

Technical Bulletin #9902

Revised: 7/2/01

Subject: Additional Troubleshooting Tips for FM Cubed and FM Squared Services

SpaceCom has learned that a number of problems being encountered with Telstar 5 transponder 28 are due to poor frequency response at the high end of the satellite L-band spectrum. The LNB on the satellite antenna converts the Ku-band frequency to L-band (950-1450 MHz). While all recommended components in the downlink system are specified to operate in that range, some are falling short of specifications. Should problems be experienced with the signal on Telstar 5 transponder 28, and all antenna alignment procedures (azimuth, elevation, and polarization) have been verified, check the following items.

Cable – The transponder 28 SpaceCom signal is located at either 1435 MHz (FM Squared) or 1445 MHz (FM Cubed). While every cable will have more attenuation at that frequency (compared to a lower numbered transponder), the additional attenuation due to the new frequency should be 2-3 dB more per every 100 feet of cable. This attenuation is in receive signal level and not signal quality. While the receivers have a wide operating range, substandard cable or excessive cable lengths can exceed the receiver input range. Replacing substandard cable, or amplifying long cable runs may be necessary.

Line amplifiers – It is possible for line amplifiers to function properly at a lower frequency and not at a higher frequency. Make sure any line amplifier used is specified to operate at least to 1450 MHz.

Splitters – It is possible for signal splitters to function properly at a lower frequency and not at a higher frequency. Make sure any splitter used is specified to operate at least to 1450 MHz.

Receivers – FM Cubed receivers require a modification to guarantee operation at 1445 MHz. Receivers modified by SpaceCom will have a sticker on the receiver with the letters "FRM" (full range mod). If the receiver has not been modified, follow the instructions supplied by SpaceCom for the modification or contact your account manager for assistance. FM Squared receivers may have some issues that you will need to discuss with the receiver vendor. Contact the manufacturer of any other receiver, if the receiver capability is in question.

While troubleshooting without test equipment can be difficult, removing suspected components can accomplish the task. For example, connecting the receiver to the LNB with a short test cable would be verification of the receiver. Adding any other required components until the problem returns would identify the bad component.

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