	* 72 29 19.35101	72 32 35.93997	0.00
	./rk12ha_sources.radioastron			
	AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 130 observations, RA-AO3-04, RA-			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  2010+723           102.1

 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 60deg 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
```

rk12hbtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 21 Nov 2015 Day 325 ---										
---------- 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	0119+115	00 16 06	46.7	155.9	-1.1		-14.5	0	0	19 00 00
19 14 30	---	00 30 38	47.5	161.0	-0.9		-11.5	870	28	19 00 01
19 15 00	0119+115	00 31 08	47.6	161.2	-0.9		-11.4	24	28	19 15 00
19 29 30	---	00 45 41	48.2	166.4	-0.6		-8.3	870	56	19 15 01
19 30 00	0119+115	00 46 11	48.2	166.6	-0.6		-8.2	24	56	19 30 00
19 44 30	---	01 00 43	48.6	171.9	-0.4		-5.0	870	84	19 30 01
19 45 00	0119+115	01 01 13	48.6	172.1	-0.4		-4.8	24	84	19 45 00
20 00 00	---	01 16 16	48.8	177.7	-0.1		-1.4	900	112	19 45 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 33.974219	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 24.96775	0.00
	fake circumpolar target for a TS to look at			
* 0119+115	01 19 03.080127	* 01 21 41.595043	01 22 33.050963	0.00
J0121+1149	11 34 09.31507	* 11 49 50.41305	11 54 51.33054	0.00
	./rk12hb_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 47881 observations, RA-AO3-04, RA-AO2-1			

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)
  0119+115           144.2

 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 60deg 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
```

rk12hctr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 21 Nov 2015 Day 325 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
23 00 00	0106+612	04 16 45	64.2	-52.2	3.1		87.9	0	0	23 00 00
23 14 30	---	04 31 18	62.4	-52.0	3.3		84.9	870	28	23 00 01
23 15 00	0106+612	04 31 48	62.4	-52.0	3.3		84.8	24	28	23 15 00
23 29 30	---	04 46 20	60.7	-51.6	3.6		82.0	870	56	23 15 01
23 30 00	0106+612	04 46 50	60.6	-51.5	3.6		81.9	24	56	23 30 00
23 44 30	---	05 01 22	58.9	-51.0	3.8		79.2	870	84	23 30 01
23 45 00	0106+612	05 01 53	58.9	-51.0	3.9		79.1	24	84	23 45 00
23 59 59	---	05 16 55	57.1	-50.2	4.1		76.4	899	112	23 45 01

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

======== Setup file: ra18cm2.set

Setup group: 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)                        Error
                        (B1950)             (J2000)             (Date)            (mas)

* FAKERA             11 57 21.769299   * 12 00 00.000000     12 00 34.007530       0.00
                     85 16 41.77889    * 85 00 00.00000      84 54 24.93162        0.00
                     fake circumpolar target for a TS to look at

* 0106+612           01 06 36.621798   * 01 09 46.344314     01 10 50.052516       0.00
  J0109+6133         61 17 32.64124    * 61 33 30.45573      61 38 44.82674        0.00
                     ./rk12hc_sources.radioastron
                     AGN, rfc_2013d Petrov, 2013, unpublished 321 observations, RA-AO3-04, RA-AO2-12



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)
  0106+612           130.2

 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 60deg 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
```

rk12hdtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 22 Nov 2015 Day 326 ---										
---------- 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					
04 00 00	0730+504	09 17 34	74.0	270.4	1.7		70.2	0	0	04 00 00
04 14 30	---	09 32 07	71.8	273.1	2.0		69.9	870	28	04 00 01
04 15 00	0730+504	09 32 37	71.7	273.2	2.0		69.9	24	28	04 15 00
04 29 30	---	09 47 09	69.5	275.6	2.2		69.4	870	56	04 15 01
04 30 00	0730+504	09 47 39	69.5	275.7	2.2		69.4	24	56	04 30 00
04 44 30	---	10 02 12	67.3	277.9	2.5		68.7	870	84	04 30 01
04 45 00	0730+504	10 02 42	67.2	278.0	2.5		68.7	24	84	04 45 00
05 00 00	---	10 17 44	65.0	280.2	2.7		67.8	900	112	04 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:   1  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   1

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299 85 16 41.77889 fake circumpolar target for a TS to look at	* 12 00 00.000000 * 85 00 00.00000	12 00 34.048653 84 54 24.88651	0.00 0.00
* 0730+504 J0733+5022	07 30 04.386239 50 28 40.45211 ./rk12hd_sources.radioastron AGN, rfc_2013d Petrov, 2013, unpublished 574 observations, RA-AO3-04	* 07 33 52.520582 * 50 22 09.06206	07 35 05.675575 50 19 43.48456	0.00 0.00

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)
  0730+504           126.6

 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 60deg 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
```

rk12hetr

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 22 Nov 2015 Day 326 ---										
---------- 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					
11 00 00	0951+693	16 18 43	46.5	-31.3	6.4		60.3	0	0	11 00 00
11 14 30	---	16 33 16	45.4	-30.3	6.6		57.7	870	28	11 00 01
11 15 00	0951+693	16 33 46	45.4	-30.3	6.6		57.6	24	28	11 15 00
11 29 30	---	16 48 18	44.3	-29.2	6.9		54.9	870	56	11 15 01
11 30 00	0951+693	16 48 48	44.3	-29.2	6.9		54.8	24	56	11 30 00
11 44 30	---	17 03 21	43.2	-28.1	7.1		52.1	870	84	11 30 01
11 45 00	0951+693	17 03 51	43.2	-28.1	7.1		52.1	24	84	11 45 00
12 00 00	---	17 18 53	42.1	-26.9	7.4		49.3	900	112	11 45 01

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

======== Setup file: 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)                        Error
                        (B1950)             (J2000)             (Date)            (mas)

* FAKERA             11 57 21.769299   * 12 00 00.000000     12 00 34.103368       0.00
                     85 16 41.77889    * 85 00 00.00000      84 54 24.82546        0.00
                     fake circumpolar target for a TS to look at

* 0951+693          09 51 27.310821   * 09 55 33.173065     09 56 49.116795       0.00
  J0955+6903         69 18 08.14417    * 69 03 55.06083      68 59 00.30489        0.00
  M81                ./rk12he_sources.radioastron
                     rfc_2013d Petrov, 2013, unpublished 3429 observations, RA-AO3-07



EFFECT OF SOLAR CORONA

 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0951+693           108.2

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg 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
```

rk12hftr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 22 Nov 2015 Day 326 ---										
---------- 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					
18 00 00	2201+315	23 19 52	64.7	220.3	1.3		27.2	0	0	18 00 00
18 14 30	---	23 34 25	63.2	226.5	1.5		30.8	870	28	18 00 01
18 15 00	2201+315	23 34 55	63.2	226.7	1.5		30.9	24	28	18 15 00
18 29 30	---	23 49 27	61.5	232.3	1.8		34.0	870	56	18 15 01
18 30 00	2201+315	23 49 57	61.5	232.5	1.8		34.1	24	56	18 30 00
18 44 30	---	00 04 30	59.7	237.6	2.0		36.6	870	84	18 30 01
18 45 00	2201+315	00 05 00	59.6	237.8	2.0		36.7	24	84	18 45 00
19 00 00	---	00 20 02	57.6	242.6	2.3		38.9	900	112	18 45 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299 85 16 41.77889 fake circumpolar target for a TS to look at	* 12 00 00.000000 * 85 00 00.00000	12 00 34.160974 84 54 24.75971	0.00 0.00
* 2201+315 J2203+3145	22 01 01.441997 31 31 05.87498 ./rk12hf_sources.radioastron AGN, rfc_2013d Petrov, 2013, unpublished 33331 observations, RA-AO3-04, RA-AO2-1	* 22 03 14.975788 * 31 45 38.26991	22 03 57.618100 31 50 34.57599	0.00 0.00

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)
  2201+315           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 60deg 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
```

rk12hgtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 22 Nov 2015 Day 326 ---										
---------- C-band VLBI scans ----------										
Next scan frequencies:		4836.00	4836.00	4836.00	4836.00					
Next BBC frequencies:		736.00	736.00	736.00	736.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
23 00 00	0851+202	04 20 42	28.6	94.3	-4.6		-39.6	0	0	23 00 00
23 14 30	---	04 35 14	30.8	97.4	-4.3		-39.3	870	28	23 00 01
23 15 00	0851+202	04 35 44	30.8	97.5	-4.3		-39.3	24	28	23 15 00
23 29 30	---	04 50 17	33.0	100.6	-4.1		-38.9	870	56	23 15 01
23 30 00	0851+202	04 50 47	33.1	100.7	-4.1		-38.9	24	56	23 30 00
23 44 30	---	05 05 19	35.2	103.9	-3.8		-38.3	870	84	23 30 01
23 45 00	0851+202	05 05 49	35.3	104.0	-3.8		-38.3	24	84	23 45 00
23 59 59	---	05 20 52	37.4	107.5	-3.6		-37.6	899	112	23 45 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299 85 16 41.77889 fake circumpolar target for a TS to look at	* 12 00 00.000000 * 85 00 00.00000	12 00 34.200200 84 54 24.71398	0.00 0.00
* 0851+202 J0854+2006 OJ287	08 51 57.250618 20 17 58.41733 ./rk12hg_sources.radioastron AGN, rfc_2013d Petrov, 2013, unpublished 213710 observations, RA-AO3-04, RA-AO3-	* 08 54 48.874930 * 20 06 30.64078	08 55 43.505178 20 02 41.03196	0.00 0.00

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)
  0851+202           109.6

 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 60deg 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
```

rk12hhtr

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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 23 Nov 2015 Day 327 ---										
---------- 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					
03 00 00	2309+454	08 21 21	15.5	-29.4	9.1		25.0	0	0	03 00 00
03 14 30	---	08 35 54	14.4	-27.0	9.4		23.1	870	28	03 00 01
03 15 00	2309+454	08 36 24	14.4	-26.9	9.4		23.0	24	28	03 15 00
03 29 30	---	08 50 56	13.4	-24.5	9.6		21.0	870	56	03 15 01
03 30 00	2309+454	08 51 26	13.4	-24.4	9.6		20.9	24	56	03 30 00
03 44 30	---	09 05 58	12.5	-22.0	9.9		18.8	870	84	03 30 01
03 45 00	2309+454	09 06 29	12.5	-21.9	9.9		18.8	24	84	03 45 00
04 00 00	---	09 21 31	11.7	-19.4	10.1		16.6	900	112	03 45 01

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

======== Setup file: ra18cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

 Frequency Set:   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 34.231301	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 24.67712	0.00
	fake circumpolar target for a TS to look at			
* 2309+454	23 09 28.211645	* 23 11 47.408972	23 12 32.778488	0.00
J2311+4543	45 27 37.24974	* 45 43 56.01648	45 49 25.60234	0.00
	./rk12hh_sources.radioastron			
	AGN, MASIV, rfc_2013d Petrov, 2013, unpublished 2633 observations, RA-A03-04, RA			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  2309+454           118.0

 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 60deg 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
```

rk12hitr

RadioAstron AGN Survey

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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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 23 Nov 2015 Day 327 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
19 00 00	2200+420	00 23 59	64.4	259.5	2.3		53.0	0	0	19 00 00
19 14 30	---	00 38 31	62.2	263.1	2.6		53.8	870	28	19 00 01
19 15 00	2200+420	00 39 01	62.1	263.2	2.6		53.8	24	28	19 15 00
19 29 30	---	00 53 34	60.0	266.5	2.8		54.2	870	56	19 15 01
19 30 00	2200+420	00 54 04	59.9	266.6	2.8		54.2	24	56	19 30 00
19 44 30	---	01 08 36	57.7	269.6	3.1		54.4	870	84	19 30 01
19 45 00	2200+420	01 09 06	57.6	269.7	3.1		54.4	24	84	19 45 00
20 00 00	---	01 24 09	55.4	272.7	3.3		54.3	900	112	19 45 01

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

======== Setup file: 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 34.353910	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 24.52655	0.00
	fake circumpolar target for a TS to look at			
* 2200+420	22 00 39.362504	* 22 02 43.291371	22 03 23.026392	0.00
J2202+4216	42 02 08.59073	* 42 16 39.97987	42 21 38.43133	0.00
BLLAC	./rk12hi_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 59417 observations, RA-AO3-04, RA-AO2-1			

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)
  2200+420           104.9

 Barry Clark estimates from predictions by Ketan Desai of IPM scattering sizes
 that the Sun will cause amplitude reductions on the  longest VLBA baselines
 at a solar distance of 60deg 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
```

rk12hjtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 23 Nov 2015 Day 327 ---										
---------- C-band VLBI scans ----------										
Next scan frequencies:		4836.00	4836.00	4836.00	4836.00					
Next BBC frequencies:		736.00	736.00	736.00	736.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
23 00 00	0838+133	04 24 38	25.8	102.9	-4.3		-36.9	0	0	23 00 00
23 14 30	---	04 39 11	28.0	106.1	-4.0		-36.3	870	28	23 00 01
23 15 00	0838+133	04 39 41	28.0	106.2	-4.0		-36.3	24	28	23 15 00
23 29 30	---	04 54 13	30.1	109.5	-3.8		-35.5	870	56	23 15 01
23 30 00	0838+133	04 54 43	30.2	109.6	-3.8		-35.5	24	56	23 30 00
23 44 30	---	05 09 16	32.2	113.0	-3.5		-34.6	870	84	23 30 01
23 45 00	0838+133	05 09 46	32.3	113.1	-3.5		-34.5	24	84	23 45 00
23 59 59	---	05 24 48	34.3	116.8	-3.3		-33.4	899	112	23 45 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 34.384300	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 24.48796	0.00
	fake circumpolar target for a TS to look at			
* 0838+133	08 38 01.723597	* 08 40 47.588427	08 41 40.570722	0.00
J0840+1312	13 23 05.67979	* 13 12 23.56368	13 08 50.29635	0.00
	./rk12hj_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 196 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0838+133           111.9

 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 60deg 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
```

rk12hktr

RadioAstron AGN Survey

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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 / Stop UT	Source	Start / Stop LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 25 Nov 2015 Day 329 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
00 00 00	0730+504	05 28 45	70.4	85.3	-2.1		-69.6	0	0	00 00 00
00 14 30	---	05 43 17	72.6	87.8	-1.9		-70.0	870	28	00 00 01
00 15 00	0730+504	05 43 47	72.7	87.9	-1.9		-70.1	24	28	00 15 00
00 29 30	---	05 58 20	74.8	90.8	-1.6		-70.1	870	56	00 15 01
00 30 00	0730+504	05 58 50	74.9	90.9	-1.6		-70.1	24	56	00 30 00
00 44 30	---	06 13 22	77.1	94.1	-1.4		-69.7	870	84	00 30 01
00 45 00	0730+504	06 13 52	77.2	94.3	-1.4		-69.7	24	84	00 45 00
01 00 00	---	06 28 55	79.4	98.5	-1.1		-68.5	900	112	00 45 01

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

======== Setup file: ra18cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 34.575367	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 24.23674	0.00
	fake circumpolar target for a TS to look at			
* 0730+504	07 30 04.386239	* 07 33 52.520582	07 35 05.781175	0.00
J0733+5022	50 28 40.45211	* 50 22 09.06206	50 19 43.50074	0.00
	./rk12hk_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 574 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0730+504           128.8

 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 60deg 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
```

rk12hltr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Wed 25 Nov 2015 Day 329 ---										
---------- C-band VLBI scans ----------										
Next scan frequencies:		4836.00	4836.00	4836.00	4836.00					
Next BBC frequencies:		736.00	736.00	736.00	736.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
20 00 00	2107+353	01 32 02	41.9	276.2	4.4		47.3	0	0	20 00 00
20 14 30	---	01 46 34	39.8	278.8	4.6		46.9	870	28	20 00 01
20 15 00	2107+353	01 47 04	39.7	278.9	4.6		46.9	24	28	20 15 00
20 29 30	---	02 01 37	37.6	281.5	4.9		46.4	870	56	20 15 01
20 30 00	2107+353	02 02 07	37.5	281.6	4.9		46.4	24	56	20 30 00
20 44 30	---	02 16 39	35.4	284.1	5.1		45.7	870	84	20 30 01
20 45 00	2107+353	02 17 09	35.3	284.2	5.1		45.7	24	84	20 45 00
21 00 00	---	02 32 12	33.1	286.8	5.4		45.0	900	112	20 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: 1 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 34.734258	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 24.02367	0.00
	fake circumpolar target for a TS to look at			
* 2107+353	21 07 30.448847	* 21 09 31.878723	21 10 10.210037	0.00
J2109+3532	35 20 43.22902	* 35 32 57.59753	35 37 12.57506	0.00
	./rk12hl_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 135 observations, RA-AO3-04, RA-AO2-12			

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)
  2107+353            91.6

 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 60deg 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
```

rk12hmtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Thu 26 Nov 2015 Day 330 ---										
---------- K-band VLBI scans ----------										
Next scan frequencies:		22236.00	22236.00	22236.00	22236.00					
Next BBC frequencies:		736.00	736.00	736.00	736.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
12 00 00	2201+315	17 34 40	38.2	86.0	-4.5		-44.8	0	0	12 00 00
12 14 30	---	17 49 12	40.4	88.8	-4.2		-45.0	870	28	12 00 01
12 15 00	2201+315	17 49 42	40.5	88.9	-4.2		-45.0	24	28	12 15 00
12 24 30	---	17 59 14	41.9	90.8	-4.1		-45.0	570	46	12 15 01
---------- 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					
12 30 00	2201+315	18 04 44	42.7	91.9	-4.0		-44.9	323	46	12 30 00
12 44 30	---	18 19 17	44.9	95.0	-3.7		-44.8	870	74	12 30 01
12 45 00	2201+315	18 19 47	45.0	95.1	-3.7		-44.8	24	74	12 45 00
13 00 00	---	18 34 49	47.2	98.4	-3.5		-44.4	900	103	12 45 01

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

======== Setup file: ra1cm2.set
Matching groups in ./rk12hm_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


======== Setup file: ra6cm2.set

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

  Disk used to record data.
```

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 34.868264	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 23.84750	0.00
	fake circumpolar target for a TS to look at			
* 2201+315	22 01 01.441997	* 22 03 14.975788	22 03 57.558249	0.00
J2203+3145	31 31 05.87498	* 31 45 38.26991	31 50 34.49042	0.00
	./rk12hm_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 33331 observations, RA-AO3-04, RA-AO2-1			

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)
  2201+315           100.1

 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 60deg 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
```

rk12hntr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 27 Nov 2015 Day 331 ---										
---------- K-band VLBI scans ----------										
Next scan frequencies:		22236.00	22236.00	22236.00	22236.00					
Next BBC frequencies:		736.00	736.00	736.00	736.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
02 00 00	0235+164	07 36 57	22.6	267.9	5.0		38.8	0	0	02 00 00
02 14 30	---	07 51 30	20.4	270.8	5.2		38.8	870	28	02 00 01
02 15 00	0235+164	07 52 00	20.4	270.9	5.2		38.8	24	28	02 15 00
02 24 30	---	08 01 32	18.9	272.8	5.4		38.8	570	46	02 15 01
---------- 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					
02 30 00	0235+164	08 07 02	18.1	273.9	5.5		38.7	323	46	02 30 00
02 44 30	---	08 21 35	15.9	276.7	5.7		38.5	870	74	02 30 01
02 45 00	0235+164	08 22 05	15.9	276.8	5.7		38.5	24	74	02 45 00
03 00 00	---	08 37 07	13.6	279.7	6.0		38.2	900	103	02 45 01

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

======== Setup file: ra1cm2.set
Matching groups in ./rk12hn_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


======== Setup file: ra6cm2.set

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

 Disk used to record data.
```

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 34.991604	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 23.69133	0.00
	fake circumpolar target for a TS to look at			
* 0235+164	02 35 52.630215	* 02 38 38.930107	02 39 33.182315	0.00
J0238+1636	16 24 04.01610	* 16 36 59.27452	16 41 03.38615	0.00
	./rk12hn_sources.radioastron			
	AGN, IDV, rfc_2013d Petrov, 2013, unpublished 65224 observations, RA-AO3-04, RA-			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0235+164           158.1

 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 60deg 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
```

rk12hotr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Fri 27 Nov 2015 Day 331 ---										
---------- 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					
13 00 00	2135+508	18 38 46	62.9	76.0	-3.0		-68.1	0	0	13 00 00
13 14 30	---	18 53 18	65.0	77.8	-2.7		-69.2	870	28	13 00 01
13 15 00	2135+508	18 53 48	65.1	77.9	-2.7		-69.3	24	28	13 15 00
13 29 30	---	19 08 21	67.3	79.9	-2.5		-70.3	870	56	13 15 01
13 30 00	2135+508	19 08 51	67.3	79.9	-2.5		-70.3	24	56	13 30 00
13 44 30	---	19 23 23	69.5	82.0	-2.2		-71.3	870	84	13 30 01
13 45 00	2135+508	19 23 53	69.6	82.1	-2.2		-71.3	24	84	13 45 00
14 00 00	---	19 38 56	71.8	84.3	-2.0		-72.1	900	112	13 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:   2  Setup file default.  Used with PCAL = 1MHz
 LO sum=   4836.00  4836.00  4836.00  4836.00
 BBC fr=    736.00   736.00   736.00   736.00
 Bandwd=     16.00    16.00    16.00    16.00
  Matching frequency sets:   2

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 35.092673	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 23.56866	0.00
	fake circumpolar target for a TS to look at			
* 2135+508	21 35 15.499567	* 21 37 00.986207	21 37 34.640088	0.00
J2137+5101	50 48 05.19436	* 51 01 36.12906	51 06 17.78306	0.00
	./rk12ho_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 64 observations, RA-AO3-04, RA-AO2-12			

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)
  2135+508           101.1

 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 60deg 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
```

rk12hptr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 28 Nov 2015 Day 332 ---										
---------- 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	0219+428	00 43 42	70.7	111.0	-1.7		-50.1	0	0	19 00 00
19 14 30	---	00 58 14	72.7	116.6	-1.4		-47.3	870	28	19 00 01
19 15 00	0219+428	00 58 44	72.8	116.8	-1.4		-47.2	23	28	19 15 00
19 29 30	---	01 13 16	74.6	123.5	-1.2		-43.3	870	56	19 15 01
19 30 00	0219+428	01 13 47	74.7	123.7	-1.2		-43.2	23	56	19 30 00
19 44 30	---	01 28 19	76.4	131.8	-0.9		-37.8	870	84	19 30 01
19 45 00	0219+428	01 28 49	76.5	132.2	-0.9		-37.6	23	84	19 45 00
20 00 00	---	01 43 51	78.0	142.5	-0.7		-30.0	900	112	19 45 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 35.385459	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 23.24210	0.00
	fake circumpolar target for a TS to look at			
* 0219+428	02 19 29.982909	* 02 22 39.611495	02 23 42.082117	0.00
J0222+4302	42 48 29.80835	* 43 02 07.79884	43 06 30.02174	0.00
	./rk12hp_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 1093 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0219+428           147.8

 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 60deg 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
```

rk12hqtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sat 28 Nov 2015 Day 332 ---										
---------- 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	2251+158	03 44 11	23.5	266.0	4.8		38.6	0	0	22 00 00
22 14 30	---	03 58 44	21.3	268.9	5.1		38.7	870	28	22 00 01
22 15 00	2251+158	03 59 14	21.2	269.0	5.1		38.7	24	28	22 15 00
22 24 30	---	04 08 45	19.8	270.9	5.2		38.7	570	46	22 15 01
---------- 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					
22 30 00	2251+158	04 14 16	19.0	272.0	5.3		38.7	323	46	22 30 00
22 44 30	---	04 28 48	16.8	274.9	5.6		38.5	870	74	22 30 01
22 45 00	2251+158	04 29 19	16.7	275.0	5.6		38.5	24	74	22 45 00
23 00 00	---	04 44 21	14.5	277.9	5.8		38.3	900	103	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 ./rk12hq_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:   1  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:   1

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off


======== Setup file: ra6cm2.set

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

 Disk used to record data.
```

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 35.415920	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 23.21053	0.00
	fake circumpolar target for a TS to look at			
* 2251+158	22 51 29.519741	* 22 53 57.747940	22 54 45.123166	0.00
J2253+1608	15 52 54.34791	* 16 08 53.56074	16 14 10.27497	0.00
3C454.3	./rk12hq_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 40570 observations, RA-AO3-04, RA-AO2-1			

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)
  2251+158           104.2

 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 60deg 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
```

rk12hrtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Sun 29 Nov 2015 Day 333 ---										
---------- 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					
21 00 00	2135+508	02 47 58	44.7	-59.6	5.2		55.6	0	0	21 00 00
21 14 30	---	03 02 30	42.8	-57.8	5.4		54.0	870	28	21 00 01
21 15 00	2135+508	03 03 00	42.8	-57.7	5.4		54.0	24	28	21 15 00
21 29 30	---	03 17 33	40.9	-55.9	5.7		52.4	870	56	21 15 01
21 30 00	2135+508	03 18 03	40.9	-55.8	5.7		52.3	24	56	21 30 00
21 44 30	---	03 32 35	39.1	-54.0	5.9		50.7	870	84	21 30 01
21 45 00	2135+508	03 33 05	39.0	-53.9	5.9		50.6	24	84	21 45 00
22 00 00	---	03 48 08	37.2	-52.0	6.2		48.9	900	112	21 45 01

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

======== Setup file: ra6cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 35.654533	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 22.97761	0.00
	fake circumpolar target for a TS to look at			
* 2135+508	21 35 15.499567	* 21 37 00.986207	21 37 34.581349	0.00
J2137+5101	50 48 05.19436	* 51 01 36.12906	51 06 17.66808	0.00
	./rk12hr_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 64 observations, RA-AO3-04, RA-AO2-12			

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)
  2135+508           100.0

 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 60deg 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
```

rk12hstr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 30 Nov 2015 Day 334 ---										
---------- 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	0235+164	05 48 27	38.3	243.7	3.1		34.2	0	0	00 00 00
00 14 30	---	06 03 00	36.3	247.3	3.4		35.3	870	28	00 00 01
00 15 00	0235+164	06 03 30	36.3	247.4	3.4		35.4	24	28	00 15 00
00 29 30	---	06 18 02	34.2	250.9	3.6		36.3	870	56	00 15 01
00 30 00	0235+164	06 18 32	34.2	251.0	3.6		36.3	24	56	00 30 00
00 44 30	---	06 33 05	32.1	254.3	3.9		37.1	870	84	00 30 01
00 45 00	0235+164	06 33 35	32.0	254.4	3.9		37.1	24	84	00 45 00
01 00 00	---	06 48 37	29.8	257.8	4.2		37.8	900	112	00 45 01

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

======== Setup file: ra6cm2.set

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 35.686164	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 22.94852	0.00
	fake circumpolar target for a TS to look at			
* 0235+164	02 35 52.630215	* 02 38 38.930107	02 39 33.200874	0.00
J0238+1636	16 24 04.01610	* 16 36 59.27452	16 41 03.48388	0.00
	./rk12hs_sources.radioastron			
	AGN, IDV, rfc_2013d Petrov, 2013, unpublished 65224 observations, RA-AO3-04, RA-			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0235+164           155.2

 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 60deg 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
```

rk12hutr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 30 Nov 2015 Day 334 ---										
---------- L-band VLBI scans ----------										
Next scan frequencies:		1668.00	1668.00	1668.00	1668.00					
Next BBC frequencies:		732.00	732.00	732.00	732.00					
Next scan bandwidths:		16.00	16.00	16.00	16.00					
09 00 00	0851+202	14 49 56	16.8	-78.7	5.9		38.8	0	0	09 00 00
09 14 30	---	15 04 29	14.6	-76.0	6.1		38.3	870	28	09 00 01
09 15 00	0851+202	15 04 59	14.6	-75.9	6.2		38.3	24	28	09 15 00
09 29 30	---	15 19 31	12.5	-73.1	6.4		37.7	870	56	09 15 01
09 30 00	0851+202	15 20 01	12.4	-73.0	6.4		37.7	24	56	09 30 00
09 44 30	---	15 34 33	10.3	-70.2	6.6		37.0	870	84	09 30 01
09 45 00	0851+202	15 35 04	10.2	-70.2	6.7		37.0	24	84	09 45 00
10 00 00	---	15 50 06	8.1	-67.3	6.9		36.1	900	112	09 45 01

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

======== Setup file: ra18cm2.set

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

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299 85 16 41.77889 fake circumpolar target for a TS to look at	* 12 00 00.000000 * 85 00 00.00000	12 00 35.781503 84 54 22.86318	0.00 0.00
* 0851+202 J0854+2006 OJ287	08 51 57.250618 20 17 58.41733 ./rk12hu_sources.radioastron AGN, rfc_2013d Petrov, 2013, unpublished 213710 observations, RA-AO3-04, RA-AO3-	* 08 54 48.874930 * 20 06 30.64078	08 55 43.771825 20 02 39.83168	0.00 0.00

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)
  0851+202           117.1

 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 60deg 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
```

rk12hvtr

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 / Stop UT	Source	LST	EL	AZ	HA	UP	ParA	Early Dwell	Disk GBytes	TPStart SYNC
--- Mon 30 Nov 2015 Day 334 ---										
---------- 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					
18 00 00	0219+428	23 51 25	63.1	96.2	-2.5		-54.8	0	0	18 00 00
18 14 30	---	00 05 57	65.2	99.8	-2.3		-54.2	870	28	18 00 01
18 15 00	0219+428	00 06 27	65.3	99.9	-2.3		-54.1	24	28	18 15 00
18 29 30	---	00 21 00	67.4	103.8	-2.0		-53.0	870	56	18 15 01
18 30 00	0219+428	00 21 30	67.5	104.0	-2.0		-53.0	24	56	18 30 00
18 44 30	---	00 36 02	69.6	108.4	-1.8		-51.3	870	84	18 30 01
18 45 00	0219+428	00 36 32	69.7	108.6	-1.8		-51.2	24	84	18 45 00
19 00 00	---	00 51 35	71.8	114.0	-1.5		-48.7	900	112	18 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: 1 Station: TORUN Total bit rate: 256
Format: MKIV1:4 Bits per sample: 2 Sample rate: 32.000
Number of channels: 4 DBE type: Speedup factor: 1.00

Disk used to record data.

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

 The following frequency sets based on these setups were used.

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

 Track assignments are:
  track1=   2, 18,  3, 19
  barrel=roll_off
```

POSITIONS OF SOURCES USED IN RECORDING SCANS

Source	Source position (RA/Dec) (B1950)	(J2000)	(Date)	Error (mas)
* FAKERA	11 57 21.769299	* 12 00 00.000000	12 00 35.877289	0.00
	85 16 41.77889	* 85 00 00.00000	84 54 22.78073	0.00
	fake circumpolar target for a TS to look at			
* 0219+428	02 19 29.982909	* 02 22 39.611495	02 23 42.082144	0.00
J0222+4302	42 48 29.80835	* 43 02 07.79884	43 06 30.37099	0.00
	./rk12hv_sources.radioastron			
	AGN, rfc_2013d Petrov, 2013, unpublished 1093 observations, RA-AO3-04			

EFFECT OF SOLAR CORONA

```
 The solar corona can cause unstable phases for sources too close to the Sun.
 SCHED provides warnings at individual scans for distances less than 10 degrees.
 The distance from the Sun to each source in this schedule is:
   Source         Sun distance (deg)
  0219+428           146.8

 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 60deg 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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