



NATIONAL RADIO ASTRONOMY OBSERVATORY

POST OFFICE BOX 2 GREEN BANK, WEST VIRGINIA 24944
TELEPHONE 304 456 2011 TWX 710 836 1530

VLBA CC Memo No. 18

MEMORANDUM

December 15, 1983

To: NUG Distribution
From: R. Lacasse
Subj: VLBI Standard Network Frequencies and Set-Ups

Enclosed is an updated set of Standard Network Frequencies. They have been agreed upon by the European and U.S. Technical Committees and will hopefully contribute to more reliable observing. These are effective immediately following the December 1983 VLBI Network Sessions.

Please replace pages V.3-11 through V.3-16 in the VLBI Network Handbook with the enclosed pages.

Your comments and suggestions are welcome and appreciated. They can be addressed to me.

RJL/cjd

Enclosures:

1. Standard Network Frequencies
2. MKIII Observing Modes
3. Wavelength Dependent Parameters

TELESCOPE DATA

Standard Network Frequencies

Date: December 1, 1983

Philosophy for MKII Setup

1. MKII bands used before this update are shifted in frequency as little as possible to coincide with a MKIII band. The output of the MKIII video converter can then be used as a signal source for MKII. This has the advantage of tying the MKII system into the real-time fringe verification process at a point further downstream than was previously possible. It also permits the use of the phase calibration tone.

Philosophy for MKIII Setup

1. Nine standard observing modes are defined. Details are on the following pages.
2. The mean observing frequencies for all modes are the same.
3. Frequencies are chosen so that a phase calibrator tone occurs at 10 kHz in each band when 1 pulse/microsecond is injected into the IF or front end.
4. Frequencies in the 18, 6, and 1.3 cm bands are constrained to be centered in discrete 50 MHz VLA receiving bands.
5. IF Distributor patching is defined so that switching between certain modes can be controlled by the HP computer.
6. All bands are observed net USB.

Caution: All modes defined herein are not necessarily supported at all stations. Observers should ascertain which wavelength, bandwidth, and polarization configurations are possible when selecting an antenna configuration. See the attached "MKIII Observing Modes".

R. Lacasse
12/1/83

Mode Designation	Observed Bandwidth (MHz)	Polarization (IEEE)	Formatter Mode	IF1, IF2 Input	Video Converters			Recorder Tracks		Note
					Ascending Frequency Order	Spacing (MHz)	Filter (MHz)	FOR	REV	
112L	112	LCP	A	NOR, ALT	2:4:6:8:1:3:5:7:9: 11:13:10:12:14	8	4	All	None	1
56L	56	LCP	A	NOR, ALT	2:4:6:8:1:3:5:7:9: 11:13:10:12:14	4	2	All	None	1
28D	28	LCP RCP	A	NOR, NOR	1,2:3,4:5,6:7,8:9,10: 11,12:13,14	4	2	All	None	1,3
28L	28	LCP	B	NOR, ALT	1:3:5:7:9:11:13	4	2	Odd	Even	1
14D	14	LCP RCP	C	NOR, NOR	1,2:3,4:5,6:7,8:9,10: 11,12:13,14	2	2	Odd	Even	1,3
14L	14	LCP	B,C (E)	NOR, ALT	1:3:5:7:9:11:13	2	2	G1, G2	G3, G4	1,4
SS	56	RCP	A	ALT, NOR	1:3:5:7:2:4:6:8:10: 12:14:9:11:13	4	2	All	None	2
XX	56	RCP	A	NOR, ALT	2:4:6:8:1:3:5:7:9: 11:13:10:12:14	4	2	All	None	2
SX	28	RCP	A	NOR, NOR	X:1:3:5:7:9:11:13 S:2:4:6:8:10:12:14	4	2	All	None	2

Note 1: LCP channel goes to the IF1 NORMAL and IF2 ALT inputs; RCP channel goes to the IF1 ALT and IF2 NORMAL inputs. IF1 outputs go to the ODD Video Converters; IF2 even outputs go to the EVEN Video Converters.

Note 2: X-band IF goes to IF1 NORMAL and IF2 ALT inputs. S-band IF goes to IF1 ALT and IF2 NORMAL inputs. IF1 outputs go to ODD Video Converters and IF2 outputs go to EVEN Video Converters. Mode SS requires IFD=NOR,ALT; mode XX requires IFD=ALT,NOR; mode SX requires IFD=NOR,NOR.

Note 3: VC01 = VC02; VC03 = VC04, etc.

Note 4: Record G1 and G2 with the Formatter in Mode B, and G3 and G4 with the Formatter in Mode C.

WAVELENGTH DEPENDENT PARAMETERS

Update: 12-83

λ (cm)	Observing Band (MHz)	Recommended First LO (MHz)	MKIII Set-Up		MKII Set-Up			Use MKIII Mode
			VC01 (MHz) All modes except 14D, 14L	VC01 (MHz) Modes 14D, 14L	Recommended Modes (Note 2)	Observing Band (MHz)	VC Number (Note 1)	
90	315.99 to 343.99	None	317.99	322.99	28D, 28L, 14D	325.99 to 327.99	5	28D
50	585.99 to 613.99	450	137.99	142.99	28D, 28L, 14D	607.99 to 609.99	11	28D
18	1636.99 to 1692.99	1510	144.99	149.99	56L, 28D, 28L, 14D	1662.99 to 1664.99	5	28D
13	2256.99 to 2312.99	2020	254.99	Not Recommended	SS, SX	2282.99 to 2284.99	5	SS
6	4956.99 to 5012.99	4840	134.99	Not Recommended	56L, 28D, 28L	4990.99 to 4992.99	9	28D
3.6	8391.99 to 8447.99	8080	313.99 329.99	Not Recommended	XX SX	8401.99 to 8403.99	5	XX
2.8	10643.99 to 10699.99	10500	161.99	Not Recommended	56L, 28D, 28L	10649.99 to 10651.99	4	56L
1.3	22206.99 to 22262.99	22080	144.99	Not Recommended	56L, 28D, 28L	22228.99 to 22230.99	3	28D

Note 1: Use the USB output of this Video Converter for MKII observations.

Note 2: Observers should ascertain which wavelength, bandwidth, and polarization configurations are possible when selecting an antenna configuration. These recommended modes are NOT necessarily supported at all antennas.