



September 27th, 2016

MEMORANDUM for AFTRCC Coordination for FCC application: File No.: 0091-EX-CN-2016

To whom it may concern,

This antenna installation will be used to perform RF testing in support of SpaceX's Commercial Crew Transportation Contract with NASA. The specific event covered is the [CREW-VE-106](#) verification event as specified in CCT-REQ-1130: ISS Crew Transportation and Services Requirements, Revision D, Revision F, SSP 50808: ISS to COTS Interface Requirements Document. See technical details in following section.

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Technical information:

A small test antenna independent of the tracking dish specified in the FCC Application will be used for calibrating the tracking antenna. The antenna used will be a [UL-235A-498](#), made by antennas.us. This antenna will be mounted on the roof of our Hawthorne facility near the tracking antenna. The transmitter used will be an [Ettus Research X310 USRP](#). The transmitter's maximum power output before compression is 0dBm and the signal will not be amplified further.

The frequencies of concern to AFTRCC that we plan to radiate are illustrated in the following table:

Table 1: Table of Frequencies desired

Lower Freq	Upper Freq	Output power	ERP	Tolerance	Emission Designator	Modulating Signal
2368.0625 MHz	2372.9375 MHz	1mW	6.095mW	0.001%	4M87F1D	PCM/FM
2380.0625 MHz	2384.9375 MHz	1mW	6.095mW	0.001%	4M87F1D	PCM/FM

The antenna will be located at a latitude of 33° 55' 14 N and a longitude of 118° 19' 41 W at a height of approximately 65ft AGL. The equipment will be operated during testing operations as required. Typical radiation times are on the order of minutes.

