

# National Radio Astronomy Observatory

Very Large Array

April 13, 1983

To: VLBA Members

From: Dave Weber

Subject: Monitor and Control channel usage and capacity at the VLA.

The following list is a summary of the presently implemented Monitor and Control channel usage at the VLA and are grouped into "Standard" Antenna functions which are identical in all 28 antennas and "Peculiar" Antenna functions which are special purpose channels associated with equipment peculiar to some antennas or non-antenna associated functions in the Control Building area.

The Data Sets are control/data units which are installed in each rack to locally distribute commands and gather digital and analog data. Commands to the Data Set and data from it are time-serial messages consisting of a 24 bit argument, and Data Set, Multiplex channel and Antenna Address components. The Data Set multiplexes, samples and converts analog data to 12 bit digital values which are formatted in pairs into the 24 bit message argument. Digital monitor data and commands use a 24 bit argument. In the VLA the Data Sets are driven by message distribution buffers which filter and distribute commands and poll data from their associated Data Sets.

## "Standard" Antenna Command/Data Channel Usage

### DATA SET #0 (Antenna Control Unit)

ANALOG MON	-	12,	4 Spares
DIG MON	-	3,	No Spares
DIG CMD	-	3	No Spares

### DATA SET #1 (Front End)

ANALOG MON	-	103,	25 Spares
DIG MON	-	6,	58 Spares
DIG CMD	-	7,	41 Spares

### DATA SET #2 (IF/Local Oscillator)

ANALOG MON	-	56,	72 Spares
DIG MON	-	12,	53 Spares
DIG CMD	-	18,	30 Spares

### DATA SET #3 (Subreflector Control)

ANALOG MON	-	17,	65 Spares
DIG MON	-	5,	59 Spares
DIG CMD	-	7,	41 Spares

### DATA SET #4 (Spare Antenna Data Set, Not Installed)

### DATA SET #5 (Central Electronics Room)

ANALOG MON	-	46,	80 Spares
DIG MON	-	8,	56 Spares
DIG CMD	-	8,	40 Spares

"STANDARD" ANT CONT.

USAGE PER STANDARD ANTENNA:

ANALOG MON	-	234 ACTIVE
DIG MON	-	34 Active
DIG CMD	-	43 ACTIVE

TOTAL LATENT CAPACITY (6 DATA SETS):

ANALOG DATA	-	768
DIG MON	-	384 ( 9216 BITS)
DIG CMD	-	288 ( 6912 BITS)

"PECULIAR" ANTENNA DATA SET CHANNEL USAGE

DCS-Ø, (CONTROL BUILDING AREA)

DATA SET Ø (Weather Station)

ANALOG MON	-	19,	109 Spares
DIG MON	-	3,	61 Spares
DIG CMD	-	4,	44 Spares

DATA SET 1 & 2 (Master LO-Racks 1&2)

ANALOG MON	-	96,	160 Spares
DIG MON	-	5,	59 Spares
DIG CMD	-	4,	44 Spares

DATA SET 3 (Master LO-MS Rack)

ANALOG MON	-	8,	120 Spares
DIG MON	-	18,	46 Spares
DIG CMD	-	19,	29 Spares

DATA SET 5, (Monitor & Control Rack)

ANALOG MON	-	10,	118 Spares
DIG MON	-	2,	62 Spares
DIG CMD	-	4,	44 Spares

ANT 15, DS#2, REMOTE WEATHER STATION

8 ANALOG MON

ANT #6 & #22 DATA SET 2, INCLINOMETERS

16 ANALOG MON

ANT 6 & 22 DATA SET 3, TEMPERATURE PROBES

ANT #22, YOKE TEMP MON

16 ANALOG MON

ANT #6, YOKE TEMP MON

8 ANALOG MON

ANT #9 DATA SET 2, MASER CONTROL

ANALOG MON - 12

DIG MON - 2

DIG CMD - 3

ANT #12 NEW F/R UNIT

ANALOG MON - 14

DIG MON - 13

CMD - 8

DW/bmg