

Chapter 9 RF Exposure Information

Overview

This chapter contains information as to how the product was determined compliant with FCC Part 24 subsection 24.51

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9.1 RF Human Exposure - FDTD Analysis and SAR Testing

9.1.1 Applicable FCC Rules

FCC Subpart 24.51 - Applications for Type Approval of transmitters operating within the PCS region must determine that the equipment complies with IEEE C95.1-1991, "IEEE Standards for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz" as measured using methods specified in IEEE C95.3 - 1991, "Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave."

9.1.2 Typical Test Configuration

This MPE analysis was completed for a worse case situation, with a typical roof top antenna (six feet high) PWAN Base Station installation. Characteristics used for this typical MPE are shown in Table 9.1.

Each PWAN Base Station installed will include an MPE analysis with data and required paperwork being stored and filed with the FCC as per regulatory requirements.

9.1.3 Typical MPE Test Results

The PWAN Base Station meets the required FCC regulatory part 24 requirements as shown in the following figures. Figure 9.1 illustrates horizontal distance versus power density, while Figure 9.2 provides graphical data of horizontal distance versus uncontrolled MPE.

As shown in Table 9.2, a typical PWAN Base installation meets FCC MPE requirements. Per regulations, all installations will include an MPE analysis with data being stored and filed appropriately.

Figure 9.1— Power Density vs. Horizontal Distance

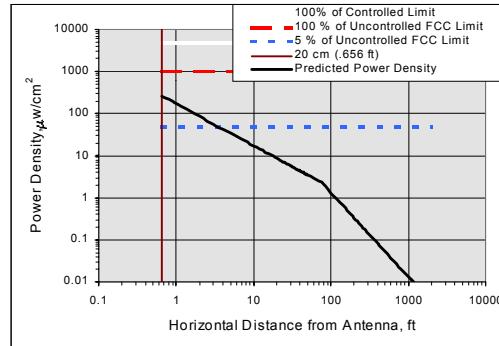


Figure 9.2— Uncontrolled MPE vs. Horizontal Distance

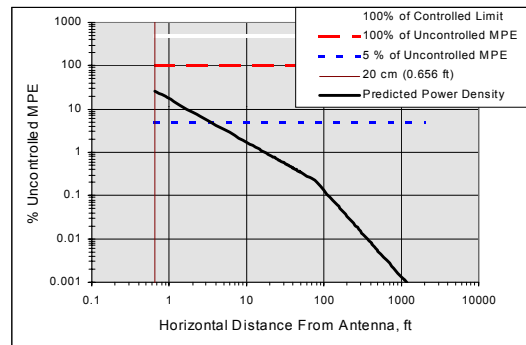


Figure 9.3— Initial Values used for MPE

	units	Value
Frequency	MHz	1945.5
# of Channels	#	18
Max ERP/Ch	Watts	2.047
Max Pwr/Ch Into Ant.	Watts	0.091
BS Height (Center of Radiator)	feet	6
Calculation Point (above ground or roof surface)	feet	6
Antenna Model No.		FR-16-00-P
Max Ant Gain	dBd	13.5
Down tilt	degrees	0
Miscellaneous Att.	dB	0
Height of aperture	feet	4
Ant H-Plane 3 dB Beamwidth	degrees	90
Distance to Ant _{bottom}	feet	-2
WOS? Y/N?		n

Figure 9.4— Typical MPE Results

	Power Density		@ Horiz. Dist.
	$\mu\text{W}/\text{cm}^2$	% of limit	feet
Maximum Power Density =	262.08	26.21	0.66
3.82 times lower than the MPE limit for uncontrolled environment			
Composite Power (ERP) =	36.85 Watts		

Site ID: Base XX

Sector: A

Site Name: Typical site

Site Location: Dallas TX, USA