Environmental Assessment

Submitted by Joe Thorsheim on behalf of Aurora Flight Sciences
The Boeing Company
Frequency Management Services
P.O. Box 3707 MC: 2T-22
Seattle, WA 98124-2207
206-544-6066 Office

Per CFR 47, section 1.1307.b(1), Table 1, all applications for experimental operations with an ERP greater than 100 watts require evaluation for compliance with human exposure limits defined in section 1.1310, and if exceeded require submission of an Environmental Assessment as defined in section 1.1311.

The below calculations define the minimum safe working distance for both Occupational and General Public, which are based on the maximum permissible exposure limits of 5 mW/cm^2 and 1 mW/cm^2 respectively. These calculations were conducted using the highest gain antenna used in this operation. The antenna is a parabolic dish with a maximum 6 degree beam width.

TX Peak Power (mW)	5000.00
TX Peak Power (dBm)	36.99
Maximum Antenna Gain dBi	28.00
EIRP (dBm)	64.99
Maximum Duty Cycle (Dc)	0.50
EIRP Watts	3154.79
Avg EIRP Watts	1577.39
TX Avg Power mW (Pavg)	
Pp*Dc	2500.00
Non Dimensional Antenna Gain	
Gt = $10^{dBi/10}$	630.9573445

	Occupational	**General Public**
Minimum Safe Distance - Meters	**1.6**	**3.6**
Distance in Centimeters (R)	160	360

AVG Power Density mW/CmCm		
Pd At distance=R		
(Pavg*Gt)/(4*Pi)*R^2	**4.903319348**	**0.968556908**

Environmental Assessment

The antenna will be operated in a controlled area, and will be directed towards the aircraft in flight. Only authorized occupational workers will be allowed access to the area of operation. In addition the transmitter will be secured prior to conducting maintenance, and the area will be monitored during the operation to ensure that personnel are clear of any radiation hazard area.