DIRECTIVE SYSTEMS
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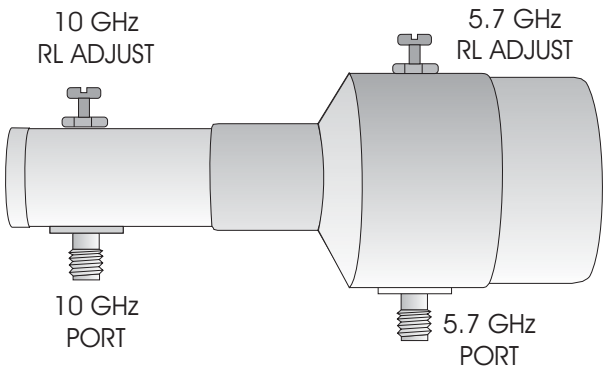
DUAL BAND W5LUA TYPE DISH FEED, **DBFEED OPT 1**

Frequency range:	**5760 & 10.368 GHz**	**Return Loss:**	**-16 dB minimum**
Polarization:	**Linear V or H**	**5.7 GHz**	**-16 dB minimum**
Connector:	**SMA (f) both ports**	**10.368 GHz**	
Weight:	**1 pound**	**Maximum Power:**	**50 W CCS average**
F/D (optimum)	**.39-.45**	**Isolation:**	
		5.7 to 10 GHz	**-70 dB minimum**
		10 to 5.7 GHz	**-50 dB minimum**



This feed design is based on the work of Al Ward, W5LUA ,and represents an efficient way to use one dish on two different ham bands. Unlike earlier multi band feed designs, W5LUA's design is capable of good performance on both microwave bands in use. Further optimization of the concept has resulted in this new high isolation version that eliminates any need for precautions at the 5 GHz port to prevent 10 GHz energy from damaging sensitive frontends. 50 db minimum isolation is guaranteed with Option 1.

In addition, the high isolation option has improved the 10 GHz feed efficiency for better performance at 10 GHz when compared to standard DBFEED feedhorns.

INSTALLATION INSTRUCTIONS

1) Unpack antenna feed assembly and observe the location of the connectors and probe orientation. For horizontal polarization, the probes must be oriented parallel with the horizon. (The connectors will stick out laterally on the side of the antenna.)

2) Install the feed on your parabolic dish using the proper dimension of the focal point (supplied with the dish) to the feed. Measure this distance from about 1/4 inch inside the open mouth of the feed to the center surface of the dish. Our .6 m dish needs 11.25" from the feed "lip" to dish surface.

3) The dish feed SWR has been adjusted at the factory for maximum isolation between 10 GHz and 5.7 GHz. Do not try to adjust the 10 GHz or 5.7 GHz tuning slugs without proper measuring equipment. All feeds are adjusted before shipment and are set for optimum isolation. If you wish to adjust your feed for best VSWR, be aware that connecting cables can introduce serious mismatch errors at these frequencies. Please do not attempt to move or adjust the small metal post directly in front of the 5.7 GHz probe inside the mouth of the feed. It may look crooked . DO NOT TOUCH THIS. It is very critical. The 7/8" tube tuning adjustment affects 10 GHz primarily. The screw on the large diameter portion of the feed, is for 5.7 GHz, but can affect isolation at certain positions. Do not adjust this screw unless you can verify the port to port isolation. It has been set at the factory for good VSWR at 5760. Typically -20 dB or better.

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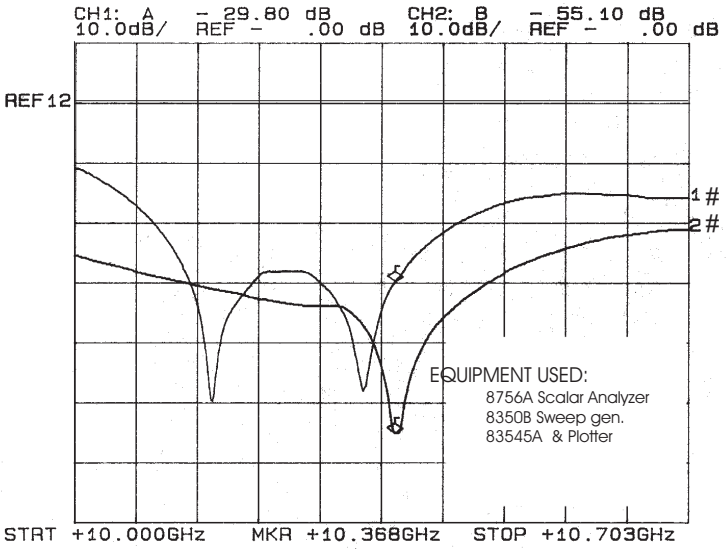
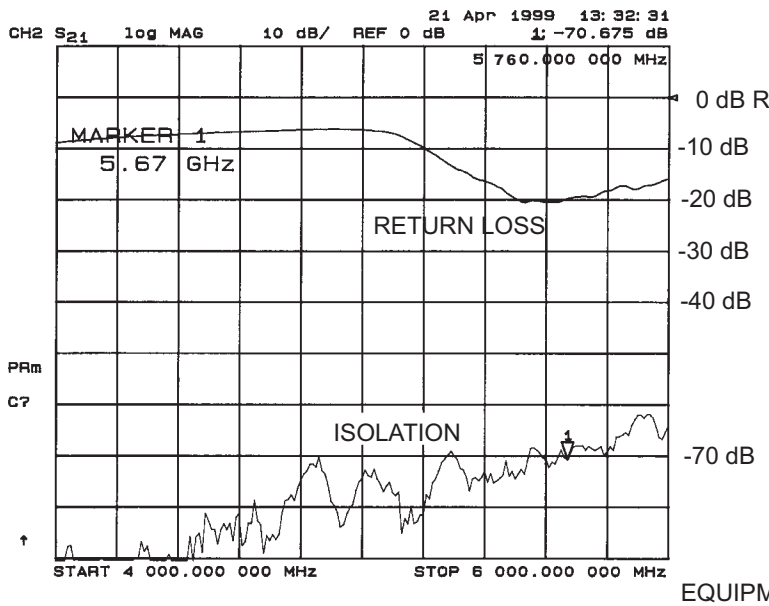
DUAL BAND W5LUA FEED FOR 5.76 & 10.368 GHz Amateur bands. Each plot displays the VSWR (return loss) and isolation between ports for the respective band. The feeds are optimized for 10 to 5.7 Ghz isolation when shipped from the factory . Considerable effort has been made to produce best isolation between the ports, while maintaining high return loss. It's all a trade-off!



10 GHz isolation is quite critical and can be affected by what the feed "sees". It is always a good idea to check port to port isolation whenever you adjust the feed location on your parabolic reflector.

Normally, the dish will have little effect on port isolation when properly installed, but un wanted reflections back into the feed can degrade the > 50 dB isolation value. These isolation plots of an OPTION 1 feed were made with the feed <u>only</u> in free space. Actual results should be the same unless there is blockage at the mouth of the feed. The added isolation of OPTION 1 is a result of a small post located immediately in front of the 5 GHz probe inside the feed. Do not touch this post or isolation will be reduced drastically.



5760 MHz isolation is very high and is not influenced by much, since the 10 GHz waveguide portion of the dual band feed is too small, and cannot support 5.7 GHz propagation. 70 dB is typical.

The 5760 MHz VSWR is about -18 to20 dB or more when the 10 GHz isolation is at optimum.

EQUIPMENT:
HP 8753D Analyzer
7475 Plotter