

Proposed VLA-VHF receiver system

Interfaces

The electronics will be enclosed in a watertight aluminum box: Rose 01233311. These will be identical to those used for the P-band receiver electronics and the NRL 74 MHz receiver electronics, when mounted previously in the barrel cabins.

We propose to mount the VHF receiver boxes on the non-rotating central spines of the barrel cabins, back-to-back with the P-band boxes. Each VHF box will have a MS3102R20-7P panel-mount connector to allow connection to the VLA 15 VDC supply and the 9.6 Hz calibration signal. A MS3102R20-7S panel-mount connector on each box will be used to pass the 15 VDC supply and calibration signal to the adjacent P-band receiver electronics.

We will provide two N-type connectors on each VHF receiver box (female, one for each polarization) for output. To enable the VHF receivers to be used with minimal modification to current signal paths, we will provide a second pair of N-type connectors on each box (female) that will allow the P-band receiver outputs to couple through the VHF boxes to the current signal path that leads to the VLA A-rack.

The VHF receiver boxes will each have two bulk-head feed-thru SMA connectors (female) to receive the crossed-dipole VHF signals.

Each VHF crossed-dipole will connect to the box containing the corresponding receiver via two flexible SMA cables. These will pass through holes in the P-band antenna top balun plate (Drawing # D13155P02) and the two empty tubes that provide mechanical support for the P-band antenna assembly. Seven VLA antennas have holes already drilled in the balun plates.

Mechanical support of each VHF crossed-dipole will be provided by four PET (polyethylene-tera-phthalate) stand-offs that will clamp to the four arms of the P-band antenna assembly. No mechanical modification of the P-band antennas or support structures is required. These stand-offs will keep the VHF dipoles one quarter wavelength from the sub-reflector when fully retracted.

The VLA 115 VAC supply will not be used. The current draw for the 15 VDC supply will be 1 A at each VLA antenna.

Outstanding issues:

Additional information is required to enable connection of the P-band system to the VHF box: (1) Cable lengths, (2) Cable specification, (3) Supplier

Requirements for bulk-head connector positions on the VHF receiver box?

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Kimberk, Greenhill