

From: Stephen Horan [shoran@nmsu.edu]  
Sent: Thursday, December 09, 2004 8:46 PM  
To: John Kennedy  
Subject: RE: STA file No.: 0695-EX-ST-2004

Mr. Kennedy:

Question: why did we specify a frequency band and not a single frequency?

The satellite is expecting an input carrier of 447.5 MHz at its receiver input. However, the receiver is not capable of tracking Doppler shifts to the carrier caused by the relative motion between the satellite and the transmitting earth station. Therefore, before transmitting from the earth station to the space station, the carrier frequency is shifted by the earth station to account for the Doppler shift so that the carrier always appears to be at the correct frequency at the input to the space station's receiver.. The shift is not a single value but varies over a range depending upon the motion of the space station relative to the ground station. Therefore, we requested a band around the desired carrier frequency to cover the full range of expected Doppler shifts to the carrier frequency.

-----  
Stephen Horan, Ph.D.  
Professor and Chair Telemetry and Telecommunications Program Klipsch School  
of Electrical and Computer Engineering New Mexico State University Box 30001,  
MSC 3-0 Las Cruces, NM 88003-8001  
Ph: (505) 646-4856; FAX: (505) 646-6417  
Amateur Radio: AC5RI; AMSAT # 31757  
WWW: <http://telemetry.nmsu.edu/~shoran/index.htm>

-----Original Message-----

From: John Kennedy [mailto:John.Kennedy@fcc.gov]  
Sent: Thursday, December 09, 2004 2:18 PM  
To: shoran@nmsu.edu  
Subject: STA file No.: 0695-EX-ST-2004

Dear Mr. Stephen Horan:

Pursuant to our telephone conversation around 4:12 PM EST on December 9, 2004, please clarify the reason for requesting the band 447.49-448.51 MHz as opposed to only the spot frequency 447.5 MHz.

John W. Kennedy  
Federal Communications Commission  
Office of Engineering and Technology  
Experimental Licensing Branch  
(202) 418-2484