

ASSIGNMENT OF EQUIPMENT TO RACKS IN THE STATION BUILDING
 Larry R. D'Addario
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Figure 1 is a floor plan of the Station Building, with racks of electronic equipment labeled and located. The equipment to be included in each rack is listed below. The interfaces and interconnections are shown in the block diagram of Figure 2.

Maser rack

Hydrogen maser as delivered by manufacturer.

LO rack

Bin 1N 100 MHz distributor
 5 MHz distributor
 100 to 500 MHz multiplier
 LO transmitter
 LO control module *
 Bin 2X Power supplies

IF rack

Bin 1N IF distributor AB *
 Baseband converters 0 to 3 ****
 10 kHz divider
 Bin 2N IF distributor CD *
 Baseband converters 4 to 7 ****
 Bin 3X Power supplies

Digital rack

Bin 1X Timing receiver (Loran, GPS, etc.)
 Bin 2N Timing generator *
 Timing receiver interfaces
 Bin 3V Formatter #1 *
 Digitizers
 Sampling clock generator
 Time-of-day clock
 Bin 4V Formatter #2 *
 Bin 5X Power supplies

Recorder rack #1

Honeywell transport
 VLBA electronics & power supplies *

Recorder rack #2

Honeywell transport
 VLBA electronics & power supplies *

Computer rack

VME-based computer *[master]
 Local disk drive (optional)
 Communications (modems, etc.)

* indicates device contains an interface to the monitor/control bus.
 N after bin number indicates NRAO (VLA style) bin assembly.
 V after bin number indicates VME bus chassis.
 X after bin number indicates special bin, rack panel mount, etc.

DISCUSSION

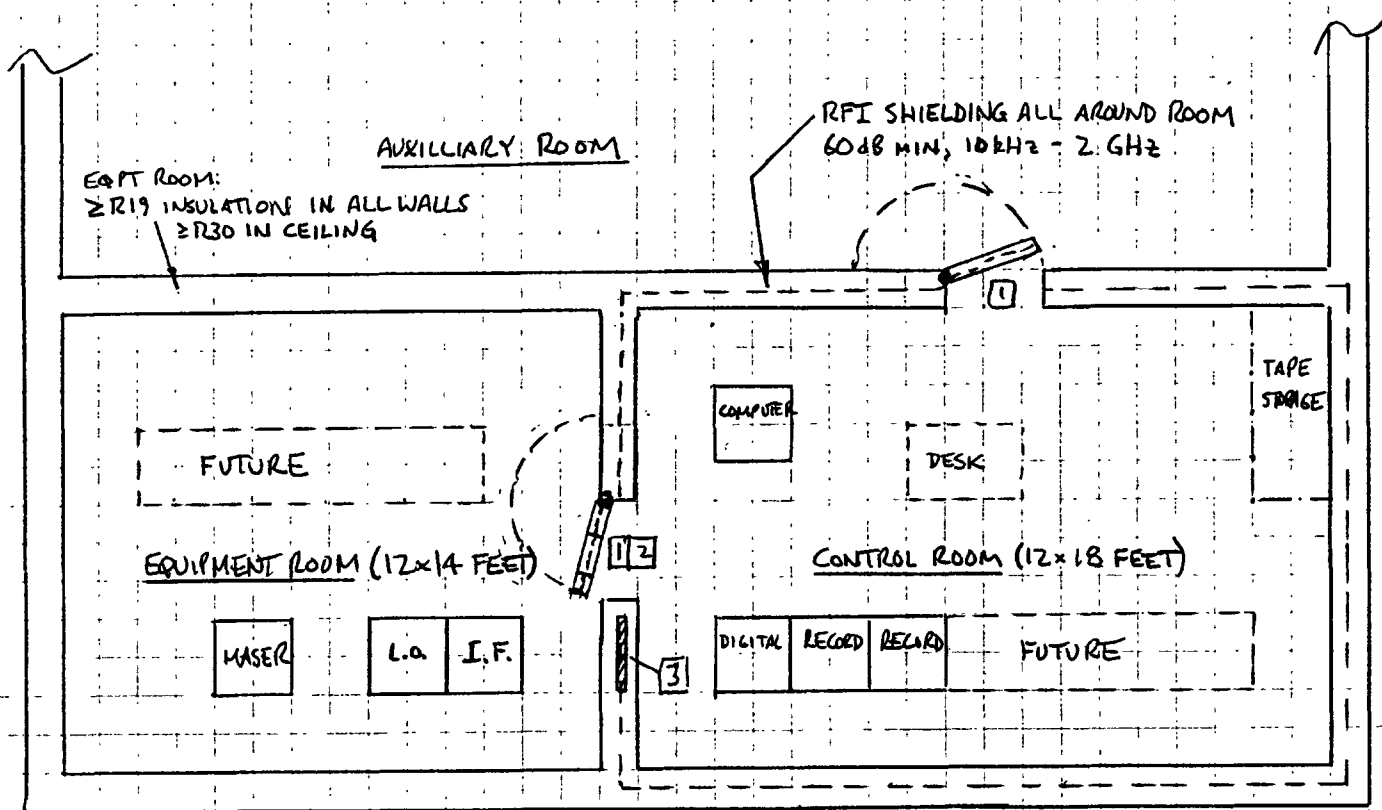
The exact division of devices into modules is not specified here. The items listed above are functional blocks, not necessarily physically separate. The arrangement into bins is only suggestive, and variations within a single subsystem may be made at the discretion of the subsystem designer. However, the assignment of functions to racks and the interfaces between subsystems shall be as specified here.

The following are separate subsystems: (a) Local oscillator, including Maser and LO racks; (b) IF to Baseband, including the IF rack only; (c) Recording, including part of the Digital rack (digitizers, formatters, etc.) and both Recorder racks; (d) Control and Monitor, including part of the Digital rack (timing generator and time receiver) and the Computer rack.

The functions of the timing generator, and the procedures for maintaining synchronization among various frequency dividers and synthesizers, will be given in a separate memo.

Except for the Maser rack (which will be supplied by the maser manufacturer), all racks shall be of the same type, although the height may vary depending on the amount of equipment to be accommodated; a vendor and model number will be specified later. Each rack will accept 19 inch wide panels and bins on its front side, and will have a door on its rear side. Cooling air will be supplied from below via underfloor ducts, and will be exhausted into the room from the top of the rack. At the duct outlet, this air will be held to 68 ± 0.75 F in the Equipment Room, and 68 ± 2 F in the Control Room. The air flow rate needed by each rack should be specified by the subsystem designer, but the total of all racks is limited to 1980 cfm in the ER and 1710 cfm in the CR. All cables, including a.c. power, will connect to the racks through the bottom and be routed through the underfloor space.

The arrangement of Figure 1 involves a some changes in the floor plan from that assumed by the architect in his recent design work. The door between the Equipment and Control Rooms has been moved, the other door from the ER has been eliminated, and some furniture has been rearranged. The rack locations are different from those assumed earlier, including the spaces reserved for future expansion. The room sizes have been slightly reduced, reflecting current plans.



EQUIPMENT ROOM:
 ≥ R19 INSULATION IN ALL WALLS
 ≥ R30 IN CEILING

AUXILIARY ROOM

RFI SHIELDING ALL AROUND ROOM
 60dB MIN, 10KHz - 2. GHz

FUTURE

EQUIPMENT ROOM (12x14 FEET)

MASER

L.A.

I.F.

COMPUTER

DESK

TAPES STORAGE

CONTROL ROOM (12x18 FEET)

DIGITAL

RECORDER

RECORDER

FUTURE

CABLES TO ANTENNA

- 1] DOORS MUST HAVE AUTOMATIC CLOSING MECHANISMS AND BE THERMALLY INSULATED AND RFI-GASGETED.
- 2] VIEWING WINDOW IN DOOR, MIN 12" SQ, WITH RFI SCREENING.
- 3] REMOVABLE ALUMINUM PANELS FOR SIGNAL FEEDTHRS, 12"x24", 2 PLCS: (ONE ABOVE & ONE BELOW FLOOR)

Figure 1: Station Building Floor Plan.

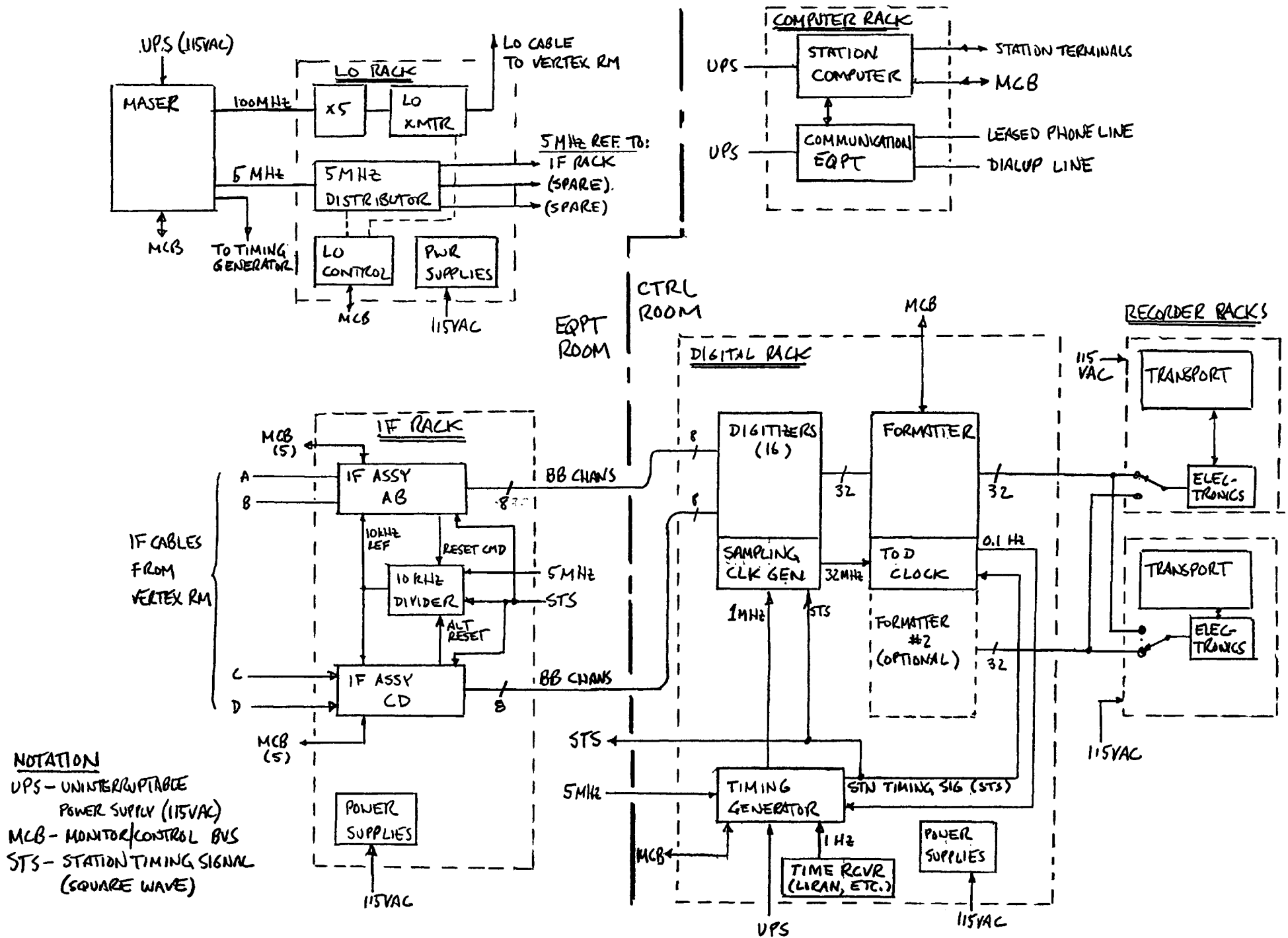


Figure 2: Interfaces between electronic subsystems in the Station Building.