

From: Michael Baldwin

To: Behnam Ghaffari

Date: June 02, 2008

Subject: FCC File No. 0175-EX-PL-2008

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Message:

Research Description (48-month license request):

This application for a new station is being requested as part of research being conducted with Cornell University. The research project consists of a high altitude balloon with a payload and a set of ground stations. This radio station is required to enable communication between the multiple ground stations that track and control the balloon. The method of communication is the commercially available Iridium satellite network. This application is only requesting that one antenna be mounted in a fixed location as part of the ground station network.

The Iridium satellite communication is necessary for this project because the balloon may land in heavily wooded areas or valleys where other means of communication can not operate.

This new station application is being submitted to be used with a research program through Cornell University and Lockheed Martin. This is a 5-year program and we are currently in the second year of the program. As future years will be using this station as part of their research, we would like to avoid submitting another application and are requesting a 48 month license.

Emission Description:

Emission Designator: 10M5G7W

QPSK modulation is used. Each timeslot is 8.28 ms long and sits in a 90 ms frame. Within each channel FDMA channel there are four TDMA channels in each direction. Channels are spaced 41.666 kHz and each channel occupies a bandwidth of 31.5 kHz.

QPSK = Quadrature Phase-Shift Keying

FDMA = Frequency Division Multiple Access

TDMA = Time Division Multiple Access

Directional Antenna:

Radiation Pattern: Hemispherical

Polarization: Right Hand Circular

VSWR: Less than 1.5 : 1

Gain (dB): 90° Zenith +1.9

10° Elevation 0.0

20° Elevation +0.9

30° Elevation +1.6

45° Elevation +2.0

70° Elevation +2.0

Axial Ratio: 2 dB

Note that the antenna is connected to a rotator that is able to rotate in both the azimuth and elevation directions.