

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
 HAYSTACK OBSERVATORY
 WESTFORD, MASSACHUSETTS 01886

9 July 1987

Area Code 617
 692-4765

TO: VLBA Data Acquisition Group
 FROM: A. E. E. Rogers
 SUBJECT: Proposed New Rack Layout for DAR

A new rack layout shown in the attached figure is proposed for DAR for the following reasons:

- 1) To replace the rack mounting +5v supply with separate VLA module supplies for the formatter and baseband converters.
- 2) To replace the Wavetek synthesizer with synthesizer module designed to generate 190.512 MHz (or some other fixed frequency) for VLBA format and 189 MHz for MkIII format.
- 3) To allow for an option of up to 14 converters in one rack for geodetic observations.

A] Power Supply Considerations

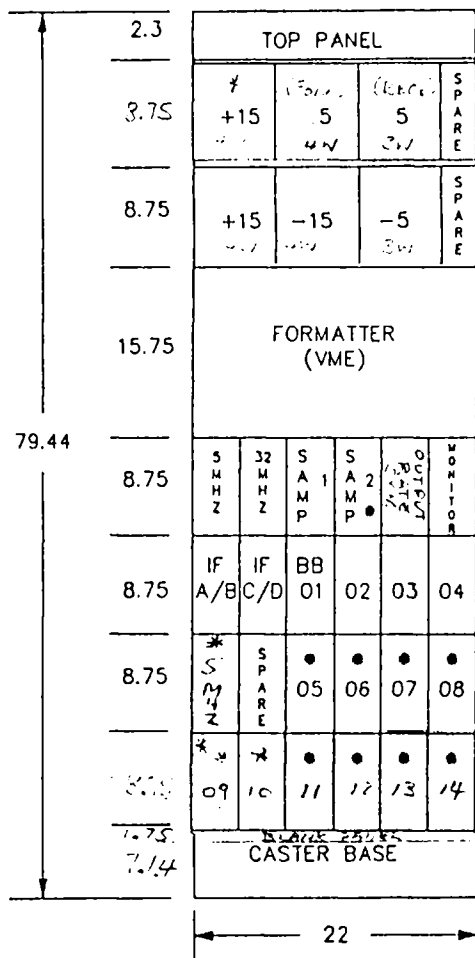
Voltage	Supply Current	Consumption (4 Convs.)	8 Convs.	14 Convs.
+15	12	4.28	7.68	7.68
+15	12	Not Used	Not Used	5.10
-15	12	2.24	4.44	7.74
+ 5 (form)	90	50	50	50
+ 5 (BBCs)	36	8.4	16.8	29.4
- 5	36	13.15	15.55	15.55

B] Fourteen Converter Option

A rack designed to handle 14 converters for MkIII mode C compatibility in one rack would require the following additional pieces and changes:

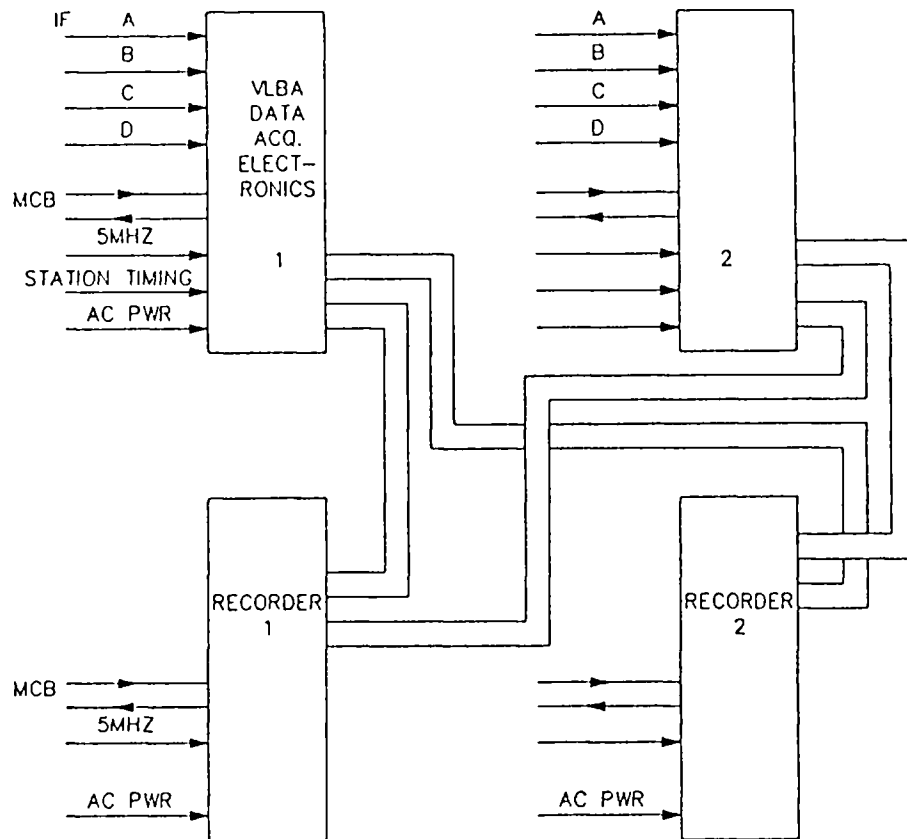
- 1] Extra VLA bin at bottom of the rack and additional rack wiring.
- 2] Extra +15 supply.
- 3] Extra 5 MHz distribution.

- 4] Sampler #2.
- 5] Pin changes (connector pins are removable in sampler modules for the USB outputs of converters 9 through 14 to replace the LSB outputs of converters 3 through 8. (there are enough spare pins that the USB outputs of converters 9 through 14 could be wired in the rack.) These pins could easily be changed back in the field in a few minutes if the LSB outputs of converters 3 through 8 were needed. Note however, that the samplers will only support 8 baseband channels each. (A more complex sampler module could be designed - but is not proposed - to support 8 baseboard channels with 2 bits/sample or 16 baseband channels with 1 bit/sample.)



• FOR EXPANSION

DATA ACQUISITION RACK LAYOUT



FULL VLBA CONFIGURATION

1. EACH ELECTRONICS RACK HAS 4 BB CONV. EXPANDED TO 8.
2. EACH FORMATTER HAS 32 DATA OUTPUTS BUFFERED TO EACH RECORDER MAX OUTPUT DATA RATE 256 MB/S PER FORMATTER (EXPANDABLE TO 512 MB/S PER FORMATTER).
3. RACKS ARE INDEPENDANT.

NOTES

MATERIAL

DASH AND/OR HEAT TREATMENT

SHOP NOTES: UNLESS OTHERWISE SPECIFIED

1. DIMENSIONS ARE IN INCHES
2. TOLERANCE ON DIMENSIONS FRACTIONAL & 1/64 DECIMAL SEE 9.01
3. SURFACE FINISH PER MIL-STD-10
4. REMOVE BURRS AND BREAK SHARP EDGES 1/8" MAX.
5. SCREW THREADS PER MIL-STD-8
6. ALL DIMENSIONS TO APPLY BEFORE PLATING OR CONVERSION COATING.

USED ON

NOT ASSEMBLY

SCALE NONE

CLASSIFICATION

DRAWN FOR A.E. ROGERS 3/87

DESIGNED BY A. PHILBROOK 3/87

CHECKED BY

PROJECT

ENGINEER

MAT'L & PROCESS

STRUCTURES

MECHANICAL

WELD ANALYSIS

NORTHEAST RADIO OBSERVATORY CORPORATION
HAYSTACK OBSERVATORY
WESTFORD, MASSACHUSETTS

PROPOSED RACK
CONFIGURATION

AER/RACK	C	54100D006	REV.
OWC SIZE		OWC NO.	

C-541000006