

Exhibit B

Analysis of Non-Ionizing Radiation for ThinKom ThinAir Falcon Antenna

The analysis and calculations performed in this Exhibit comply with the methods described in the FCC Office of Engineering and Technology Bulletin, No. 65, first published in 1985 and revised in 1997 in Edition 97-01.

Bulletin No. 65 and the FCC R&O 96-326 specify two Maximum Permissible Exposure (MPE) limits that are dependent on the situation in which the exposure takes place and/or the status of the individuals who are subject to the exposure. These are described as follows:

- General population/uncontrolled environment MPE limit is 1 mW/cm^2 . The general population/uncontrolled MPE is a function of the transmit frequency and is for an exposure period of thirty minutes or less.
- Occupational/controlled environment MPE limit is 5 mW/cm^2 . The occupational MPE is a function of the transmit frequency and is for an exposure period of six minutes or less.

The analysis provided in this report determined the power flux density levels of the antenna in the: 1) far-field, 2) near-field, 3) transition region, and 4) aperture surface.

Analysis for the ThinKom ThinAir Falcon Antenna

Calculations for the ThinKom ThinAir Falcon antenna

Input Parameter	Value	Units	Symbol	
Antenna Major Axis Dimension	0.656	m	D	
Antenna Transmit Gain	36.9	dBi	G	
Transmit Frequency	29500	MHz	F	
Power Input to the Antenna	40	Watts	P	
Antenna Surface Area	3733	cm^2	A	
Antenna Efficiency	0.12	Real	H	
Calculated Parameter	Value	Units	Symbol	Formula
Gain Factor	9549.93	Real	G	$10^{(G/10)}$
Wavelength	0.0102	m	Λ	$300/f$
Antenna Field Distances				
Calculated Parameter	Value	Units	Symbol	Formula
Near-Field Distance	10.6	m	Rnf	$D^2/(4\lambda)$
Distance to Far-Field	25.4	m	Rff	$0.6D^2/\lambda$
Distance of Transition Range	14.8	m	Rt	$Rt=Rnf$

Power Density				
Calculated Parameter	Value	Units	Symbol	Formula
Power Density in the Near Field	5.63	mW/cm ²	Snf	$16\eta P/(\pi D^2)$
Power Density in the Far Field	0.16	mW/cm ²	Sff	$gP/(4\pi R_{ff}^2)$
Power Density in the Transition Region	3.98	mW/cm ²	St	$S_{nf}*R_{nf}/R_t$
Power Density at Aperture Surface	47.34	mW/cm ²	Surface	$4P/A$

1.0 Summary of Results

Region	Distance (m)	Calculated Power Density (mW/cm ²)	Limit Controlled Environment $\leq 5 \text{ mW/cm}^2$	Limit Uncontrolled Environment $\leq 1 \text{ mW/cm}^2$
Near Field	10.6	5.63	exceeds limit	exceeds limit
Far Field	25.4	0.16	meets limit	meets limit

As summarized in the above table, the ThinAir Falcon antenna meets the FCC's MPE levels for controlled or uncontrolled environments in the far field region. The antenna does not meet the FCC's MPE levels for controlled or uncontrolled environments in the other regions defined above.

This antenna model, while designed for operation on large commercial aircraft, will be installed on a building roof, protected by a locked access door. Since this unit will be used for testing hardware and software, it can be shut down altogether when personnel need access to the roof. Additionally, the exit hatchway to the roof will incorporate signage indicating the presence of RF energy.