The purpose of the project is to verify compatibility of a transport category aircraft with wireless and cellular data technology devices. This will be accomplished by radiating aircraft systems with signals transmitting at frequencies and power levels simulating those produced by common cellular and wireless technology devices. The test power level, waveform, antenna placement, and test procedure are determined per guidance of RTCA/DO-294C “Guidance on Allowing Transmitting Portable Electronic Devices (T-PEDs) on Aircraft.”

The desired transmit frequencies are from 415 MHz to 5825 MHz as detailed within the application. Frequencies will be transmitted at power levels from 5.0 W EIRP to 20.0 W EIRP as detailed within. If restrictions prohibit the use of one or more of these frequencies, the applicant will consider altering these frequencies. Frequencies are generated using calibrated signals generators, amplifiers, and broadcast antennas. Verification of the generated frequencies is accomplished during calibration using a calibrated spectrum analyzer and receiving antenna.

Testing will be conducted at Coeur d’Alene Airport (COE). The aircraft will be placed at a suitable location on the airport property, outside of a hangar, and will be at least 150 meters away from any large, metallic structure. Prior to commencing aircraft testing, the test equipment will be calibrated once by aiming the test antenna at a calibration antenna placed 1 meter away. The calibration will be performed indoors.

During the aircraft test, the transmitting antenna will be located at various locations within the stationary aircraft to radiate all necessary aircraft systems with RF energy. The flight deck, electronics bays, and various cabin locations will be radiated. The external aircraft antennas will be radiated by positioning the test antenna within the cabin, 1 meter from aircraft windows or closed doors, and radiating outward. While transmitting, aircraft systems corresponding to the equipment being radiated will be exercise to determine if those systems are susceptible to electromagnetic interference at the test frequencies and power levels. While exercising the aircraft equipment, transmission of each of the frequencies will cycle continuously with the frequency skipping once per second. If an aircraft system displays a susceptibility to RF interference, the suspect frequency will be transmitted continuously while the effect is analyzed. The analysis will likely require no more than 3-5 minutes of continuous broadcasting of a particular frequency. During testing of the aircraft, the transmitting antenna will be located within the aircraft at all times while transmitting.