

# **THE SIX AND TEN REPORT**

**June  
2004**

- Section 1. [Analysis of 28 MHz reports from the UK](#)**
- Section 2. [Analysis of 50 MHz reports from the UK](#)**
- Section 3. [Solar and Geomagnetic Data](#)**
- Section 4. [50 MHz outside Britain](#)**
- Section 5. [Beacon news and 28 MHz worldwide](#)**

**Editors. Martin Harrison G3USF and Steve Reed G0AEV**

## Analysis of 28 MHz reports from the UK

28 MHz reports and logs for June 2004 from G2AHU, G3IMW, G3USF, G4TMV, G4UPS, G0AEV, G0IHF and packet cluster reports. Compilation and commentary by G0AEV.

As expected at midsummer, sporadic E dominated propagation on 10m, but there were still F2 openings on circuits to the south (to Africa and southern South America) on many days.

Sporadic E was relatively poor in the first half of the month – perhaps the poorest early June in 10 years, according to 6&10 records - but conditions improved significantly in the second half of the month with some days recording continuous propagation from early morning through to late evening.

### Beacon graphs legend

Legend for all beacon graphs in this section: - graph bars (left Y-axis): beacon reliability as the percentage of days a beacon was heard by any UK observer within each time band. Graph lines (right Y-axis): signal strength as the average of the daily maximum signal reported by any observer in each time band. Time band codes (X-axis): 6=0600-0900, 9=0900-1200, 12=1200-1500, etc. Callsigns are followed by daily reliability figures, the percentage of days per month when the beacon was reported.

### European Propagation / Beacons

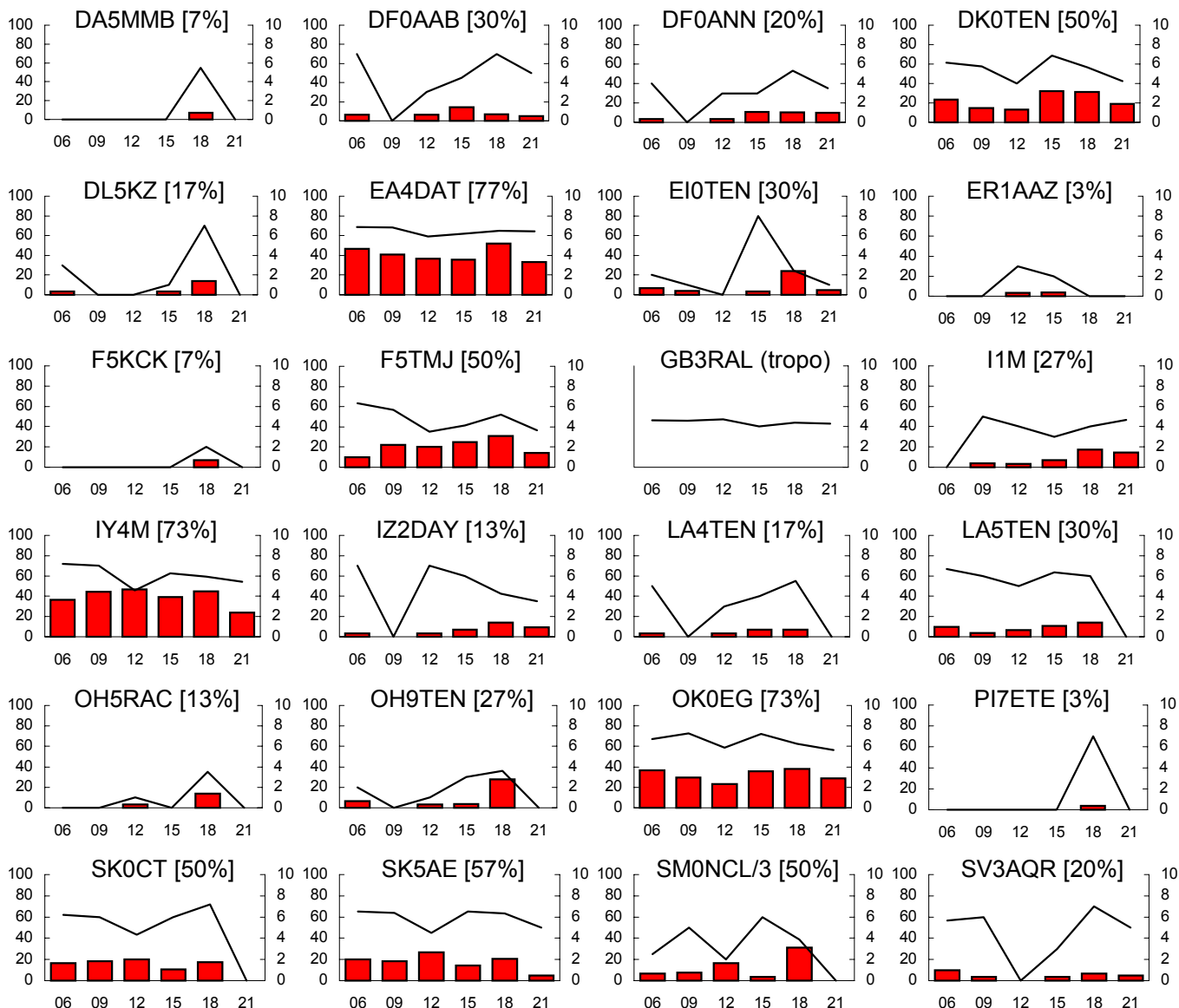
#### Propagation modes for European beacons.

All European beacons were heard by Sporadic E (except for GB3RAL, which is heard via “tropo” at G0AEV). As expected there was a complete absence of F2 propagation (direct or scatter) within Europe but some Es-backscatter was noted – mainly on EI0TEN. There was also short-skip direct-path sporadic E from EI0TEN and from the other close 10m beacon PI7ETE, and some long single hop or double hop to SV3AQR and ER1AAZ. Multi-hop Es to DX destinations are reported later.

Eight beacons exhibited daily reliabilities of greater than 50% (i.e. they were heard and reported on more than half of the days in the month). EA4DAT was the most reliable with a daily reliability of 77% - although this was only slightly more than the 70% posted by OK0EG in May and compares poorly with the reliabilities of 90% for IY4M and 97% for S5ZRS obtained in June 2003. As demonstrated using 6m data (see section 2 of this Report), sporadic E in late May and early June was relatively very poor and although conditions were very much better in late June, overall monthly averages are low. Best days for 10m Es this month were 15<sup>th</sup>, 19<sup>th</sup>, and the period 23<sup>rd</sup>-29<sup>th</sup> inclusive.

Beacon monitoring results are combined by averaging all reports in the periods for which there is data – periods where no one was monitoring are not included and missed periods do not affect the results. However the listening patterns of individual reporters has an influence. For example I (G0AEV) listen more often in the evenings than at other times and I was the only observer to hear (or perhaps even listen for) the “out-of-band” German multi-mode beacon DA5MBB on 28.702. It is unsurprising, therefore, that the results for this beacon are restricted to a single peak in the 18z period. No amount of averaging can make up for lack of reports at other times! Such results provide no useful propagation information. Luckily, there are a number of strong and well-reported European beacons for which we have plenty of data. These are (with number of reports received in June in brackets): DK0TEN (66), EA4DAT (178), F5TMJ (59), IY4M (137), OK0EG (93) and SK5AE (54). Results for these beacons in the following graphs can be considered representative of the Es propagation experienced in June. There is some, if equivocal, evidence from these beacons of higher reliabilities in the mornings and late afternoons. Interestingly, all these 6 beacons also show dips in mean signal strength in the 12z period. The results from the other beacons do not illustrate general Es trends well because they are influenced by the listening patterns described above, are new/intermittent operations (e.g. IZ2DAY), or difficult to hear because of low power output or the distance from the UK (e.g. PI7ETE, ER1AAZ).

## European Beacon Graphs.



## European Beacon Notes.

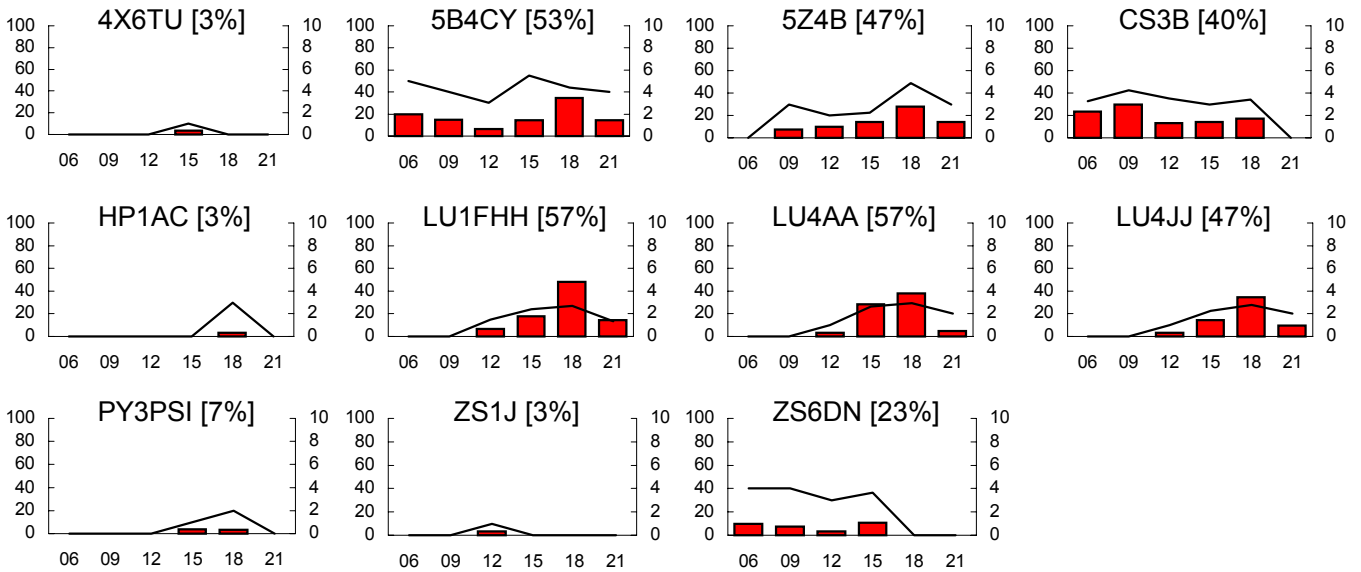
Five German beacons were heard in June but results were slightly disappointing with even the best of the bunch – DK0TEN – only reported on 50% of days (compare with 70% in June 2003). DF0ANN is QRP, while DL5KZ is high in the band at 28.320 and perhaps overlooked. Although I often listened for DA5MMB I only heard it on two days in June and not at all in July so the beacon may either be very intermittent was only active for a short period. DL0IGI is, of course, QRT.

EA4DAT was the most consistent beacon in June, being audible almost continuously on some days. IY4M also posted good results but the I1M beacon was under-reported. A new beacon IZ2DAY appeared on 28.239 but now seems to be inactive. IK1ZYW, a QRP/QRS beacon supposed to be transmitting on 28.322 has not been reported in the UK despite good propagation recorded by IY4M. The S55ZRS 10m beacon is clearly off-air though the 6m beacon continues to operate.

Results for LA4TEN are poorer than expected and may have had a problem – in previous seasons this QRO beacon has performed better than LA5TEN. LA4TEN has now (July) apparently gone off-air. Results for the Finnish beacon OH5RAC on 282335 are not as good as expected – possibly because it is a new beacon – but the good news is that the IARU/NCDXF beacon OH2B returned to service in late July.

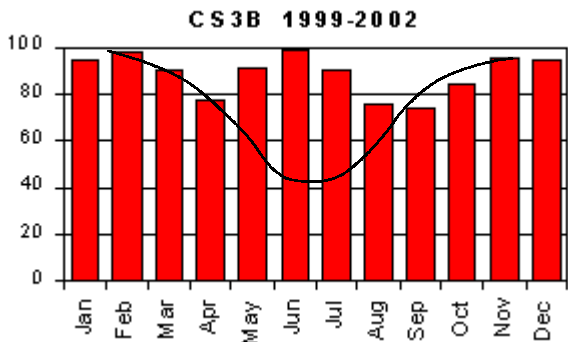
**Propagation to Asia, Africa, Oceania, South and Central America**

Beacon Graphs.



Suggested propagation modes.

HP1AC was heard via multi-hop Es on 25<sup>th</sup> June during an Es opening to North America (more on which below). Double-hop sporadic E was responsible for the propagation from 4X6TU and 5B4CY. F2 is a possible candidate for some of the 5B openings, but the available evidence – coincidence with Es propagation at single-hop distances and with 6m openings – together with theory and past studies strongly suggest Es. The propagation mode for CS3B is rather more difficult to determine but is probably, for the most part, also sporadic E - although it has been suggested elsewhere that F2 was the dominant mode.



Data from previous years for CS3B – see the graph (left) from *The Six and Ten Report* (February 2003) - shows that F-layer propagation peaks in the winter but that sporadic E adds to the circuit during the summer. The bars on the graph represent average daily reliability for each month over a four-year period. The line is an extrapolation of the F2 trend, which suggests some summer F2 during the solar maximum years. The part above the line is interpreted as due to Es. In June 2004 the daily reliability for CS3B was 40% which would match the Es component for June in this graph with only a minor addition of F2 propagation.

The other beacons reported (in Africa and southern South America) were heard by normal F-layer propagation, perhaps at times with the assistance of a sporadic E first hop.

Beacon Notes.

As suggested last month it looks certain that 4X6TU has a problem as this beacon should show results similar to those for 5B4CY. The results from the ZS beacons are rather poorer than expected – ZS6DN should behave at similar levels of reliability to the LU beacons – but there are no known reasons why this should be. PY3PSI is believed to be intermittent

## 10m DX in June 2004

The following list of DX countries worked or heard in the UK comes mainly from packet cluster spots (DX Summit: <http://oh2aq.kolumbus.com/dxs/>) and from Six and Ten reporters. The countries heard in the Middle East, North Africa and North America (including the Caribbean) are all via Es.

DX in June: 4X, 5B, CE, CN, CX, D2, EA8, KP4, LU, OD, PY, ST, SU, V5, VE, W

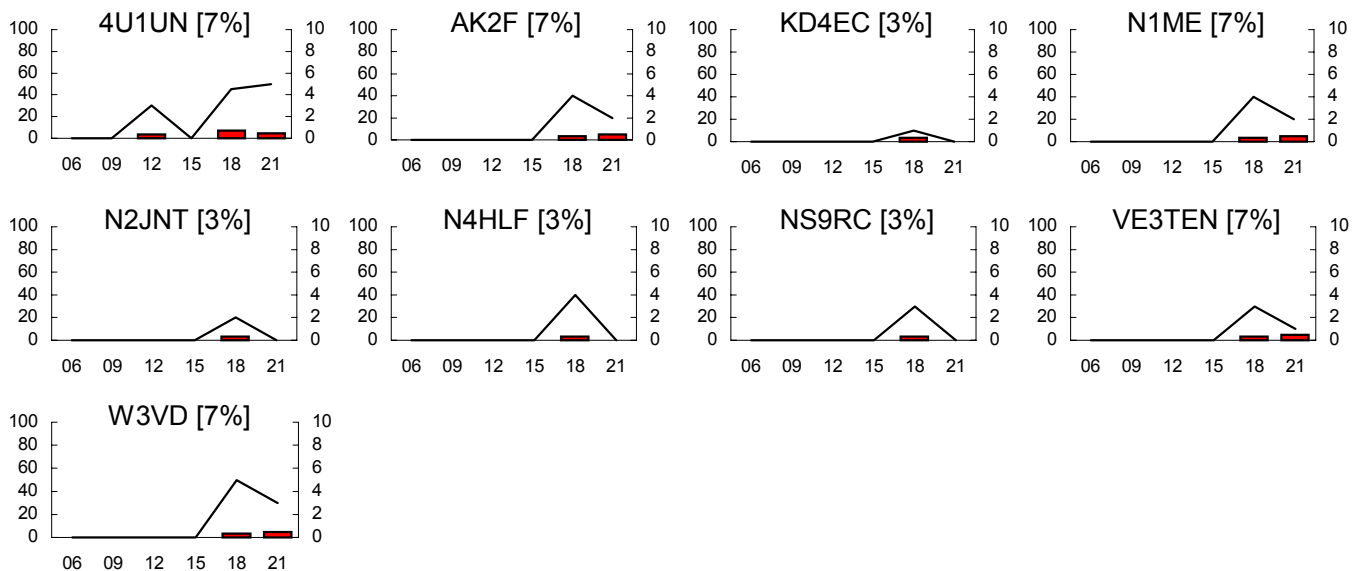
DX in May (for comparison): 3B9, 4X, 7Q, A4, A6, CX, D4, EA8, FM, JY, KP2, KP4, LU, PY, TJ, TT, V5, VK, W, YV, ZD9, ZS.

## Propagation to North America

### Suggested propagation modes.

Multi-hop sporadic E was the mode responsible for the propagation between UK and North America. The results below are slightly disappointing as 10m beacon monitoring detected only 2 events – on the evenings of 25<sup>th</sup> and 27<sup>th</sup> June – while 6m operators managed to find some propagation on 12 days in June. Many of the 6m openings were tenuous and may not have opened to areas with sufficiently QRO 10m beacons, but past experience shows that most 6m transatlantic events can be detected with beacons. And 10m should produce some openings that never make it to the higher frequencies. The discrepancy is probably due to the high levels of operator activity on 6m rather than for any propagation reasons. I found it very difficult to raise anyone in the USA for a 10m QSO during the fairly extensive opening on the 25th despite hearing moderate powered beacons coming in a reasonable strength.

### North American Beacon Graphs



### Beacon Notes.

The beacons heard above are all known to be continuously active from observations made by listeners in the USA and Canada. The history of active beacons in N America continues to evolve with new beacons appearing from time to time as noted by G3USF in his beacon notes as reported in section 5 of these Reports.

## Analysis of 50 MHz reports from the UK

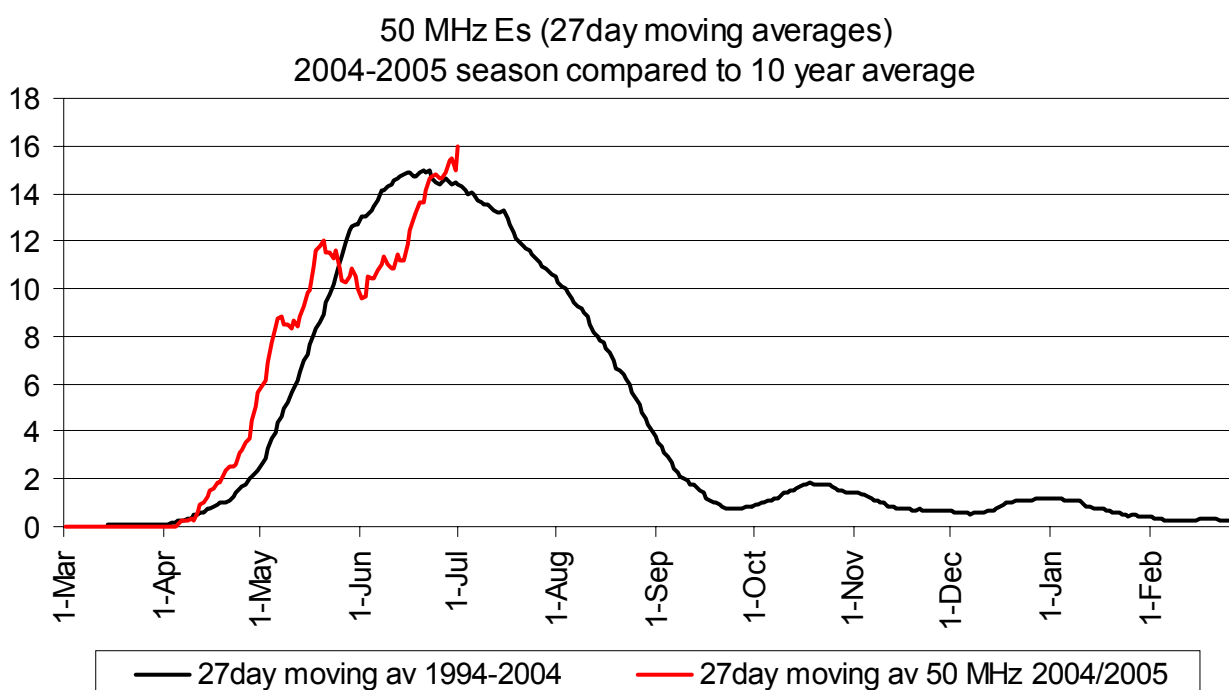
UK 50 MHz reports for June 2004 from G2ADR, G2AHU, G3HBR, G3IMW, G3USF, G4UPS, G0AEV and via packet cluster spots. Compilation and commentary by G0AEV.

### Sporadic E

This month I was able to draw upon over 2500 sporadic E contact and listener reports provided by UK amateurs. A significant number of these reports were provided by 6&10 readers, for which I am especially grateful as they tend to report a higher proportion of "common" country contacts than spots on the packet cluster. "Common" country contacts may not inspire the DX-orientated but are as important as any other contact when trying to quantify propagation. Thanks to all our contributors!

There was some sporadic E recorded on every day in June. This statistic is rather misleading as there was a huge variation between the poorest days when only a handful of contacts were made with stations in one or two countries and the best days when contacts numbered thousands with stations located in 25 or more countries. The first week of June (and the last few days of May) were very poor but conditions improved in the middle part of the month with "country scores" helped by several well-supported 6m contests. The last week of June saw excellent sporadic E. Best days (when 20 or more countries were reported) were 15<sup>th</sup>, 19<sup>th</sup>, 24<sup>th</sup>, 25<sup>th</sup>, 26<sup>th</sup>, 27<sup>th</sup> and 28<sup>th</sup>.

The perception of many listeners was that June was a poor month overall for sporadic E. This was certainly true for the start of the month, but what about the last week? To try and draw some kind of quantitative assessment I have plotted the early summer 2004 6m country/area scores against a 10-year average. The results of this exercise are shown in the graph below. I have used 27-day moving averages for both the 2004 and 10-year mean data to highlight the general trends while avoiding the "noise" of day-on-day variations. This is a measure I have used successfully elsewhere. I have also started the "year" on 1<sup>st</sup> March – the Es minimum period – to avoid chopping the winter season into two!



The 10-year average line shows rather well the slightly skewed summer seasonal trend, the well-known winter season and the less-well known autumnal season. Because of the evolving nature of the country-measure over the years, comparisons between the 10-year mean data and those for 2004 are somewhat subjective though the trends are clear. The line representing the 2004 season suggests "more" Es than the 10-year average in April through to mid May followed by a marked drop in late May and early June (in fact, 2004 was the worst early June of any of the preceding 10 years). June Es conditions, on the basis of this comparison, exceed the 10-year mean only in the last week of the month (subject to modification when July data are included in the moving averages).

Brian G3HBR says, "June was the first moderately good month of the year with sporadic E on several days. DX heard was ST2DX on 14/6 at 1536, he was 559 and VE1YX who was 559 at 1736 on 15th. I worked 7X0AD on CW on 18/6 and SSB on 23/6. Just heard SV2ASP/A (Mt. Athos) on 26/6 but much to weak to work and also heard but didn't work J79KV on 28/6." G3HBR is one of those who detected the generally poor Es conditions. Brian writes, "I am now fairly sure this is the worst summer season since I have been on six. It certainly isn't all down to lack of activity. Will this be the first year when I fail to work VE and W - I hope not!"

Ray G2AHU commented on the particularly good 6m propagation to/from Morocco as indicated in large part by the CN8MC beacon. Ray heard signals from CN when there were no other signals on 28 or 50 MHz, and reports high reliabilities on the path between CN and his location in Herefordshire. 6&10 observers and DX cluster users reported signals from CN on 60% of days in June. I am not surprised by these results – I would expect relatively high reliabilities where the path length is close to 2000 km because these represent a single hop at an MUF close to 50 MHz. Shorter distances require higher MUFs that are attained less often.

On 1<sup>st</sup> June Ray thought he heard JA2LT, which would have been an exceptional catch, but reports from other listeners at the same time and on the same frequency suggest the station heard was ZA/PE1LWT.

Sporadic E results below are in tables grouped by country area and ordered alphabetically by country prefix. Percentages following the country name are the daily reliability values (the number of days when propagation was reported). The first row of each table, "D" is the day of the month, subsequent rows give the maximum signal strength reported from the UK in each of three hour time bands ("06" for the band 0600 - 0900, "09" for the band 0900 - 1200, etc.). A figure of "0" indicates that signal strength was not reported.

	4L (3%)	4X Israel (13%)	5B Cyprus (23%)	5T (6%)	7X [7X0AD] Algeria (30%)
D	25	9 15 26 27	5 11 19 23 24 25 27	17 19	21 22 23 24 25 26 27 28 30
03			9		
06	5	5 0	0 7 0		9 9 0 3
09		5	7 9	0	9 9 9 9 9 9
12					9 9 9 9 9
15		0	4 7	5	9 5 3 9 5
18		5 0 5	5 9		0 9 9 5 0
21		0	5 9		0 9 5

	9H Malta (43%)	9Y (3%)	CT Portugal (47%)
D	5 11 12 18 19 20 22 23 24 25 26 27 28	28	5 7 10 12 13 14 18 21 24 25 26 27 28 29
06	9		8 7 6 7 6 8
09		0	9 0 5 7 4 5
12	9 0 9 0		7 9 0 9 9
15	1 0 5 9		2 8 5 9 9 0
18	9 0 1 1 9 0	9	9 9 5 9 9 9
21	7 5		9 9

	CN Morocco (60%)	CU Azores (37%)
D	3 5 9 10 12 13 14 18 19 20 21 22 23 24 25 26 27 29	5 13 14 18 19 24 25 26 27 28 29
06	0 0 5 9	2 9
09	7 9 9	0 4 7 5 0
12		5
15	0 9 5 5 5 7 0 7 9 3	
18	9 9 9 5 5 9 0 6 9	1 3 1 9 9
21	4 5 5 9	5 1 6

	CT3 (10%)	DL Germany (50%)	EA8 Canary Is (10%)	EA9 (10%)
D	5 14 28	5 8 10 11 14 15 19 22 23 24 25 27 28 29 30	14 26 28	5 14 26
00				
06				
09	9	9 0 9 9		9
12		5 6 0		9
15	7	9 0 9 9		
18	0	9 9	9 9 0	7
21				

	EA Spain (63%)	EI (10%)	ES Estonia (17%)
D	5 6 10 11 12 13 14 15 17 18 19 23 24 25 26 27 28 29 30	19 27 28	15 22 24 26 29
06	5		
09	9 9 0	5	9 9
12	9 6 9		1 9
15	4 9 0	3	6 5
18	9 9 8 6 9 9 9 9 9 9 0 5	6	0
21	9 0 0 9 5 0 6	1	9

	F France (33%)	G-GM (3%)	G-G (3%)	HA (rx - 13%)	HB Switzerland (23%)
D	8 10 14 15 17 19 23 24 25 28	8	19	8 10 25 27	11 15 19 24 27 28 30
06	0 0 9			9	5
09	7		9	9	
12	5 9 0			9	6
15	9 3 5 0 8 9 9	9		3	9 9 0 6 9 5
18	9 0 9 9				9 7 9
21					5

	HI (3%)	I/IS/IT Italy (77%)	J7 (10%)
D	28	1 2 5 8 10 11 13 14 15 16 17 18 19 20 22 23 24 25 26 27 28 29 30	25 26 28
00			
03		9	
06		9 9 4 9 9	
09		5 8 7 9 9 0 9 6 9 5 8 7 9	
12		0 7 9 9	
15		0 0 9 9 9 5 9 9 9 9 9 2 6 9 9 9 5	5
18	5	9 9 5 0 9 9 9 9 9 5 3 9 6 9 5	7 3 0
21		9 4 9	5

	JW (10%)	LA Norway (27%)	LY Lithuania (53%)
D	9 12 15	8 11 15 19 20 22 26 28	4 8 10 11 12 14 15 19 21 22 23 24 25 26 27 29
03			
06		7	1 9 9
09		0 7 0	3 7 9 9
12		9	7 5 7 9 9
15		9	9 9 9 5 5 9 6 0
18	5	7 0	1 3 6 9 5 5 9 6 0
21	5 0		

	LX (7%)	LZ Bulgaria (30%)	OD Lebanon (20%)	OE Austria (33%)
D	25 28	4 5 9 23 24 25 26 27 29	1 23 24 25 26 27	1 5 9 10 11 15 24 25 27 30
03		9 7 7	7	
06		0 9	7 7 7 9	9 9 0 6
09		9	7 9 9	8 9
12			9	
15		9 6		6 0
18	5 9	0 5 0 9	4	0 8 3 7
21		0 7 5		8 5 6

OH Finland (53%)

OK/OM Czech/Slovak Republics (40%)

D	7	8	9	10	14	15	19	21	22	23	24	25	26	27	29	30	8	9	10	11	12	15	18	19	23	24	25	27
06							0													9				9				
09							5		9	4	0	7	0		7		2		9	6								
12									0	0	9	7	4						5	0	9	5					6	
15		9		9		9									0				0	9		0	9		9	7	0	
18					0	6		6	5						9				5	9		9	6	0				
21	7		1						9																			

	ON (7%) OX (3%) OY (13%)								OZ Denmark (23%)								SM Sweden (33%)										
D	1	8		19	25		8	15	19	28	8	11	12	15	20	23	24	6	8	11	14	15	19	22	23	24	26
06																		9		7							
09								9							2									9		9	6
12												9	9														0
15		7					1	5			9			0		9		9		0	9						
18				3	9				9		9		0	9					5	9		5	0				
21	7																										

	SP Poland (57%)														ST (3%)		SV Greece (30%)										
D	1	3	8	9	10	11	14	15	19	20	22	23	24	25	27	28	29	14	1	4	11	14	23	25	26	27	29
03										9																	
06	9	3								0		9										5				7	
09			7	9	9					0	9		9			0		5									
12					9	9		0		9			9	6								2					
15			9		0	9	9	9	9				9	3	0	9	9			5	9	9					
18			3		9	9		9	9			9	5	7	5				3						1	9	9
21										9															7		0

	TF Iceland (37%)										UR Ukraine (37%)										VE8 (3%)		
D	5	8	11	14	15	19	22	26	27	28	29	9	10	15	19	20	22	24	25	27	29	30	28
00	5																						
03										9													
06														0				5					
09			0			9	9					0	9			0							
12						9		9	7							9							
15		7			0	9		3							3			9	0	9	9	0	
18				9	9	9				5							0		9	9			2
21																2							4

	VE Canada (27%)								VP9 (3%)		W USA (17%)					YL Latvia (13%)			
D	9	10	15	19	24	25	28	29	29		12	15	25	27	28	10	11	15	24
03																			
06																	9		
09				4										9					9
12		9						0	0										9
15	9		5								7					0	0		
18			9		9	9	0				0	0	9						
21						0						5	5	7					

	YU/9A/S5/T9/Z3 Ex-Yugoslavia (70%)																													
D	1	5	8	9	10	11	13	15	17	18	19	20	21	23	24	25	26	27	28	29	30									
03								9				0			7	9				9										
06								0	0					9	9	5		9	5											
09	9			9	9							0	9	0	5	5		9	9											
12		9	7		3	7					0		4	9	9		9		0											
15		9			9		0			9			9	9	0	0	9		4	9										
18		0			9		9		5					9	9	7		9												
21					0	9								9	6			7												

	YO Romania (33%)	ZA Albania (10%)	ZB Gibraltar (30%)	ZC4 (3%)
D	9 10 11 15 19 23 24 25 26 27	1 24 27	9 10 12 13 18 20 23 25 26	27
03	9			
06	7 7	9	5	
09		7	0 5	
12	9		3 5	5
15	0 9 0	0	9 9 9 0 0	
18	0 0 0	0	9 0	
21	7			

**Es Propagation Summary:**

The table below displays total counts of country/areas heard/worked via sporadic E by UK stations, a summary of the detailed tables in the previous section. Table cells are highlighted (in yellow) when 10 or more country/areas were reported in any 3 hour period. The table clearly shows a concentration of activity in the period 23-28 June.

Es Summary

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
00				1																				1			1	1		
03											1			3						3			5	3		1		4		
06	2		2	4	1					2	4	3	6	2	4	2			4	2		10	7	12	5	6	4	6		
09	4			5			3	5	8	4	5	4	1	1	10	5	1	8	6	10	6	8	11	4	3	2				
12	1	1		6			2	4	7	3	1	2	2					2	4		5	8	11	8	11	15	1	4		
15	2	1		4	1	1	12	3	10	5	1	1	7	15	3	6	9	1	2	7	11	10	9	13	7	5	4			
18			1	8			2	3	3	10		2	7	17	1	1	8	7	2	5	2	9	7	14	10	11	17	7	1	
21	2		1	1		1		2		2	1	2	4				3					4	2	9	11	1	5	6		

**Sporadic E backscatter**

Sporadic E backscatter contacts are tabulated and listed below. There are insufficient numbers of these contacts to make generalisations about their distribution except to note that backscatter (reported backscatter anyway) does not appear to be correlated with high county/area counts for direct-path Es as shown in the Es summary above.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
06																					1			2						
09					1																	2								
12									1										1			1								
15																														
18													2															1		
21													1																	

- |         |                              |         |                                  |
|---------|------------------------------|---------|----------------------------------|
| 6 1150  | G-SWL in IO93 > GM8OEG 41 BS | 22 0915 | G4FVP > OZ4LP (sidescatter)      |
| 10 1319 | G4FUF > GB3MCB QTF 305       | 22 1047 | G4FVP > EI7BMB (good BS)         |
| 14 2029 | G0JHC > G4PCI 57 QTF 230     | 23 1411 | G4UPS > DJ6TK 579 QTF 140        |
| 14 2034 | G0CHE > G4PCI QTF 220        | 25 0639 | G7RAU (IO90) > F3CN (JN06) 59 BS |
| 14 2100 | G2ADR > SP S7 QTF 170        | 25 0720 | F8DBF (IN78) > GW3JXN 579 QTF 95 |
| 19 1234 | EI7BMB > G8TIC 55 BS         | 28 1838 | G4PCI > GI4VKS 59 BS             |
| 20 0816 | G-SWL in IO93 > GM3HAM/P BS  |         |                                  |

## DX (F2 and TEP) Propagation

There was a single “DX” report this month – at 1705z on the 17<sup>th</sup> MW1MFY (IO81) heard the TR0A beacon at 519 together with 3C video signals at S9+. There were, of course, many other reports of DX from northern Africa, the middle east and from North America and the Caribbean, but these were the results of 2, 3 and (to N America) perhaps 4 sporadic E hops. TR and 3C are more likely to be Es + F2?

## Aurora

No auroras were reported at 50 MHz last month, and this time we only have the following:

28 2246 MM0AMW (IO75) > VE8BY 539 “AU E”  
15 1839 G3VQO (IO91) > ES8DH (KO28) “AU tone”

I think that the VE8BY might be “normal” multi-hop Es – the opening followed transatlantic Es to the US and Canadian East Coast, and the geomagnetic indices do not suggest aurora (e.g. Lerwick K = 3). The time of day (late evening) does suggest auroral E and it is true that GM to VE8 is often via this mode. Auroral E can occur under relatively quiet magnetic conditions, though the probability of paths being open by this mode increases markedly as the auroral oval moves further south during an aurora. I have counted this report as auroral E in the tabulation in Section 3.

The report on the 15<sup>th</sup> is likely to be correctly ascribed to aurora – it is described as “auroral tone” although again the K-indices indicate rather quiet magnetic conditions. However Kp reached 5 earlier in the day. I’ve counted this one as a genuine aurora report.

## Meteor Scatter

A reasonable selection of meteor scatter contacts/reports this month, and mostly by “traditional” (non-digital) modes too. Much of this activity was inspired by contests – there is no reason to suppose that similar results couldn’t be obtained at other times.

6 0616 F6IRF > G0VSM/P “strong/long bursts”  
6 0701 LA6PV > G0VSM/P MS  
6 1034 DL1EJA (JO31) > G6HOU/P (IN79) 55/55 MS  
8 1520 G4PCI > GB3LER/B 319+MS  
16 1446-1450 F5TND (IN96) > GD0TEP/P “strong bursts”; IW1AZJ > GD0TEP/P “strong burst”  
16 1554 G0CHE > GM6VXB JT6M MS QSO  
19 1442-1455 LA6PV > MD6V 57 MS; DH3IAJ (JN48) > MD6V MS “some bursts”  
19 1649 LA6PV > M0VHFMS “long bursts”  
19 2156-2206 DL3YEE (JO42) > G0VHF, > M0VHF 59 MS; DL7UAE (JO62) > G0VHF “heavy MS”  
20 0613 LA6PV > MD6V 57 MS  
20 0804 F6FHP > G5B 56 “iono” + MS  
20 0917 OE5MPL > MD6V 53 MS  
20 1022 F4DXW (IN78) > M0VHF “long burst”  
20 1338 ON5WC > MD6V “bursts to s9”  
30 0218 F5TND (IN96) > GB3LER 559 QSB (*presumed MS*)  
30 2231 F5TND > GB3LER “in/out” (*presumed MS*)

## Tropospheric propagation

The list of contacts and reports below suggests the midsummer month to have been very productive for “tropo” propagation. A good number of these are contest contacts. The list is only a selection of the “tropo” contacts reported – I have tried to pick the longer contacts (although this is quite difficult to do successfully with out research into locations/locators) or those where the reporter has intimated that the tropo conditions were particularly good.

4 0730 G4UPS > GB3BAA “unusually clear” 559  
5 0848 PA4PA (JO21) > GB3BAA/B  
5 1220 G4PCI (IO91) > EI3IO cq 56  
5 1620-1630 G0AEV (IO81) ON4IQ (JO20) 55, ON6AA (JO11) 57; G4PCI > ON6AA  
5 1653-1710 G0AEV > GM4IGS (IO75) 419, EI2JD (IO63) 53, G0TSM > G6HOU/P IN79  
5 2110-2120 PE1HWO > M0IDU/P (IO91), G4PCI > PA4T (JO21) 319  
5 2209-2215 ON4IQ > G0VSM/P (IO70), G0AEV 599  
6 0656 G-SWL (IO93) > G0VSM/P “Nice Tropo in North Yorks!”  
6 1046 G0AEV > ON4PS/P (JO20) 53  
7 1817 F5CT (JN08) > GB3BAA  
9 1300 G3IMW (IO80) > GB3BAA 519/419 “GB3BUX is stronger”  
12 1846 F5TND (IN96) > G3NVO (IO91) 57  
13 0810 G0CHE (IO90) > F5JJK (IN87)  
15 1629 MM0BSM (IO86) > G1SWH (IO83) 52  
16 1434 ON5LGS (JO10) > GD0TEP/P 53 (*presumed tropo*)  
18 1948 ON7GB > GW3MFY (*presumed tropo*)  
19 1403-1408 DK3RV (JO31) > M0VHF (JO01); PE1M > MD6V “strong”  
19 1436 G0AEV > ON4IQ 55 438km  
19 1659 G0AEV > PA6M (JO21) 59 478km  
19 1715 PA0O > MD6V 52  
19 1810-1820 PA7FM > MD6V; ON7GB (jo21) > MD6V  
19 1940 F5JJK (IN87) > G1KHX (IO81)  
19 2021 F5JJK (IN87) > M0VHF (JO01) “very strong”  
19 2056-2100 G4PCI > PA6M (JO21) 41, G7RAU (IO90) > PA6M 59  
19 2112 PA0O > MD6V53-55 tropo  
19 2237 DL3YEE (JO42) > M0VHF 53 tropo  
20 0646-0711 G4PCI > PA6M 55; PA4PA > MD6V “constantly in”; PH2M > G0FUN  
20 1101 DL3YEE (JO42) > M0VHF (JO01) 55  
20 1314 GM0HLV (IO78) > M0VHF “weak but readable” (*presumed tropo*)  
20 1325-13.48 M0CTP > PA6M (JO21) 59 “good tropo”; DG5YIL (JO32) > M0VHF (JO01) 55  
24 1839 G4PCI > EI3IO 599  
28 1911 PA4PA > GJ0JSY  
29 2206 MU0FAL > GB3MCB 599 “great tropo”  
29 2235 GM8LFB > GB3LER

## Solar and Geomagnetic Data for June 2004

Data supplied by G0CAS (Sun Mag<sup>1</sup>) and from Internet sources. Compilation by G0AEV.

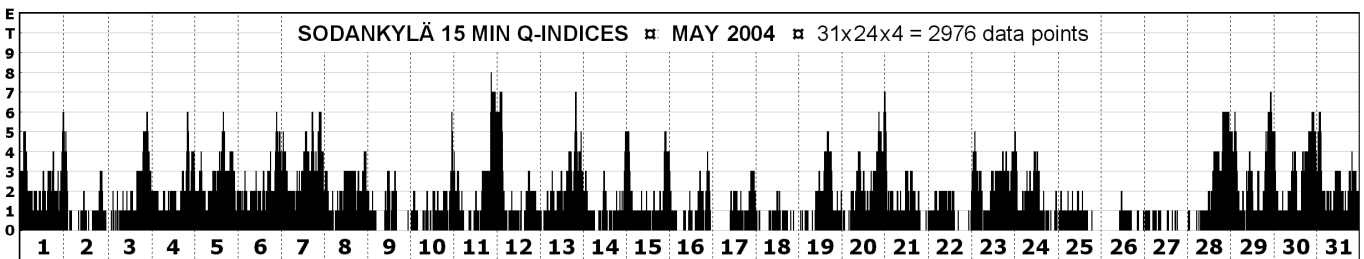
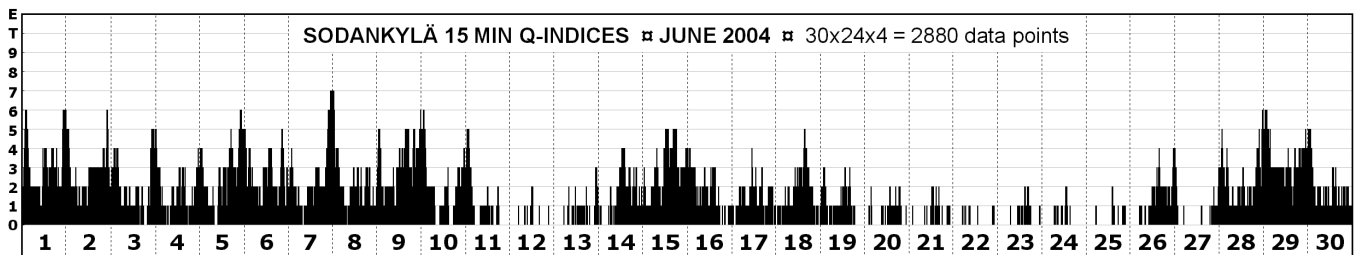
Sunspot numbers (SEC)	Mean 77.0	Max 142 (20 <sup>th</sup> )	Min 28 (12 <sup>th</sup> )
Solar Flux (28 MHz)	Mean 97.4	Max 119 (20 <sup>th</sup> )	Min 82 (30 <sup>th</sup> )

Solar data for June 2004 are presented in the table at the end of this section. Numbers in the 28 and 50 MHz columns of this table are the total daily “areas” worked/heard from the UK for each of several propagation modes and are a summary of the data presented in the first sections of this Report. On 28 MHz “areas” refer to the number of beacons reported via Es and F-layer, on 50 MHz the number of countries via Es, F-layer, Aurora and Auroral E. F2 critical frequencies from Chilton in Oxfordshire became again from 10 June after a several-month absence. SIDC spots are from SIDC, and other solar data from the joint USAF/NOAA daily summaries or directly from SEC.

### Energetic Events

There were no energetic (x-ray) events of X or M class, and only 13 C-class flares.

### Q-indices

 from Sodankylä, Finland (Thanks to Väino, OH2LX)


Finnish observatories in June 2004:

Monthly averages

Sodankylä: monthly Ak average = 12.2

Nurmijärvi: monthly Ak average = 9.0

Most disturbed day:

Sodankylä: 29 June, Ak = 26

Nurmijärvi: 29 June, Ak = 20

Most of June 2004 was magnetically quiet with no storms and many quiet days (11-13<sup>th</sup>, 20-25<sup>th</sup>) as the data from Finland (above) and the UK (next page) illustrates. Q-indices for May – another geomagnetically quiet month - are also shown above for comparison.

<sup>1</sup> Sun Mag: Sunspot and Magnetic data compiled by Neil Clarke G0CAS. Email [neil@g0cas.demon.co.uk](mailto:neil@g0cas.demon.co.uk)

**K-indices.**

There were just a single disturbed day in June (15<sup>th</sup>) when the planetary Kp index was 5. None of the UK K indices reached 5 units, and on several days maximum K was only 1 or 2. The following four tables present the Kp index (from SEC) and the Lerwick ("KL"), Eskdalemuir ("KE"), and Hartland ("KH") K-indices (from the British Geological Survey). Each table is set out with the day of the month in the top row followed by rows containing the K-values or each 3-hour period. The bottom row of each table is the sum of the K-values for the day. Pale (yellow) shading indicates K = 5.

**Planetary K (Kp)**

KP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
00	3	3	3	3	3	3	3	3	3	3	3	1	1	2	2	2	1	1	2	1	1	1	1	2	0	1	2	3	4	3
03	3	2	3	3	3	3	1	2	3	3	2	2	0	1	1	2	3	2	2	1	2	0	0	1	0	1	1	3	4	2
06	4	2	3	2	1	3	2	1	3	2	3	3	1	3	5	3	2	2	2	1	1	0	1	3	0	0	1	1	4	3
09	3	3	1	3	3	3	2	3	4	2	3	1	1	3	3	2	2	3	2	1	2	1	1	1	1	1	2	2	3	3
12	3	3	2	3	3	3	3	2	3	3	2	3	2	4	4	2	2	2	2	2	2	2	2	2	2	3	2	2	3	3
15	3	2	2	3	3	2	2	3	3	3	3	2	2	3	3	2	2	3	2	2	1	2	3	2	2	3	2	2	3	2
18	3	3	2	2	3	3	2	2	3	3	2	2	2	3	3	1	3	2	2	1	1	2	2	2	3	3	2	4	4	3
21	3	3	2	3	3	2	3	1	3	3	2	2	2	2	3	1	2	2	1	1	1	1	2	1	1	2	2	4	3	2
Σ	25	21	18	22	22	22	18	17	25	22	20	16	11	21	24	15	17	17	15	10	11	9	12	14	9	14	14	21	28	21

**Lerwick K (Shetlands)**

KL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
00	3	2	2	2	2	3	3	3	3	3	3	0	0	0	2	2	1	1	1	1	0	0	0	0	0	1	0	2	3	2
03	2	1	3	1	1	2	1	2	1	2	1	1	0	0	2	1	2	1	1	0	1	0	0	1	1	1	0	3	3	1
06	2	1	1	1	1	2	1	1	2	2	0	0	1	1	3	2	1	1	1	1	0	0	0	1	0	0	0	1	3	1
09	2	1	0	1	2	1	1	2	2	1	0	1	1	2	2	1	2	2	1	0	0	0	0	0	0	1	0	1	2	1
12	3	2	1	2	2	2	2	2	3	2	1	1	1	3	4	2	2	4	2	1	1	1	2	2	2	4	1	2	2	2
15	2	2	1	2	2	2	1	3	3	1	1	0	1	3	3	2	2	3	2	1	2	1	2	1	1	3	1	1	3	2
18	2	3	1	1	2	3	1	2	3	3	1	0	1	2	2	0	2	2	0	1	1	1	1	1	1	1	1	3	3	2
21	3	3	2	1	3	2	4	0	2	2	0	0	2	1	2	1	1	1	0	0	1	0	0	0	0	1	1	3	2	1
Σ	19	15	11	11	15	17	14	15	19	16	7	3	7	12	20	11	13	15	8	5	6	3	5	6	5	12	4	16	21	12

**Eskdalemuir K (southern Scotland)**

KE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
00	4	2	2	2	3	3	3	3	3	3	3	0	0	1	2	3	1	1	1	1	0	0	0	0	0	0	0	2	3	3
03	2	2	3	1	2	3	2	2	1	2	1	1	0	1	3	2	2	2	1	0	1	1	0	1	1	1	0	3	4	2
06	2	2	2	1	2	2	1	1	2	2	0	0	1	1	4	2	1	1	1	1	0	1	2	0	1	0	1	4	2	
09	3	2	1	1	2	2	1	3	3	1	1	1	1	3	3	1	3	2	1	0	1	0	0	0	0	1	0	3	3	2
12	4	2	2	2	3	3	2	2	3	3	1	2	1	3	4	2	2	4	2	1	2	0	1	2	2	4	1	3	3	2
15	3	3	2	2	3	3	2	3	3	2	2	1	2	3	4	2	2	3	2	2	2	1	2	1	2	3	1	2	3	2
18	3	3	1	2	2	3	2	2	3	3	2	0	2	3	3	0	2	2	0	1	1	1	1	1	2	2	1	4	3	2
21	3	3	3	2	4	3	4	1	2	2	0	0	2	2	2	1	2	1	0	1	1	0	0	0	1	1	1	3	2	1
Σ	24	19	16	13	21	22	17	17	20	18	10	5	9	17	25	13	15	16	8	7	9	3	5	7	8	13	4	21	25	16

**Hartland K (SW England)**

KH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
00	4	3	2	3	3	3	3	4	4	4	3	0	0	1	2	2	1	1	2	1	0	0	1	1	0	0	0	3	3	3
03	3	2	3	1	2	4	2	2	2	2	2	2	1	1	3	2	2	2	1	0	1	1	0	2	1	1	1	4	4	2
06	3	2	2	1	2	2	1	1	2	2	1	1	1	1	4	3	1	2	1	1	1	1	1	2	0	1	0	2	4	2
09	3	2	1	1	2	2	1	2	3	1	0	1	1	3	2	1	2	2	1	1	1	0	0	1	0	2	0	3	3	2
12	4	2	2	2	3	3	2	3	2	3	1	1	1	3	4	2	2	3	2	1	1	0	1	2	2	3	1	3	2	1
15	3	3	2	2	3	3	2	3	4	1	2	0	2	3	4	2	3	3	3	2	2	1	2	1	2	3	1	2	3	2
18	3	3	2	2	3	3	1	2	3	3	2	0	2	3	3	1	2	3	1	1	1	0	1	1	2	2	1	4	4	2
21	3	3	3	2	3	3	4	1	3	2	0	0	2	2	2	1	2	1	0	1	1	1	1	0	1	2	1	3	2	1
Σ	26	20	17	14	21	23	16	18	23	18	11	5	10	17	24	14	15	17	11	8	8	4	7	10	8	14	5	24	25	15

June 2004	28 Areas			-- 50 Areas --			2800			- Spots -			Max			X-ray			Min foF2			-- Particle Fluences --			
	Es	F	Es	F	Es	DX	A	AE	Flux	SEC	SIDC	Kp	Ap	Aa	b.gnd	MHz	Hour	MHz	Hour	2MEV Elec	1MEV Prot	10MEV Prot	2MEV Elec	1MEV Prot	10MEV Prot
01-Jun	9	1	7	0	0	0	0	0	90	76	35	4	16	34	B1.4	n.a.	n.a.	n.a.	n.a.	2.1E+07	4.5E+05	1.3E+04	2.1E+07	4.5E+05	1.3E+04
02-Jun	6	2	1	0	0	0	0	0	90	63	36	3	11	22	B1.0	n.a.	n.a.	n.a.	n.a.	3.4E+07	3.0E+05	1.4E+04	3.4E+07	3.0E+05	1.4E+04
03-Jun	2	2	2	0	0	0	0	0	90	77	37	3	8	16	A9.7	n.a.	n.a.	n.a.	n.a.	6.4E+07	5.3E+05	1.4E+04	6.4E+07	5.3E+05	1.4E+04
04-Jun	4	2	2	0	0	0	0	0	89	55	36	3	11	17	A8.5	n.a.	n.a.	n.a.	n.a.	5.8E+07	3.6E+05	1.4E+04	5.8E+07	3.6E+05	1.4E+04
05-Jun	9	3	13	0	0	0	0	0	85	59	36	3	11	19	A7.2	n.a.	n.a.	n.a.	n.a.	3.7E+07	2.2E+05	1.5E+04	3.7E+07	2.2E+05	1.5E+04
06-Jun	1	0	2	0	0	0	0	0	88	60	29	3	11	24	A7.5	n.a.	n.a.	n.a.	n.a.	3.9E+07	4.8E+05	1.3E+04	3.9E+07	4.8E+05	1.3E+04
07-Jun	4	0	2	0	0	0	0	0	89	82	37	3	8	19	A6.9	n.a.	n.a.	n.a.	n.a.	5.2E+07	2.0E+05	1.3E+04	5.2E+07	2.0E+05	1.3E+04
08-Jun	7	0	14	0	0	0	0	0	86	72	33	3	9	19	A5.5	n.a.	n.a.	n.a.	n.a.	2.8E+07	3.3E+05	1.3E+04	2.8E+07	3.3E+05	1.3E+04
09-Jun	3	3	13	0	0	0	0	0	85	73	34	4	14	30	A4.7	n.a.	n.a.	n.a.	n.a.	3.1E+07	4.0E+05	1.3E+04	3.1E+07	4.0E+05	1.3E+04
10-Jun	6	3	17	0	0	0	0	0	83	50	31	3	11	18	A4.8	5.9	20	3.9	03	1.5E+07	1.4E+05	1.3E+04	1.5E+07	1.4E+05	1.3E+04
11-Jun	9	4	15	0	0	0	0	0	84	45	26	3	10	12	A3.7	5.9	20	3.6	03	1.7E+07	1.3E+05	1.3E+04	1.7E+07	1.3E+05	1.3E+04
12-Jun	2	4	10	0	0	0	0	0	88	28	18	3	7	6	B1.7	7.2	19	3.8	02	2.4E+07	1.3E+05	1.3E+04	2.4E+07	1.3E+05	1.3E+04
13-Jun	5	3	7	0	0	0	0	0	95	55	28	2	4	7	B3.2	7.8	20	3.9	03	4.0E+07	2.4E+05	1.3E+04	4.0E+07	2.4E+05	1.3E+04
14-Jun	9	2	14	0	0	0	0	0	100	77	35	4	11	21	B2.8	7.3	13	3.9	04	3.5E+06	5.5E+04	1.2E+04	3.5E+06	5.5E+04	1.2E+04
15-Jun	21	3	22	0	1	0	0	0	109	87	44	5	16	34	B2.5	8.3	11	3.2	03	1.6E+06	6.4E+05	1.3E+04	1.6E+06	6.4E+05	1.3E+04
16-Jun	3	3	1	0	0	0	0	0	112	113	64	3	7	14	B2.1	7.6	20	3.2	03	5.6E+06	3.1E+05	1.3E+04	5.6E+06	3.1E+05	1.3E+04
17-Jun	6	5	5	1	0	0	0	0	111	106	62	3	7	13	B1.8	7.9	20	3.8	03	7.6E+06	2.3E+05	1.3E+04	7.6E+06	2.3E+05	1.3E+04
18-Jun	11	4	9	0	0	0	0	0	108	118	67	3	8	17	B2.0	7.5	19	4.5	03	1.4E+07	2.8E+05	1.3E+04	1.4E+07	2.8E+05	1.3E+04
19-Jun	14	2	22	0	0	0	0	0	113	90	69	2	5	10	B2.0	5.9	12	3.7	01	1.4E+07	1.6E+05	1.3E+04	1.4E+07	1.6E+05	1.3E+04
20-Jun	3	1	9	0	0	0	0	0	119	142	86	2	3	6	B2.4	7.5	21	4.2	03	2.0E+07	2.2E+05	1.3E+04	2.0E+07	2.2E+05	1.3E+04
21-Jun	5	4	6	0	0	0	0	0	116	139	87	2	4	6	B2.1	7.1	22	4.5	04	2.1E+07	2.4E+05	1.3E+04	2.1E+07	2.4E+05	1.3E+04
22-Jun	9	2	12	0	0	0	0	0	117	113	76	2	4	4	B2.5	7.6	09	5.0	04	2.2E+07	2.5E+05	1.2E+04	2.2E+07	2.5E+05	1.2E+04
23-Jun	14	3	18	0	0	0	0	0	113	104	61	3	5	5	B2.4	6.8	21	4.6	04	2.0E+07	2.8E+05	1.3E+04	2.0E+07	2.8E+05	1.3E+04
24-Jun	15	3	25	0	0	0	0	0	108	94	52	3	6	8	B2.3	7.8	21	4.5	03	1.1E+07	2.9E+05	1.2E+04	1.1E+07	2.9E+05	1.2E+04
25-Jun	22	4	27	0	0	0	0	0	103	83	37	3	4	6	B2.2	7.5	22	4.9	03	1.0E+07	3.3E+05	1.3E+04	1.0E+07	3.3E+05	1.3E+04
26-Jun	12	3	20	0	0	0	0	0	99	64	34	3	7	12	B3.1	7.0	21	5.3	02	9.2E+06	4.3E+05	1.3E+04	9.2E+06	4.3E+05	1.3E+04
27-Jun	24	3	25	0	0	0	0	0	97	48	31	2	5	5	B2.9	6.8	22	4.6	03	2.6E+06	1.7E+05	1.3E+04	2.6E+06	1.7E+05	1.3E+04
28-Jun	12	3	23	0	0	0	0	1	89	45	30	4	13	24	B1.7	7.4	22	4.5	03	7.0E+05	1.1E+05	1.3E+04	7.0E+05	1.1E+05	1.3E+04
29-Jun	12	0	15	0	0	0	0	0	85	50	26	4	20	32	A7.3	6.4	22	4.1	03	9.5E+05	3.4E+05	1.3E+04	9.5E+05	3.4E+05	1.3E+04
30-Jun	8	0	8	0	0	0	0	0	82	42	20	3	10	17	A4.8	7.1	22	4.5	05	6.0E+07	4.5E+05	1.3E+04	6.0E+07	4.5E+05	1.3E+04
Sum	267	72	366	1	1	1	1	1	97.4	77.0	43.2	3.0	8.9	15.9	B1.6	7.2	19	4.2	03	2.3E+07	2.9E+05	1.3E+04	2.3E+07	2.9E+05	1.3E+04
Average	8.9	2.4	12.2	0.0	0.0	0.0	0.0	0.0	97.4	77.0	43.2	3.0	8.9	15.9	B1.6	7.2	19	4.2	03	2.3E+07	2.9E+05	1.3E+04	2.3E+07	2.9E+05	1.3E+04
Maximum	24	5	27	1	1	1	1	1	119	142	87	5	20	34	B3.2	8.3	22	5.3	05	6.4E+07	6.4E+05	1.5E+04	6.4E+07	6.4E+05	1.5E+04
Minimum	1	0	1	0	0	0	0	0	82	28	18	2	3	4	A3.7	5.9	09	3.2	01	7.0E+05	5.5E+04	1.2E+04	7.0E+05	5.5E+04	1.2E+04

## 50 MHz Outside Britain

Compilation and Commentary by G3USF

### Continental Europe

#### Auroral-Related Modes

Few reports this month, for two reasons. Chiefly, low geomagnetic activity, with 16 the highest daily Ap figure. Even Sodankyla returned an average daily reading of 12.2, with Nurmij at 9.0 and the highest day at each, the 29<sup>th</sup>, recording 26 and 20 respectively. Additionally, SK4MPI, the 144MHz beacon that OH5YI monitors for his auroral reports, encountered problems, leading to a 6db power reduction.

June 1 0209 OH9SIX>OH8(59a) 2330 49750(UA)>LA

June 9 1544 OH8>OH6

June 21 18-1900 JW7SIX>SM2(599) 19-2000 JW7SIX>LA(599) 2200 JW7SIX,JW9SIX>SM2(AE)

June 26 2251 OH9SIX>SM2(55a)

June 28 2246 VE8BY>MM0AMW(539 IO75 AE)(?)

#### Other Modes

The vast majority of the huge number of contacts (hence the late arrival of this report), were attributable to sporadic-E or Es scatter. F-layer reflection was very sparse, as were references to meteor scatter or tropo - though G0AEV earlier provided evidence of some goodish extended tropo. Es was present every day, frequently before 0500UTC and usually continuing until after 2100. The Es table below displays a similar pattern to that provided earlier by G0AEV. However, with the whole continent to draw on, there are naturally fewer periods when nothing was reported. (Entries marked '?' indicate that the propagation mode was uncertain, especially early morning reception of weak signals from OH beacons in Poland, where tropo could be a possible mode.) The few days when Es apparently continued right through the night were all late in the month, when there may well have been solar illumination at E-layer height, especially at high latitudes.

Relating to continental Europe as a whole, these results would not hold true for any specific location. And while most operators enjoyed many hours of Es, on some days, such as the 3<sup>rd</sup>, 16<sup>th</sup> or 17<sup>th</sup> openings were brief, scattered or very localized. The poor showings early in the month, discussed by G0AEV, held broadly true across the continent - though the 4<sup>th</sup> was prolific in contacts and Es went up to 144MHz. By contrast, on the 14<sup>th</sup>, 15<sup>th</sup> and the 23<sup>rd</sup> to the 29<sup>th</sup>, there were particularly high volumes of contacts.

Ultra-short skip appears to have been fairly infrequent. By contrast, many reports seemingly required a double hop within Europe - GM<>SV or G<>5B/OD/TA are cases in point, as were some contacts with Ukraine. What can be achieved by multiple hops is of course limited by activity patterns and geography. Stations genuinely located in Russia or Hungary are now less uncommon but nevertheless remain few in number, with vast spaces of double (or triple) hop territory with no operators. Little was heard of the Caucasian republics, though 4L7AZ was reported into PA on the 23<sup>rd</sup> and G on the 25<sup>th</sup>, plus 5B on the 30<sup>th</sup>, with YA1D into OH on the 20<sup>th</sup>. A4 was reported from RN6, OZ and 9A on the 1<sup>st</sup> and from UR,I,S5 and 9A on the 4<sup>th</sup>, while near-neighbour A6 was into 9H,SV and I9 on the 2<sup>nd</sup>, 9A and SV on the 4<sup>th</sup>, EA,F,I,SV and 9H on the 18<sup>th</sup> and OH,ON and OZ on the 23<sup>rd</sup>.

As happens in most years there were several openings to Japan: a brief one to UR on the 19<sup>th</sup>, a better one on the 23<sup>rd</sup> reaching DL,ES,OH,SV,UR,4X,5B and 9H, and more limited ones to UR and 5B on the 24<sup>th</sup>, 5B on the 26<sup>th</sup> and one on the 30<sup>th</sup> reported only from I0 and SP. (Our May reported omitted reception of the

JR0YEE beacon by GM4VVX at 1600 on May 27 - possibly by 4xEs.) UN6P was worked from SM on the 26<sup>th</sup>.

### Occurrence of Sporadic E in Europe

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
UTC																															
00-03																						+		+	+	+				+	?
03-06									?	+				+	+		?	+	?	+	+		+	+	+					+	+
06-09	+	+	+	+	+	+	?	?		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
09-12	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
12-15	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
15-18	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
18-21	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
21-24	+			+	+		+				+		+	+	+			+		+		+	+	+	+	+	+	+	+	+	?

Africa was represented almost daily by 7X0AD and 7X2RO - rarities though unremarkable in propagation terms - as were CN, CT2, CT3 and EA8. (EA9 was reported only occasionally). All were workable with a single hop from much of Europe, though northern Europe to EA8 would require a second hop.

Europe<->Africa		
ST	7 days	11(DL,F,OE,9A) 12(I) 14(DL,G,HB,I,ON,PA,SP,SV,9A) 18(DK,I,LZ,OK,ON,PA) 21(I,S5) 23(LZ) 25(SP)
SU	2 days	13(9H) 18(I,I9,SV,YU)
5T	2 days	17(DL,G) 19(EI,G)
TJ	1 day	11(9A)
TR	1 day	17(I)
D4	1 day	26(CT)
5N	1 day	27(HB)
TU	1 day	1(DL)

No southern Africa signals were reported. Of the scattering of stations from elsewhere in Africa ST2DX was outstanding, not only working along the Mediterranean but making multihop contacts with northern Europe on several days. Again, we can reflect on what might have been achieved had there been more operators at that sort of range. Propagation from West Africa, never a great feature of June results, was extremely patchy, with no sustained or widespread openings.

Westward, the picture brightens, despite grumbles about a poor season. W/VE/VO were heard or worked in Europe on fifteen days (+++ in the table). Western Europe, where the skip falls more readily, was as usual most favoured, though several openings also stretched along the Mediterranean, exceptionally to W1<->5B and W1<->SV9 on the 27<sup>th</sup>, the best day. (On the same evening W1s also contacted 7X0AD.) As is the way with sporadic-E some openings were sharply focussed, with working from/to W1 when VE1/9 had no propagation - unusually, relatively little was heard of VE1YX this year. By contrast, VO featured relatively strongly, with several reports of the VO1ZA beacon. The VE8BY beacon made one of its occasional appearances on the 28<sup>th</sup>, as usual without any QSOs resulting. One report credits auroral-E, the other makes no comment. (I tend to agree G0AEV's assessment that multihop Es looks the more probable mode.) The best openings, which extended briefly to the mid-West, were clustered close to the summer solstice.

## Europe<>North America/Central America and the Caribbean

+ = North America \* = Caribbean/Central America

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Med															+									+	+		+	*	*	
Iberia																		+	*							+	+	+	+	
North		+							+	+		+	+		+	*			+	+				+	+	*	*	+	+	*

The star of the Caribbean openings was W6JKV, making his seasonal appearance this year as J79KV, opening on the 25<sup>th</sup> and working Europe on five consecutive days, omitting only the 30<sup>th</sup>. The best opening, on the 27<sup>th</sup>, reached SV, enabling SV1DH to add yet another new country to his remarkable tally, and beyond him to 5B, necessitating at least 4 Es hops. J79KV was reported only once from EA and not at all from CT. However, 9Y4AT did work CT on the 27<sup>th</sup>. Given J79KV's success one wonders why other Caribbean stations known to be active during this period - CO, HI, KP4, FG, FJ, FM - were not heard more frequently or widely. The answer may lie in 'KV's skill at reading the propagation (and the fact that many local operators had a living to earn!).

### Europe<>North America

VE1 2 days 15(DL,G,LY,PA,SP) 24(SV) 25(EA,EI,F,G,S5,9A,9H)  
 VE8 1 day 28(G)  
 VO1 8 days 10(G) 15(F,G) 18(EA) 19(G) 20(EI) 24(EI,F,G,ON,SV,OZ,9A) 25(F,G,PA) 28(ON)  
 VY2 1 day 28(G)  
 W1 9 days 10(F) 13(DL,F,G,LY,OK) 15(G) 19(LA,OY) 20(EI) 25(G,9A) 16(EA)  
 27(CT,DL,EA,EI,F,G,I,IS,ON,PA,SV,SV9,YU,4N,9A,9H) 28(G)  
 W2 2 days 25(I) 27(DL,G,9A)  
 W4 1 day 15(DL,G,LY,OK,ON,OZ,S5)  
 W9 3 days 12(G) 25(EA,G,LY,9H) 28(EA)  
 W0 1 day 25(SP) 27(PA)

### Europe<>Caribbean/Central America

FJ 1 day 19(EA)  
 HI 2 days 15(ON) 28(G)  
 J7 5 days 25(F,G,SV) 26(F,G) 27(DL,EA,F,I,OK,S5,9A) 28(DL,F,G,I,ON,PA,SV,9A) 29(G,I)  
 VP9 2 days 27(S5) 29(F,G,HV,I)  
 9Y 27(CT) 28(DL,F,G)

### Europe<>South America

LU 1 day 25(F)  
 ZD8 1 day 21(I)

As usual, in the detailed listings that follow callsigns are given in full for 'DX' or beacons - normally indicating that the path was open at relatively low levels of power.

June 1 06-0700 UU5SIX>HA1,OH5 LZ1>OH5 07-0800 OH5SIX>SP6 UU5SIX>4X 08-0900 OD5SIX>YU1 OH9SIX>DL GB3LER>OE5 LA7SIX>DL SV1SIX>OE5 09-1000 SV1SIX,UR,I5>DL I9>SP9 SR9FHA>EI 10-1100 YO3KWJ,UT5G>I0 I9>SP9 I0JX,I5MXX>DL SV1SIX>I4 LZ2>EH3 TU2OJ>DK7YS 11-1200 9H1SIX>SP9 9A0BHH>OE6 UU5SIX>OH5 14-1500 ZA>OH5 A45XR>RN6BN,OZ0JX UR>DL 15-1600 A45XR>RN6BN,9A4K S5>RU3 F>DL UR>OZ 16-1700 UU5SIX>I4 SV1SIX>I0 17-1800 OD5SIX,I0>SP7 ZA>PA,ON,DL I2>DL 5B4CY>SP9 SP7>I5 SV1SIX>EA6 18-1900 YU1>F UT5G>I1,I5 UR,OH5SIX>I1 OH3>I5 SV1SIX>I5,OZ UR>9A LZ3>ON,PA LZ1>PA 4X,5B4CY,OD5SIX>DL SM7>SV1 19-2000 5B>9A,ON,SP7 UU5SIX>4X UT5G>OZ OD5SIX>DL DL>SM7 20-2100 UU5SIX>DL,SP7 UT5G>DL,OZ,9H OD5SIX>OZ SV1SIX>I0 DL>RZ6 21-2200 EH5>9A 9H,I9>DL I8,YU7>F 9H>PA 22-2300 GB3LER>I1 G>I0 I0,IK5ZUL>EI SV1SIX>I0 23-2400 I0JX,IW3FZQ,HB9SIX,IQ4AD,ES0SIX>EI UT5G>PA

June 2 06-0700 SV1SIX>I1 OD5SIX>I0 LX0SIX>PA 0846 OD5SIX>S5 09-1000 CN8MC>I2 OD5SIX>I8 5B>I0 10-1100 4X>I0,I2,I7 11-1200 I8>I7 SV1SIX>4X 4X>I9 A61AH>9H1XT 12-1300 A61AH>IW9HHH,IW7EBA,9H1YZ SV5SIX>I9 I4>ON I2>I9 4X>9H,I9,I8 13-1400 GB3MCB>I0 G>I5 14-1500 4X>I7,I9 16-1700 I9>4X 17-1800 3Ctv>SV1 GB3LER>I0

June 3 06-0700 OH5RAC,OH5SIX>SP6 07-0800 SR5SIX,LY0SIX>SP6 GB3MCB>CN GB3LER>SP6 0856 OH9SIX>PA 1151 SV1SIX>SP6 12-1300 SQ8>9H CU3>CN 17-1800 I2>S5 OH6>OH3,PA 18-1900 OH1>LA 19-2000 EH8>EA7 CU3>EA8 5T5SN>CN

June 4 0408-0500 OH5SIX>SP6,SP7 OH5RAC>SP6 0659 9A>S5 07-0800 A45XR>S51UF,9A8A,IW0GPN SV1SIX>I0,4X OD5SIX,5B>9A 4X>S5 08-9000 A45XR>IZ5EME,5B4FL,IW0GPN,I8LPR,5B4AV SV1SIX>9A 9A>I0(bs) 09-1000 A61AH>9A6R 5B>I8,I5 4X,UR>9A TA2>I5 10-1100 TA2,UR>5B SV1SIX>I0 OD5SIX>YO5 4X>9A 11-1200 SV9>LZ5,UR OD5SIX,SV1SIX>OE6,I4 5B4CY>OE6 SV8,SV9,SV3>LZ5 12-1300 SV1SIX>SP6,I2 A45XR>UT2UZ 5B4CY>UR 13-1400 SV3>I5 SV8>I5,I0 I9>LZ5 SV1SIX>I5 14-1500 SV3>I5 SV1SIX>DL,I4 CU3URA>EA7 15-1600 YU1>I9(ms) ST2DX>4X 16-1700 TA2>9A,I5 SV1>I5,YO5 UR>YO5 CN8MC>I9 UU5SIX>I4,I9 OD5SIX>I4 9H1SIX>I5 I9>EA7,I5,I2,9A,I8 17-1800 TA2>OK1,I8,I9,OE1 SV5SIX>I4,I0 EH8>EH3 I9>SP6 9H1SIX>I0,EA5 EH3,EH7>EH5 OK1>4X SV1>ER1,EH3,I8 EH8>CT OD5SIX>I4 18-1900 SV1,SV3,HA7>ER1 SV1>I9 9H>I0 SV2>I0,ER1,EA5 OZ>ES6(ms) 9H.I9>EA5 T9>F UR>SV1,I8 SV1SIX>SP8 SV3>LX,PA 19-2000 9H>SP9 SV3>PA TA2,SV1>I0 SV1>SP8 HB>LZ5 5B>9A,I8,SP5,SP6,ER1 TA2>9H,I5 SV9>S5,I8 UU5SIX>LY SV1SIX>PA 20-2100 4X>I5 UU5SIX>SP6,LY,OE5 UT5G>LY,SP9 UR>I7 TA2>9H,I7 SV1>I1,I0 LX0SIX>PA 5B>I8 LY,Z3>4X LZ1>I0,OE5 SV1SIX>OE5 21-2200 LX0SIX>DL LZ1>OE5,9H SV3>OE5,DL I9,LZ2CC>OE5 UR>I0 SV1SIX>DL,HB TA2>I0 5B>DL,PA,I1 Z3>UR YO9>I1 22-2300 SV1SIX>SP2,OE5 SV1>4 5B>I7

\*\*\*\*\* 144 MHz reported 1104-1212 - details at [www.DF5AI.net](http://www.DF5AI.net)

June 5 06-0700 OH5SIX,OH5RAC>SP6 SV1SIX>SP9 UT5G>F 07-0800 GB3MCB,GB3LER>F SV3>OZ 5B>9A,SP6,OE6,EA7 TA2,EH5>9A OD5SIX>ER1 SV1SIX>PA,SP7,DL UR>I0 5B>UR YO5>I1,LZ1 I0>SP7 I9>ON CN8MC>EI LZ2>DL I7>PA 08-0900 I9>ON UR,LZ2>I1 5B>EA7 GB3RMK,CT,I0,4X>F SV1>DL ON>I7 EI>DL,OE5 EH9,SV8>DL LX>EI GB3MCB,CT0SIX,I4>CN EH7,LZ1,UR>I2 I0JX>EA1 GB3BAA>PA YO3KWJ,9H1SIX>4X SV1SIX>OE5 EH7>OE5 09-1000 UR,EH7,CN>I2 UR>4X CT0SIX>I1 F,EH8>CN EH5,CN,SV8>DL SV1SIX>DL,PA CN>I8 LZ2>I1 CT3>EA1,EA7,I1,9A SV5SIX,I7>DL EH8>DL,PA LX>EA7 EH2>SP6 HB>CN F>9A 10-1100 EH6>PA EH9,CN>DL EA8>EA1,DL LX>CT ON,CU3URA>EA7 EH7>F CT3>9A,EI,DL,EA7,CN CT0SIX>EI EA7>HB SV5>DL SV8>9A 11-1200 EH9,I8,I9>DL CU3URA,EH7>PA SV8>OE5 4X,SV1>9A 5B>DL,I8,I2 SV1SIX>I1 EH8,LZ2,UR>EA7 I9>YO5 LZ1,EI>EA3 CT3>CT I9>I2,SP7,9A,DL I7>F 9H>I3 5B>I1 I8>9A 4X>I2 12-1300 I9,9H>F 5B>I0,I1,I2 9H,SV6,I8,PA>DL

F>I8 4X,I9>9A IK5ZUL,YT1>CN I3>IS0 I8>LX,HB I9>ON CT3>EA7 13-1400 SV5>I3 5B4CY>I1 9H,G>DL I8>SP7,DL SV1>9A I9,HV0>PA I0>OE8 OD5SIX,SV1SIX>I5 5B>I8,EA2 4X>F HV0>HB,I1 9A>EA3 14-1500 HV0,IS0>DL 9H>PA,S5,DL I7>I3 IS0,9H1SIX>OE3 YU7>I9A EH6>S5 SV2>I1,I5,I0,9A,I8 I9>OK1 F>9A G,EH3>I5 4X>I1 HV0>ON 15-1600 I7,YT1,T9>F I8,IS0,I0,I9,9H>DL EH3>OE3,SP7 YT1,9A>I9 I0>PA 5B>9H 9H>ON,HB I9,IS0>OK1 I9>PA I5>SP7 ON,EH5,Z3>I5 EH6>SP5 SP8>I9 EH5>SP7 F>9A,S5 16-1700 F>9A SV9>I5,I1 I5,F>DL Z3>I1,I4 G>OE8,S5 LZ2,SQ9>F SV2,LZ1>I1 OH1>LA 9H>SP2 YT1>LX G(t),GI>EI 9H>SP9 SV1SIX>DL I7>I5 17-1800 Z3>PA YO4>I5 SM5>I7 SR5SIX>I0 G>CN 18-1900 G,YT1,9H>PA G>EA7,I0 LZ2>ON YT1,LZ1,LZ2>LX SR5SIX>I7 I9,CB8MC,G>EI EI,G>I0 19-2000 CT>S5,9A EH7>DL GB3MCB,PA,EH7>CN EH7,CT0SIX>EI G,GB3LER>EA7 LX0SIX>F F>PA S5>CT3 20-2100 PA>ON,DL G>EA7,5B 5B>PA 21-2200 5B>I1,HB G>PA EA7>CT 22-2300 5B>I0 G>ON

June 6 0531 OH5RAC>SP6 06-0700 GB3BAA>PA G>F,OZ PA>DL,ON 07-0800 G>LA EI>F CU3URA>EA7 SV1SIX>I1 9H>9A LX0SIX>PA 08-0900 YO3KWJ>OZ ON>PA YU1>SM0 I5>F G>I5 9H>DL,I4,HB DL>ON UR>PA,I1 I9>S5 CT3>EA7 09-1000 CT3>CT UR>I1,F,DL,ON PA>ER1 DL,YO8>ON UT5G>PA,9A EH4>EA7 YO3>PA 9H>I1 I7>OH2 4X>5B F>ON 10-1100 DL,ON>LX UT5G>ON G,I9>DL HV0,SV3,SV1SIX>PA CU3URA>CN YO7,UR>5B EH8>EA7 11-1200 ZB2>CN HV0>SP1,I0 LX>ON ON>DL LZ2,YO7>5B G>PA 12-1300 UT5G>9H ON>LX OK1>DL 13-1400 SV1SIX>SP7 15-1600 GB3LER>EA5 18-1900 PI7SIX>EI 21-2200 I5>I0 GB3LER,TF3SIX,OY6SMC>LA

June 7 0549 OH5SIX>SP6 06-0700 OH5RAC>SP6 10-1100 SV9>I1 UU5SIX>9A 11-12 OD5SIX>A61AH CN8MC>I5 12-1300 CN8MC>I1 CU3URA>EA7 1256 SP5>SP8 13-1400 I0>S5 1759 F>I9 18-1900 GB3BAA>F 20-2100 JW7SIX,JW9SIX>LA 21-2200 GB3LER>LA 2223 GB3LER>F

June 8 0434 OH5SIX>SP6 0615 OH9SIX>SP6 0939-41 CT3>EH3,F 11-1200 GB3LER>I4 14-1500 GB3LER>F 15-1600 S5>9A GM>SP6 GB3LER,OY6SMC>DL OZ7IGY,SR5SIX>EI GB3RMK>I2 16-1700 GB3LER>ON,F,DL GM,GI>OZ OH9SIX,LA,SM0>F GI>LA SM0,LA>I1 SP2,OK1>EH3 OH8,OH1SIX>EI OY6SMC>DL 17-1800 LA>OE5 SM5>I0 G,F>SP7 GB3LER,PI7SIX>HA7 I5>SM5,SM0 I2>I5 18-1900 GB3LER>SP7 EH5>SP7,SP6 ON0SIX,LX0SIX,G>I9 GB3BUX,GB3BAA>I0 19-2000 PA>ON

June 9 0511 OH5RAC>SP6 09-1000 I5,SP6>SQ2 SP6>SQ9 OH5SIX>HA1,OE5 UT5G>HA1 UU5SIX>OZ SM5,SK0,ES1>9A G>SQ6 YU7,9A>OH5 LA>I5 GB3LER>OE5 10-1100 UR>I5,9A GB3LER,OH5RAC,OH1SIX>9A LZ2CC>SP6 OH3>9A,OE5,I0 ES1>I3 OH5SIX>SP6 SP9>I1 OH5>OE5 OE3XLB>OE5,S5 I3>I0(t) OH5SIX>S5 11-1200 YU1>DL CN>I9 CN8MC>I0 14-1500 UT5G>DL LY>HA1,9A OH9SIX>SP6 16-1700 CN8MC>F ZB>SP6,F UU5SIX,UT5G>S5 17-1800 ZB>F VO1ZA>G4IGO,EI7IX,F6HRP UT5G>4X,DL YU1EO>SM0 SR6SIX>I4 YL2>I2 OZ>ER1 OH5RAC,OH5SIX,OH3,ES1,LY>9A OH5>S5 LY0SIX,LZ2>DL CT3>EA1 CU3URA>EI 18-1900 ES1,OH5RAC>I0 SM5,SM7,DL,OZ,4X>ER1 YL2>I2 UR>DL,ON YU1>LA SP8,UT5G,SV1SIX,V2>DL ON,SV1>SP7 I3>CN SV8>OZ,SP7 LY0SIX>F LZ2,UR>I3 OD5SIX>OZ YO8>SP6 F>SP8 19-2000 DL>OE8 OZ,ON,SM7>ER1 YO5,YZ1,9A>PA SV1SIX>OZ CN8MC,SP2>I1 OH8>EH6,DL UR>SQ9,OZ I5MXX>CN LZ3>ON YU1EO>RZ6 LY>YO5 SR5SIX,SP2>F G>4X I5>SM0 F>SP8 I0>DL,SM0 1902-9 UA,Tafmbc>OH3(Es) 20-2100 UR>4X LZ2CC,I0JX>LY YT1>F,4X CN8MC>F 2015-19 URfmbc(to 104MHz)>OH6 21-2200 OH9SIX>SP2,SP7,SP1 OH5SIX>SP2 JW7SIX>LA

June 10 05-0600 LZ2CC,LZ1,ZA>DL IZ1EPM>SP7 I0JX>OZ 06-0700 SV1SIX,OZ,LZ1,YO7>DL SM1>I0 UU5SIX>I7 4N0SIX>SP6 OZ>I8 07-0800 SP>I0 I3>I9 SV2,SV1SIX>DL I9>I0,DL,I2 GB3MCB>CN CT0SIX>EI 08-0900 LZ2CC>DL I9>I2 UT5G>DL,9A UU5SIX>9A I0JX>EI I9>DL,HB GB3MCB,EH3>I0 I2>SM5 09-1000 UT5G>DL,SP6 UU5SIX>SP6 GU>I0 LY0SIX>HB 9A>OZ,DL LX0SIX>OH5 LA>I0,9A SQ9>ON IQ4AD>F IZ3FZQ>LA ON0SIX>SP9 UR>SP6 GM,EI>SP7 GB3LER>I4 YO>PA G>UR OE6>F 10-1100 G>SP6,SP7,9A,OE2 ON>SQ8,SP7,SP9 YO3KWJ>OH5 I5MXX,SR9,IQ4AD,SP6>EI UR>DL YU1EO>OH5 I0,I2>LA F,GI,S5>9A GB3IOJ>SP6 UT5G>SM5 DL>EA5 GB3BUX>HA1 F>SP9 9A>PA 1053 UA,Tafmbc>OH3(Es) 11-

1200 GB3LER,GB3RMK,OZ7IGY>F G>SP9,SP7,OE5 GI>SP7,9A,OE5 FX4SIX>OZ  
HB,F1GTU>LA GW>SP9 UU5SIX>SM5 GM,OH5SIX>9A GB3MCB>SP1 OM3>SP6 UR>SP9  
9A0BHH>OH5 GW>SP8 12-1300 GI,G>SP9 SP2,Y6SMC,GB3LER>DL OH5>9A OH5RAC>S5  
UT5G>LA EI>SQ2 OH5SIX>SP6,SP9 OH5RAC>SP6,SP9 9A0BHH>S5 13-1400  
OH5RAC>OE5,SP6,DL OH5SIX>OE5 OH1SIX,OH3,OH9SIX>SP6 OH3>SP7,9A VO1ZA>G4FUF  
S5>9A OH3,OH6>HA1 SM5,SM0>SP7 ES6>DL,HB 14-1500 OH3>S5,PA SM0>SQ9 OH5SIX>DL  
OH6>OE6 OH9SIX>SP6 15-1600 OH9SIX,OH5SIX,OH3,OH6,SM0>DL SM3>SP6 OM3,OH3>9A  
OH4,OH5>PA LA>SP6 I5>I1 16-1700 OH3>I5 LA>9A,S5 OH3>I1,SP7,9A OH5RAC>HA1,DL  
OH9SIX,LA,OH1SIX,SM5,SM0>9A OH5SIX>OE5 K1SIX>F6HRP,F5JJK K1TOL>F6HRP,F5JJK  
SM3>SP6 LY,OH3,OZ>DL I2,DL,S5>SM0 SM5,OH6>I1 K1GUN>F6HRP SR9FHA>LA OH5>HB  
17-1800 OH8,LY,OZ>DL OH3>I1,I5,HB,OE5 LA,UR>SP9 CN8MC>I0 LA,GM>SP6 SM6>OE5,9A  
IQ4AD>SM5 LY0SIX,SP2>PA OZ>DL,SP9,ON 9A1CAL>LA LA>OE5 SM0>HB,F,OE5 OH5,LY>F  
OZ,UR>9A ZB>EI SM3>I5 1705-1811 Italy,fmbc(to 106MHz)>OH6(Es) 18-1900 LA>9A,OK1,SP2  
SQ8>OZ ES1,SM7>F OZ>SP9,9A YL2,ES6,OH8>DL UT5G>LA SM0>I0 SM5>SP6  
OH6,OH3>HB,ON G,SP2,OH6,OH8,LY>PA UR>9A,OZ,SM0 SM0>I5 19-2000 SM0>UR OH8>ON  
I1>OH1 YL2>DL,PA OH8,LY>PA OH5RAC>F SP1>OZ YZ1,9A>LA UR>PA,SM0,OZ  
OH2,ON>ER1 LY>ON,UR GB3BAA>I9 20-2100 UR>SM0 OH3>ER1

\*\*\*\*\* 144MHz Es 1750-1800 including G<>UA3 (DF5AI)

June 11 07-0800 UT5G>I9 LY0SIX>EI OE3XLB>SV5 OH5SIXC>DL YL2>PA,EI 08-0900 YL2,OH3>PA  
OH5SIX>OE5,DL OH5RAC>SP6,DL 9A>LA GM>SP6 YL2>F GB3LER,I2>OE5 09-1000  
OH5RAC,OH5SIX,OH1SIX,OH9SIX,OH8>SP6 OZ,OM3>I0 I3>I2 OH2,OH3,OH8>9A 10-1100  
OH5SIX>OE6,SP9,9A OH9SIX>SP9,OE5 OH0>I0,9A,SP9 CT3>EA3 11-1200 OH3,OH0>9A  
LZ2CC>9H OD5SIX>I7,I0 5B4CY>I7 EH7>OE5 9H>LZ5 OH0>SP6 12-1300 4X>I0  
OH9SIX,OH3>DL SV1SIX>I5 OH8>OZ,DL SV1>I8 13-1400 OY6SMC,GM,OZ>DL I4,YU1EO>SM0  
LA>I1 SM7>F GB3RMK>SP4 14-1500 SV1SIX,IZ1EPM>EI 15-1600 ST2DX>F5JJK,DK2EA,9A4K  
7X0AD>HB,DL,I0,9H,I2 EH3>I5,9A 16-1700 EH6>I1 7X0AD>DL  
ST2DX>DK1MAX,DL7QY,9A4K,OE6BMG,DL8YHR,DJ2QP,9A2SB CN>9H S5,SV1>9A S5>DL(t)  
SV3>OE6,DL LZ1,OD5SIX>I0 17-1800 SV1SIX,SV8>DL TJ1GD>9A6R 9A0BHH>EI SV1>OE5  
T9,SV2,SV3,OD5SIX,5B4CY,SV1SIX, M,EI,4X>9A CT3>I0 LA>I5 EI>OK1 F>DL GM>I4  
OH9SIX,OH5SIX>ON LZ1>I8 CT3>LY 18-1900 SV1SIX,LA,SV8,GI,G>9A OH9SIX>SM7  
EI>OK2,9A,OM5 OZ>HB G>OE5,I5,5B LY,ZA>PA LZ1>CT GW>SP9 F,OH8,OH9SIX,I9,LA>DL  
JW7SIX>LA S5>OE8 YO5,LY2,OH3>EI I9,9H>LX ON>I9 GI>5B 19-2000 SV1,LA>9A GW>OM5  
SM8>I0 OH0,OZ7IGY,CT>EI SV1SIX>F OY6SMC>DL,LX,OE5 GB3MCB>LA SV1>I0  
JW7SIX>SM2,LA OH5SIX>LX G>9H I9>PA,LX,DL 9H>DL 22-2300 OH9SIX>SP1

June 12 08-0900 OH1>OH3 SV1SIX>SP7,DL 09-1000 F>EI SM7>OZ 9A0BHH>OE6 SV1SIX>I4,I1  
9H>SP7 10-1100 OE3>9H 11-1200 I5>I8 SV1SIX>F OM3>SP9 OH0>LA EA5,CN8MC,EH7>F  
W7GJ>ES6RQ(eme) CT0SIX>PA I5>EI YT1,LZ2>I1 12-1300 LY,CT0SIX,GB3MCB>EI  
OH0>LA,PA 5B>9H 9H>I2 GB3LER,SM3>DL LA>OZ 13-1400 OZ,OH2>PA LA,LY>DL OZ>EI  
OH0>OZ,F,DL HB>9H LY>9A 15-1600 OH1>PA OD5SIX>SV8,EA3 ZA>EA5 EH3>I0 LY>ON 16-  
1700 ST2DX>IK0FTA F>ON YT1>9A 17-1800 OD5SIX>SV1 18-1900 CT3>EA6 CU3>CN OZ>SP2  
G>F 1950 OZ>SP2 20-2100 F>F OH9SIX>LA 21-2200 F>F

June 13 0556 OZ6VHF>LA 06-0700 F>F 07-0800 OD5SIX>OZ,SV1,CN,EH3 PA>F 5B>SV1 F>CN,PA  
OH9SIX>LY CT0SIX>I4 08-0900 OH5SIX>LY EH7>ON,PA DL>EA7 SV1SIX>4X F,CN>F  
CN>I2,PA CT0SIX>I5 IQ4AD>EA4 ZB2>I2 09-1000 ZB2>I3,I0,DL F>PA,F CN>DL,I2 EH3>CT  
UR>LY,OZ SM0,OH3,ES2,ES4>RN6 SU1SK>9H EH7>I5 CN>F 0935-55 I,TA,URfmbc>OH2(Es)  
10-1100 CN>F UT5G>OZ F>DL CN>I2 UR,YO7>4X CT3,EH4>I0 CT>EA7,I0 ON0SIX>PA  
CT3>EA7 11-1200 EH7>HB CT3,EH1>EA7 I4>CN EH3>EH4 CN>F EH5>9H  
IZ1EPM,GB3MCB>CN 9H>EA4 LX>PA 12-1300 CN8MC>I5 OD5SIX>PA F>CN YO7>OH2 I0JX>F  
CU3>EA7,9H 13-1400 CT0SIX>I5 I8>I0 Eptv>9A F>F I9>DL EH7>I5 14-1500 CT>9H UR,F>5B  
I9>PA,ON,DL 9H1SIX,OE2(bs)>DL LX,I8>PA ZA,I9>F EA3,I0,I9>9A 9H>F I9>OK1 15-1600

EH7>I5 CT>HB EH3,IS0,I0,EH4>9A I8,CT0SIX>DL SV3,I7>F EH4>I0 I9,CT>OE5  
LZ2CC,I0JX,YU1EO,EA2>EA5 PA>I9 DL>I8 SV3>HB SV3,I9>HB 7X0AD>ON 16-1700  
7X0AD>9A CT>ON,I8 CT0SIX>EI I7,EH5,EH9>HB SV3,IS0>F I9>OK1 EH1>DL CU3>I8 EH5>PA  
EH9>DL 17-1800 EH9,EH7,EH8>DL EH1>I5 I9>SP6 F>I9 9H>ON EH5>PA  
EH1,CU3URA>I7,F,I5,DL 18-1900 CU3URA>I7 EH5>DL CU3>F,I7,DL,9A EH8>EA6  
ON0SIX>PA(t) 19-2000 CU3URA>ON CT0SIX>EI 20-2100 CN>DL,SP2,OZ,PA,OE1 21-2200  
G>9A I6,I4,9A,IK5ZUL>PA F>SP4,9A

June 14 0448-0500 OH5SIX,OH5RAC>SP6 UU5SIX>SP6,SP7 05-0600 UU5SIX>HA1,DL,SP1,9A  
OD5SIX>HA1 UR>SP9 06-0700 UU5SIX>SP9,OE5 UR>HA1,9A,DL,CN,S5,SP6,OM3 YO4>9A  
CN>I0 07-0800 UR>CN,DL,SP6,9A,DL,OE5,S5 SV1SIX>SP9 Z3,YZ1>UR  
YO4,GB3MCB,IZ1EPM>CN CT0SIX>EI CN>EI,9H,I0 08-0900 UU5SIX>OE6,RU3 UR>DL,9A,I9,I7  
UT5G>PA SV8>DL,PA,OE5 LZ2CC>EH3 I9>UR EH7>OE5 EA1>I0,PA SV1SIX,OH3,LZ2>9A  
YO3KWJ,LZ2>OZ OK2>SP9 LZ3>SM0 09-1000 SV1SIX>DL,S5 UR>9A,OZ,OE5,SP9,DL EH7>PA  
LZ1,LZ2,SV3>SP9 S5>OH5 YO3KWJ>OH5 LZ2CC,OH5SIX,OH5RAC, V3>OE5  
YO9,UU5SIX>SM0 LZ1,LZ2,EH1,SM0>9A UT5G>S5,OE5,I8 I0>DL 10-1100  
YO3KWJ,SV8,SV3>DL UT5G>PA LZ1>SP9 UR,ES5>I8 LZ2CC>SP6 SV3>I2 EH3>SP2  
SV1SIX>OE5 CT3>F YO3>OZ 12-1300 YO3KWJ>OH5 UT5G>SM0 CU3>F CN8MC>EI 13-1400  
UT5G>ON CU3URA>EI SV1SIX>PA I9>SP6 OH5>I0 YO3KWJ>OZ 4X>9H 14-1500  
SM3,OH5RAC>I7 SP1,OZ>I9 I9>SP6 OD5SIX>I0 YO4>PA YO4>DL LY>HA1,S5 SP5,OZ,I9>9A  
UT5G,YO6>DL SV1SIX>EH3 YU1EO>OZ I7>I0 SP5>I9,I0,I5 YO6>LA  
ST2DX>ON4KST,9A6R,DL3LFA,IK0FTA,9A8A SV1>PA 15-1600  
ST2DX>IK5RLP,G4FUF,9A2ZH,IW0FFK,PE9GG,DL8PM,HB9SJV,G0JHC,I8LPR,SV1DH,SP6MLK  
,SV1FJA,SP4MPB,IZ8DEO SV3>I5,I4 ON,G>I8 5B>IS0,I5 UR>DL LZ1>EH3 GU>EI SV8>I5 9A>I9  
YO5>SP2 I0>DL 9H1SIX>HA1 LY>9A SV8>HB 9H>OH5 16-1700 ST2DX>F5JJK,IK0FTA LY>PA  
UR>DL,ON,PA OH6,9H>DL SV1>I4,EI I9,YO3KWJ,OH6>9A YO9>SP2 HB,I3>I9 ZA>SP4  
YO6>I0,OZ SV8>DL,EA3 SV1SIX>I1 7X0AD>F,OZ 17-1800 OH6,GI,YO8,SM5,SM0,OZ>9A  
YU1>SM7 UR>9A,DL,ON,PA,S5 YL2,OZ,GI,SP2,SP4,SP5,CT3,F,G,OH3,LZ2CC>DL EH7>F  
UT5G>EI YL2>F OH7>OK1,EI 18-1900 UR>S5,EI,F SP7>PA OH7,OZ,SP3,SQ7,SP9,CT,  
D5SIX>DL SK6>9A ZA>SP2 SK7>S5,SV1 CN8MC,ES8,CT0SIX,CU3URA>F SM3,SM0>9A  
EH7>I5 TF>ON,PA EH4>EA5 CT>LY,9H I4>UR 19-2000 EH4>LY,EI TF>F SM7,EH4>I8 I7>DL  
EH9>F ON,F,I0>EH4 CT>HB,9H CN>PA CU3URA>EI 20-2100 EH8>EI,PA,I2 I5>LY G>ON(sc)  
EH1>ON,DL CT>F EH9,EH1>EI G,EI>EH4 21-2200 CT>F,PA EH1>PA CU3URA>EI 22-2300  
CN8MC>F 2344 GB3IOJ>F

June 15 0416-0500 UT5G,UU5SIX>OH5 OH5SIX>SP6 SV1SIX>SP2,SP6,SP7 LZ1JH>SP7 YO3KWJ>F  
UR>OH5 05-0600 I9>SP7 UT5G,YU1EO,LZ2>F OD5SIX>I0 YO4>OH5 SV1SIX>F,SP1,DL  
I8,I9,I0>SP7 ZA>DL I0JX>SP9 06-0700 YO7,OH3>I3 I5,9H,T7>SP9 UR>4X OE3XLB>I7  
LZ2CC,YU1EO,OM6,I7>F DL>I0 I0JX,9A,UR>DL IZ1EPM>HA1 SV1SIX>F,SP9,PA 9H>DL,I3  
3A>OM3 HB>9A LZ1>PA 07-0800 OM6>I9 F>9A,SP9,OZ 3A>DL,I9,SP5 UU5SIX>SP5  
I8,OE3XLB>F I9>OZ FX4SIX>SP9 9A>ON I0>DL I7,I5,I8>PA 08-0900 F,EH8,EH3,LA>9A  
I0,PA(t),SV,UR>DL LZ2CC>SP9 UR>PA,SM0 LZ2>I1 OZ>LZ5 G>UR YO5,I0>PA EH5>OE5  
EH3>DL,OE5 09-1000 YT4>SP5 LX>PA HB>SM0 I9>DL ZA>LA I4,OM3>SM0 10-1100  
LY0SIX>DL I5>ON G>I8 DL>F 11-1200 OE6>S5 T7>I4 12-1300 T7>SP6,OE2 13-1400 SM0>F  
GM>SP9 OY6SMC>DL GB3MCB>SM0 14-1500 GM>SP9,SP6 G>SP9 OH9SIX>RU3 15-1600  
SQ9,OH5RAC>SP6 OH5SIX>9A OH1>OE6 OZ6VHF>F 16-1700 9A,3Z2>OH2 ES8>DL  
UT5G,I5>EI LA>OM5 YL2>DL OH5SIX>9A OY6SMC>F OH3,OH4>SP7 OH1>I0 OH3>9A,F  
S5>SM0 W1JJ>F5JJK 17-1800 OE6>SM0 LY>EI GM>SP5,DL,HB,9A OH3>PA,DL LA7SIX>ON  
VE1YX>ON4KST,SO8FH, DG5YIL GI>I8 OZ>EA1 LA>9A OH5RAC,F>DL  
K1GUN>M0BCG,DG1CMZ TF3SIX>I5 VO1ZA>F5HRP OX3VHF>EI G>SP2 NW5E/4>DG1CMZ  
1742-1924Gfmbc(to 106MHz)>OH6(Es) 18-1900 TF>F,I5,9A SK7,EI,G,GM,LA,JW7SIX>DL  
LA,OY6SMC,TF3SIX>9A CT3>EA1 NW5E/4>DL3DXX GM>HB GI,GM,GW>9A GI>SM5  
K4RX>S59Z K1WHS,K1GUN,K4RX>LY2BAW OH7,GM>F 19-2000 K4RX>GOCHE,  
GW3LEW,9A8A,LY2SA,OKs K1TOL>DK2JP,OK1DDO G>OH5 OZ>LA GI,GM,GB3BAA>9A

VE1YX>SQ9ACH,LY2BAW,G3IBI,PH7A,DD6BKR G,GW>SP6 JW7SIX,EI,F,PA>DL GM>I3  
HI3TEJ>ON4GG N1BUG>LY2BAW OH7>EH3 OZ>SP2 GI>I5 EH2>OZ 20-2100 EI>9A,I1 GW>I5  
EH2>DL,GM,SP2, SP7 GI>F OZ7IGY>I9 OH9SIX>EI VO1ZA>G7RAU 21-2200 IQ4AD>EI  
OY6SMC>OZ

\*\*\*\* 144MHz Es 0640-0736 (DF5AI)

June 16 06-0700 9A0BHH,UU5SIX>OH5 UT5G>OZ YL2,OH5>9A 0857 F>EI 09-1000 UU5SIX,UT5G>OZ  
1337 GB3MCB>EI(t) 14-1500 GD>ON,F,I1 15-1600 I0>OZ 16-1700 ON0SIX>I9 SV1SIX>DL,PA  
17-1800 UT5G>I0,I5 I9>SP7 SV1SIX>SP7,DL,SP6 SV2>SP7 CN>HB UR>I5 SV3>SP6 ,SP7 18-  
1900 SV1SIX>SP4,SP9 I9,SV3>SP7 LZ2>EH3,I5 CT>I0,I5 UR,SP7,9H>I9 LZ3>EH3 SV1>DL  
I9>PA YU1>EA5 9H>SP7 19-2000 CU7>EA5 2057 CN8MC>F

June 17 0428-0500 OH5SIX,OH5RAC>SP6 9H1SIX>SP7 07-0800 GM>I5 09-1000 GB3MCB>I9 12-1300  
OD5SIX>SV1 16-1700 5T5SN>GOCHE,DG5YIL ST2DX>5B4FL I0>ON,I5 17-1800  
TR0A>MW1MFY I1>EI GI>F 18-1900 GW>F IQ4AD>EI JW7SIX>SM2(mode?) 1904  
UAFmbc(to100MHz)>OH6(Es)

June 18 0517 LY0SIX>F 06-0700 OD5SIX>A61AH A61AH>5B4FL UU5SIX>SP9,DL 07-0800 UT5G>SP9  
CN8MC>I9 A61AH>4X 5B4FL>A61AH UU5SIX>DL 08-0900 YO3KWJ>DL,ON LZ1JH>SP3,DL  
UU5SIX>HA1 OZ6VHF>LA LZ2CC>OZ,DL LZ2CM>DL YO9>ON 09-1000 OZ>I0  
LZ1,LZ2CC,LZ1JH YU1EO>DL YO7,LZ2>PA PI7SIX>LZ3 10-1100 YO7>DL OE3XLB>F OZ>DL  
11-1200 A61AH>5B4FL 14-1500 5B,4X,OD5SIX>I0 5B4CY>I7 LA>F 15-1600 GU>PA  
SV1SIZX>9A 4X>I0 A61AH>IK0FTA EH5AZW>A61AH ZB>PA CN8MC>EI 16-1700  
A61AH>IW9CER,IZ0FMA,F6FHP,EA7RM EH7>PA 4X>I9  
ST2DX>LZ1AG,DK1MAX,DL9USA,IK1EGC,OK1FRG,9A2ZH 5B>EA7  
SU1SK>I0JX,YU1FW,IW9CER,I8LPR ZC4>I0 SV1SIX>I1 17-1800 I9>DL A61AH>9H1YZ,EA7KW  
EH3>9A ST2DX>9A2ZH,9A4K,OK1FFD,ON4KST,9A8A CN8MC>A61AH CT3>DL ZC4>I9  
EH7>9A CT>PA I9>HB 9H>PA,SP4 OZ6VHF>LA 18-1900 EA7>9A ST2DX>PA2V,DL1YD  
CT>9H,PA EI,EH5,EH7>9A ZB>F C31,CT>I7 CT0SIX>EI PA>CN 19-2000 EH7>9H EH5>I6  
IQ4AD,IZ1EPM,9A1CAL,F>EI I4>I1 CU3URA>F GI>9A 20-2100 GB3MCB,F,9H>CN CN>EI  
VO1ZA>EA7RM 7X2RO>PF7M,DL9USA,HB9SJV, PA3DOL,HB9OAB EH5>9A EH7>HB 21-2200  
CN>DL,I8,HB I4 F,ON,GB3BAA,IZ1EPM>CN EH7>I2,DL,I1 7X2RO>I4,I1 EH5,CT>I1 ZB>EI  
CU3URA>I7 22-2300 CT>I8 CN8MC>I5 7X2RO>PA,I1,OK1,DL,F 7X0AD>PA CT>I5,I1 EI>F 23-  
2400 CN>EA5

June 19 06-0700 I0JX>CN EH1>OK1 CT0SIX>I4 OH5SIX>PA,SP6 PI7SIX>OH2 07-0800 OH1SIX>PA  
UT5G,CT,GM>F I0>EA5,SP6 OH5SIX>PA EH9>I0,I1 CN8MC>I2,F LA>OK1 I3,IK5ZUL>CN  
I0JX>EA1 08-0900 CT0SIX>I0 OY6SMC,CN8MC,EH7>F I9,SM3>HB OH1SIX>PA EH5>ON  
I8>EA5 EH7>9A,YO5 EH5>9A 09-1000 PA>SM3 CU3URA,GB3LER>EI EH5>9A SM3>ON  
TF>F,PA CT>DL DL>EA1 OY6SMC>SP9,EI 0959 VO1ZA>F6HRP 10-1100  
VO1ZA>G3FPQ,F4DXW 7X0RO>9H 9A,SV8>F TF>DL,PA OY6SMC>ON I8,T9>9A CN>9H  
GW>EI EH3>DL VO1AU>GW I2,9H>CT GU>I4 CN>9H 11-1200 GJ>I4 CU3URA>EI EH9>9H  
5T5SN>M0BCG,EI5FK TF>ON,DL,PA,EI OY6SMC>EI OZ>DL 12-1300 TF3SIX,G>EI TF>PA  
G>ON UT5G>9H 13-1400 I0>I8 SP8>SP6 I4>DL 13-1400 G>DL(t),PA GD>PA CT>CT2 EH7>DL  
9A>OK1 I8>EA7 9A>PA G>SM7 15-1600 I9>DL,OK1 OK1,EH6,EH3>9A 9H>PA,HB EH2>9H  
OZ>F I0>EA7 S5,GM>DL I3>EI PA>OH3 CT>SM7 EH6>HA F>OK1 LZ6,GM>I1 GD>I3 16-1700  
9H>I0,I3,LX UR>4X GM>I0,9A,I9,I7 G>OE5,I3,LA,EI GB3IOJ>DL T9>EI SP5,OZ>F GB3LER>I1  
17-1800 I3,I6,I0>9A I4>I3 YR4>I0 EH8>F I4>I1 SV1SIX>DL I0>I8 TF>EI G,GD>PA 18-1900  
GD>ON S5>9A YO9>I9 NA4D>CN8AT(?) TF>DL,PA EH6>EI UR>I9 I3>9A CU3URA>F 19-2000  
PA>ON I4>S5 I9>DL GD>I8,I0,SP6 G>9H 9H,G>F 20-2100 JW7SIX>EI I0>I1 GD>SP6 G,I0>F  
CU3URA>EA3 I4>9A,I3 G>I0 PA>OZ 21-2200 G>HB,DL,F I4>9A EH3>LX,9A GD>PA PA>F  
EA7>EA5 FJ5DX>EA7KW 22-2300 9A>OZ(ms) PA>DL OX3VHF>EI 23-2400 9H>F

June 20 0359 MD6V>SP6MLK 04-0500 GD>SP7,9A PA>SP7 G>SP6 05-0600 I0>9A I1>I2 OK1>SP6 I0JX>CN 06-0700 G>ON,SP6 GD>LA,PA I9>I8 YR8>I0 07-0800 G>PA S5>I0 PA>F EH5,EH7,I6,OH5SIX>9A I9,F>CN YR8>OZ I4>I3 OK2>PA(t) YR4>SM5 OZ>DL 08-0900 EH4,I7>I0 G,PA>F OH8,OH5,UU5SIX>9A 9A>EA5 I0,I1>I5 CT>I8 I5,I6>EH7 SP3>SP6 I0>I1(ms) G>PA 09-1000 EH8>EH3 EH5>CN DL,G>PA I6,I4>9A(t) GD>OE5(ms) OZ>DL UU5SIX,S5>9A S5>I4 SP9>SP6 T9>S5 YP0>HA7,LX CT3>EA5 10-1100 T9>YO5 PA>F CT3>EH2 OD5SIX>A61AH I0>PA I9>I8 S5>I2,9A GD>OZ G>F,9A 9A>OE6 PA>DL(t) OD5SIX>S5,9A 11-1200 G>DL(t),SP1 T9,SV5SIX,5B4CY>9A UR>9H YR8>I0 9H>ER1 I0,UR>PA HB,I4,I2>OH3 S5>SM7 PA>OZ OH1,OH3,PA,SP1>DL 9A>LA 12-1300 I8,SP5,SQ9>PA OH1>I2 SV1SIX,I0>DL SV3,SP9>SP6 OH1>I2 PA>I0 9A>EH7 K1SIX>EI7IX 13-1400 I0>I1(ms) G>ON,PA 9A>PA I0,G,>DL PA>ON GD>I1,ON 14-1500 UU5SIX>9H SV1SIX>DL 15-1600 VO1AU>EI7IX 2019 JW7SIX>SM2 2110 CU3>EA5

June 21 0415 OH5SIX>SP6 07-0800 LY0SIX,SR5SIX>SP6 CU3URA>CN 08-0900 9H1SIX,I8>PA YU1EO,LZ2>EH3 LZ2CC>I5 LZ1>I1,I5 10-1100 UT5G,YO3KWJ> IS0 CT0SIX>I0,I8 EH1>I8 1152 EH6>S5 1359 S5>OK1 14-1500 OZ>F 5B4CY>S5 S5>9A 15-1600 SV5SIX,I0>S5 SM7>OZ CU3URA>5B,I4 OH1>5B 5B4CY>OH5 ST2DX>IK0FTA,S57RR,IZ8EPY 16-1700 4X>OH5,ER1,EA7 OH1,5B,OZ>ER1 5B>S5 S5>I0 SV1SIX,LA>4X OH9SIX>SP2 UT5G>OZ SM0>9A CU3URA>I2,S5 CT0SIX>F CN8MC>I0 LY1>EA7 17-1800 EH7,LY,SM3>DL 9H,CT3>F LA>4X EH7>I0 ZD8VHF>IV3HLS YZ1>OH1 4X,EH5,CT>9H CT>HB,9A LY>I1 4X>SM5 SM0>PA ZA>OZ,4X OH1>EA7 18-1900 GB3MCB>OH5 CT>9A OH1>EA7,ON CN8MC>I0 19-2000 EH7>F,9A CN>I0,F I0>EH4 20-2100 EH9>LX CN8MC,CT0SIX>I2

June 22 0432-0500 OH5SIX,OH5RAC,SR5SIX>SP6 05-0600 LY0SIX>SP6 OD5SIX>HA1 0640 UU5SIX>SP2 0745 CN8MC>I0 08-0900 TF3SIX>OZ YO3KWJ>DL 09-1000 GB3RMK>OH5 LA>PA,ON OY6SMC,TF,I9>OZ JW9SIX>SM6 10-1100 OH1SIX>EI TF3SIX>OZ LA>PA,F,SP6,DL JW9SIX>OZ GB3LER,OY6SMC>DL G>OH3 11-1200 9H>5B,4X OH9SIX>PA EI>OH5 GB3LER>SP9 TF3SIX>EI,OZ ES1,ES4>PA LA>HB,DL,9A PA>LA LY>OZ OH1>F 12-1300 OH3>PA SP6>SP3 7X2RQ>9A,F OH5SIX>EA7 OH3>EA7 OH5>PA,DL GB3BAA>ES6 13-1400 CT>HB 7X0AD>EH3,OK1 I0>9A CN8MC,9H1SIX>S5 EH5>I0 9H>I2,F 14-1500 G,GD>I9 EH3>SP6,SP9 UR>9H,I9 SV1SIX>RN6,EA5 F1GTU>S5 F,YU1>9A 15-1600 F>9A OH1>OZ YU1>F I9,LA7SIX>SP6 I9>DL 16-1700 OH9SIX>SM6,OZ LA7SIX>SP6 17-1800 LA7SIX>DL,SP6 OH5SIX>SP6 SM1>LY S5,I5,I4>I1 18-1900 S5>9A OZ>DL(t) UR>OH6,SM5,ES6 OH0,SM1>LY 19-2000 YO4,UR>ES6 OH3,OH7>SP7 OH5>S5 9H>EA3 UR>OZ,LA LA7SIX>DL 20-2100 LA,OH9SIX>DL UR>SP2,OZ SM2>DL,SP6 LA>PA OH5RAC>I1 OH0>I0 21-2200 OH3>I1,I2,9A,I7 ES1,OH2>I1 UR>DL,OZ,PA OH9SIX>SP6,9A,OE1 OH5RAC>9A OH1SIX>9A, OE1,SP6 UR>OZ,LA LZ1>PA G>SP7 I0>SM7 ER1>OZ OH5SIX>SP6 7X0AD>EH3(sc) LA>I0 22-2300 UR,YU1>SM7 7X0AD>EA5 OH7>OH3 OZ,SM7>I5 OM3,SM0,OH2,LA>9A ES5>EH3 LA,OH1,SM0>SP6 LY0SIX,UT5G>OZ ES6>EH3,EH7,PA,DL ES5>PA,SP1 OK2,ER1,DL>LA OH5SIX>EH3 OZ6VHF>I5 23-2400 ES7>9A,DL OH5>SP6 OH7>9A GI>ES6 UR,ES6,OH7>PA

June 23 00-0100 UAtv>LA OH1>PA,I1(Es+ms) 0120 OH9SIX>DL(579) 05-0600 OH5SIX>SP6 UR>9H IZ1EPM,ON0SIX>OZ 06-0700 5B>RN6 JM1TUY,JE1BMJ>5B4FL,JE1LFX>UT7QF JR2HCB>9H1XT,4X5LA,OH7PIO,UT7QF GB3BAA>SP5 GB3MCB>OM3 I0JX>SK0 SP3,SP5,SP1>HB SV1SIX>9A 5B>UR,SP9,YO8 I5MXX>CN G>9A JA3FYC>ES6DO,OH5LK JG3SLJ>OH5LK ES0>SM6 07-0800 SP2>HB OZ,LA>9A JR2HCB>UY5ZZ,9H1PA OH5SIX>DL 9H>YU1 LY>CN,ON,DL JE1BMJ>SV1DH SM3,5B>9A ES6,ES0>EA7 7X0AD>DL,SP2,EI,9A GW,G>9A SP3>PA I7>EA2,ON YO5>ON F>SP1 UU5SIX>4X 08-0900 7X0AD>>9A,OZ,DL,OZ,SP1,SP9,F,I0 I9,G,EH4>9A 9A>4X EH6>SP9 OD5SIX>OH6,SP9 EH7>I3 UR>4X,SV5 GB3MCB>CN I5>EI EH6,9H1SIX,SV1SIX>OE5 SR9HFA,SR5SIX>OH6 9A0BHH>I0 OH9SIX>SP9 I9>OH2 09-1000 ZB2>DL ES0,OD5SIX>9A 5B>OH2 SV1SIX>I0,HB I9,9H1SIX>I0 7X0AD>PA,OK1,OE5,I8,DL,F,LX LA7SIX>OZ OH1>4X,SP9 OH1SIX>SP9 I9>F OH5SIX>OM3 4X>SM3,PA UU5SIX>EA7 EH5>PA 4L7AZ>PA 10-1100 4X>UR PI7SIX>9A T9>5B,9A GB3MCB>I0 UR>ES6 7X0AD>F,9A,I5 OH5SIX>DL IZ1EPM>SP9 GB3LER>OH5 CT3>I0

A61AH>9A,OE6 OH9SIX>I5 OE8>OE6 11-1200 EH7>DL,LX 7X0AD>LZ1  
7X2RO>EI,9A,I4,F,I0,SP6,DL,LZ,PA CT>DL I0JX>OZ,CN OH1>OH2 EH9>I5  
A61AH>OH7KM,OZ3K,ON5FU I2>CN EH9>9A 12-1300 SV1SIX>EI 7X2RO>PA,OM3  
7X0AD>OM3,EI,DL,SP9 I2>CN ZB2>I4,9A,PA I3>EH1,I0(bs) I9>DLLZ2>PA 13-1400 3A>F,I0  
ZB2>DL,EA7,I1 DL(bs),I3>9A 7X0AD>OE6,DL, PA F>I8 UU5SIX,UT5G>9A EH5,EH3>OE5  
LZ2CC>RN6 I9>DL F>I1 I2>CT 14-1500 OE3XLB>I0 EH5>PA,SP9,DL UU5SIX>SP6 ZB2,EH6>DL  
F>PA DL>CN I0>SQ3 I7>LX 7X0AD>DL,OZ UR>EA7,9A UT5G>OE3 LZ2CC>OE3  
OM3,SP6>RN6 SP1>ER1 I2>EA1 LZ2>SQ3 YU1>I1 15-1600 F,DL>9A CT>HB 9A>EA1  
LZ2CC>F,DL I9,EH2,G>F UR,EH3,EH2,IS0,SV8>DL 7X0AD>UR,EI SP8>I1 YO8,F>SP6 I9>I2  
F>I8,9A SV2>ON I8>PA YO8>OZ I2>EA1 16-1700 EH5,F>OE3 OD5SIX,SV1SIX,I9,I5>DL  
I5,UR,I0,IS0,F>9A EH1,EI,G,LZ1>I5 SM6>I0 T9>F,LY EH1>HB YZ1,UR>I2 I8,I9>PA  
ST2DX>LZ3CQ 7X0AD>SP9 17-1800 CT,CT3,F,EH3,UR>9A T9>9H YT4>I5 ZA>SP3 LZ2CC>F  
7X0AD>EI,PA,SP6 GB3MCB,IZ1EPM>CN OE6>I0 EH3>OE6 I8>I2 UU5SIX>EI I9>DL LZ1>F  
UR>LY,EI,YU1,OE3 YT1>I0 GM>9H I9>OM7,HB,I5 18-1900 7X0AD>OH6,OH7,ON,5B,S5  
OH1,SM5,OH7>F I9>HB GB3BAA>OH5 EH3>I5 EH6>9A GW>OZ GB3LER,EI>SP6  
GB3BUX,ZA>EA7 9H,OY6SMC>DL GI>OK1,DL OZ7IGY>EI EH5>OK1,9A,SP9 UR>OH1  
EH7>SQ9 19-2000 TF3SIX>SM3,CN EH5>I0 EH8>I4 LZ2CC>UR OX3VHF>OH1  
JW9SIX>OH1,SM0 TF>OH7 GB3LER>F 20-2100 S55ZRS>CN UT5G>I1 LZ2CC>DL 7X0AD>DL  
21-2200 7X0AD>DL,HB UR>I7,YU1,SP2 GI>I5 UU5SIX>OK1 IQ4AD>EI 22-2300 9A0BHH>SP2  
OD5SIX>DL UR>9A,DL,SP2 UT5G,GB3LER>9A 23-2400 UU5SIX>9A,SP1,OE1

\*\*\*\*\* 144MHz Es 0918-1034 1135-1236 1330-1557 1640-1736 1730-1755 (DF5AI) including UK  
1205 1503-1511 1515-1543 reaching north to IO83

June 24 0136-7 UU5SIX,UT5G(599)>OH7KM 0416-0423 JG3LEB,JM1DTF>5B4FL 05-0600  
UR>S5,SP2,LY,DL OD5SIX>9H UU5SIX>LY JE1BMJ>5B4FL(direct) SP7>I1 GB3BUX,LY>I0  
SV1SIX>HB 06-0700 UR>DL,SP6,EA7,T9 9H1SIX>DL OM8>ON LZ2>LY YL3>I8  
UT5G>ON,I0,SP6 UU5SIX>SP6,OE1,ON,OE5 F,OM3>OE1 ES6>F 7X0AD>I7 SV1SIX>SP9,OE5  
LZ1>SP6,SP9 ES4>OH5 07-0800 LZ2CC,LZ1JH>SP6 UT5G>OE5 LZ1,LZ2,YZ1>PA LZ1>OE5  
UR>T9,CN,I1,9A,I3,EA7,LA SP5>I0 9A,I0,I5>OK1 SP9>CN OH3>OH2 SP5>I0 YO5>F  
7X0AD>9A,I0,I1,I5,I8,DL,F SM7,OK2>I8 LZ1JH,T9>ON SV8,YO7>DL 5B>OH5 08-0900  
I0>OH5,OK1,SP6 OZ>I8 UR>9A,I0,EA7,EA3,SM0,F,I1,OK1,DL,OZ,T9 FX4SIX>OH5 UT5G>EA7  
7X0AD>9A,I1,I3,I5 OM7>CN,LA Z3,OH5,SV1SIX>DL I0JX>EA1 UU5SIX,ES8>F YU1>EI  
EH3>LY,T9 F>SM0 YO3>I3 YT1,OH1>ER1 0815-29 EPfmbc(to 92MHz)>OH3(Es) 0843  
SVfmbc(88MHz)>OH1(Es)09-1000 I4,OH3,T9>ER1 T7>F SV1SIX,YU1,T7>EI LZ2>I2,T9  
7X0AD>F,T9,I5,I7,I3 I9,SV8>DL YO7>I2,9A UR>I1 GB3LER,ES6>SP6 YO4,F>SM0  
GB3MCB,F>CN EH3,F,T9,LZ2>9A I9,EH6>HB KG6DX>CN8TW(??) 10-1100  
7X0AD>EA7,EI,SP9,OH2,EH3 F>CN LA>DL,ON,I0,HB T9>I0 OH1,HB>EA7 YO7>EH4 OH1,I5>DL  
SK0,LA>ER1 9A,LZ2>EH4 SM0>SM3 EH1>EH3 CN>OH2 OH4,OH3>F OH1,SM0,SM3>PA  
SV8>OM7 YU1>EA2 YO7,LZ2>9A SP6>SP9 11-1200 SM0>PA OK1>OH6 ES5,I9>DL CT3>OZ  
EH5>T9 7X0AD>I0 IS0>SP9 CU3URA>EH3 LZ2,EA3>F GU,3A>T9 I1>I7 EH7,DL,9A>ON  
3A,HB>EA5 OM3>OK1 Z3>OZ HB>EA2 UR>SM0 12-1300 I0,I9>OZ OE6,DL>EA2 OH1>CN,9H  
SP7>I8 EA3,GU,OH2>F YO7>SM0 F,T9>I0 OH1SIX,OH9SIX>SP6 EH6,F>9A EH3>OH5 YT4>T9  
GU>OH1 13-1400 OH6>F UR>I1,HB,DL 9A,SP6>OH6 CT0SIX,YL3>EI OE1,OH1>EA2 T9,3A>F  
SP4>OH1 4U1ITU>I5,I9 CT,LZ2>DL OH9SIX,GB3BAA>SV1 I2>SM7 DL>YO8 OH1>ON  
OH1,F>OK1 PA>I8 EH3>ES1 SP1>I7 7X0AD>ES1 PA>I0 14-1500 SV1SIX>SM3  
4U1ITU,OH6,OH8>SP6 SQ9>I3 SP1>CT,I0 I1>SP6 F>9A LA>I9 OH9SIX>DL,CN  
9A,YZ1,CU3URA,OE6,F>DL ON>ER1 SM2>LY EH2,OE6,I5>PA ON0SIX>OE5 I9>LA UR>DL,ES6  
SM0>I9 7X0AD>DL 15-1600 LA>I8,EH3 I0>OZ OE6,FX4SIX,HB>DL,OE5 LX,ON>SP9  
PA>I8,ER1,SP6 S55ZRS>EI OM3>PA RN6,YL2>F UR>DL SP9>F,DL,PA EH2>LA HB>ES6  
GU>SP6 SM7>T9 OZ>OM5 16-1700 GB3MCB,I2,LX0SIX,CU3URA>DL G>9A LA>I0,HB  
HB>PA,DL SM6,SM7>HB UU5SIX,UT5G,LZ2CC,EI,GM>DL GB3LER>OZ UR>S5 SM6>EH3  
DL>PA SV5>I0 SV2>ES6 17-1800 LA,Z3>I2 SP2,UR>PA F,UR>ON  
SV1,LX(t),OZ,UR,GM,LA,SP8,OD5SIX>DL OH5,UR>I5 9A>OH5 LY>9A GI>SP4 LX>LA 18-1900

UR>DL,IS0 OH1>9A SV1SIX>F LZ2CC,SV8>DL 18-1900 SV2,YU7,LZ2>F YO7,I7,I8,UR>DL,SV1  
UR>OM5,PA ES8>9A,I0 ZA>LA,ON LZ3>OM5,F G,OM3>I8 7X0AD>SP6 F>9A  
VO1ZA>PA2V,G4PCI,G1INK,G0CHE,ON5PU,EI7IX 3A>YU1 UR,I7>LA GI>EI Z3>I019-2000  
SP8,I8,I7,IS0>DL VO1ZA>SP2MKO,SP6NVN,G4PCI UR>I5,SM0,HB ON,SP4>I8 I9>LA,SM0,T9  
LZ2CC,I6,I7>F 7X0AD>DL 7X2RO>DL,SP2,9A LY>9A SV8>PA,I2 OZ>I0 LA>9H,I0  
VO1AU>SV1DH, G4PCI,M0BCG,G0CHE,IW4BET,IK2EAE IS0>SM0 LZ3,I9>HB VO1ZA>9A4K  
I7>I1UT5G>OZ 20-2100 7X0AD>ON,EI,9H VO1AU>OZ1DJJ,9A4K,F8DBF, G3WZT,G4UCJ I8>UR  
UT5G,OK1,>DL TF3SIX>CN F,YU1>9A 4N>EI 9H>OZ,I1,LA CU3URA>DL I9>I5,DL I0>EH3  
G>I5,EH5 EH3>OK1,T9 UR>F,EH5 21-2200 I0>OH2 CU3URA>I7 7X0AD>EI,9H,DL,I0,9A,CN  
EH1>SM0 4N,PA>9A G,I0>I5 I0>SM6,SM0 SP2>F,I8 EH7>9H,I9 DL,SP>CN 22-2300 EH7>I1  
7X0AD>I1,S5,EI,DL CN8MC>EI EH7,F>SQ6 GB3BAA,F>9A SV1SIX>UR 9H>EI GI,G>9H  
G,EH3>I7 23-2400 LZ2CC>EI CN8MC>9H,F 9A0BHH,I0JX,IK5ZUL,OE3XLB>F  
CN>I5,F,SP2,9A,I8,I0,SV1 G>I8

\*\*\*\* 144MHz Es 0604-1626 with short breaks (DF5AI)

June 25 00-0100 OH7>OH3 SR5SIX>F 0140 GB3MCB>DD6EX 05-0600 UT5G>OM3,OE6  
UU5SIX>OM3,OE6 UR>I7,9A LY>5B YO4>DL  
YO3KWJ,OE3XLB,YU1EO,S55ZRS,LZ1JH,LZ2>RN6 I0>9A 06-0700 SP1,OZ7IGY,UR>EH3  
G>9A IQ4AD,HB9SIX,9A0BHH>EI UU5SIX>9A,SM0 IS0>OZ LZ2>S5,9A SV1SIX>SP6  
5B,4X,F,LY,SV8>9A 4L7AZ>G4FUF F,GB3MCB>HA1 EH5>SP1,SP2 EH6,EH5>SQ9  
GB3BAA(t)>EI,F T7>EI,F I4>SM0 SV1SIX,CT0SIX>DL 07-0800 3A,5B4CY>EI ON>SV1  
5B,EH3,GW,OD5SIX,UR>F EA3>EA7 LZ2>I8 EH6>OZ GW>I1 SP6>EA2 I7>SM0 UU5SIX>EA3  
EH5,IS0,SV1SIX,9H1SIX,IW9BDV>SP9 OE6>CT OE6,PA>EA1 DL>PA(bs) 08-0900 LZ1>SP9,4X  
DL,F,SV8,IS0>9A I9>OM7,I0 9A0BHH,YU1EO F,SV1SIX>F OE6>PA(bs) IS0>OZ  
PA,EH6,OE6>DL 7X0AD>DL,EI,LY DL>SQ6 I7,S5>I0 ON,I9>LX YT1,UR>4X 09-1000  
7X0AD>LX,PA,OZ,ON,F,SP9,SV1,SP1 7X2RO>PA UR>4X OE6>OZ(bs) I5>SP9 SV1,LZ1,LZ2>F  
I9>S5 CT,F,LZ1,LZ2,Z3>9A OE6>SQ6 I0,I7>DL DL>PA I9>S5,9A 10-1100  
EH6,Z3,UR,LZ1,LZ2,F,I1,I3>9A OE3XLB,PI7SIX>I0 LZ1JH>F 9A>PA 7X0AD>SP9,PA,9H,9A  
7X2RO>PA I5,SV1SIX>DL I0,UR>F CN8MC>DL,9A LX>9H 9H1SIX>SP6 11-1200 I0JX>DL,OZ  
I7,RN6,LZ2,Z3,I1,GU,I8,EA8,EH1>9A T7>HB I8,I9>SP9 I5MXX,T7,IW9BDV>DL CT0SIX>PA  
GU,LX>EA7 OK2,T9>I0 7X2RO>HB I6>OZ 12-1300 9H>OZ I0>F HB,EH8>I0 SP6>CN  
3A>EI,9H,I0 I8>PA SP7>ST2DX I7>EA2,DL,UR LZ2>I4 9H1SIX>9A 13-1400 OE6>I8 IS0>SQ9  
F>CN I7,YO3>SP6 I9,LZ2>OK1 UR,EH1>I5 UR,YO8>I3 LW2HM>F8DBF 9H1SIX>OZ YO4>S5  
UR>EA7,I0 14-1500 I8>PA YO3KWJ>OE6 UR>I5,EA7,F ON,UR>EA5 CU3URA,CT>F I1>EA1  
CT>9A LZ1>SQ3 I3>SQ6 F>I8 EH3,S5>OZ 4U1ITU>SP9 IW3FZQ>SQ2 YO7>SP6 CN>EA1 15-  
1600 UR>F,9A,PA,EA1 CN>HB HB>SP6,9A ZB2,IS0,EH7>DL GU>5B IS0>PA EH3>EA7,EH1  
4U1ITU>5B ON>OK1 LZ2>F I5>SM0 EH1>OK1 CN8MC>SP6 DL,G>I8 I3>LA CT>HB  
LA,DL,OZ>9A OK1>OZ 16-1700 I5>EA1 LA,CT,UR,DL,S5,F>9A I4,S5>SM7 OE4>F OZ>I2  
EH7,EH5>ES1 OZ>I2 CU3URA>EA7,I0 ON>SP6 UR>DL G>5B I5>OK1 4U1ITU>OH1 17-1800  
EH7>7X2AD(bs) YO2>F 4U1ITU>LA SP6>I5 18-1900 SV1SIX,7X0AD>EI CN8MC>SV1  
GB3MCB>I4 CT>9H 19-2000 VO1ZA>F6FHP,G7RAU,PE1ZMS,G4AJC,G0CHE UT5G>9H  
7X2AD>EA7,PA,OZ,CN SV1>CN PA>EA7 OH3>9A SV2,ON0SIX>EI EH3>F 9H>SP7  
VE1SMU>G4PCI VE1ZZ>GM0EFT JW7SIX>LA OM6>I9 VE1YX>F6FHP,9H1YZ I3>OH1 20-2100  
VE1YX>M0BCG,PE1ZMS,G8GXP, EA5YB,9A4K ZB2,OH8,EH9>DL 9H>EI OZ>ER1  
VO1TJM>G3NVO,9A4K VO1BHK>S57RR,9A4K YU1>OZ 7X0AD>OH3,DL,OZ GW>9A I5>F  
K9PSN>G8BCG J79KV>G0JHC,F1LXJ,7X0AD EH8>I5 I5>EA1 3A>OK1 21-2200 3A>OZ  
VE1YX>EI7IX OZ>I0 G>9A EH8>DL I5>EA1 CN8MC>F,SP6,ON I3>9A 3A>OH7 I4>9A,SM0  
N1RAM>9A4K,9A8A,GW0GEI VE1ZZ>9A8A 7X0AD>9A,DL,ON K9MU>9H1XT G>9H  
W9JN>9H1XT,EI7IX,9A8A,GW3LEW IZ1EPM>PA CT>CT3 EH6>EH1 I3>I5 22-2300  
F,I0JX,CT>9A 7X0AD>OK1,9A,UR,I4,CT,EH8,EI VE1YX>EI3IO W2CNS>IZ5EME,IZ0EMA  
I4>SM0 ON0SIX>S5 UT5G>I5 CU3URA>9A,I0 23-2400 UR>9A CT>EA5 VE1ZZ>F5JJK SP9>I0  
SV1SIX>PA 7X0AD>PA

\*\*\*\* 144MHz Es 0545-0924 including UK (DF5AI)

June 26 0451-6 JF2AEA/4,JF6EZY>5B4FL 06-0700 OZ>EA7 CT0SIX>DL YA1D>OH2RF OH1>OH2  
UU5SIX>SP6 07-0800 GB3BUX,GB3BAA>EH7 CN8MC>EI,F 7X2RO>F UT5G>SP6,I0,PA  
CT,EH1>I5 ZC4>OK1 ZB2,CN,CU3URA>EI UR>OE6 UU5SIX>HA1 EH4>9H 5B>OK1,HA1  
EA7>PA,EH3 LZ2CC>OZ 08-0900 4X>YU1,9A CN>YU1,I5 YU1EO>OZ OH1>OH3  
CN8MC,EA1>EA7(short) I0JX>EA1 LZ5>4X OX3VHF>EA7 LZ1>DL UR>I0 5B4CY>DL,PA  
5B>I8,OM3 4X>DL,PA 09-1000 CU3URA>I0 OX3VHF>EA7 LZ1JH,LZ2CC,SV1SIX>PA F>I0  
IZ1EPM,EH5,GB3MCB>CN OD5SIX,4X,EH9,SV1,CT3,5B>DL LZ3,ZC4>I5 I9>SP2 CN>HB  
OH9SIX>RU3 4X,5B,ZC4>CT SV1>OE6 4X,7X0AD>I5 DL>F CT0SIX,I5>CN 10-1100 F,I5,I8>I0  
EH5,EH3>PA 5B>SP9 OH9SIX>SP6 CN8MC>EI 4X>EA5,I2,CT 7X0AD>PA,DL,I8 CU3>5B I2>DL  
ZC4>EA5 CT3>EI,EH3,I0 CU3URA>5B SP8>SM2 DL,G>OH2 G>SM0 EH7>9A GB3LER>SP9 11-  
1200 OK1>SM0 LA>SP9,RU3 7X0AD>DL,9H OH1SIX,GB3LER>SP6 OH7>DL CT0SIX>PA  
CU3URA>CT GW>OH2 LZ2CC>EA3 SM3>RU3 LY,SQ9,SP7>LA LA>9A,SP6,DL,CN EH7>I2  
I9>SM3 CN>F F5TND,LA>CN I2,F>I8 CN8MC>PA OH0>OH3 12-1300 SM3>SP9  
CU3URA>9H,DL CN8MC>9H EH1>F OH4>ON EH7>I5 SP5,SR9FHA,DL>LA OH1>EA7  
7X0AD>I0,CN,4X,SV1 OH9SIX,ZB2>DL I9>4X I0JX>CN TF>PA GB3MCB,FX4SIX>CN ES2>OZ  
I0>I2 UU5SIX>HA1 DL,HB>I0 EH7>OK1 SM3,CN>I0 IS0>CN,EH1 13-1400 CN>F,OH3 EH7>EA1  
7X0AD>EA7,I0,I9,EA7 I3>9A OK1>SP6 OH8>ON VO1ZA>7X0AD EH1,I0>CN CT,I3>9A  
OD5SIX>I0 I0JX>HB,CT CT>LX,9A OZ>OH1 SM3>OZ DL,OZ>OH6 SR9FHA>LA OH6>SM7  
ZB2>EA3 14-1500 EH3,EH5>PA 7X0AD>9H,ON,9A CT0SIX>I9,EA7 9H>EA5 CT3>EA7  
EH7>OK1,OZ,ON SV5SIX>DL K4RX>7X0AD CT>SV1 CN8MC>OZ 15-1600- CU3URA>ON  
IK5ZUL,SV1SIX>RN6 SV5SIX>SP6 EH5>F ZB2>LZ1 EH1,EH3,F>EH7 I9>DL,I3 IS0>SQ9,DL  
EH3>LZ2 7X0AD>I0,9A VO1ZA>7X0AD LZ2>I0,PA F5TND,I2>CN 5B4CY>DL CN>SP6 UR>9A  
16-1700 I7>I5,I2 UU5SIX,LZ2CC,I7>SP6 LZ2>9A SV9>DL,I5 OD5SIX>DL,SM0 EI>9A 4X,ZA>DL  
UT5G>SM0 UR>I4 7X0AD>9H,OK1,EA7,9A,I8 I9>EH7 SV1>EA7,SP6 SP5>9A I7>LA F>CN  
UR>OE6,CN 4X>OE6 EH3>I8 YO2>DL LY,I9>CN 17-1800 IS0>CT YO7,4X,YO3KWJ,LZ1JH>DL  
LZ1>OH2 YO5>F 4X>CN YO2,S55ZRS,I7>PA I9>EA7,OH2 YO3KWJ,I8,9A>DL S5>RN6 CN>LY  
9A>OK1 F>HA7 I0>EA7 UN6P>SM5CEU I5>SP6 UU5SIX>EA7 18-1900 SV2>DL,F,ON,I5,OZ  
T9,LZ2CC>LX UT5G>EA7 7X0AD>LY,F 4X>OH2 YO3KJ>F SV8,I7>DL F5TND,FX4SIX>SP9 19-  
2000 EH1>DL LZ2>PA,LX 7X0AD>LX,PA SV8>SK7,SP6 SV2,CT>PA,SV1,9A G,GW>EA1 LZ2>I8  
EH1>9A EH5>LX SV1SIX>CN OX3VHF>F UT5G>EH3 20-2100 SV1SIX>I0 EH1>F  
CN8MC,CT0SIX,EH4>EI CT1UD>D44TD J79KV>F5JKK,G8BCG,F6FHP JW7SIX>LA,OH2  
JW9SIX>OH2 21-2200 JW7SIX>ES1,LA JW9SIX>ES1 EH5>I1 J79KV>M0BCG CN8MC>I5 22-  
2300 CT0SIX>I5 I5>I1 SV1SIX,SV2>LY

\*\*\*\* 144MHz ES 0904-1057 including UK 0933-1024 (DF5AI)

June 27 0355 YU1EO>HB 0403 YO3KWJ>HB 0442 SV1SIX>SP2 05-0600 OD5SIX>PA,S5  
GB3BUX,GB3IOJ,PI7SIX,ON0SIX>LY PA>5B UR>DL,PA PA>9H UU5SIX,UT5G,5B>SP6  
9A0BH>OZ 4X>S5,LA 06-0700 YO3KWJ,SV8,F,ZA>LY LX0SIX,HB9SIX,ZA,SV5>DL  
SV1SIX>HA1,S5 5B>HA1,9A,SV1 SV1,UR>9A OM3,GB3BUX>SP9 5B4CY>F UR>EH3 SV5>SP6  
07-0800 SV8,YO4>9A 7X0AD>5B I8>I5(sc) I0>I3 OK1>S5 SV2>S5,SP2,SP6, 9A,I4,EH3  
UU5SIX>HA7 ON>YO8 SV1SIX>OZ EH7>7X0AD 5B,YO8>I8 SV8,YO3>OM3 9A>9H 5B>PA,SP6  
ZA>I0,I2 F5TND>EI SV2>DL 4X>SP9 OM3>OK2 LZ5>9A 08-0900 OD5SIX>I1  
LZ2,LZ5,I4,I7,SV8,SV7>DL LY>EH3 YO2>F YO8>9A SV2>I0,I8,SV1 OD>SM2,I5,I9,LY I4>LA  
HB,YO2>I8 HB>YO8 I9>I3 LZ2,YT1>CN T9>HB,9A I1,9A,S5>I0 OK2>I5 4U1ITU>OH2 09-1000  
I4>I0 4X,OD5SIX,SV3>PA OK1,SV7>EA3 I9>SM3,DL I4>OZ LZ2>I3,OZ CU3URA,IK5ZUL>CN  
I7>I3 I3,I9,OM3,SQ5,SP9,YO2>I0 G>EA5 CT3>EA1 T9>I5 UR>ES1 4X>DL YT6,CT,I8>HB  
7X0AD>EI,PA UR>RU3 I0,SV3>S5 SV1SIX>EI OD5SIX>PA OD>EI 10-1100 Z3>DL 4X>EI  
7X0AD>EI,DL,SQ9 UR>SV1 CU3URA,LX,GB3LER>EA7 I0>SP9 OD>I5 4U1ITU>9A OH1>SM5  
5B4CY>ON SP6,OK1>EA5 I8>HB I9,LZ3,SV8>DL I0>SP6,OZ RA3>SM6 SM2,OH9SIX>LY  
OD5SIX>PA 11-1200 5B4CY,EH6,OD5SIX>DL 4U1ITU>9A I4>PA LY>SM3 F>I4 5B>YO5  
7X0AD>OZ,DL,EI ZC4>DL IK5ZUL>EI OH1SIX>LA LA7SIX>OZ OD5SIX>CN

W1JJ,K7BV/1>MM0AMW 12-1300 7X0AD>HB,DL K1SIX>EI7IX,GW3MFY SM7>RU3 I4>EA5  
ZC4>OH2 SV8,ZC4>DL,OH3,SP2,OZ,ES1,SM6 IS0,YU7,S5>PA UR>DL,OK1  
GB3MCB,GB3BAA,ON0SIX>HA7 4X,YO6,OD>DL DL>I2 13-1400  
4U1ITU,I5,ZA,EH5,OD,LZ2,OE6,YO6,T7,I4>DL T7,CT0SIX>EI LA>I0 EH5>RU3 EA3>I2  
OD,SP6>PA SP3>HA7 LY0SIX>F 4U1ITU>SP4 7X0AD>DL,EA7 I5,I6>LA HB>I0 F5TND>9A  
PA>OK1 HB>SP2 14-1500 SM1,T7,4U1ITU>DL I0JX>EA1 SP8,SP9>PA HB>CN,EA5 LY>CN  
F,SP8>I0 FX4SIX>EA3 F,G,OK1>9A I9>EI UR>I2 OH5>DL OZ>HB EH7>SM5 LA,F>OK1 HB>PA  
OH1>HB F,EH3>SM7 15-1600 LX>CN K0GU>PA2V OK2,HB,LY>DL CT,ES1>PA I0,GB3IOJ>EI  
GU>I3 7X0AD>PA EI,GW,OH5>9A F,LA>OK1 OH1>HB,DL,OK1 EH5,SP9,F,I2>SM7 GU,OH5>HB  
OZ>LY UT5G>PA G>EA1 16-1700 EH5>EI,SM7 EH1,F,LY>DL ON>I0 CU3URA>I0,EA7  
UR>ON,DL,SP7,YU1,I1 SP2>EA1 7X0AD>F LY>EA2 GU>I4 LZ2>SM7 S5>F OH0>LZ2  
5N9NDP>HB9CQK YU1,ZA>LY UU5SIX>SP6 17-1800 UR>DL,CN,I8,LX,9A,PA,EA7,OK1,I0  
YO8>OK1,SP7,LX YU1>LA YO4>OZ,OK1 7X0AD>EA5 YU>LA YO7>DL,PA SV2>ES1  
OD5SIX>DL,SP9 LY>I0,9H LZ2>SQ2,PA,I2 GI>I3 F>DL,SP7 GW>9A EH9>SP3 YT1>SP5  
CU3URA>I9 18-1900 LY>LX,DL,F YO6,YO7>PA UR>9H,9A OE6>ER1 LZ2>SP3,SM7  
LZ3,LZ1>DL ES0,OH1,LA,LZ2>9A I9,9H>ES6 7X0AD>OZ GI,EH9>I1 S5>F DL>SV5 OH1>OH3  
ER1>EI J79KV>IK0FTA,DK1MAX,F6FHP,DJ5JK,I8LPR 19-2000 3A,CU3URA>DL,PA  
J79KV>OK1FFD,9A5Y,9A4K,S57MTA, DL8YBR, DL1EAP,EA5AX,IK2EAD F>LA SM7>CN  
GM>I1,I4 YO3KWJ>I5 DL,9A0BHH>EI I8>ON JW7SIX>I0 OD5SIX,SV1SIX>F 7X0AD>DL  
GB3IOJ>I4 I9,EH8>9A SV8>I2 GM>I5,F,I0 K7BV/1>EA7 20-2100 I8>I1,SP3 I9>9A SM7>F  
I5,CN>PA LY0SIX>LX EH1>9A HB9SIX>EI K7BV/1>EA5AX,F6FHP,I4LCK,9A8A LA,CN,PI7SIX>F  
LY,GB3MCB,F>CN W1JJ>EA7RM,9H1XT,9A8A CN,YT1>DL 7X0AD>EA7 G>I0 GM,G>9A  
W1UF,W3EP/1>G0CHE G>4X K1SIX>9A8A 21-2200 K1VW>9A8A  
K1SIX>9A4K,I5MXX,EA7RM,DL8PM K2OVS>G0CHE,9A8A, DL7QY K7BV/1>I5MXX,PA4PA  
K1TEO>9A8A,I5MXX,SV1DH,DL7QY,G0CHE W3EP/1>9A8A 5B>9A K1TOL>EA5FX  
SV1SIX,4X,F>EI VP9/W3CMP>S57RR ES0>F W1JJ>9A4K,4Z5LA,PA4PA  
K2LZQ>9A8A,DL7QY,G0CHE,DL8PM WA1OJB>EA7RM NT1Y>9A8A W1FC>G0CHE,PA4PA 22-  
2300 4X,5B>9A K1SIX>7X0AD,EA7RM N1BUG>9A8A K2LZQ>DL8PM NT1Y>ON4LN  
K7BV/1>7X0AD OK1>PA 9H>7X0AD 9Y4AT>CT1EEB 23-2400 K7BV/1>DL8PM

\*\*\*\* 144MHz Es 0819-1108 1314-1644 (DF5AI)

June 28 0507\_OE6>EH3 06-0700 7X0AD>OZ,DL SV1SIX>S5 9H1SIX>OZ 07-0800 IS0>OZ  
F,PI7SIX,OX7IGY>I8 7X0AD>DL,PA,SP1,F 9H>OM3 08-0900  
YU6,SR9FHA,I0JX,CU3URA,OD5SIX,7X2RO>F 7X0AD>F,PA G,I9>9A LY0SIX>I8 EH5>S5 F>I8  
EH7>S5,OE5 CN8MC>OE5 G>I0,I8 09-1000 7X2RO>DL,OE5,SP2,HB OD5SIX,5B>EA7  
EH7,EH2>DL 4X,CU3URA>F F>I0 EH6>SP1,PA 10-1100 UR>OZ CT>OE6,EI,PA I0,I9,CN>F  
G>EA5 J79KV>F5JJK,IK2GSO EH4>I5 11-1200 J79KV>5B4FL CN8MC,EH7>PA CU3URA>I2  
EH7>DL CN>EA3 12-1300 J79KV>7X0AD,5B4FL,9H1XT CU3URA>F OH8>PA  
LX0SIX,S55ZRS>CN 7X0AD>F 3A>I0,I5 13-1400 GU>F ZB2>9H,I9 9Y4AT>F6KHM CN>I9  
UR>I8,I5 14-1500 7X0AD>CT,I8 3A>LZ3 SV1SIX,I9>OE6 LZ2CC>I5,EA5 I0JX,IK5ZUL>F I0>I5  
IZ1EPM>EI 15-1600 UT5G>I0,I4 UR,5B4CY>OH5 OZ7IGY,SM0>F EH1>OZ SV1SIX>EI,I5,ON,  
SP5,OE5 OH9SIX>RU3 16-1700 SV1>I5,EI,OE6,I0,I3 UU5SIX>OE6 LZ2CC>I0 Z3>I5,I1,EI  
OH1SIX>RU3 LX>EI GB3LER,GB3RMK>F SV8>I5 I7>PA 4X>9A 17-1800 4X>I9 9H1SIX>OE5  
F>OZ GM>F,I4,EA7 SV8>EI,I1 OH9SIX>LY YO7>SM7 I3,UR,EI>9A F>LA I2,GB3LER>I5  
ZC4>SP9,DL ON,PI7SIX>EI SV2,I8>DL J79KV>F5JJK,G0JL,DL3DXX,DF3CB,IK5EKV,ON4IQ  
YT1>F LA7SIX>ES6 7X0AD>9A SV2>IS0 SV1SIX>ON 18-1900  
J79KV>DJ8QP,F6HRP,9A5AEI,PH7A,F6FHP,DJ3TF,DJ6MB,G0JL,F5HRY,DH6JL,9A4K,F6KHM  
UR>I9 4U1ITU,CU3,EI,GB3MCB>DL HI3TEJ>G0JHC OH9SIX>LY GB3LER>LA I9>PA TA2>9A,EI  
19-2000 F,EI,GJ>DL LX,SV1,F>EI J79KV>9A4K,9A5AEI,F5GTR CU3,GJ>PA G>9H,DL,9A  
SV1SIX>DL,EI TA2>HB CT>OK2,DL I6>4X SQ9>I9 YO3KWJ,UR>CN EI>9A,LA PA>F  
CU3URA>PA,I2 9Y4AT>DL3DXX,G4IGO LX,S5>CT 20-2100 EH8>LA EI>9A 9A>SP3  
FX4SIX,GM>EI J79KV>EA5RM,IK3OCD,DL3DXX, SP3RNZ,CT1EPC, G3IBI,DL9USA,PA2DB  
EI,SV1SIX>I0 CU3URA>LA G>HB EI>DL DL>CT EI>DL,EA5 9Y4AT>G8BCG OZ>EA1

VE8BY>G4PCI KA9CFD>EA7RM OY6SMC>EI YU1EO>EA5 7X0AD>EA7 21-2200  
CU3URA>EA7,F,DL ON>LX CT>9A CN8MC>F W1JJ>GM0EFT VE8BY>G4PCI HI3TEJ>DL8YHR  
OY6SMC,TF3SIX,GB3LER>EI LZ2CC,YO7,9A0BHH,LZ1JH>F J79KV>ON6ZK VO1ZA>ON4KST  
N1RAM>G8BCG KA9CFD>7X0AD T9>F,ON TF3SIX>LA I0JX>DL CT3>PA 7X0AD>SP9 22-2300  
CU3URA>PA,I1 4N,LZ2CC>F N1RAM>7X0AD CT0SIX>EI SV1SIX>I1 2316 OY6SMC>LA

June 29 00-0100 I0JX,IK5ZUL,IQ4AD>EI 0306 S55ZRS>OE6 0446 UU5SIX>OH5 05-0600  
OD5SIX(2x),5B4CY(2x)>OH5 OH9SIX>ON UU5SIX>9A 06-0700 UR>SP7,9A LY0SIX>SP6  
OH7,OH3(ms)>OH5 OH9SIX>DL UU5SIX>RU3 CN8MC>EI  
GB3LER,GB3MCB,GB3IOJ,GB3BUX,GB3BAA,GB3RMK>EA7 OH1>YO8 07-0800 UR>I7,PA G>I0  
GM>DL UT5G>PA IQ4AD,OZ7IGY,HB9SIX, ES0,LY0SIX>EI SV1SIX>SP6 GB3MCB>CN  
LZ1>RU3 08-0900 UT5G>RU3 SP6,OH9SIX>SP9 LZ2>OZ UU5SIX>DL,PA GM>DL T7>SQ2  
5B4CY>OZ SM7,LZ1,YO4,YO7,Z3>PA TA2>I0,DL,9H 4X>OH5,SP9 UR>I5,9A 09-1000  
YO3KWJ>OZ,RU3 SM7>PA SM5,Z3>SP6 YO4,LZ2>SM7 UR>I1,SP7,SP2,DL,9A  
LY0SIX>9A,OH5,OD>I0 UT5G>ON OD>OZ OD5SIX>DL 9A>LY 10-1100 UR>DL,OE6  
OD5SIX>HA1,OZ SR5SIX>HA1,I0 LZ2CC>DL,SM7 I7>LA 3A>9H Z3>OZ I0>OH5 SM5,UR>SP6  
OM3>I0 G>OE5 VO1AU>F5JJK YO3KWJ>DL,SP9 CT>I0 UT5G>OE6,I2 YO4>DL  
HV0>I0,EA7,ES1,EA5 LY>I8 11-1200 HV0>SP9,DL,ES1 VO1AU>9H1RV,9H1TX  
VP9/W3CMP>I0,HV UR>I1,HB,PA 4X>SP6 ES0>I0 J79KV,LX>5B4FL GD>EA7,SP9 YU1EO>DL  
SV2>PA ZB2>I8 12-1300 VY2ZM>G3FPQ UR>9A,I2,I5,DL HV0>OZ,I5,DL,CN,SQ3 OD5SIX>CN  
OZ6VHF>LZ3 IZ1EPM>YO8 VO1ZA>MM0AMW VP9/W3CMP>F5JJK, MM0AMW OZ7IGY>I8  
LZ2CC>CN YO9,LZ1>OZ LY>SV1 YO7>SP9 13-1400 GD>EA5 DL>I9 CN8MC>I0 EH7>I5 I9>OZ  
14-1500 OK1,OH7>SM5 UT5G>DL 15-1600 PA>ES1 16-1700 C3>EA3,EA5 UR>DL,ON  
OH1>OE6,DL SM5>9A OH3,OH1,YL2>I5 UU5SIX>SP6 17-1800 UR>OE6,S5,PA,9A  
OH5,ES0>I5,9A,EI OH5,ES6>9A TF3SIX>EI ES6>DL CT3>EA7 S5>9H I0>OH5 18-1900  
UT5G,YU1EO,OH5,OD5SIX>DL DL,S5>9H UR>HB,9A,PA CT3>EA7 I0>OH5,OZ OH5>9A  
SV1SIX,GB3LER>SP6 LZ2>SP1,DL,EA3 SV2>ES1 9A>OZ OD5SIX>SP9 ES0>9A,F,DL  
YO7>EA3 ON>LY OH3>I6 G>SP5 19-2000 CN8MC>I0 LA>9A 20-2100 GI>SP6,YU1  
GB3MCB,EI>DL GB3LER>I2,I0 IZ1EPM>PA GM>I5 CU3URA>I0 21-2200  
J79KV>G0FYD,IK0FTA,I0WTD, IK5YJY GD>YU1 I0,EH7>I1 2227 CU3>CT

June 30 0118 GB3LER>DL 0218 GB3LER>F 05-0600 OE3XLB>S5 UT5G>SP3  
LY0SIX,OH1SIX,OH3>RU3 CN8MC>I2 06-0700 SM5,OH3>RU3 UT5G>9H RU3>SM7,DL  
UU5SIX>SP6 UR>OZ 5B>SP3 07-0800 UR>SP1,SP3,SP5, OH5,OZ SV8>SP5  
OH8>SP5,SP6,9A,I5 SP3,SP6,SP5>OH5 OD5SIX>EH3 OH3>9A SR5SIX,SP6>RU3 OH5>OK1  
OH9SIX,OH5RAC>SP9 08-0900 4L7AZ>5B UR>SM2,OZ,I0 JF6EXY>IW0GPN YO3KWJ>DL,OE6  
YO9>OE6 ES3,ES0,SP3,SP6,SP9,DL>RU3 UT5G>I1,9A OH5>YO8 I8>HB 09-1000 S5>OE6  
SV1SIX,S5>OE5 UR3>DL,I5 OH8>YO8,I0 CT3>EA7 OH8>9A DL,UU5SIX>RU3 10-1100  
CT3,EH7>I7 EH7>9A CT3>OE6,I0,HB,I4 9H1SIX>DL EH9>I0 GB3LER>OH5 7X0AD>OH5,DL  
9H,S5>EA5 11-1200 7X0AD>I5 CN8MC>SV1 12-1300 CT0SIX>I5 5B4CY>SP9 EH9>F,I5  
CN8MC>I1 SV1SIX>EH3>I8 OD5SIC>I0 LX0SIX>CN 13-1400 SV1SIX>I5 YO3KWJ>I9  
UU5SIX>RU3 I0,UR,YU1>I9 I9>I5 LX0SIX>DL(t) 14-1500 SV1SIX>DL YO3KWJ>I0,I5 SV1>OE5  
15-1600 UT5G>OZ F,GI>9A F,SM7,OH9SIX>RU3 EH3>I5 16-1700 SR5FHA>OH5 LA>ER1  
GB3BUX>OE6 UR>PA,LX OZ>YO8 SV1SIX>EA3 LY,OH3>I5 OH5RAC>9A OZ7IGY>RU3  
ES0>S5 9H>CT I0JX>CN CT3>I0 CN8MC>LY 18-1900 CT3>I0 PA>OH5,ES1 SV1SIX>DL  
CN>9H,S5 IZ1EPM,SV1SIX(2x)>EI G>EA5 YU1>PA EH9>9H 19-2000 CN8MC>I0  
UU5SIX,OH4>OH5 2231 GB3LER>F

## 50MHz PROPAGATION REPORT FOR JUNE 2004 BY SV1DH

1. Data for all days (30)
2. Relatively good days on: 4,5,11,14,18,23-28(+)
3. 48 MHz AF video (3C or 5Z) on: 2 (R=3%)
4. 55 MHz AF video (5N) on: NIL
5. Opening to ST on: 14(2Es)
6. " to SU on: 18
7. " to 7X on: 21,24-28
8. " to CN on: 25,26,28,30(2Es)
9. " to CT3 on: 5(2Es)
10. " to W on: 27(+)
11. " to VE on: 24
12. " to J7 on: 25,28 (8500Km NEs) 228<sup>th</sup> DXCC entity wkd
13. " to 4X on: 2,4,5 (KL79),12,13,18,21,26,29,30
14. " to OD on: 2,4,5,9,12,13,17,18,26,30
15. " to 5B on: 2,4,5,9,12,13,18,26,30
16. " to ZC4 on: 18
17. " to A6 on: 2,4,18 (2Es)
18. " to JA on: 23 (07z-NEs)
19. " to CU on: 14(1400-1715!),26,27,28,29(3Es)
20. " to CT on: 14,26(2Es)
21. " to EH on: 4,11,14,22,24-30
22. " to EH6 on: 1,4,26
23. " to F on: 4,5,10,11,12,14,15,22-28,30
24. " to 3A on: 24,27-29
25. " to I on: 1,2,4,5,6,11,12,14,17,18,21,23-30 (R=63%)
26. " to HV on: 5
27. " to 9H on: 21,26,29
28. " to IS on: 24,26,27,29
29. " to EI on: 11,14,23,24,27,28,30(2Es)
30. " to GI on: 24,27,28(2Es)
31. " to GM on: 11,23,26,27(2Es)
32. " to GW on: 5,27
33. " to G on: 1,4,5,11,14,23-28
34. " to GU on: 14
35. " to PA on: 4,5,6,14,15,16,23-29
36. " to ON on: 5,11,23-28
37. " to LX on: 23-28
38. " to OZ on: 1,9,23-29
39. " to DL on: 1,4,5,9,11,12,14,15,16,23-29
40. " to OE on: 4,5,11,14,23,24,27-30
41. " to HB on: 13,14,18,23,24,27,28
42. " to 4U on: 5
43. " to S5 on: 4,5,11,14,23-25,27,28,30
44. " to 9A on: 4,5,11,14,18,23-25,27,28
45. " to T9 on: 4,11,24
46. " to YU on: 11,24
47. " to SM on: 9,14,23,27,29,30
48. " to LA on: 14,24(2Es)
49. " to OH on: 10,14,24,28,29(1+2Es)
50. " to LY on: 4,26,27-29
51. " to SP on: 1,3,4,5,6,9,12,14,15,16,23-30 (R=60%)

- 52. " to OK on: 5,16,23-28
- 53. " to OM on: 26,27-29
- 54. " to YO on: 4,27,28
- 55. " to ER on: 4
- 56. " to LZ on: 4
- 57. " to UA on: 22-27
- 58. " to UR on: 1,4,5,14,15,19,23,26-29
- 59. " to SV/A on: 27(T)

60. Special events on:

- 1 (1430 DL+OZ to A4 3Es)
- 6 (0715 EH7 to CU early)
- 10 (1630 F to W1)
- 11 (1545 C.EU to ST 3Es?)
- 13 (1156M1.0 flare)
- 14 (1530 G to ST 3Es)
- 15 (1615-1800 N.EU to W+VE strong opening)
- 19 (0945 G to VO+TF early)
- 21 (1530 5B to CU 3Es)
- 23 (0545-0700 UR+5B+9H+SV to JA NEs?+0645-0715 OH+ES to JA)
- 24 (0415-0425 + 0530-0545 5B to JA+0645 UR to JA)
- 25 (0445 YA to JA)
- 26 (0440-0530 YA to JA + 0455+0530 5B to JA+ 0715 EI to CU early!+2030-2145 F+I+G to J7)
- 27 (0600 JA to W7 +0845-0930 SV1 to F+DL on 2m+1830-2000 I+9A+S5+DL+G to J7 strong)
- 28 (0815 F to CU early+1030-1230 F+9H+I+5B to J7 at >9500Km +1745-2045 all EU to J7)
- 29 (1130 5B to J7 short+1100-1130 9H to VE+W)
- 30 (0645-0700 5B to JA+0745-0800 SP to JA+ 0800-0815 5B+I0 to JA )

61. DXCC entities heard/worked during June 2004 : 55! on 4 cont

62. DXCC entities heard/worked on 28th June 2004 : 27 on 3 cont.

## The Americas

### Auroral-Related Propagation

June 1 0427 VE4ARM>W9(51a EN44) 08-0900 VE4ARM>W9(EN44 55a) VE4VHF>W9(EN444 55a)

June 7 22-2300 K0KP>W9(EN44 55a) VE4ARM>W9(EN44 53a) 23-2400 W0>W9(EN44 52a)  
W8(EN82)>W9(EN44 41a) W8>W1(53a)

June 8 00-0100 K0KP>W9(EN44 53a)

June 15 06-0700 K0KP>W9(55a EN44) N8PUM>W9(EN44 51a) N0UD>K9MU(EN44 52a)

June 29 01-0200 N8PUM>W9(EN44 51a) K0KP>W9(EN44 54a) VE4ARM>W9(EN44 52a) 05-0600  
N8PUM>VE6(DO33 539a) W9(EN44)>VE6(DO33 53a) N0UD>VE6(DO33 55a)  
W8(EN66)>VE6(DO33 57a) WZ8D>VE6(DO33)

### Other Modes

Even more than in Europe, reports overwhelmingly involve sporadic-E. The detailed listings look sparse, partly because multiple contacts between two call areas are given only once for any hour and partly because many North American operators are less disposed to report routine 'not dx' contacts, which W-W contacts usually are. However, the imbalance between Europeans and North Americans in signalling trans-Atlantic openings suggests a more general reticence. (There are, of course, many exceptions to this generalization.)

That said, there appear to have been relatively few coast-to-coast contacts, and early morning or late evening (local) openings also appear sparse. However, openings to the Caribbean and Central America, often requiring multiple-hop Es, were relatively common. On occasion, multihop, rather than F2, made possible contacts with the northern fringe of South America: FY (into W4 on the 9<sup>th</sup> and 11<sup>th</sup> and W0 on the 21<sup>st</sup>), YV (with W4 on the 10<sup>th</sup>) PZ with W4 and W0 on the 10<sup>th</sup> and W1 on the 30<sup>th</sup>, and HK (W3 on the 21<sup>st</sup>). There were no reports of contacts further south. As in Europe, reports were scanty in the early part of the month

The highlight of the month was an opening between JA and the western states late in the evening of the 26<sup>th</sup> (Pacific Standard Time) in which the K6FV beacon was heard in Japan, suggesting a strong, though possibly only brief, opening. There were also several good openings from KL7 to states south of the 49<sup>th</sup> parallel, though none penetrated further than the midwest.

June 1 00-0100 N0LL>W2 W0>W4 01-0200 W0>W4 W4>W8 1415 W8>W4 16-1700 W8>W4 17-1800 W0>W4 2317 48250(EA)>W2

June 2 1352 W1>W3 2330 W4>W4

June 3 0316 W6>W7 1326 W9>W4 19-2000 W7>W6 W9>W9 W6>W0

June 4 02-0300 W1,W7>W5 15-1600 KD4HLG>W0 WA7X>VE6(ms) 16-1700 W0>W3 17-1800 E7>W6 18-1900 W3>W8(ms) 19-2000 W1>W1

June 5 1047 W4>W1 1334 W4>W4 1605 W0>W3 17-1800 W0>W3 K8PLF,W9VW>W0 18-1900 W0>W4 W3>W0 W2>W4 W4,W9,W2>W1 W4>W3 19-2000 W4,W1>W1 WR9L>W0 VE4VHF,W4>W3 K4AHO>W2 21-2200 W3>W1 22-2300 W5>W4

June 6 00-0100 W0>W5 W4>W4 01-0200 W5>W5 02-0300 W7>W5 W2>W8 04-0500 W6>W7 W5>W5 W6>W6 1116 W2>W4 12-1300 W2>W4 W5,W4>W1 13-1400 W1>W8,W4,W3 W4>W5 14-1500 N8PUM,K0KP,VE3UBL>VE6 W1>W1(sc) W4,C6AFP,CO2OJ>W5 W4>W4 VE6>VE6 15-1600 W0>W4 W9>W8 W4>W5 N0UD,WA7X,N0LL>VE6 C6AFP>W5 W5>W9 XE1>W3 16-1700 W5,W0>W9 W4,W8>W5 TI2ALF,TI2NA>W4,W9,W1 W4>W1 17-1800 K4AHO,W4CHA,W1>W1 KQ4E,W9>W5 W4>W4 18-1900 W4,W9>W0 W6,W5>W4,W9 1908 W9>W0 20-2100 YS1YS>W1 21-2200 W4(bs),TI2NA>W4 22-2300 W2>W1 W3>W3 TI2NA>W4 W7>W5 W5RP>W9 23-2400 W3>W1,W3 W4>W4 N8PUM>VE6(ms) W4,W5>W5

June 7 00-0100 E5>W5 0329 W9>W8 0424 KL7NO>KE7V 0617 VE7FG>KL1SE 0926 VA2MGL>W2(early) 13-1400 N0UD>VE6 VE3UBL,W2>W4 W4,W1>W1 W4>W3 14-1500 VE3,W3HH>W4 W4>W2 15-1600 W4>W2,W3,W4 W0>W4 W3>W5 W1>W3 16-1700 WB5LLI>W4 K5AB>W3 W6>W0 W0>W5 17-1800 K0EC,W3>W0 W5>W9 18-1900 W8>W5 K4KWK>W0 W5>W3 19-2000 W0>W3 W0MTK>W8 21-2200 W7>W9 22-2300 W7>W9

June 8 0834 48250>W2 1239 W1>W3 13-1400 W2>W0 W4>W5,W0 W9,W5GPM,W7,VE3>W4 W4CHA>W3 K4AHO>W2 K6LL>W4 KD4HLG,W1>W1 14-1500 W4,K5AB,W9>W4 W9>W9 VE3>W0 1543 WB5LLI>W3 1848 CO8LY>W4 2156 W4>W5 2259 VE7>VE7 2323 W6>W6

June 9 0117-9 ZF2BI>W0 W4>W5 02-0300 VE7FG>VE6 W1>VE9 1249 W5>W3 13-1400 W1>W1 W4>W4 W0>W5 14-1500 W8,W9,W0>W5 15-1600 W0>W4,W5 W5>W5,W8 VE1SMU>W1 16-1700 W0IJR>W4 N0LL,WR9L>W5 VP9GE>W8 C6AFP>W3 17-1800 W1>W8 20-2100 W5>W5 W7>W0 22-2300 9Z4BM>N3DB,K7BV/1,W3UR,K4RX PJ2BVU>K7BV/1 23-2400 9Y4AT>K4EA,K1GUN,N4FV,N4JF,W4SO PJ2BVU>W4SO,AK3E,K4EA,K4RX FY7THF>W4SO KP4>W4 P43JB>N3DB,W4SO FY1FL>K4RX

June 10 00-0100 W4CHA>W1 ZF2BI>K7BV/1,WQ5W K4AHO>W1,W3 W5GPM,K0UO,C6AFP>W2 9Y4AT>AK3E W3,KP4,W0>W3 W8>W9 VP9GE>NW5E/4 01-0200 W0>W3 W0>W2 KA7BGR>W3 9Y4AT>K5NZ W1>W0 W7,W0>W7 02-0300 N0LL,K0EC>W3 KA7BGR>W0 W7,VE6>W6 W0MTK>W0 W6>W3,W8 XE2>W8 K0KP,N0UD,XE2,W6,W8>W5 XE1KK>VE6 W0IJR>W6 W0>W4 03-0400 W4,W0,K5AB>W6 XE2>W0 W6,W0>W3 W3,W7>W5 W0>W7 WB5LLI.,KD4NMI,W5GPM>W3 K0ETC>W8 W5>W9 W7>W6 04-0500 XE2ED>W5 W5>XE2 12-1300 9Y4AT>N4GM HI3TEJ>NL7AU/4,N4GM V44KAJ>NL7AU/4 WP4NEG,WP4NIX>YV1DIG KP4>W4 1448 KA7BGR>W7 15-1600 48242(CT)>W4 VE2YAT>W3 9Y4AT>N3DB,W3UR VE9>W9 16-1700 NP3S>W4 VE1>W4 1954 KA7BGR>W0 20-2100 W6>W0 22-2300 KP4>W4 V31MD>K4RX,K4JAF,N5UXT,WB4TJO PZ5RA>K4RX,K4JAF,N0JK,NL7AU/4 PJ2>KP4 HI3TEJ>K4RX,K4JAF,NW5E/4 KP2>W4 V44KAJ>K4RX 23-2400 KP4>W4 9Y4AT>K4RX HI3TEJ>W4SO W0>W7 NA6DF>W0 FM5WD>W4SO W0>W2 9Z4FZ>W4SO W0>W3,W2 YV5OHW>NW5E/4

June 11 00-0100 W0,W6>W2 KP2>W4 W0>W7 TG9NX,FY1FL>W4SO FM5WD>NL7AU/4 W2>W9 W7>W6,VE3,W1 W0,W6>W3 01-0200 W7,W0,W5,W8>W8 W5,W0>W3 VE3>W5 W7>W7 W6>W1 W0>W2,W1,W9 N0LL,W0IJR>W8 02-0300 W9,VE4>W4 W0>W8,W9,W2 W9>W6 W7>W9,W3,W2,W1 W4>W7 W1>W0 K0UO,VE4VHF,K0KP>W3 03-0400 W0>W3,W2,W1 W9,N0LL>W8 W6>W9,W1,W3 W7>W2,W4,W3 VE3>W6 W9>W7 04-0500 W9>W7 VE7>W4 W3>W1 W0IJR,N0LL>W8 W7>W9

June 11 12-1300 K0UO>W4 13-1400 W4>W5 N0LL>W9,W5 ZF2BI>K4SX,AB4GG 14-1500 W5>W4 N0LL>W2 WP4NEG>W0 W0>W3 15-1600 W0>W2 W7>W0 W4>W5 21-2200 W1>W8 2355 W0>W8

June 12 00-0100 W7>W7,W9 W0>W0,W9 VE3>VE3 01-0200 W6,W7,W0IJR>W8 N8PUM,VE6>W0 W0>W4,W9 VE6>VE6,W4 W6>W2 02-0300 W6>W8 W5,VE6,W0,WA7X>VE6 W7>W3,W2,W7 VE6,K6FV,N7LT>W9 W0>W1,VE6,W5 W9>W4 03-0400 NA6DF>W0 W7,W8,W0,VE4>W1 K6FV,W7,W0,W5>VE6 W7,XE3>W7 W8>W8 W6>W4 W2>W7 04-0500 W6,VE6>VE6 W2>W2 W6,K0KP>W1 VE7FG>W7 05-0600 W9AFB,K0GUV>W3 GB3MCB>N9YBX(??) 1200 W4>W4 1321 W4>W4 14-1500 XE2>W7 15-1600 W7,W0MTK,K0EC,W9>VE6 16-1700 W8>VE6 VE5,W7>W8 W7,K0KP>W0 17-1800 W0>W8 W5>W5 18-1900 W1,W2>W1 W8>W9 W7>W4 W5>W5 VE6,W0>W7 W6>W6 19-2000 W0>W7 W5>W5,W8 VE5>W8 W8>W0 W4>W5 W7>W6 20-2100 W5>W8 W4>W4,W5 W5>W5 VE7>W6 W1>W1 21-2200 W1>W1 W7>W6 W0>W5 W7>W9 22-2300 W2,W5,W0>W4 W4,W5,W6,W8,W9>W5 W8,W2,W9>W1 W2>W2 W4>W3 ZF1DC>W3,W4 W7>W7 23-2400 W5,W6,W7,W0>W7 W6,W7,W0>W4 W8>W3,W5,W9 W2,W3,W8>W1 ZF1DC>W4 W0>W6 W2>W0

June 13 00-0100 W7>W6,W7 XE2>W7 W0>W4,W6 W4,W5,W6,W7,W9,W0>W9 ZF1DC>W4,W9,W0 W5>W8,W4 W2>W2 W0>W5 W1>W1 01-0200 W0>W5,W6,W8,W0 W6,XE2>W7 W1>W1 W4,W5,W0>W6 W6,W7>W4 W8>W8 ZF1DC>W4,W0 XE2>W5 W7>W0,W5 02-0300 W0,W7>W8 XE2>W5 W1>W1 W7,W8>W7 W6,W7>W0 03-0400 W8,W9>W8 VE6>VE6 W5>W5,W6 04-0500 W8>W3,W8 W3>W3 W6,W7>W6 05-0600 W2>W9 11-1200 W1,W2>W1 W3>W0,W8 12-1300 W2>W2 W1,W4,W8>W8 W0,W4>W5 13-1400 W1,W2>W2 W4>W1,W4 W6,W8,W9>W5 W2,W9>W4 ZF1DC>W4 W4>W5 T49C>W4,W8 14-1500 W4>W1,W4 ZF1DC>W4 W5>W4,W5 W3,FM5WD>W2 W7,W8,W0>W9 15-1600 T49C>W5 W4>W3 ZF1DC>W4 W0>W6,VE6 16-1700 W5>W4 W6,W7,W0>VE6 W2>W1 ZF1DC>W4,W5 W4>W3,W9 17-1800 VE6,W0>W7 W4>W3 W3>W1 W0>VE6 18-1900 W2,W3>W1 W0>W7,VE6 W2>W0 VE5>W7 W3>W3 XE2>W5 19-2000 W2>W2 W6>W6 W7>W6,W0,VE6 W1,W3>W1 VE5>W7 W0>W5 20-2100 W1,W2>W1 W0>W4 W5>W0 W8>W8 VE5>W7 21-2200 W1,W2,W3>W1 W2>W2 W7>W7 4C2X,W6>W6 22-2300 W8>W8 W5>W5 23-2400 W6>W6 W2>VE3 W3>W3 W5>W9

June 14 00-0100 W6>W5 W0>W9 01-0200 W8>W9 VE6>VE6 W8>W3 W6>W6 02-0300 VE6,W0>W7 W6,W0>VE6 W3,W8>W3 12-1300 W9>W9 13-1400 EA tv>W4,W1 14-1500 VO1ZA>W1 W3VD>W4 22-2300 OX3VHF>VE1 VE8BY>VE1,W1

June 15 0110 K0UO>W4 1511 W3>W1 16-1700 K9KNW/C6A>W3 C6AFP>W3 W1>VE1 17-1800 W3VD>W4 VP9GE>W8 W4CHA>W2,W1 W1>W1 18-1900 W4>W1 OZ4VV>K4RX DF9OX>NT1Y 19-2000 ON4IQ>K4RX 20-2100 VE1>W8 VE9>VY2 W3>W0 W4CHA,K4AHO>W4 K5AB,KE4SIX>W3 W2>W5 W3>W3 21-2200 W3>W0 W8>W4 W1>W5 W5>W8 KD4HLG,W5>W1 W3>W0 22-2300 K4TQR>W1 W4>W5 23-2400 W9>W0 VE8BY>VE1

June 16 00-0100 W6>W0 W7>W5 03-0400 N0UD,VE3,VE4,N8PUM,VE8BY,K6FV>VE6 VE6EMU>W9 1202 EA tv>W4 1540 W4>W5 16-1700 K5AB>W4 W4>W0 W4>W5 17-1800 9Y4AT>W1 W4CHA>W5 18-1900 V44KAI,FY7THF,9Y4AT,KP4EIT>NW5E/4 19-2000 FY7THF>N3DB 9Y4AT>K7BV/1

June 17 02-0300 K0KP>VE6 W8>VE9 1220 W1>W4

June 18 0115 W4>VE9 02-0300 W8>W8 W3,W0>W3 13-1400 W5,W1>W1 W8>W4 15-1600 VE4VHF>W2 NOLL>W3 1626 W4>W3 W0>W2 17-1800 WB8OST>W0 23-2400 W7,VE7>W6

June 19 00-0100 WB5LLI>W3 KD4HLG,K4KWK,K4AHO,W4CHA>W0 W5>W3,W4 01-0200 W5>W4 W4CHA>W0 C6AFP>W0 W5RP>W9 02-0300 W4>W5 03-0400 K6FV>W0 W4>W5 04-0500 C6AFP>W0 1023 48242,48250(EA)>W2 12-1300 KP4,W5,CO2OJ>W4 W5>W8 13-1400 KP4,V44KAI>W4 CO2OJ>W4,W5 HI8ROX>NW5E/4 14-1500 HI3TEJ>W4DTA W5>W8 W4>W5 W7>W0,W5 CO2OJ>W0 K5SW>HI8ROX K5UIC>HI3TEJ HI8ROX>K4RX,K5CM 15-1600 W5>W0 HI8ROX>K4RX,N0JK W0>W4 W7>W3 W5>W8 16-1700 K0KP,VE6EMU>W0 W9>W9 W5>W6 17-1800 XE2ED,K6FV>W0 W6>W3,W5,W0,W4(2xEs) W7>W3 W5>W8 W9>W7 18-1900 W8,XE2ED>W7 K4KWK,K6FV>W0 W6,W8>W4 W6>W3 W1>W1 W0>W5 W8>W6 19-2000 W0MTK>W6 VE4VHF,WR9L,W8>W0 W6>W8,W9 W4>W1 20-2100 W6,W8>W6 W7,W0>W0 W3>W3 W5>W8 KD4HLG>W0 W5>W1 21-2200 W5>W1,W9 W7,W0>W9 W5>W3 W7>W4 22-2300 TF3SIX>W1JJ OY6SMC>K1MS Latv>W0 W0>W8,W6 LA4SI>K1MS 23-2400 HI3TEJ>KU8E,K4RX,K4DY,W7 W0,W5>W3 C6ANU>W3 W2>VY2,VE9 W5,W7>W4 K5AB>W8

June 20 00-0100 UA0tv(49750)>W0 OX3VHF>W3 W0>W4 W2,W5,W4>W3 W5>W8,W0 VE2YAT>W2,W8 VA2MGL,VE1>W8 W2>VE9 VO1>W8 01-0200 N8PUM,W5,W9,W0>W4 VE5>W4,W5 VE9>W8 VE7FG,W9,N0UD,K0KP>W0 W0,W4,W5>W3 W5,W9>W9 W7>W0,W4 02-0300 W5>VE1,W3,VE9 W4>W4,W5,VE9 W5,W9>W5 W7,VE4SPT,VE1>W0 W0>W8,W5 K0KP>W2 W7>W9 03-0400 W9,W5>W5 K5AB,W5RP>W9 W5>W4,W1 04-0500 W5>W6(2xEs),W4 K0KP>W5 XE2,VE4SPT>W9 W0>W6 WR9L>VE5 05-0600 W0>W0,W3,W9 0712 W0>W0 12-1300 W1>W8 13-1400 W9AFB>W4 VE7FG>W5 14-1500 W7>W0 48260>W4 VE5UF>W5 W7>W7,W8 W1>W0 VE4VHF,OX3VHF>W2 VO1>W3 W0>VE6 CO2OJ>W0 15-1600 FP5BU>W2 W6,W7>VE6 K0KP>W1 W1>W6(2x) W3HH,W9>W5 VE7FG>W7 VE2RCS>W0 W5>W8 VE4VHF>W3 WR9L>W2 VE1,VE2>W9 CO2OJ>W0 W0>W3,W6 16-1700 W6,W7,W9,W0,VE7>W1 W5>W9 W7>W7 W4>W6 W5,W8>W8 W9>W0 XE2,XE1>W4 17-1800 W5>W3,W4,W8,W0 XE1>W8 K4AHO,W7,W9>W1 W6>W1,W6 W0>W6,W0 HI3TEJ>K4CIA,WA4NFO,WA0ROI VE8BY>VE6 W6>W4 18-1900 W4,W7>W1 W1>W0 W5,W8>W8 HI3TEJ>WN0L,K9APW,KO4YC W0>W6,W7 W6,W7>W4 W4>W0,W5,W6 W5,W8>W3 VE7>W7 19-2000 HI3TEJ>W0VX,W8UV,W9GM W1>W1 W0>W6 W6,W7>W4 W7>W9 9Y4AT>K0HA 20-2100 FM5WD>K0HA,K4CY V44KAI>K0HA W5>W3,W8 9Y4AT>K0HA,K4CY,WN0L K8UK,KD4HLG,W4CHA,KE4SIX,K0KP,W5>W5 W1>W0 CO2OJ>K4CY,K0HA,W3LPL HI8ROX>K0HA IW5DHN>W7(eme) 21-2200 FM5WD>W4GF,K0HA,K4RX,W4SO CO8DM>W4GF,K0HA,W7GJ,AK3E T12NA>K0HA KP4,W1>W0 FM5WD>K0HA,K4RX,W4SO CO2OJ>K9MU W9,W0>W9 W5>W2,W3,W8 KP4,W7>W4 9Z4BM>K0HA HI8ROX>K0HA 9Y4AT>K0HA 22-2300 9Y4AT>K4RX,HI8ROX V44KAI>K4RX KP4>W4,W0 ZF1DC>K4CY,K0HA

CO8DM,9Z4BM>K0HA C6AFP>K0HA FG1GW>K4RX,HI8ROX 9Z4BM>HI8ROX  
FM5WD>K4CY,N0RQ KP4,W4>W4 CO2OJ>K0HA 23-2400 K5AB>W3 ZF1DC>K4RX  
V44KAJ>K4RX,W4SO W4>W4 9Y4AT>K0HA CO2OJ>N4TKD,K0HA ZF1DF>KO4BB

June 21 W3>W0 W5,W1,K0KP>W2 W5HN>W4 C6AFP>K0HA W4>W9 W5>W1,W3 01-0200  
W1,W4,W5>W1,W0 W7>W9 W4,W0>VE6 VE4VHF,VE4SPT,WR9L>W0 W4,W7>W2  
W5,W0IJR(2xEs),W9>W3 W8>W5 W7>W4 02-0300 C6AFP>K0AHO W5RP>W4 W5>W3,VE3,W8  
W4CHA>W0 0328 VE6EMU>W0 08-0900 K6FV,W7BAS,KA7BGR>VE6SZ(01-0200LT) 0916  
WA7X>VE6SZ 13-1400 VE2RCS,K4AHO,W1>W4 K4AHO>W1 14-1500 W3,W2>W0 W5>W3 15-  
1600 N8PUM,K0KP>W4 W4CHA>W9 KA7BGR>XE2 1656-9 K4KWK>W9 W8>W8 17-1800  
N0LL,W9>W4 HK4BKB>W3UR 18-1900 W0>W2 W7>W6 19-2000 KG4PC>N3DB K4TQR>W9  
W8>W0 W3VD>W4 20-2100 W8>W5 FM5AD>K0HA FY7THF>K0HA 21-2200 W4>W0  
K8UK,W0>W8 C6AFP,FY7THF>K0HA K0KP,W7>W5 W5>W6 22-2300 W5SIX>W5 W5>W2,W7  
W6>W0 W7,VE7>W6 23-2400 W5RP>W5(v.short) W7,VE7>W6 W7,W4>W5

June 22 00-0100 W7,VE7>W6 W5>W5 XE2,KA7BGR>W0 W5,W6>W4 01-0200 W6,KLORG>W6 W7>VE6  
K6FV>W7 W6>W5 VE6ARC>W0 02-0300 W7,W6>W7 KLORG>W0,W7 VE7FG,W7>W0  
VE6>W6,W7 W7>W3 W0>W6 03-0400 W7>W0,W4 VE7,W7>VE6 W6>W4,W5 W0>W6 VE6>W0  
KLORG>W7 VE6ARC>W7 XE2>W5 04-0500 W6,W7>VE6 K0UO,W0MTK,W0IJR,  
N0UD,WA7X,WA6LIE>W7 K0UO,VE6EMU>W6 XE2,VE6,KLORG>W0,W7 05-0600 KLORG>W7  
XE2,W6>VE6 15-1600 VE4VHF,VE4ARM,W0>W8 18-1900 W0>W7 W7>W9 20-2100 W9>W7  
2158 CTtv>W4

June 23 01-0200 W5>W6 K4TQR,W6>W0 W3VD>W1 02-0300 W0>W5,W6 W7>W9,W0,W5  
K5AB,KS5V>W0 0328 K0KP>VE6 16-1700 W0,W9>W4 17-1800 W4>W5 K0ETC>W41820  
48260>W2 1845 W3>W5 22-2300 WA1OJB,W2>W4 W8>W3 23-2400 K4AHO,K0UO>W1  
VE2,W1>W4 W0,W2>W5

June 24 00-0100 W4>W9 W5>W3 W1,W8,VE3>W4 N0LL,W5>W8 W2,W4>W0 W1>W5 01-0200  
KD4HLG>W9 K2ZD,W1(2xEs)>W0 W5>W1,W2,W3,W8 W4,W9>W5 W8>W2 W0>W2,W4,W8  
W1>W3 W5>VE9 W2>W4 02-0300 W0>W1,W3,W8, W9 W1>W9 W0,WR9L>W5 W5>W1  
K0ETC,W5GPM>W8 W5,W8,W0>W3 K0UO>W1 K0KP>W4 03-0400 W0,W7>W3 W0>W5,W8,W4  
K0UO>W2 04-0500 W7>W2 W0>W8,VE6 11-1200 KL7GLK/3,W3VD>W9 K0UO>W2 12-1300  
W1,W2>W4 13-1400 WA1OJB>W4 W3,W5>W3 14-1500 W3>W5,W0 W4>W3 W5>W2,W6 15-  
1600 W5,W3>W8 W2>W5 16-1700 W0,VE7FG>W0 W7>W3 W0>W7 17-1800 W6>W2 W5>W4  
W7>W9 W0>W4 18-1900 W3>W1 VE4VHF>W0 W7>W4 19-2000 W0>W8 20-2100 W9>W0 21-  
2200 W9>W7

June 25 0052 W7>W2 01-0200 W0>W8 N0LL,W5>W2 VE6>W0 W3,W0>W3 02-0300 K0HA>W8  
VE4,W4>W5 W0>W1,W2,W3 W4>W7 W6>W0 K5AB>W9 03-0400 W9>W5 W7>W9,W3  
K0UO>W9 W9AFB,W3HH,W9JN,KA7BGR>W0 K0KP,W2>W5 W0,W7>W7 04-0500 N0LL>W3  
W5,N0LL>VE6 W7>W0,W7 1137 W0MTK>W9 12-1300 W4>W4 13-1400 W1>W1 14-1500  
W1,W0>W8 W9>W1 N8PUM>W0 15-1600 W4>W1 VE2>W9 W9,W0>W2 VE2RCS>W3  
VE4VHF>W0 16-1700 VE2,W1>W9 W1>W8 VE2>W3,W4 W1>W0 W2>W2 Latv>W0  
SP9HWY>K0GU(?) 17-1800 VE2YAT>W9 W1>W8 VE6EMU>W0 VA2MGL,W1>W4  
WB8OST>W2 18-1900 WB8OST>W2 W8,W1>W8 Latv>W0 W1>W9 W1>W7 20-2100  
GW3LEW,GW3MFY,G4WJS>AF9R VE6>W0 21-2200 7X0AD>W1RA 22-2300 VE6>W7  
W1,W4>W9 EH3AKY>AF9R 23-2400 W1>W7 VE4ARM>W1

June 26 00-0100 VE4VHF>W1,W2 W1,VA2MGL>W9 W3CCX>W5 W1>W1 01-0200 W5>W3  
VE3,N8PUM,K0GVU,W9AFB>W1 W2,VE2>W5 K0KP>W2 02-0300 W4,W5 W0>W1 W8,W9>W5  
1014 W0>VE6 1205 CU3URA>K2MUB 13-1400 UAtv>W1 CU3URA>K2MUB 14-1500  
CT3FT>K2MUB EH3AKY>K1SIX W4>W1 7X0AD>K3TKJ 15-1600 N0UD,WA7X,K6FV,W0>VE6  
VE7>W0 W1,48250>W1 16-1700 KA7BGR>W0 W6,W7>VE6 17-1800 W6,W7>VE6 W7,VE7>W0

18-1900 W2>W1 W3>W2 VE5>W9 19-2000 W1,W2>W1 XE2,KD4HLG>W9 XE2ED>W7 20-2100 W0>W7 W6>W8 W2>W1 21-2200 XE2ED>W0 W5>W4,W6 W1,W2,W3>W1 W7>W5,W0 J79KV>K7BV/1 22-2300 W2,W5,W6,W0>W7 XE2>W0 K5AB>W4 J79KV>W5KI,KM0A 9Y4AT>K7BV/1 23-2400 W5>W1 C6AGN>W1,W5 CO2OJ>K0HA W9>W9 W7>W6 K6FV,WR9L>W0 VP9/W3CMP>W3PT,W3UR,K0HA(2xEs) J79KV>K4RX,K1GUN

June 27 00-0100 KD4HLG>W0 VP9/W3CMP>K0GU,K0HA,N0KE,WQ5W W1>W0 K6FV>W5 W7>W6 01-0200 VE7>W4 VP9/W3CMP>K8LEE VE4,W0,W7>W7 VE4VHF,W9,W0>W0 W2>W2 W0>W4 02-0300 N0UD,W4>W7 K0KP>W5 W5GPM>W1 W7>W9 W0>W4 03-0400 W0,W7>W3 W5>W2 W0,W7>W7 W7>W5 K5AB>W0 KL7NO>W0,W7 04-0500 W6,KL7ZW>W0 VE7>W5,W0 W7>W5 KL7NO>W7 N0LL,WA7X,W6>W7 AL7RT>W6 05-0600 W0>W6,W7 W7,VE7,VE5,VE6>W6 W7>W7 06-0700 JH2COZ>KR7O JN1JFC>K7XC JR2HCB>N9JIM/6 10-1100 W1,W2>W1 W4>W3 11-1200 W1>W1 MM0AMW>K7BV/1 5B4FL>K1SIX 12-1300 YZ1AU>K7BV/1 W4>W1 W1>W1 IS0GQX>W1RA SV2DCD>K1SIX 13-1400 7X0AD>K7BV/1 W1>W1 14-1500 OKtv>W0 VE4SPT,VE6>W0 15-1600 W1,W2>W1 7X0AD>K1VW XE2ED,EUtv>W0 16-1700 W7>W7 W0>VE6 EH7RM>K7BV/1,K2MUB 17-1800 W7>W7 18-1900 W7>W0 20-2100 CT0SIX,EH1YVK,EH7RM,EH1BKR,4N1NB>K7BV/1 EH7RM>W1RA CQ14HZE>K1DG 21-2200 ON4LN,ON4WW>K7BV/1 SV1DH>W1RA 22-2300 VE3>W2 IW5DHN>W1RA VO1>W2 CT1EEB>K1DG,K7BV/1,N2WM ON4IQ>K1VW CT1QP>W1GF,K7BV/1 CT1EAT>K7BV/1 CQ14HZE>NT1Y,K1SIX SV9CVN>K7BV/1 VO1ZA>W1 23-2400 VO1>W1,W2

June 28 VO1>W1,W2 K4T>W4 01-0200 WB5LLI>W0 W9>W5 13-1400 EA tv>W2 W4>W4,W0 14-1500 J79KV>N3DB VE2>W9 15-1600 KD4HLG>W9 J79KV>AA1K,K8LEE N0LL>W2 VP9/W3CMP>K4MM,K9DXR W0IJR>W8 VE3>W9 16-1700 W9>W4 W4>W5 W0>W0,W2,W8,W3 17-1800 W0>W9 VE4VHF>W2 W4>W5,W0 VE2>W9 18-1900 W4>W1 VE2>W9 48240>W5 19-2000 C6AGN>W3UR W7>W1 9Y4AT>N3DB VE4VHF>W2 20-2100 W2>W9 J79KV>W5DN 21-2200 W1>W1 KP4SN,NP3CW>W5DN HI3ROX>K4UTE VP9/W3CMP>N3LL 22-2300 V44KAI>W4SO W4>W5 J79KV>K5XX,K4RX,K4CIA 23-2400 YV4AB>K4MM,W4SO J79KV>YV1DIG

June 29 01-0200 W3>W3 W0MTK>VE6 W7>W1 0615 VE4SPT>W9 10-1100 EA7RM>VE1ZZ VY2>W1 11-1200 9H1PA>VE1ZZ 9H1PA,CN8MC>VO1AU 13-1400 VP9/W3CMP>VE9DX,K2MRK VA2MGL>W2 14-1500 W4>W4 J79KV>K3OO 15-1600 W4>W3,W9,W0,W5 J79KV>K2PLF 16-1700 W4.W5 W4>W9,W0 J79KV>N9RS W0>W5 17-1800 W0>W5 V44KAI>N3DB,W4DUP VE4VHF>W3 18-1900 W8>W5 VE4VHF>W2 K0UO>W3 VE3>W2 19-2000 W4>W9 W5GPM,KS5V>W6 J79KV>K0EU 20-2100 W0>W4 21-2200 W4>W9 W6>W3,W4 W5HN>W3 W5,W6>W2 N0LL>W6 W3>W4 22-2300 W7,W0>W3 HI8ROX>WP4 FM5AD>W4SO 23-2400 VP5JM>W1JJ

June 30 00-0100 VP5JM>K7BV/1,W3UR 9Y4AT>W3UR PZ5RA,9Z4BM,9Y4AT>K7BV/1 01-0200 W5,W0>W5 W7>W1 W0>W2 02-0300 W0>W5 VE8BY>W1,VE9 W7>W3 OX3VHF>K7BV/1 1149 VA2MGL>W2 12-1300 K4AHO,W4CHA>W5 13-1400 W4>W5,W8,W9,W0 J79KV>AA5XE,N0RQ,AE5B,W5DN,K9DXR W5SIX>W4 14-1500 W4>W7,W5,W8 XE2>W0 W3>W2 9Y4AT>N3DB 15-1600 W5>W6 W4>W0 W5RP>W8 J79KV>N3DB,W1JJ,KB4XK 9Y4AT>K3OO 8R1WD>K3OO 16-1700 W4>W4,W9,W3 P43JB>AG2A W6>W5 18-1900 W4>W1,W8 19-2000 W4>W1,W8 W0>W3 20-2100 W4>W1 W0>W3,W4,W2 VR2RCS>W0 21-2200 W8>W9 W5,W0>W3 J79KV>KY5R,K0HA,W4DUP,K9MU,K4UEE V44KJ>W4DUP W4CHA>W1 W5GPM,K0UO>W2 22-2300 VP9/W3CMP>WZ1V OX3VHF,OX3SIX>W2 J79KV>K0HA,KY5R,K4RX FG/AI5P>K0HA VE7>W1 23-2400 J79KV>K4RX,NW5E/4,K4KJZ

## Asia/Pacific

### Japan

JA1VOK as usual provides us with a comprehensive listing of what was heard or worked from Japan during the month (excluding inter-JA contacts). There was a good multihop opening to Europe, which also included 4X and 5B on the 23<sup>rd</sup>, with lesser ones on the 24<sup>th</sup> (5B,UR), 26<sup>th</sup> (5B) and 30<sup>th</sup> (5B,I0,SP). It is not known whether these arrived by direct path or off-great circle. The only other long-haul opening, apart from the one to the US on the 26/27<sup>th</sup>, was VK6 on the 6<sup>th</sup>, though a number of stations closer to Japan may have been at double hop range.

### 6m DX results in JA during June from JA1VOK

DATE	TIME(UTC)	STATIONS
6/ 1	0147-0500	HL5XF, VR2SIX/b
	0940-1200	V73SIX/b (JA7), VR2SIX/b
2	1020-1040	BD4SDB
3	0250-0600	BD4SDB, HL1LTC, VR2XMT,SIX/b
	1330-1400	BD4SDB
4	0730-1330	VR2XMT,SIX/b, XV3AA
5	0600-0700	BV2B/1,BV6JJ
	1030-1100	VR2XMT,SIX/b
	2337-0010	KG6DX
6	0150-0500	BN0F,BW0IR,BV2B/1,BX2B, 6K2DHP,DS5JQK,VR2SIX/b
	0750-1000	9M2TO/B, BG9BA, VK6JQ,6RSX/b
7	0230-1030	DU1EV/B, V73SIX/b, VR2SIX/b
8	0000-0300	DU1EV/B, HL5XF, VR2SIX/b
9	0100-0330	DU1EV/B, V73SIX/b, VR2SIX/b
	0430-1400	BD2LH, HL
11	0400-0500	BG9BA, DS2CYI
13	0230-0700	BD2LH, HL
14	0325-0400	BD2LH
15	0900-0915	BD2LH
16	0715-0800	9M2TO/B
17	0330-0730	9M2TO/B, VR2SIX/b
18	0845-1330	9M2TO/B, BD2LH,BD4SDB,BG9BA, HL
19	0000-1000	BD4SDB,BG5FIH,BG9BA, BN0F,BW0IR,BX6AK, JD1YBJ, VR2XMT,SIX/b
	0510-0530	UN7QX (JA5)
20	0830-1000	BD4SDB
21	0410-0500	HL
22	0045-1000	BD7OH, BN0F,BW0IR, DU1EV/B, KG6DX, JD1YBJ, VR2DXA,XMT, VR2SIX/b, XV1X
23	0345-0400	BD2LH
	0600-0715	4Z5LA, 5B4FL, 9H1AW,PA,XT, DF8GH, ES6DO, OH5LK,7PI, UT7QF,UU2JJ,UY5ZZ
	0845-1130	HL2DIB, KG6DX
24	0340-1200	BD2LH, HL, KG6DX
	0345-0640	5B4FL, UT7QF
25	0330-0400	BD2LH
	0450-0500	YA1D (JA6)
26	0100-0800	BD2LH,BG9BA, BN0F, HL
	0445-0545	5B4FL, JT1CO, YA1D
	2347-0830	9M2TO/B, BD2LH,BD4SDB,BG9BA, BN0F,BW0IR,BV2NT,6GU,BX2AB, DU1EV/B, HL, WK3D/AH0, VR2DXA,SIX/b, XV1X

27 0608-0700 KG6I,N9JIM/6,K6FV/B,K7XC  
 28 0920-1000 KG6DX  
 29 0225-0800 BD4SDB, DU1EV/B, VR2UW,SIX/b  
 30 0150-1100 BD2LH, DU1EV/B, HL, JD1BKZ, KG6DX, VR2SIX/b, XV1X  
 0650-0810 5B4FL, IK0FTA, SP3RNZ

### Elsewhere

Plenty of Korean activity, presumably Es. The opening from VK6 on the 6<sup>th</sup> reached HL, but otherwise openings were all semi-local. VK continues dormant.

June 1 0545 JE7YNQ>DS4  
June 2 0018 JE7YNQ>HL1(Es) 0935 BD7OH>VR2  
June 3 0338 allJA>HL1(Es) 0412 JA8>HL1 0512 JA7>DS4  
June 4 0334 JE7YNQ>HL1 0744 XV3AA>DS1  
June 5 02-0300 JA2IGY>KG6DX JA8>DS5 03-0400 JA7>HL1,DS4 0443 JA7>DS4 05-0600  
 JA7>DS4,DS5 06-0700 VK2>VK3 JA1>DS5 0718 VK2RHV>VK3 2334 JE7YNQ>KG6DX  
June 6 0239 HL1>HL2 08-0900 BG9BA>HL1 DS1>HL2 09-1000 VK6RSX,VK6JQ>HL1  
June 8 0022 JA2IGY>HL1 02-0300 JA1ZYK,JE7YNQ>DS5 JH8ZND>HL1  
June 9 0632 HL5>DS5 1350 JE7YNQ>DS5  
June 16 1006 DS1>HL1  
June 17 0319 JA6>HL1 0421 JE7YNQ>HL1  
June 18 0030 JE7YNQ>HL1 1051 JA1>HL1  
June 19 01-0200 BW0IR,BG9BA>HL1 04-0500 JA2IGY,JA1>KG6DX  
June 20 0753 JA6YBR>HL1 08-0900 JA1>HL1 JA7YNQ>KG6DX  
June 22 06-0700 JA2IGY,JE7YNQ>KG6DX  
June 23 0139 JE7YNQ>HL1 1137 JE7YNQ>HL1  
June 24 0707 JA0>HL1  
June 25 0346 JA8>HL1 0502 JA1>HL1  
June 26 0438 BG9BA>HL1 0441 JA5>YA1D 0641 JA8>KG6DX 0925 JE7YNQ>KG6DX 1015 JA1>KG6DX  
June 27 02-0300 HL1,DS1>HL2 05-0600 BG9BA,JA2>DS4 WK3D/AH0>HL1 11-1200 JE7YNQ>DS1  
June 28 0920 JA1ZYK>KG6DX  
June 30 0331 JA8>HL1 0754-7 JA7,JA8>HL1 2341 JA6YBR>HL1

## Beacon News and 28 MHz Worldwide

Compilation and Commentary by G3USF

### Beacon News

NB This section includes the latest information to hand at the time the Report is finalised. Some items are more recent than the month to which the Report otherwise relates.

14100-28200 CS3B returned to activity (July)  
14318.152 PA1SDB (JO33KH) Appingedam QRSS3 loop antenna, erp 3.8mw  
14318.172 PA1SDB with QRSS3 loop antenna 1.5mw. keyed parallel (PA1SDB)  
28173 DF4FV is located at Ingelheim (JN49MX) near Mainz, running 50w to GP (Aug)  
28204.7 KA9QMD Milwaukee WI (EN53) runs 1 watt to vertical (K0HA)  
28210 KA9IBS Danville IL new beacon (K0HA)(Aug.)  
28210 VE4TEN reported to be in EN19 and running 5 watts to vertical (K0HA) (Aug)  
28269.1 W2RTB old beacon, new frequency (K0HA)(August)  
28277 WB7RBN Benton City WA (DN06IG) new beacon  
28296 W3VD reported off the air on all frequencies (August). While a new mast is being installed the opportunity is being taken to revamp the tx on this 40-year-old beacon. This was the first HF unattended beacon authorised by the FCC.  
28322 IK1ZYW power is around 100mw; transmission is part QRSS with 3-second dots and part 20wpm cw (IK1ZYW)  
50023 VE9BEA Crabbe Mountain NB (FN66) new beacon runs 3 watts to vertical (VE9BEA Aug.)  
The 15-metre transmitter is temporarily off the air.  
50059.7 W4CBX Bristol TN (EM86) a1a new beacon (K0HA) (August)  
50070 EH2JG IN83 (DL3AMA). No further information. EA7VHF also reported here.???  
50207 F5TND reported here - may be intermittent keyer (CN8AT)  
50350 9A2ZH operating here with 1w/5w - intermittent? (9A2ZH) (August)  
50395 EA5SIX in IM98 reported by SP6MLK (1 Aug)  
50.... 6Y beacon promised soon (9Y4AT)

### 28 MHz Worldwide

With the exception of our regular faithful monitors, to whom we are increasingly grateful, reporting of 28MHz propagation seems to be declining faster than the solar flux. This must be the first month with effectively nothing to single out as remarkable or unexpected.

In the Northern Hemisphere - and there were precious few reports from the southern - sporadic-E was of course the dominant mode. In Europe and North America/Caribbean/Central America, occurrence showed little or no sign of cyclical decline, with propagation reported throughout the day. Asia<>Asia has never been prolific at this season, though geographic factors probably explain this is large measure. North-south intercontinental propagation would be predominantly by the F-layer, although some may have been mixed-mode, with Es a possibility around areas adjacent to another continent. Europe-Africa, rather oddly, was well down on June 2003 in the morning and afternoon but fairly stable at noon and in the evening. North<>South America held up well during the middle of the day but mornings and evenings were weaker. A similar pattern appeared to hold for Europe<>South America. Curiously, Asia<>Oceania was well up on June 2003 around noon but stable at other periods.

# 28 MHz Worldwide - June 2004

