

From: Don Rasmussen

To: Jose Trevino

Date: April 09, 2012

Subject: FCC file number 0244-ESX-ST-2012

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Message:

1) Description of Operation: Test the reliability and data throughput of an air-to-ground WiMAX video link for two different system conditions. A WiMAX 10 MHz channel bandwidth signal with time division duplexing (TDD) is used for bi-directional communications between an airborne aircraft (Twin Otter plane) flying at an elevation of 18,000 ft and a ground unit. Orthogonal Frequency Division Multiple Access (OFDMA) waveform is used for the downlink (DL) and uplink (UL) bursts of the TDD signal, which consists of 35 DL and 12 UL OFDMA symbols. Two test scenarios shall be conducted using a circular and oval pattern about the ground unit using an existing WiMAX base station with transmit power of 33 dBm per RF port connected to three 9 dBi directional antennas on one side of the aircraft for a ERP of 47 Watts . The first test shall be a backhaul test with maximum range of 36 km using an existing Gemtek mobile subscriber unit (27 dBm maximum power) with antenna cable loss of 2 dB and a tracking antenna (19 dBi gain) at the ground unit for an ERP of 25 Watts. The second test uses the smartphone as the ground unit with a maximum transmit power of 23 dBm and antenna gain of 0 dBi for an ERP of 0.2 Watts, which reduces the range to less than 12 km. Video data shall be sent to the ground unit, while low data rate control information shall be sent to the aircraft unit to maintain the communications link. From this testing, modifications to the existing WiMAX system can be identified to enhance the waveform to maximize product robustness and link reliability along with user experience at both the ground backhaul and smartphone devices. These test shall occur at the location specified in this document.

2) Emission designator is W versus X.

3) Designated point-of-contact for termination: Primary is Dan Fischer at 775-313-4215 and secondary is Don Rasmussen at 775-527-1561