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To: VSRT Group
 From: Alan E.E. Rogers
 Subject: Direct TV Feed assemblies

The feed VSRT for the VSRT is the Direct TV feed assembly with 3 Ku band dual LNBS. This feed assembly has the following characteristics.

Voltage	22 kHz	Left	Center	Right
13	Off	-	-	RCP
13	On	RCP	-	-
18	Off	-	-	LCP
18	On	LCP (1178-1500)	LCP (940-1178)	-

Notes:

Left = left looking at assembly with feeds pointed at towards observer. Feeds above and connectors below

RCP/LCP = circular sense after reflection from dish (i.e. polarization in sky)

- = no connection

Feeds on left and right have L.O at a nominal 11.25 GHz

L.O. for center feed is at a nominal 11.54 GHz which is below sky frequencies

Channel vision Sat-22T can be used to produce 22 kHz

With the 22 kHz on the I.F. is split into 2 bands with 1178-1500 MHz from the feed on the left and 940-1178 MHz from the feed in the center.

Direct TV is moving towards a ka/ku band feed assembly. This is not recommended for the VSRT at this time but I have tested the characteristics in case the triple ku band feed becomes obsolete.

The ka/ku assembly (directv AV9) is designed fro ku band satellites at 101°, 110°, and 119° and ka band at 99° and 103°.

Voltage	22 kHz	Far left	Left	Center
Band		Ku	Ku	Ku/ka
13	Off	-	-	IF2 (ku) RCP IF 1 and 3 (ka)
13	On	RCP IF2	-	-
18	Off	-	IF2	IF2 (ku) LCP IF1 and 3 (ka)
18	On	LCP IF 2B	LCP IF 2A	-

ka band L.O. is at 18.05 GHz

ku band L.O. is at 11.25 GHz

IF1 300-840 MHz
 IF2 840-1500 MHz
 IF2A 840-1200 MHz
 IF2B 1200-1500 MHz
 IF3 1500-2400 MHz

At this time the details of polarization have not been measured. This is a complex assembly and will take more tests to fully understand its function. It has potential for use with a VSRT but I.F. filtering will be required. Potential use at ka band is of interest for future development of the VSRT.