

Raytheon Missile Systems
Experimental License Modification Application
Call Sign: WH2XYX
File Number: 0089-EX-ML-2016

Explanation of Need for Modification

Background:

Raytheon Missile Systems (Raytheon) is a large defense contractor company that develops innovative technologies that have both defense and civilian uses. Raytheon draws on the expertise of its varied engineering departments to develop technologies that address previously unsolvable problems.

This application is being filed to update the technical details on the power level of operation of the ground stations associated with a micro-satellite.

The FCC granted WH2XYX on April 25, 2016. When the program reviewed the granted authorization, they realized that there had been some changes to the antennas that will be used for the project since the original application was filed in August 2015, and they have provided updated information on the ground station antennas.

Procedural and Coordination Information:

Raytheon holds a NOAA imaging license. It has also completed submission of the SpaceCap software. The data provided through SpaceCap is the updated information being submitted here, so no changes are needed to the SpaceCap submission.

Explanation of Experiment

In the sections below, Raytheon provides an explanation of the experimentation, some information regarding the satellite launch, technical data regarding the proposed radio operations and other information that explains the concept of the operations.

Satellite System

System Name: SeeMe Satellite System; Number of Satellites: 1

Number of Ground Stations: one command and control station for the first four weeks of Raytheon's operations, then two command and control stations. See location details below. A number of other ground station locations have been licensed for receive-only operations.

Spectrum Requested

Command (uplink and downlink) frequencies: 437.425 and 437.450 MHz half-duplex

Mission data (downlink) frequencies: 2425 MHz with 2 MHz bandwidth

Modification Requested

Raytheon's license proposes that the ground station will use an uplink output power of 5 W, with an ERP of 51.76 W. Raytheon has changed some of the components and the antenna for the ground station, and it is now requesting an output power of 50 W, with an ERP of 518 W. This is the only change proposed by this modification application.

Time of Use

The spectrum will be in use only sporadically and – due to the nature of the orbital period – only for short times.

The satellite is expected to orbit above the Aurora, Colorado ground station at least once every 24 hours. During every orbital pass, the ground station will attempt to communicate with the satellite to verify satellite operational health and to confirm proper operations. At least once every 24 hours, the ground station will send up instructions on the satellite's next tasks, whether it is additional image capture or instructions on where and when to downlink images captured already.

Because the time of use is so limited, Raytheon does not anticipate that the requested power increase will have any detrimental effect on any other users of this spectrum.

Conclusion:

If there are any questions about this application or any of the attachments, please contact Thomas J. Fagan, Spectrum Manager, Raytheon Missile Systems, 520-794-0227 or tjfagan@raytheon.com, or Anne Linton Cortez, Counsel, WFS, 520-344-8525 or alc@conspecinternational.com.