

A composite image featuring a large, detailed view of Earth on the left side, showing swirling cloud patterns and blue oceans. On the right side, there is a smaller, partially illuminated view of the Moon. The background is a solid black, representing space. Centered between the Earth and the Moon is white text in an italicized serif font.

2 meter EME

Don W1FKF

April 22, 2006

2 Meter EME the Easy Way

What about the rest of us?



RN6BN

64 antennas 15 elements H&V

A Little History of 2 meter EME

The First Successful 2 meter moon bounce echoes was on January 27, 1953 between W4AO and W3GPJ (project Moonbounce). Antenna huge Stacked Rhombic. The project was technically too difficult to continue on 2 meters and was shifted to 1296 MHz.

The first successful EME contact on 1296 MHz was on July 21, 1960 between the EIMAC Radio Club, W6HB and the Rhododendron Swamp VHF Society, W1BU, Sam Harris W1FZJ lead the East Coast effort. Both stations were running kilowatt level klystrons.

The first 2 meter EME contact was on April 11, 1964 between W6DNG and OH1NL followed by W1BU.

Path Loss:

The moon travels in a slight elliptical orbit , at perigee, 221,500 miles, round trip path loss about 251.5 dB (closest point to the earth), apogee , 252,500 miles, round trip path loss about 253.5 dB at (the longest point from earth)

The 2 dB difference is a significant factor for small stations!

Other Effects:

Spatial Polarization, Faraday Rotation, Libration Fading, Doppler Effects, Sky noise (noise Temperature), Degradation (figure of merit), Declination, Moon phase, and Ground gain.

For more information check the Internet.

With the use of digital modes just about anyone can make an EME contact on 2 meters

W5UN



48 antenna's

<http://www.qrz.com/call sign>

KB8RQ



IK3MAC (30 x 19 el)



<http://www.qsl.net/f4azf/antennas/ik3mac.jpg>

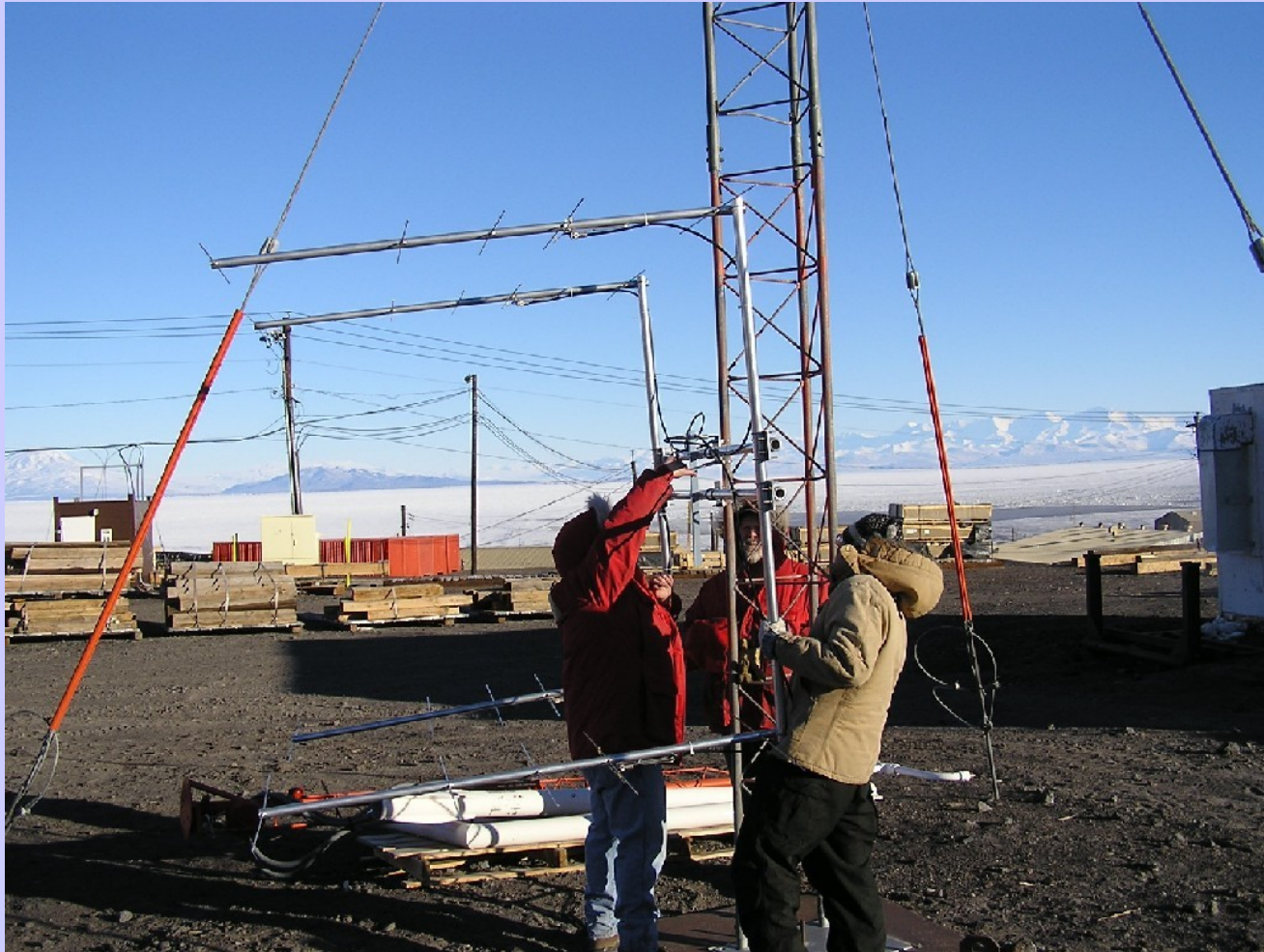
HB9Q



8 antenna's on 2 meters

http://homepages.nildram.co.uk/~cvfarlow/hb9q_the_site_from_the_east.htm

KC4 / W1MRQ



KC4 / W1MRQ 2006



new array for the 2006 DX season! 4 X DS144-6RS



DIRECTIVE SYSTEMS

177 DIXON RD.
LEBANON, ME. 04027
TEL: 207-658-7758 FAX: 207-658-4337
www.directivesystems.com

DS144-6RS

6 ELEMENT 144-145 MHz "ROVER SPECIAL" YAGI
ELECTRICAL SPECIFICATIONS

Frequency range: MHz	144-145
Gain: dBd	10.1
Impedance: Ohms	50
Connector type	Type N (F) UG-58AU
Front-to-back ratio: dB	21
SWR: Typical at resonance	≅ 1.2:1
Beamwidth: degrees	
E-Plane	44
H-Plane	52
Sidelobe level: decibels	
E-Plane	-24
H-Plane	-18
Power rating, Continuous: Watts	1500
Stacking Distance: in. (m)	
E-Plane	98" (2.489)
H-Plane	91" (2.311)

MECHANICAL SPECIFICATIONS

Boom length: in. (m.)	96 (2.438)
Turning radius: in. (m.)	54 (1.372)
Weight Assembled: Lbs (kg.)	3.5 (1.59)
Max mast size: in. (cm.)	2.0 (3.81)
Wind surface area: Ft ² (m ²)	0.67 (.062)
Wind Survival: Mph (km/hr)	100 (160)

PARTS LIST

Boom	
1 1/8" OD x 0.058 x 95.5" rear boom	1
1 1/8" OD x 0.058 x 52.5" front boom	1
1 1/4" OD x 0.058 x 36" mid boom	1
Element bundle	
6 elements w. 2 T-match rods	1
Boom to Mast Bracket (3 X 5")	1
HARDWARE BAG #1	
8-32 x 1 3/4" machine screw	2
8-32 s.s. hex nut	2
#8 split s.s. lock washer	2

BAG #1 (CONTINUED)

Brass T match bars	2
U-bolt, s.s. 5/16-18 x 2"	2
U-bolt, s.s. 1/4-20 x 1 3/8"	2
Nut, hex, s.s. 1/4-20	4
Lock washer, split, s.s. 1/4"	4
Nut, hex, s.s. 5/16-18	4
Lock washer, split, s.s. 5/16"	4
SS. 1 3/8" worm clamp	2
Insulators, element, Delrin®	12
Keepers, s.s. 3/16"	14
Element assembly tool	1
Assembly Instructions	

REV 1.1, 3/2005

Antenna's
4 x DS144-6RS

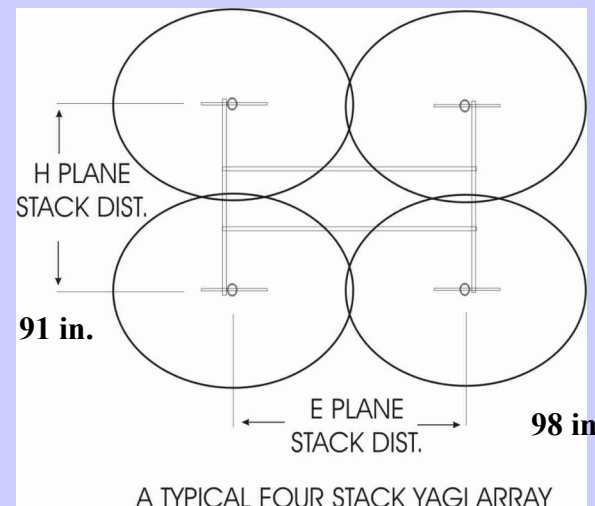
Power Divider
2M-4PD 4-way,

Phasing Harness
LMR400
Rotator loop RG14

Feed line
50 Ft 1/2 in.
Superflex
Kehwood TS2000

Pre amp - LNA Technology
.28 Db noise figure
Amplifier Henry 3002

Antennas approx. 15.7dBd Gain



$$4 \times 94 \text{ inch} = 376 \text{ in}$$

$$376 \text{ inch} / 12 = 31.33 \text{ ft}$$

$$1\lambda @ 2 \text{ Mrs..} = 6.24 \text{ ft.}$$

5.02 Wavelengths

Stacking gain 2.5-2.9 Db

Each antenna 10.1 dBd

$$10.1 + 2.8 + 2.8 = 15.7 \text{ dBd}$$

A single M2 (2M5WL)

33 ft.

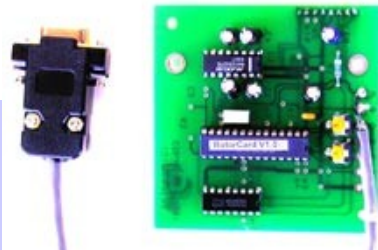
14.7 DBd gain

W1FKF



July 2, 2005

Azimuth Yaesu G800DXA



RS-232 rotor control

Idiom Press

<http://www.idiompres.com/index.htm>

Elevation Yaesu G550



**Max Wind load
10.6 sq. feet**

**Each antenna
.67 sq ft
4= 2.7 SQ FT**

W1FKF



July 24, 2005

W1FKF



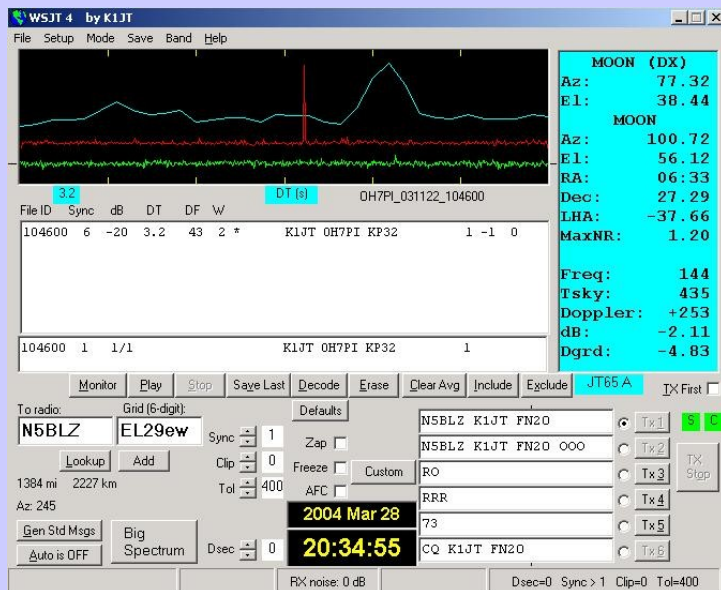
July 30, 2005

W1FKF

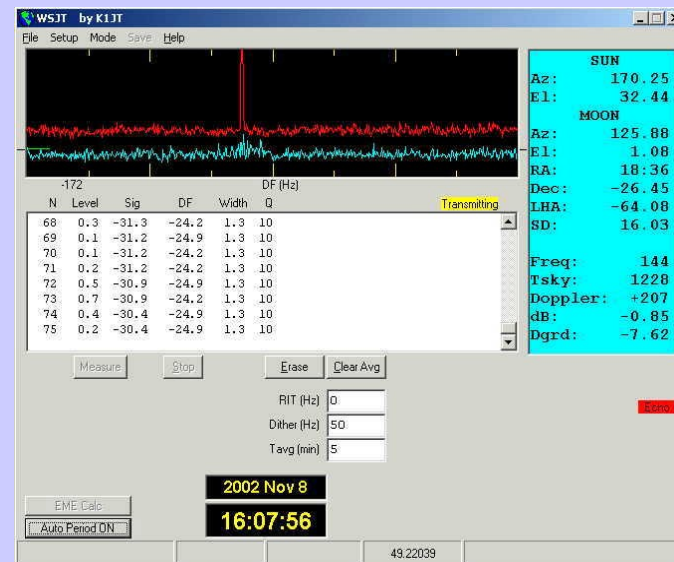


My ERP is 30 to 35 Kw

July 30, 2005



EME
JT65B



Created by Joe, K1JT, WSJT is a computer program for VHF/UHF communication using state of the art digital techniques. It can decode signals more than 10dB weaker than those required for conventional CW.

His current release as of Jan 2006 is **Version 5.9.3**

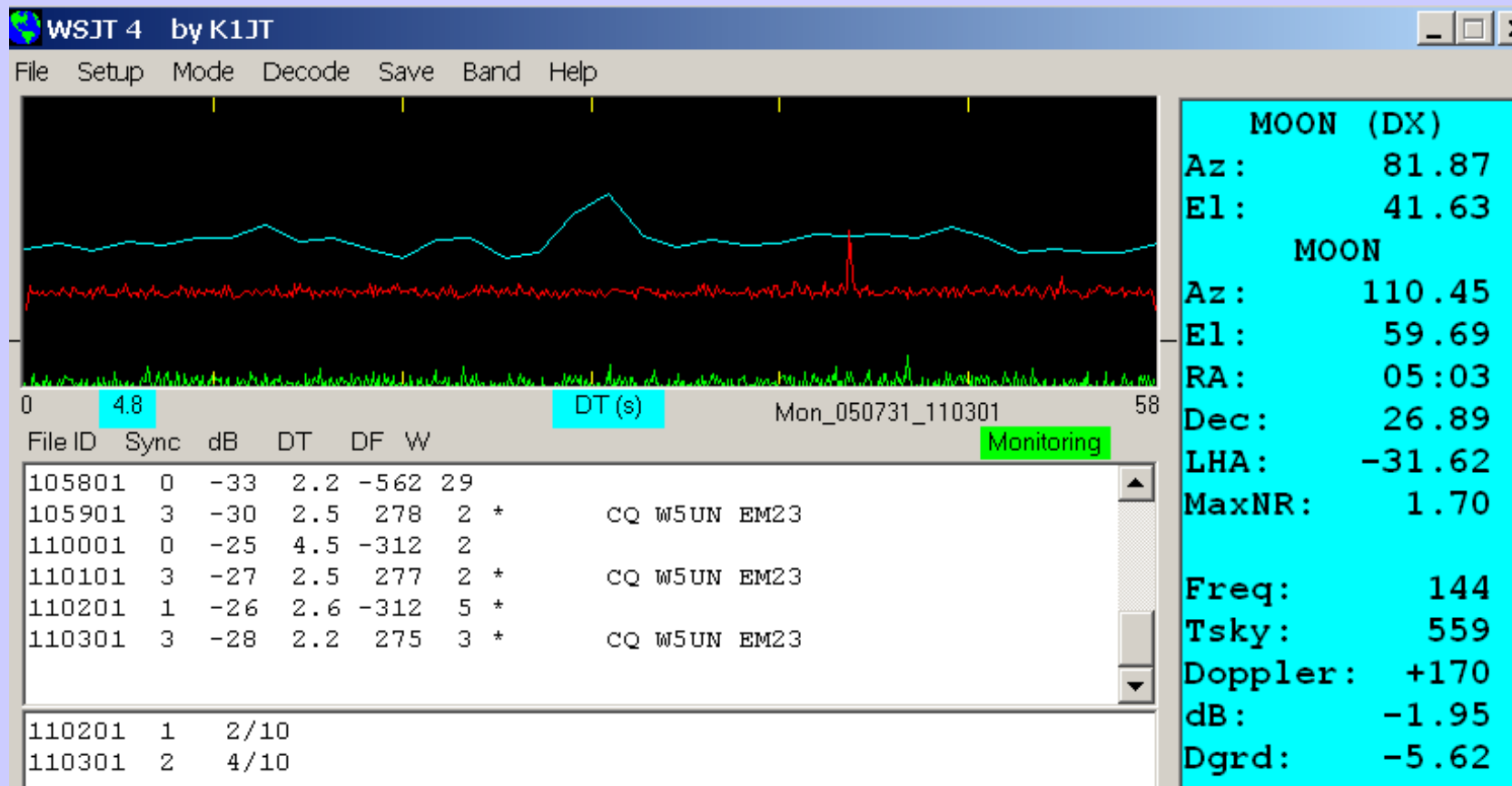
<http://pulsar.princeton.edu/~joe/K1JT/index.htm>

Acknowledgement: the soft-decision Reed-Solomon decoder used in WSJT versions 4.5.0 and later is based on an algorithm developed by R. Koetter and A. Vardy and protected under United States Patent number 6,634,007, and uses code licensed from CodeVector Technologies, LLC.

First Decode

July 31, 2005

W1FKF



JT65 EME link

JT65 EME Link.



PingJockey Central	JT65 Terrestrial	Distance/Bearing Locator	Who's Earwigging?
Refresh	Look back	Update User details	Refreshed 12/30 16:36

Enter your message here

```
MM/DD  UTC
12/30 16:31 ++++++CQ.117 2nd PSE CALL+++++ (WQ5S/4X12/300 Brad TX EM13rc cust61.apls2.clkatx.dfwair.net)
12/30 16:21 now lets actually aim at the moon and try it (WQ5S/4X12/300 Brad TX EM13rc cust61.apls2.clkatx.dfwair.net)
12/30 15:52 Who knows maybe someone in SA will here me. HIHI! (WQ5S/4X12/300 Brad TX EM13rc cust61.apls2.clkatx.dfwair.net)
12/30 15:49 ++++++CQ.117 2nd PSE CALL+++++ (WQ5S/4X12/300 Brad TX EM13rc cust61.apls2.clkatx.dfwair.net)
12/30 15:49 OH well nothing but time to kill anyway (WQ5S/4X12/300 Brad TX EM13rc cust61.apls2.clkatx.dfwair.net)
12/30 15:49 RRR Sky temp 2114 ouch (WQ5S/4X12/300 Brad TX EM13rc cust61.apls2.clkatx.dfwair.net)
12/30 15:47 Yes they are 9.5 is not good and little activity (K9SM/4X9/500 Scotty IL EM59ee 63.252.12.20)
12/30 15:39 RR Scotty I stopped at 1428. Condx are pretty bad (WQ5S/4X12/300 Brad TX EM13rc cust61.apls2.clkatx.dfwair.net)
12/30 15:32 I had the radio monitoring while I walked dogs Brad and never saw u (K9SM/4X9/500 Scotty IL EM59ee 63.252.12.20)
12/30 15:30 To all Season Greetings & HNY 2006! If any QSL's left pse e-mail ... tks & 73's de YO9FRJ (YO9FRJ/4X17/1K7 Adria)
12/30 15:27 QRV 2 IF ANYONE WANTS TO TRY (WQ5S/4X12/300 Brad TX EM13rc cust61.apls2.clkatx.dfwair.net)
12/30 15:08 RR 73 (W9NHE/17M2/400 Teddy WI EN53xb 69.212.204.49)
12/30 15:08 Looking right into the sun, we can try agn when condx are better (W1JJ Mick RI FN41fo cache-dtc-ae02.proxy.aol.com)
12/30 15:07 RR HNY all qsy to PJ (W9NHE/17M2/400 Teddy WI EN53xb 69.212.204.49)
12/30 15:06 RR Mick 145800 1 -26 2.2 118 44 * (W9NHE/17M2/400 Teddy WI EN53xb 69.212.204.49)
12/30 15:05 Going to stop (W1JJ Mick RI FN41fo cache-dtc-ae02.proxy.aol.com)
12/30 15:05 OK, Teddy saw you for 3 seq when ur moon was at abt 8deg but weak best was -32 (W1JJ Mick RI FN41fo cache-dtc-ae02.proxy.aol.com)
12/30 15:03 Mick, moon almost getting to high, no EL hr (W9NHE/17M2/400 Teddy WI EN53xb 69.212.204.49)
12/30 15:01 Enrico - QRV? (G4IGO Ken xx IO80NW 84.13.131.250)
12/30 15:00 N8CJK Greg - also look at for us in the UK for 50 EME :-)) (G4IGO Ken xx IO80NW 84.13.131.250)
12/30 15:00 RR KEN (W9NHE/17M2/400 Teddy WI EN53xb 69.212.204.49)
12/30 14:59 w(HNE = W9HNE (G4IGO Ken xx IO80NW 84.13.131.250)
12/30 14:58 HNY to you all. (G4IGO Ken xx IO80NW 84.13.131.250)
12/30 14:58 GA Teddy w(HNE - look for me on 50 MHZ EME over the next dyas and weeks :-))) (G4IGO Ken xx IO80NW 84.13.131.250)
12/30 14:58 HI Ken HNY (W1JJ Mick RI FN41fo cache-dtc-ae02.proxy.aol.com)
12/30 14:57 GA Mick W1JJ (G4IGO Ken xx IO80NW 84.13.131.250)
12/30 14:54 True long path :-)) (W1JJ Mick RI FN41fo cache-dtc-ae02.proxy.aol.com)
12/30 14:52 True is a long way to uk 850 miles hi hi (W9NHE/17M2/400 Teddy WI EN53xb 69.212.204.49)
```

Done

Start 11:36:41 am - Di... 4 WSJT6 Ham Radio Deluxe ... 3 Internet Exp... Microsoft PowerPol... 11:36 AM

<http://www.chris.org/cgi-bin/jt65eme>

September 5, 2005 W5UN

W1FKF

JT65 EME Link by NØUK - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Google Search New! 12 blocked

Address http://www.chris.org/cgi-bin/jt65eme Go Links - TXT Netbenefits 1km Storm Bank Ducting N1JEZ Index JT44 EME EME JAPAN

09/05 20:02 Hi Don! Glad to see you here on EME :) (K2TXB Russ NJ fm29pt pcp0012052936pcs.medfrd01.nj.comcast.net)
09/05 20:01 Tnx Don. 195000 1 -23 3.9 -43 2 # W5UN W1FKF FN42 OOO (W5UN/32X17/1500 Dave TX EM23ng cfl.c
09/05 20:00 Yeahh...am curious whether it was on the way out or if WSJT just let the air out of it (AA7A/6X13/1500W Ned
09/05 20:00 All the newcomers are starting up using JT (W5UN/32X17/1500 De
09/05 20:00 Thanks Dave my first! (W1FKF Don MA FN42jk c-66-30-255-20
09/05 20:00 CW is almost a thing of the past Ned (W5UN/32X17/1500 Da
09/05 19:59 Don, its doing well. Tnx for the QSO (W5UN/32X17/1500 Da
09/05 19:59 CW skeds a thing of the past? (AA7A/6X13/1500W Ned AZ DM4
09/05 19:59 Ned Got the email (W7IUV/8X8/700W Larry WA DN07dg 64.146.245.
09/05 19:59 Ned, its down to a handfull, Lionel, Gary, Me, and sometimes a
09/05 19:58 W1FKF Don, I can just tell your in there, but may get lucky wit
09/05 19:58 Dave, EME net still meet on 20m? I haven't listened for a few y
09/05 19:57 KE7NR/P. still here Don (W8PAT/4X12/350 John OH EN81vg ip-1
09/05 19:57 4 -6 element and 100 watts amp not on line yet (W1FKF Don
09/05 19:56 No need to repeat the same thing that the other station is send
09/05 19:56 Procedure: when rcvng calls send OOO. When rcvng OOO, send R
09/05 19:55 Larry...email (AA7A/6X13/1500W Ned AZ DM43ao ip68-3-89-21
09/05 19:55 Don, glad to have you on EME circuit. (W5UN/32X17/1500 De
09/05 19:54 Don press F5 on the WSJT screen (W7IUV/8X8/700W Larry WA DN
09/05 19:54 New to the game ! (W1FKF Don MA FN42jk c-66-30-255-20
09/05 19:52 W1FKF what's your station? (W7IUV/8X8/700W Larry WA DN07dg 64.
09/05 19:52 Don, not singling you out, M
09/05 19:52 OK, listen up gang, when you
09/05 19:50 Don I'd keep going if it were
09/05 19:50 He came back (W5UN/32X
09/05 19:49 Hi Dave sorry to confuse you
09/05 19:48 Ok...I'll keep trying (me fir
09/05 19:48 Hugh, read my previous postin
09/05 19:48 Dave, W1FKF?? (W7IUV/8X
09/05 19:48 Hello Larry. People call, the
09/05 19:47 Dave, I see you responding to
09/05 19:47 it iss possible to decode sev
09/05 19:45 I may have gottn confused whe
09/05 19:45 Patience is a virtue that has
09/05 19:43 One thing that I notice is th
09/05 19:43 Okay Dave...I'll try agn.
09/05 19:40 I have you Hugh (W5UN/32X
09/05 19:39 oops...rather...Dave, respond
09/05 19:38 Augusto...I see you calling I
09/05 19:38 193400 4 -27 3.9 -151 2
09/05 19:35 tks Dave, cu later (OA4CVT/
09/05 19:35

WSJT Spectrum

F: 1352 DF: 81 Freq (Hz)

WSJT 4 by K1JT

File Setup Mode Decode Save Band Help

MOON (DX)
Az: 188.78
El: 54.02
MOON
Az: 218.10
El: 37.94
RA: 12:23
Dec: -2.50
LHA: 29.57
MaxNR: 2.26
Freq: 144
Tsky: 438
Doppler: -70
dB: -1.93
Dgrd: -4.68

DT (s) W5UN_050905_200300 Receiving

File ID	Sync	dB	DT	DF	W
194501	5	-21	2.2	-42	6 #
194501	5	-21	2.2	-42	6 #
194700	8	-21	3.2	-46	2 #
194900	7	-20	3.1	-46	4 #
195100	1	-17	3.9	-48	2
195300	10	-23		-51	2 RO ?
195500	0	-18	2.9	-54	2
194401	1	0/1			
200300	2	6/11			

W1FKF W5UN EM23

Monitor Play Stop Save Last Decode Erase Clear Avg Include Exclude JT65 B TXFirst

javascript:mailto("aa7a@cox.net")

Start 4:05:36 pm 4 Volume C... 2 Microsoft ... Ham Radio De... JT65 EME Lin... 2 WSJT4 Microsoft Pow... 4:05 PM

Kenwood TS 2000

No preamp

75 Watts at antenna

EME contest 11-12-05 11-13-05

W1FKF

EI4DQ

S52lk

EA3DXU

KB8RQ

W5UN

K7MAC

HB9Q

EA6VQ

K1JT

WB2BYP

WA8RSF

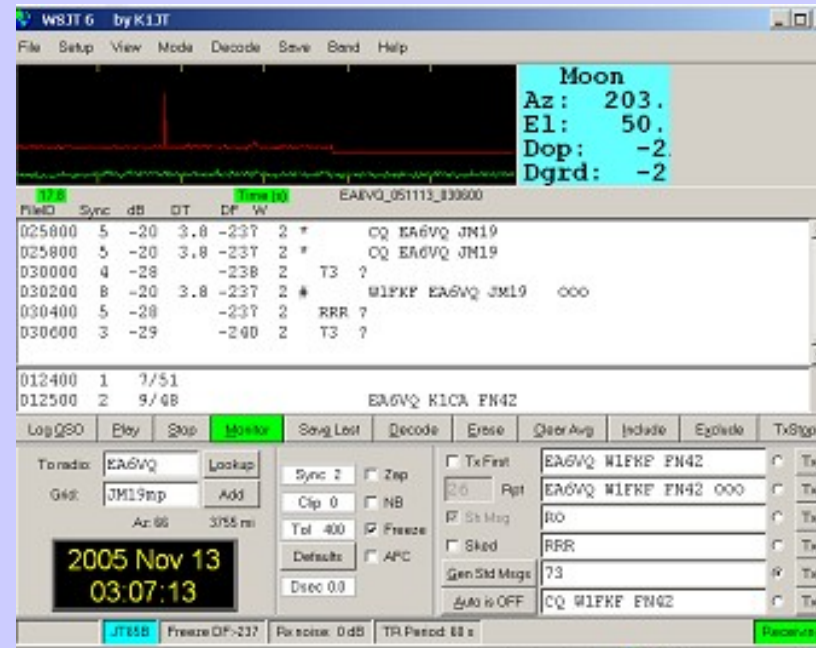
RN6BN

DF2ZC

RA3AQ

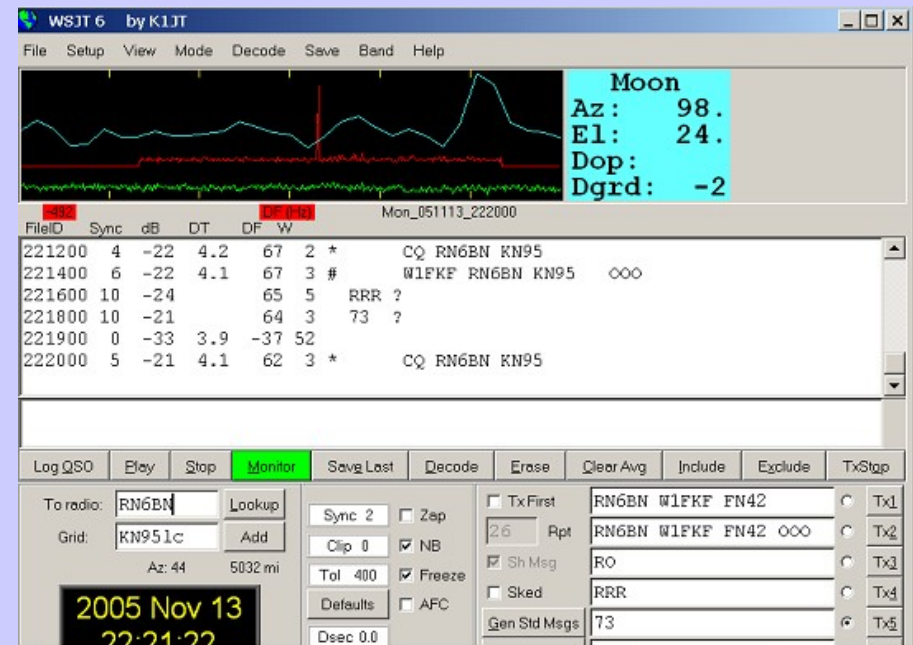
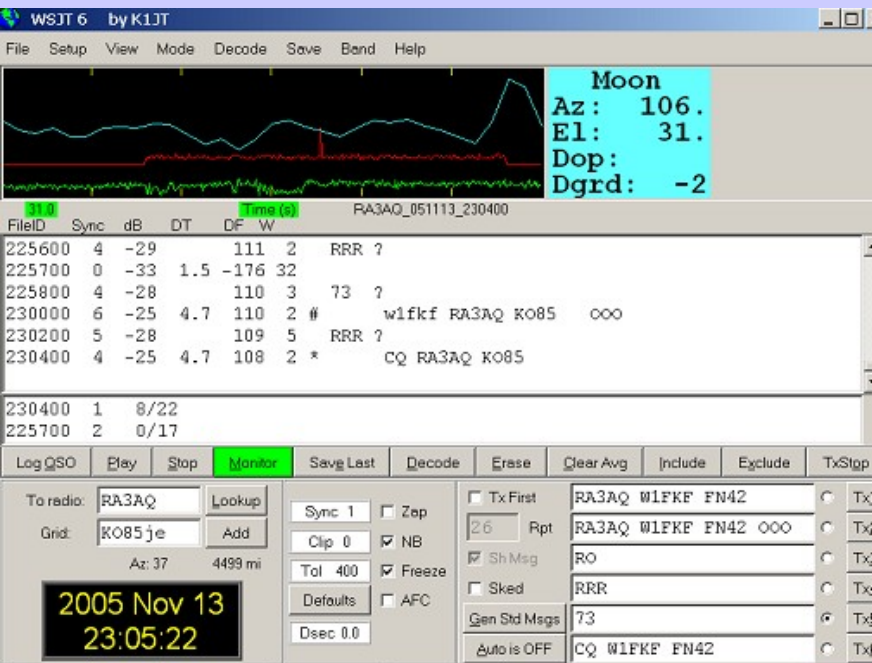
Worked 7 stations

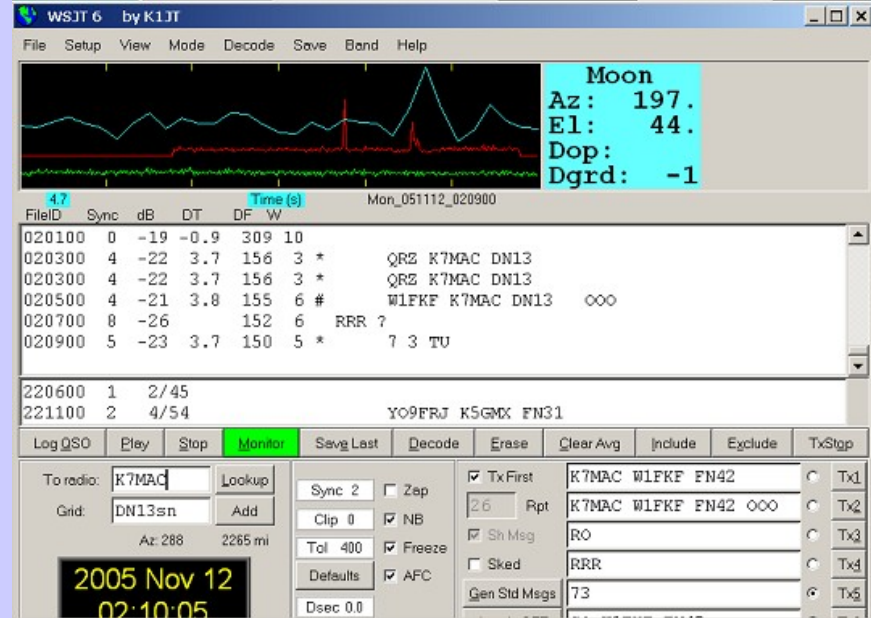
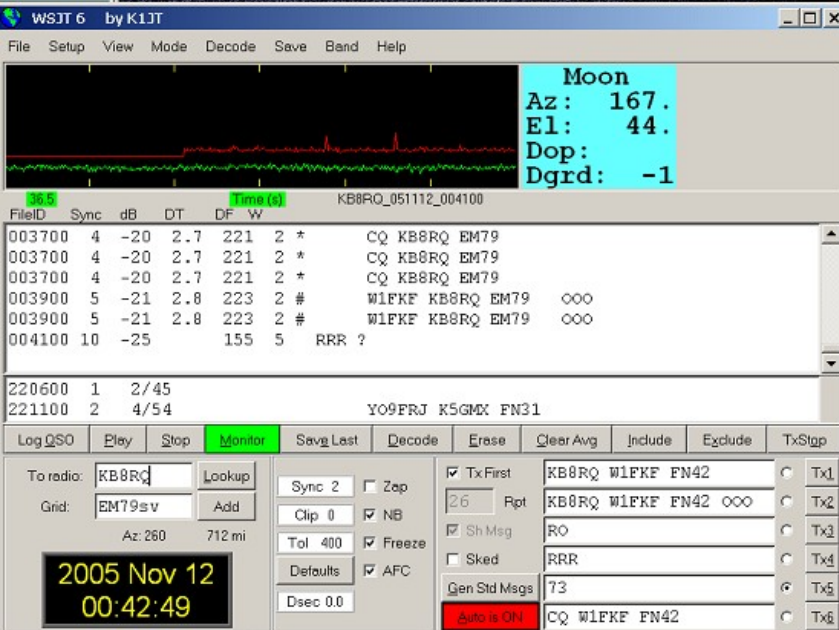
Heard 14 stations



ARRL International
EME Contest

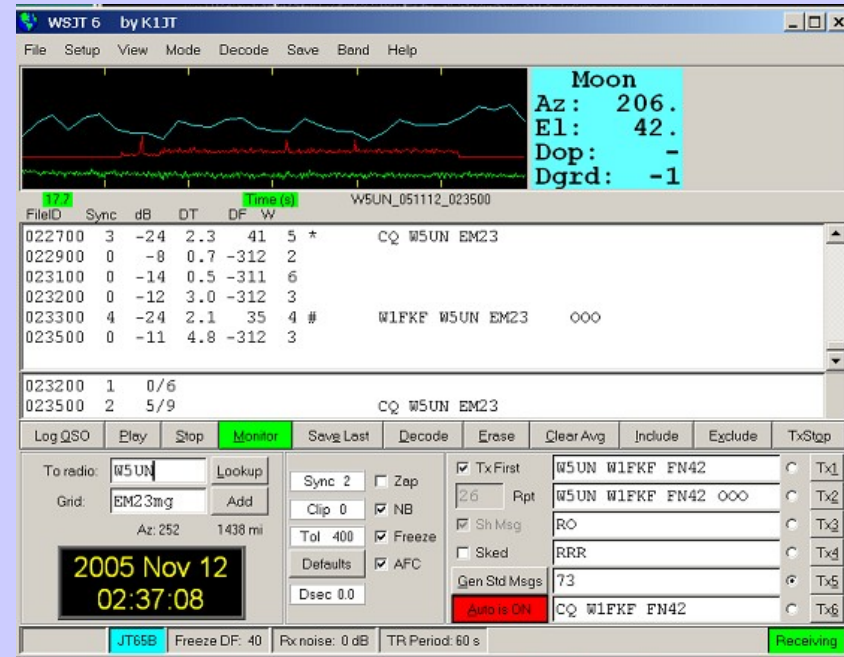
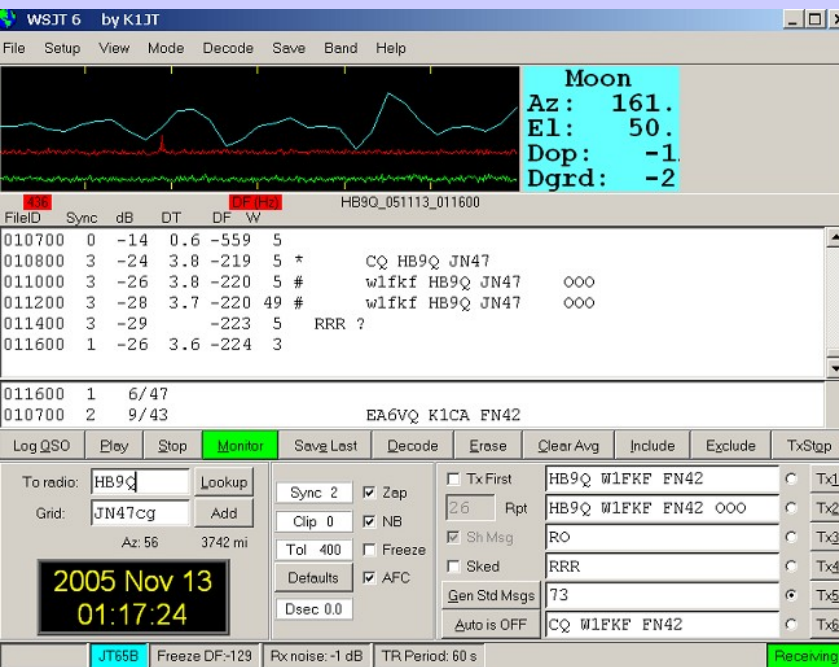
2005





EME contest 11-12-05 11-13-05

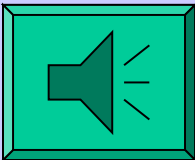
W1FKF



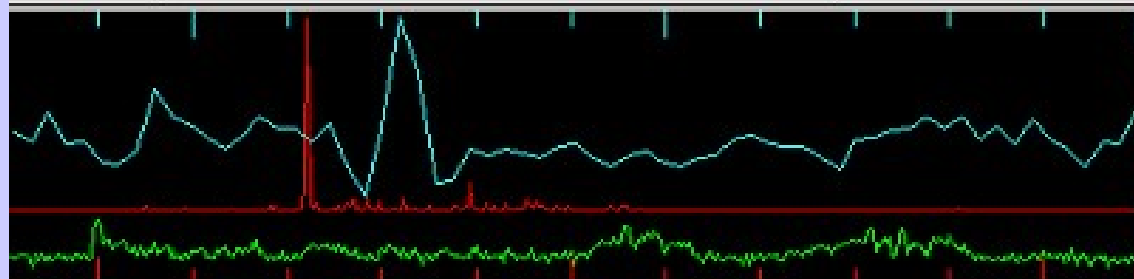
IK3MAC (30 x 19 el)



<http://www.qsl.net/f4azf/antennes/ik3mac.jpg>



File Setup View Mode Decode Save Band Help

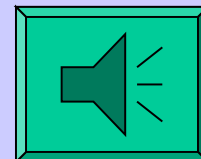


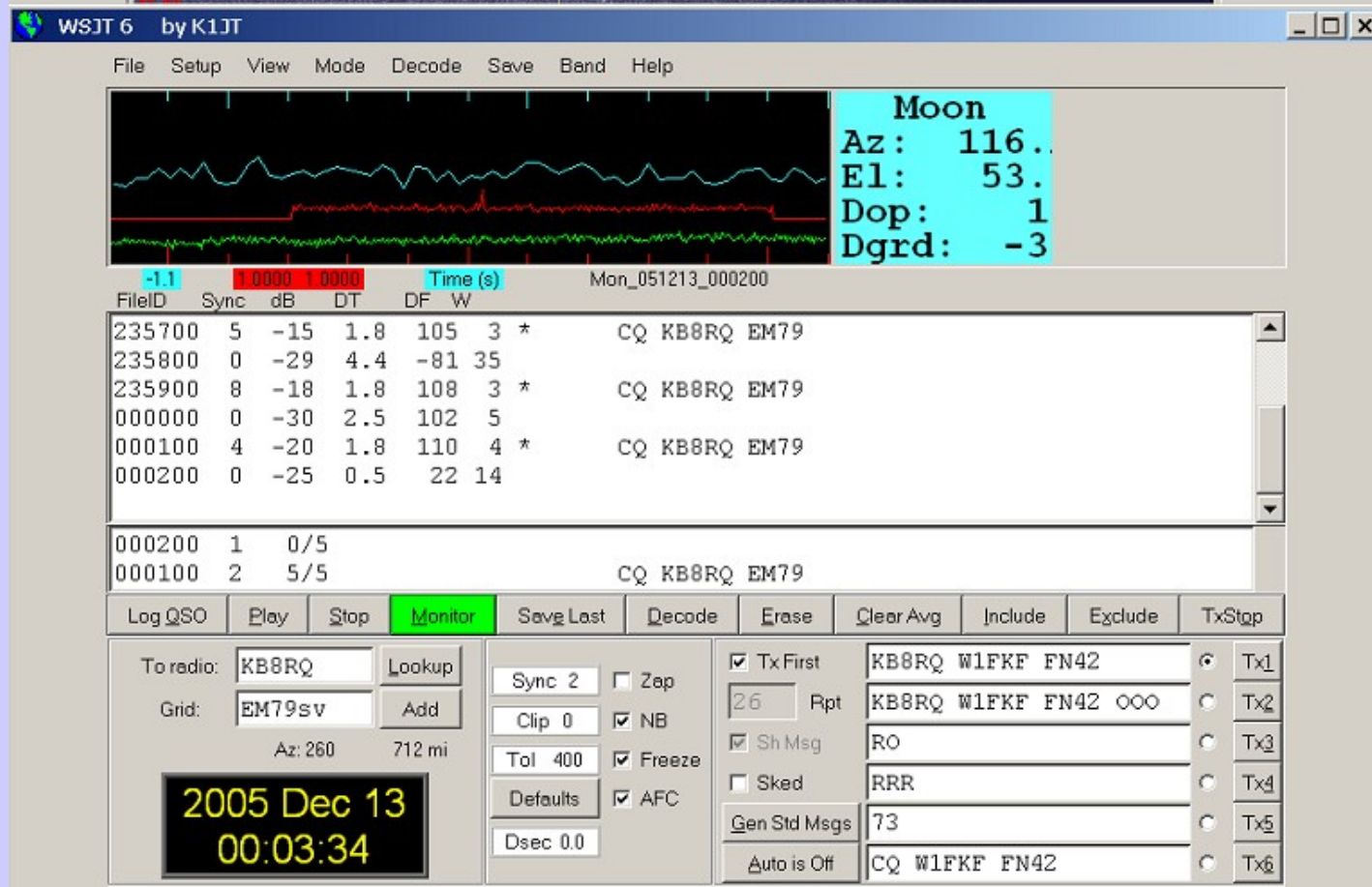
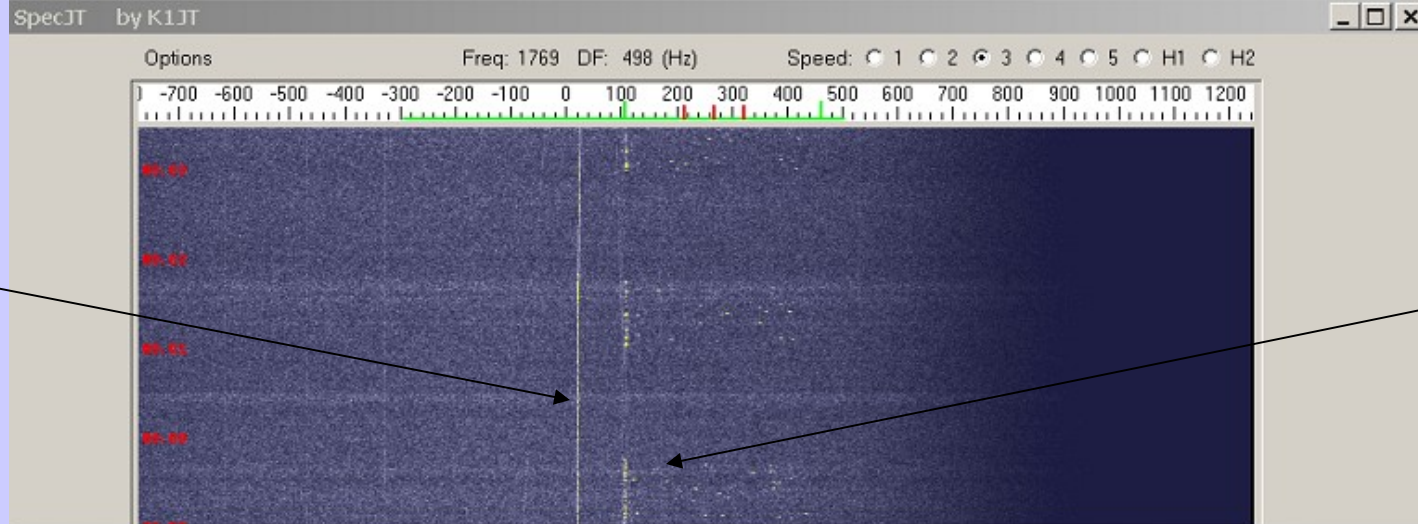
Moon
Az: 132.4
El: 31.5
Dop: 27
Dgrd: -4.

7.6 1.0000 1.0000 Time (s) IK3MAC_060203_223500

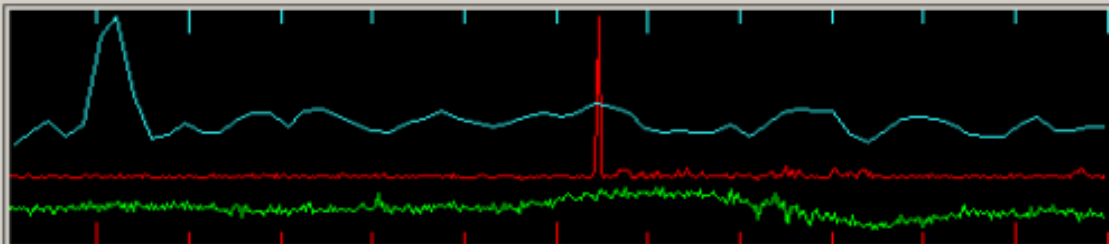
FileID	Sync	dB	DT	DF	W	
223500	3	-10	2.2	-280	3	# F1N8R IK3MAC JN55 000 1 0

223500	2	1/1	F1N8R IK3MAC JN55
--------	---	-----	-------------------





File Setup View Mode Decode Save Band Help



Moon
Az: 240.
El: 60.
Dop: -2
Dgrd: -3

3.8 1.0000 1.0000 Time (s) Mon_060110_030900

FileID Sync dB DT DF W

030400	0	-22	3.8	304	3
030500	3	-24	1.6	-124	3 *
030600	0	-29	7.9	-196	37
030700	2	-24	1.7	-127	3 *
030800	1	-28	6.8	571	7
030900	7	-17	-0.9	46	2 *

CQ K2TXB FM29

CQ K2TXB FM29

CQ K2TXB FM29

eme

direct

012200 1 3/50

012100 2 3/49

Log QSO

Play

Stop

Monitor

Save Last

Decode

Erase

Clear Avg

Include

Exclude

TxStop

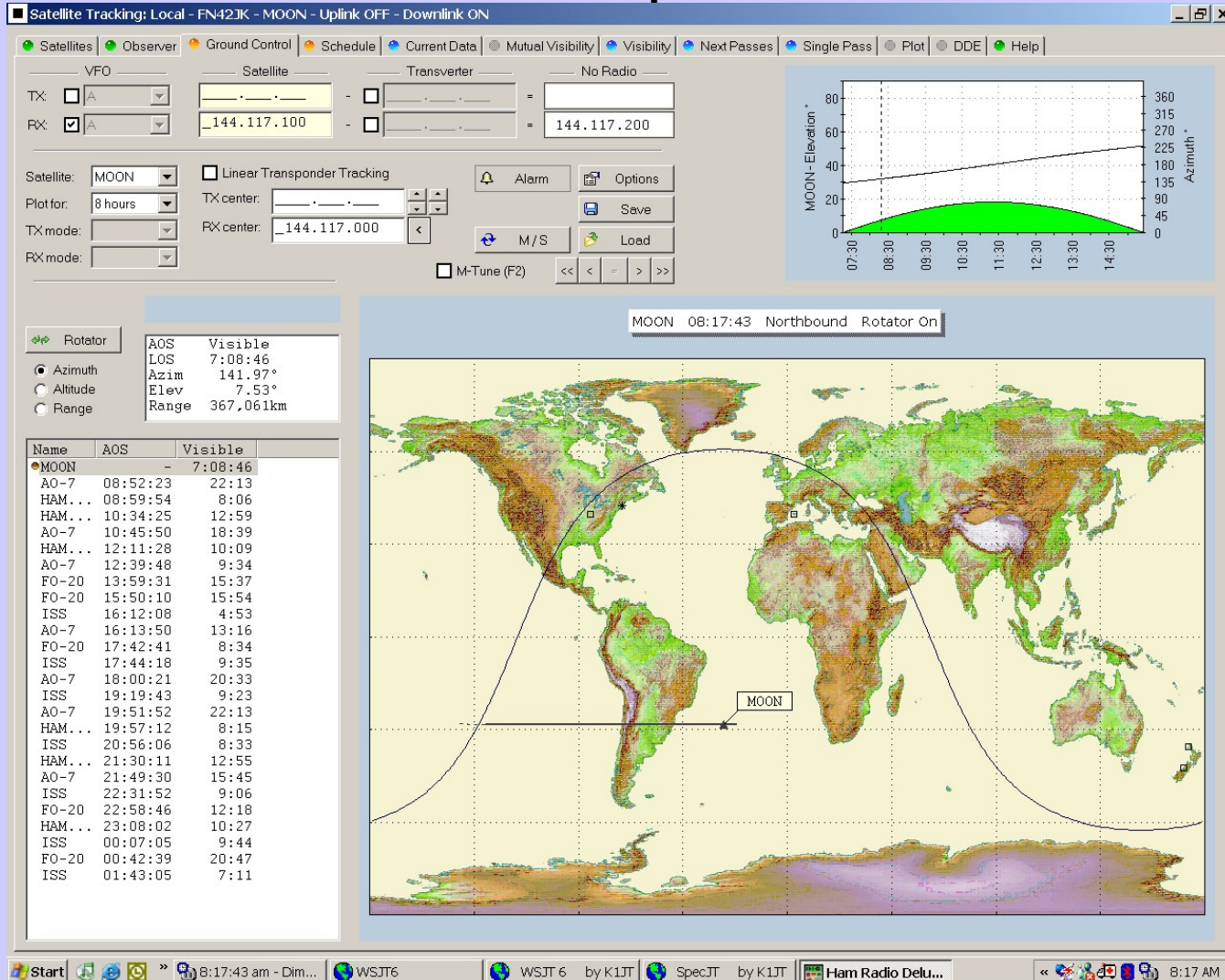
Moon Net

From	Subject	Received
Conrad_G0RUZ	[Moon-net] Articles needed	Mon 4/17/2006 6:45 PM
Bob Taylor	[Moon-net] FS	Mon 4/17/2006 7:01 PM
Conrad_G0RUZ	[Moon-net] Faraday rotation versus frequency on the eme path	Mon 4/17/2006 10:36 PM
K7XQ	RE: [Moon-net] Invalid and list made QSOs?	Tue 4/18/2006 12:34 AM
K7XQ	[Moon-net] Looking for 10 MHz ovenized crystal oscillators	Tue 4/18/2006 12:52 AM
Edward R. Cole	RE: [Moon-net] Invalid and list made QSOs?	Tue 4/18/2006 2:41 AM
dl5mae@wa7v.ampr.org	[Moon-net] RE: K7XQ-Invalid and list made QSOs?	Tue 4/18/2006 3:30 AM
Rob Hardenberg	Re: [Moon-net] Faraday rotation versus frequency on the eme path	Tue 4/18/2006 3:59 AM
dl5mae@wa7v.ampr.org	[Moon-net] re: al7eb Invalid and list QSO?	Tue 4/18/2006 4:02 AM
Michael R. Owen	Re: [Moon-net] Looking for 10 MHz ovenized crystal oscillators	Tue 4/18/2006 6:23 AM
Conrad_G0RUZ	RE: [Moon-net] Faraday rotation versus frequency on the eme path	Tue 4/18/2006 6:45 AM
Rob Hardenberg	RE: [Moon-net] Faraday rotation versus frequency on the eme path	Tue 4/18/2006 7:57 AM
Edward R. Cole	Re: [Moon-net] re: al7eb Invalid and list QSO?	Tue 4/18/2006 8:21 AM
Conrad_G0RUZ	RE: [Moon-net] Faraday rotation versus frequency on the eme path	Tue 4/18/2006 8:41 AM
J.M.Pratt	[Moon-net] VU4 Expedition	Tue 4/18/2006 8:52 AM
Daniel Gautschi, HB9CRQ	[Moon-net] 432 EME Logger, all mode	Tue 4/18/2006 8:58 AM
Daniel Gautschi, HB9CRQ	[Moon-net] RULES for EME Logger use, 3. draft	Tue 4/18/2006 8:58 AM
Daniel Gautschi, HB9CRQ	AW: [Moon-net] CW/SSB Logger page All Bands	Tue 4/18/2006 9:00 AM
Doug G4DZU	[Moon-net] New YD1336 on Ebay	Tue 4/18/2006 12:40 PM
LU6KK .	[Moon-net] VHF qsl	Tue 4/18/2006 1:01 PM
J.M.Pratt	Fw: [Moon-net] VU4 Expedition	Tue 4/18/2006 2:06 PM
Jerry Kleker	Re: [Moon-net] Looking for 10 MHz ovenized crystal oscillators	Tue 4/18/2006 2:44 PM
Sven Nordin	[Moon-net] Question about TS-2000	Tue 4/18/2006 3:00 PM
Gray, Ernest	[Moon-net] FW: KC4/W1MRQ Delays	Tue 4/18/2006 3:13 PM
Eduardo PY2BL	[Moon-net] QSLs sent (PY2BL)	Tue 4/18/2006 7:19 PM
Randy	[Moon-net] RE: 10 MHz ovenized crystal oscillators	Tue 4/18/2006 7:40 PM
Alfred Green	Re: [Moon-net] FW: KC4/W1MRQ Delays	Tue 4/18/2006 9:19 PM
Edward R. Cole	Re: [Moon-net] FW: KC4/W1MRQ Delays	Tue 4/18/2006 11:48 PM
Joe Taylor	Re: [Moon-net] Invalid and list made QSOs?	Wed 4/19/2006 8:52 AM
Conrad_G0RUZ	[Moon-net] Important clarification necessary.	Wed 4/19/2006 3:02 PM
DW Harms	[Moon-net] Some important updates from PA	Wed 4/19/2006 3:02 PM
Jerry Kleker	Re: [Moon-net] Important clarification necessary.	Wed 4/19/2006 3:19 PM
David Anderson GM4JJJ	Re: [Moon-net] Important clarification necessary.	Wed 4/19/2006 3:35 PM
David Anderson GM4JJJ	Re: [Moon-net] Important clarification necessary.	Wed 4/19/2006 3:37 PM
Russ K2TXB	RE: [Moon-net] Important clarification necessary.	Wed 4/19/2006 4:15 PM
peter blair	Re: [Moon-net] Important clarification necessary.	Wed 4/19/2006 4:43 PM
Russ K2TXB	RE: [Moon-net] Important clarification necessary.	Wed 4/19/2006 4:51 PM
Greg Drzyzga	[Moon-net] mini- Conference	Wed 4/19/2006 8:46 PM
Jerry Kleker	Re: [Moon-net] Important clarification necessary. "MEMORIES"	Thu 4/20/2006 1:08 AM
17.5° N 88.3° W	[Moon-net] Portable Ops	Thu 4/20/2006 2:00 AM
Freddy de Guchteneire	[Moon-net] 10 GHz Polarisation tests	Thu 4/20/2006 6:26 AM

Rig Control : Moon Or Satellite tracking



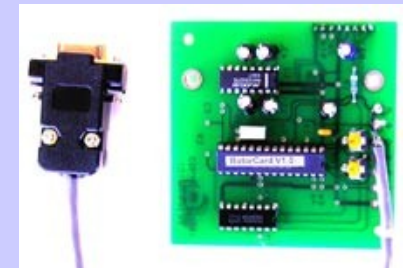
<http://hrd.ham-radio.ch/>



RS-232 rotor control

Idiom Press

<http://www.idiompres.com/index.htm>



Moon AZ/El FN42jk

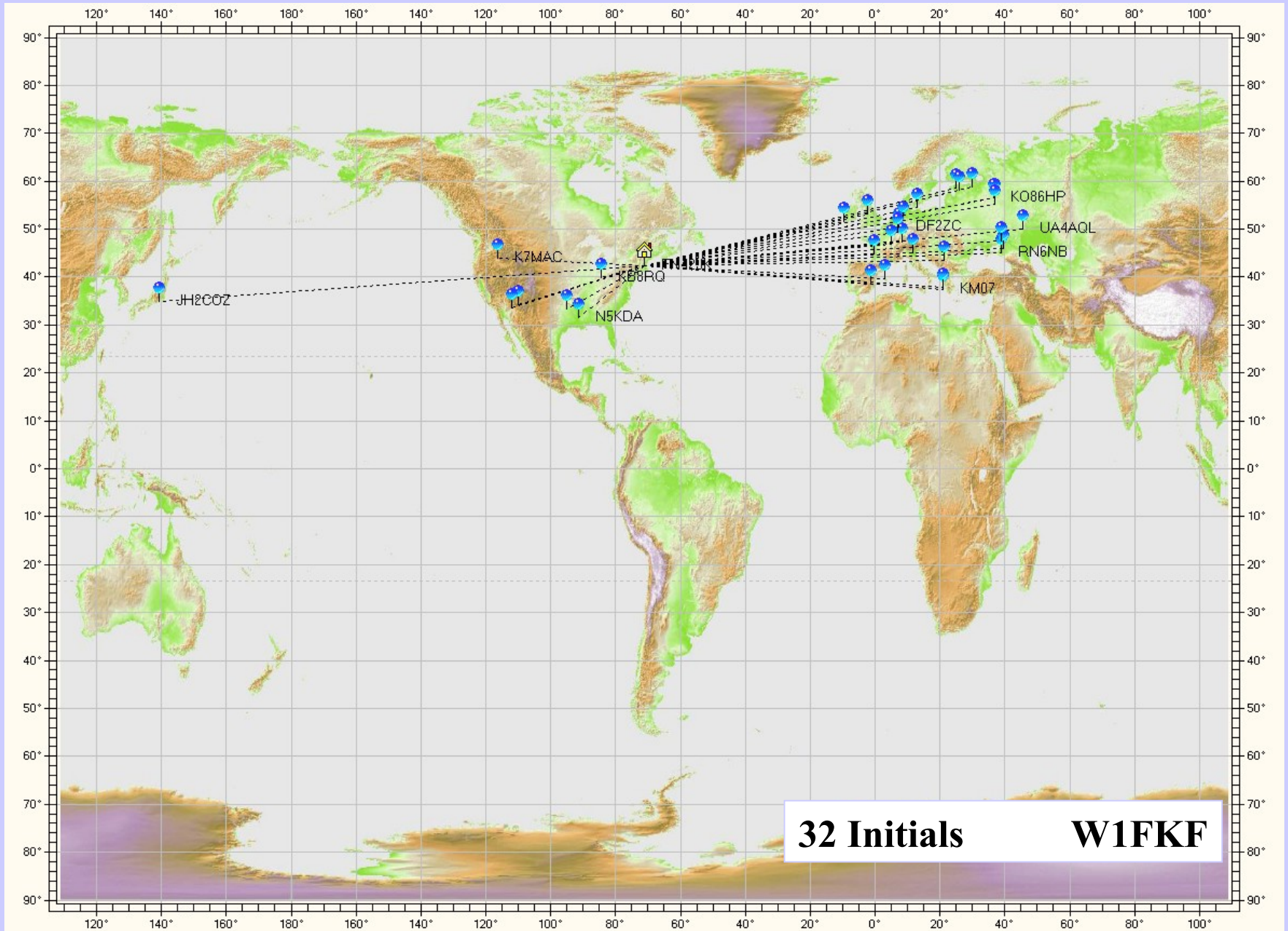
Wed 01-Mar-2006 07:18:54	90.21°	19:50:54	49.29°	181.53°	12:32:00	Thu 27-Apr-2006 05:29:13	71.59°	19:49:16	63.05°	182.11°	14:20:03
Thu 02-Mar-2006 07:41:50	80.46°	21:09:06	56.59°	181.81°	13:27:16	Fri 28-Apr-2006 05:57:57	63.49°	21:07:48	68.66°	182.07°	15:09:51
Fri 03-Mar-2006 08:06:16	71.41°	22:26:22	63.15°	182.01°	14:20:06	Sat 29-Apr-2006 06:32:43	56.97°	22:23:12	72.83°	181.17°	15:50:29
Sat 04-Mar-2006 08:33:58	63.49°	23:42:04	68.61°	181.92°	15:08:06	Sun 30-Apr-2006 07:15:27	52.58°	23:31:23	75.27°	180.28°	16:15:56
Sun 05-Mar-2006 09:06:50	57.15°	00:54:10	72.68°	181.08°	15:47:20	Mon 01-May-2006 08:07:06	50.75°	00:29:03	66.12°	241.37°	16:21:57
Mon 06-Mar-2006 09:46:38	52.77°	01:59:46	75.16°	180.46°	16:13:08	Tue 02-May-2006 09:06:35	51.57°	01:15:21	65.90°	237.82°	16:08:46
Tue 07-Mar-2006 10:34:29	50.71°	02:56:16	66.10°	241.84°	16:21:47	Wed 03-May-2006 10:10:54	54.73°	01:51:43	64.60°	231.91°	15:40:49
Wed 08-Mar-2006 11:30:00	51.06°	03:42:40	66.07°	239.05°	16:12:40	Thu 04-May-2006 11:16:42	59.69°	02:20:29	62.17°	225.13°	15:03:47
Thu 09-Mar-2006 12:31:09	53.67°	04:19:50	65.06°	233.71°	15:48:41	Fri 05-May-2006 12:21:43	65.91°	02:43:58	58.72°	218.57°	14:22:15
Fri 10-Mar-2006 13:35:07	58.13°	04:49:34	62.96°	227.11°	15:14:27	Sat 06-May-2006 13:25:04	72.98°	03:03:59	54.45°	212.76°	13:38:55
Sat 11-Mar-2006 14:39:31	64.00°	05:13:53	59.81°	220.42°	14:34:22	Sun 07-May-2006 14:26:58	80.60°	03:22:02	49.59°	207.79°	12:55:04
Sun 12-Mar-2006 15:43:00	70.86°	05:34:29	55.76°	214.33°	13:51:29	Mon 08-May-2006 15:28:19	88.57°	03:39:20	44.33°	203.62°	12:11:01
Mon 13-Mar-2006 16:45:19	78.39°	05:52:50	51.01°	209.09°	13:07:31	Tue 09-May-2006 16:30:13	96.70°	03:57:03	38.89°	200.11°	11:26:50
Tue 14-Mar-2006 17:46:53	86.33°	06:10:08	45.81°	204.69°	12:23:15	Wed 10-May-2006 17:33:55	104.80°	04:16:25	33.49°	197.16°	10:42:30
Wed 15-Mar-2006 18:48:32	94.46°	06:27:28	40.39°	201.01°	11:38:56	Thu 11-May-2006 18:40:22	112.62°	04:38:57	28.37°	194.73°	9:58:35
Thu 16-Mar-2006 19:51:13	102.56°	06:45:56	34.99°	197.94°	10:54:43	Fri 12-May-2006 19:49:53	119.80°	05:06:34	23.85°	192.81°	9:16:41
Fri 17-Mar-2006 20:55:53	110.41°	07:06:48	29.82°	195.40°	10:10:55	Sat 13-May-2006 21:01:23	125.79°	05:41:46	21.25°	179.24°	8:40:23
Sat 18-Mar-2006 22:03:04	117.72°	07:31:44	25.16°	193.36°	9:28:40	Sun 14-May-2006 22:11:50	129.91°	06:27:15	18.85°	179.58°	8:15:25
Sun 19-Mar-2006 23:12:26	124.06°	08:02:55	22.33°	179.14°	8:50:29	Mon 15-May-2006 23:16:37	131.45°	07:24:44	18.16°	179.97°	8:08:07
Tue 21-Mar-2006 00:22:12	128.87°	08:43:07	19.41°	179.45°	8:20:55	Wed 17-May-2006 00:11:42	130.07°	08:33:11	18.48°	191.78°	8:21:29
Wed 22-Mar-2006 01:28:49	131.47°	09:35:05	18.03°	179.81°	8:06:16	Thu 18-May-2006 00:55:57	125.95°	09:48:39	21.32°	193.44°	8:52:42
Thu 23-Mar-2006 02:28:01	131.27°	10:39:49	17.63°	191.26°	8:11:48	Fri 19-May-2006 01:30:53	119.66°	11:06:32	26.96°	181.05°	9:35:39
Fri 24-Mar-2006 03:17:08	128.08°	11:55:03	19.90°	192.69°	8:37:55	Sat 20-May-2006 01:59:08	111.85°	12:23:53	32.76°	181.38°	10:24:45
Sat 25-Mar-2006 03:56:25	122.27°	13:16:03	25.09°	181.00°	9:19:38	Sun 21-May-2006 02:23:13	103.08°	13:39:51	39.39°	181.38°	11:16:38
Sun 26-Mar-2006 04:28:00	114.47°	14:38:27	30.87°	181.37°	10:10:27	Mon 22-May-2006 02:45:14	93.80°	14:55:00	46.46°	181.71°	12:09:46
Mon 27-Mar-2006 04:54:29	105.36°	15:59:54	37.75°	181.43°	11:05:25	Tue 23-May-2006 03:06:57	84.41°	16:10:23	53.57°	181.59°	13:03:26
Tue 28-Mar-2006 05:18:10	95.56°	17:20:02	45.23°	181.79°	12:01:52	Wed 24-May-2006 03:30:05	75.30°	17:26:50	60.32°	181.90°	13:56:45
Wed 29-Mar-2006 05:41:01	85.60°	18:39:25	52.78°	181.70°	12:58:24	Thu 25-May-2006 03:56:25	66.92°	18:44:13	66.29°	182.07°	14:47:48
Thu 30-Mar-2006 06:04:46	76.01°	19:58:39	59.89°	182.00°	13:53:53	Fri 26-May-2006 04:27:57	59.77°	20:00:37	71.06°	181.66°	15:32:40
Fri 31-Mar-2006 06:31:14	67.27°	21:17:28	66.09°	182.15°	14:46:14	Sat 27-May-2006 05:06:51	54.42°	21:12:22	74.27°	180.08°	16:05:31
Sat 01-Apr-2006 07:02:20	59.91°	22:34:04	71.00°	181.74°	15:31:44	Sun 28-May-2006 05:54:44	51.43°	22:15:20	75.71°	180.07°	16:20:36
Sun 02-Apr-2006 08:40:03	54.41°	00:45:14	74.31°	180.22°	16:05:11	Mon 29-May-2006 06:51:34	51.11°	23:07:06	66.05°	239.43°	16:15:32
Mon 03-Apr-2006 09:25:55	51.24°	01:47:31	75.88°	180.36°	16:21:36	Tue 30-May-2006 07:54:59	53.35°	23:47:59	65.21°	234.30°	15:53:00
Tue 04-Apr-2006 10:20:03	50.63°	02:38:58	66.20°	240.47°	16:18:55	Wed 31-May-2006 09:01:21	57.67°	00:20:03	63.20°	227.66°	15:18:42
Wed 05-Apr-2006 11:20:41	52.47°	03:19:57	65.56°	235.84°	15:59:16	Thu 01-Jun-2006 10:07:35	63.49°	00:45:46	60.10°	220.91°	14:38:11
Thu 06-Apr-2006 12:24:48	56.37°	03:52:22	63.83°	229.48°	15:27:34	Fri 02-Jun-2006 11:12:06	70.30°	01:07:12	56.10°	214.78°	13:55:06
Fri 07-Apr-2006 13:29:37	61.82°	04:18:26	61.02°	222.70°	14:48:49						
Sat 08-Apr-2006 14:33:33	68.38°	04:40:09	57.26°	216.37°	14:06:36						
Sun 09-Apr-2006 15:36:08	75.69°	04:59:07	52.74°	210.84°	13:22:59						
Mon 10-Apr-2006 16:37:47	83.50°	05:16:39	47.68°	206.16°	12:38:52						
Tue 11-Apr-2006 17:39:22	91.60°	05:33:53	42.30°	202.22°	11:54:31						
Wed 12-Apr-2006 18:41:55	99.78°	05:51:58	36.83°	198.92°	11:10:03						
Thu 13-Apr-2006 19:46:27	107.82°	06:12:07	31.50°	196.18°	10:25:40						
Fri 14-Apr-2006 20:53:38	115.42°	06:35:54	26.59°	193.95°	9:42:16						
Sat 15-Apr-2006 22:03:16	122.19°	07:05:18	22.40°	192.24°	9:02:02						
Sun 16-Apr-2006 23:13:46	127.57°	07:42:49	20.18°	179.35°	8:29:03						
Tue 18-Apr-2006 00:21:45	130.89°	08:31:00	18.32°	179.70°	8:09:15						
Wed 19-Apr-2006 01:22:56	131.56°	09:31:05	17.37°	191.01°	8:08:09						
Thu 20-Apr-2006 02:14:17	129.35°	10:41:35	19.00°	192.13°	8:27:18						
Fri 21-Apr-2006 02:55:29	124.53°	11:58:29	23.42°	180.83°	9:03:00						
Sat 22-Apr-2006 03:28:24	117.64°	13:17:39	28.47°	181.18°	9:49:15						
Sun 23-Apr-2006 03:55:35	109.29°	14:36:34	34.72°	181.53°	10:40:59						
Mon 24-Apr-2006 04:19:22	100.04°	15:54:37	41.76°	181.56°	11:35:15						
Tue 25-Apr-2006 04:41:44	90.36°	17:12:17	49.14°	181.49°	12:30:33						
Wed 26-Apr-2006 05:04:27	80.72°	18:30:24	56.39°	181.82°	13:25:57						

<u>Date</u>		<u>Max EL</u>		<u>Hours Visible</u>	
Sun	02-Apr-2006	08:40:03	54.41°	00:45:14	74.31° 180.22° 16:05:11 ←
Mon	03-Apr-2006	09:25:55	51.24°	01:47:31	75.88° 180.36° 16:21:36
Tue	04-Apr-2006	10:20:03	50.63°	02:38:58	66.20° 240.47° 16:18:55
Wed	05-Apr-2006	11:20:41	52.47°	03:19:57	65.56° 235.84° 15:59:16
Thu	06-Apr-2006	12:24:48	56.37°	03:52:22	63.83° 229.48° 15:27:34
Fri	07-Apr-2006	13:29:37	61.82°	04:18:26	61.02° 222.70° 14:48:49
Sat	08-Apr-2006	14:33:33	68.38°	04:40:09	57.26° 216.37° 14:06:36
Sun	09-Apr-2006	15:36:08	75.69°	04:59:07	52.74° 210.84° 13:22:59
Mon	10-Apr-2006	16:37:47	83.50°	05:16:39	47.68° 206.16° 12:38:52
Tue	11-Apr-2006	17:39:22	91.60°	05:33:53	42.30° 202.22° 11:54:31
Wed	12-Apr-2006	18:41:55	99.78°	05:51:58	36.83° 198.92° 11:10:03
Thu	13-Apr-2006	19:46:27	107.82°	06:12:07	31.50° 196.18° 10:25:40
Fri	14-Apr-2006	20:53:38	115.42°	06:35:54	26.59° 193.95° 9:42:16
Sat	15-Apr-2006	22:03:16	122.19°	07:05:18	22.40° 192.24° 9:02:02
Sun	16-Apr-2006	23:13:46	127.57°	07:42:49	20.18° 179.35° 8:29:03
Tue	18-Apr-2006	00:21:45	130.89°	08:31:00	18.32° 179.70° 8:09:15
Wed	19-Apr-2006	01:22:56	131.56°	09:31:05	17.37° 191.01° 8:08:09 ←
Thu	20-Apr-2006	02:14:17	129.35°	10:41:35	19.00° 192.13° 8:27:18
Fri	21-Apr-2006	02:55:29	124.53°	11:58:29	23.42° 180.83° 9:03:00
Sat	22-Apr-2006	03:28:24	117.64°	13:17:39	28.47° 181.18° 9:49:15
Sun	23-Apr-2006	03:55:35	109.29°	14:36:34	34.72° 181.53° 10:40:59
Mon	24-Apr-2006	04:19:22	100.04°	15:54:37	41.76° 181.56° 11:35:15
Tue	25-Apr-2006	04:41:44	90.36°	17:12:17	49.14° 181.49° 12:30:33

W5luu Weekend Moon Data For 2006

W5LUU WEEKEND MOONDATA - 2006 FOR SUNDAYS AT 0000 UTC

Date 2006	Dec. deg	RA hrs.	144 MHz Temp.K	Range Factor dB	DGRD, dB 144 MHz	DGRD, dB 432MHz	Moon Phase	CONDITIONS
1-Jan	-26.4	19.6	528	0.32	4.3	1.6	NM + 21h	Poor
8	14.4	2.0	322	1.17	3.3	1.7	FM + 14h	Moderate
15	24.4	8.3	202	2.19	2.8	2.3		Moderate
22	-10.9	13.5	322	1.92	4.1	2.3		Poor
29	-24.1	20.3	360	0.17	2.7	0.9	NM - 14h	Moderate
5-Feb	18.6	2.6	359	1.14	3.7	1.8	FM - 1.2d	Moderate
12	21.8	8.9	170	2.29	2.4	2.3		Good
19	-14.9	14	349	1.94	4.4	2.5		Poor
26	-22.2	20.8	334	0.2	2.5	0.8	NM - 2d	Good
5-Mar	22	3.2	362	1.04	3.6	1.7	FM - 3d	Moderate
12	18.7	9.5	183	2.32	2.6	2.3		Moderate
19	-18.8	14.6	391	1.87	4.7	2.6		Poor
26	-19.3	21.4	345	0.36	2.7	0.9	NM - 3.5d	Moderate
2-Apr	24.4	3.8	362	0.97	3.5	1.6		Moderate
9	15.3	10.1	188	2.3	2.7	2.3		Moderate
16	-22.2	15.3	436	1.71	4.9	2.6		Poor
23	-15.4	22	276	0.55	2.2	1	FM + 2.5d	Good
30	26.3	4.4	398	1.02	3.9	1.8	NM + 2.2d	Moderate
7-May	11.7	10.6	201	2.26	2.8	2.4	FM + 0.7d	Moderate
14	-24.8	15.9	506	1.47	5.3	2.5		Poor
21	-10.7	22.7	244	0.66	1.9	1		Good
28	27.6	5	467	1.19	4.7	2.2	NM + 0.8d	Poor
4-Jun	7.9	11	211	2.24	3	2.4	FM - 0.75d	Moderate
11	-26.7	16.5	708	1.23	6.3	2.5		Very poor
18	-5.3	23.4	244	0.65	1.9	1		Good
25	28.3	5.6	512	1.43	5.2	2.7	NM - 0.7d	Poor
2-Jul	3.9	11.5	235	2.26	3.3	2.4	FM - 2d	Moderate
9	-27.9	17.2	1199	1.06	8.2	3.2		Very poor
16	0	0	252	0.54	1.9	1		Good
23	28.4	6.3	440	1.67	4.9	2.8	NM - 2d	Poor
30	-0.2	12	260	2.3	3.7	2.6	FM - 3.5d	Moderate
6-Aug	-28.5	17.8	2619	0.99	11.4	5		Very poor
13	4.9	0.5	271	0.57	1.9	0.8		Good
20	27.6	7.1	358	1.84	4.4	2.5	NM + 3.2d	Poor
27	-4.4	12.5	312	2.33	4.4	2.9		Poor



Questions?



The End
Tnx w1fkf