

Narrative Statement

Purpose:

With this application, Rockwell seeks to begin developmental testing of a high speed data communications link between aircraft on the ground in an airport terminal area and fixed ground station(s) and to determine to what extent the expected multipath has on the data communications net throughput.

A high speed data radio link may increase the safety of commercial flight operations by providing an alternate method of entering flight profile data or flight clearances into aircraft computers. Further, the complexity of aircraft systems has increased substantially. Rockwell seeks to explore whether a high speed data communications link can improve pilot and maintenance personnel awareness of pre-flight aircraft systems status and of all possible malfunctions. Such a system, in addition to increasing safety by ensuring that all systems and components are fully operational, also will decrease systems and components diagnostic and repair times.

Equipment:

A low power transmitter will be used on board the aircraft and at the base station(s). The mobile transmitter will be automatically disabled during flight. The equipment will communicate using digital transmission methods. The proposed modulation methods are QPSK/FM using a baud rate of 1 megabaud/sec and frequency hopped QPSK/FM using frequency dwell times between 50 milliseconds and 500 milliseconds.

Frequencies:

Radio Nav
The primary frequency band for the proposed operations is 960-978 MHz. The 960 - 1215 MHz band is allocated to Aeronautical Mobile applications but the lower portion of the band, below 978 MHz, is not frequency paired with ILS channels for DME applications. There is little use of these frequencies other than military TACAN. A review of the number of TACAN channels used within this band indicates there are very few channels being used.

Rockwell's proposed system will not produce interference to the military TACAN operations because it will employ low power and data modulation. The use of low power transmitters is expected to keep the operating range within the physical boundaries of the airport. Use of QPSK/FM modulation is not expected to be detectable by the pulse processing of TACAN receivers, especially given the proposed system's low power transmissions.

Secondary frequency bands for developmental testing operations include: 1990-2110 MHz, 2110-2120 MHz, 2120-2160 MHz or 2160-2170 MHz.

EXHIBIT NO. 2

Antenna Information

Orientation:

The mobile and base station antennas are vertically polarized. The base station uses a dipole array with a flat reflector to produce a uni-directional pattern in the horizontal plane. The mobile antenna has an omni-directional pattern in the horizontal plane equivalent to a quarter wave monopole with a ground plane.

Height and Location:

The base station antenna(s) will be fixed to a building or structure in the airport area and is not expected to be higher than the highest part of the structure. The mobile antenna will be located on the upper part of the aircraft fuselage. The height of the mobile antenna above the fuselage will be approximately 5 centimeters.