



MAXIMUM PERMISSIBLE EXPOSURE STUDY



Site Number: S2524
Site Name: Jackson Black Mountain
Latitude: 44.17712222
Longitude: -71.16865
Address: Black Mountain Rd.,
Jackson, NH

Conclusion: *AT&T's proposed antenna installation is calculated to be within the FCC Standard for Uncontrolled/General Public and Controlled/Occupational Maximum Permissible Exposure (MPE).*

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Table of Contents

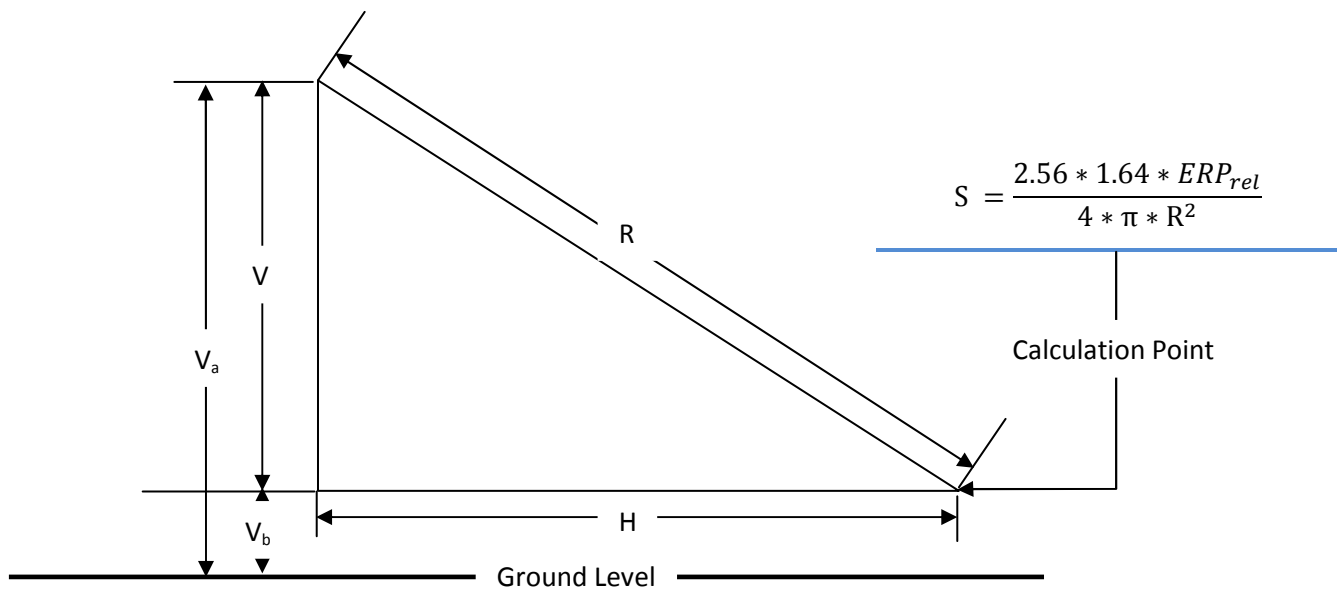
Introduction.....	3
RF Exposure Prediction Method	3
Case Summary	4
RF Design Specifications	4
FCC Guidelines.....	5
FCC RF Exposure Limits.....	6
Calculation Results.....	7
Statement of Certification	8

Introduction

SAI Communications has conducted this theoretical analysis for AT&T, to ensure that the proposed radio facility complies with Federal Communications Commission (FCC) regulations. This report will show that, through the use of FCC suggested prediction methods, the radio facility in question will be in compliance with all appropriate Federal regulations in regards to Radio Frequency (RF) Exposure.

RF Exposure Prediction Method

Power Density is calculated in accordance with FCC OET Bulletin 65 formula (7):



Where:

S = Power Density

ERP_{rel} = Effective Radiated Power relative to antenna pattern

R = Radial distance $= \sqrt{H^2 + V^2}$

H = Horizontal distance from antenna

V = Vertical distance from antenna $= V_a - V_b$

V_a = Antenna height above ground

V_b = Calculation height above ground = 6ft

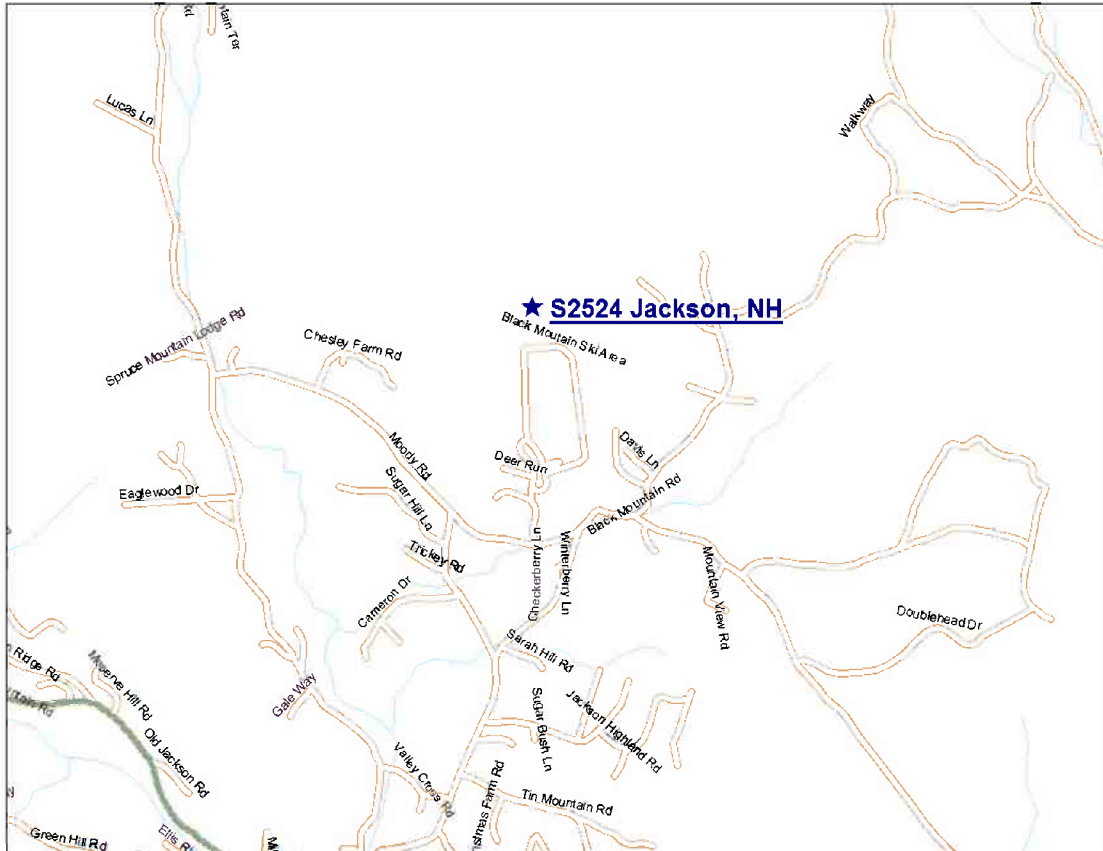
Case Summary

The proposed radio facility will have a radiation center of 43ft located at the following geographic coordinates:

Latitude: 44.17712222

Longitude: -71.16865

See sketch below for specific property location.



RF Design Specifications

AT&T Mobility is planning to install 9 panel antennae, 3 per sector, for the GSM/UMTS Technologies. Tables below are the technical data for each of the sectors.

	GSM1900	UMTS1900
Antenna Type:	Powerwave P65-15-XLH-RR	Powerwave P65-15-XLH-RR
Antenna Gain (dBd)	14.85	14.85
Rad Center, AGL (ft)	43	43
ERP (dBm)	56.00	58.00
No of Radios	4	2

FCC Guidelines

Table 1. MPE Limits for General Population/ Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time for E ² , H ² , or S (Minutes)
0.3 – 1.34	614	1.63	(100)*	30
1.34 -30	824/f	2.19/f	(180/f ²)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	--	--	f/1500	30
1500– 100,000	--	--	1.0	30
f = frequency in MHz		* = Plane wave equivalent power density		

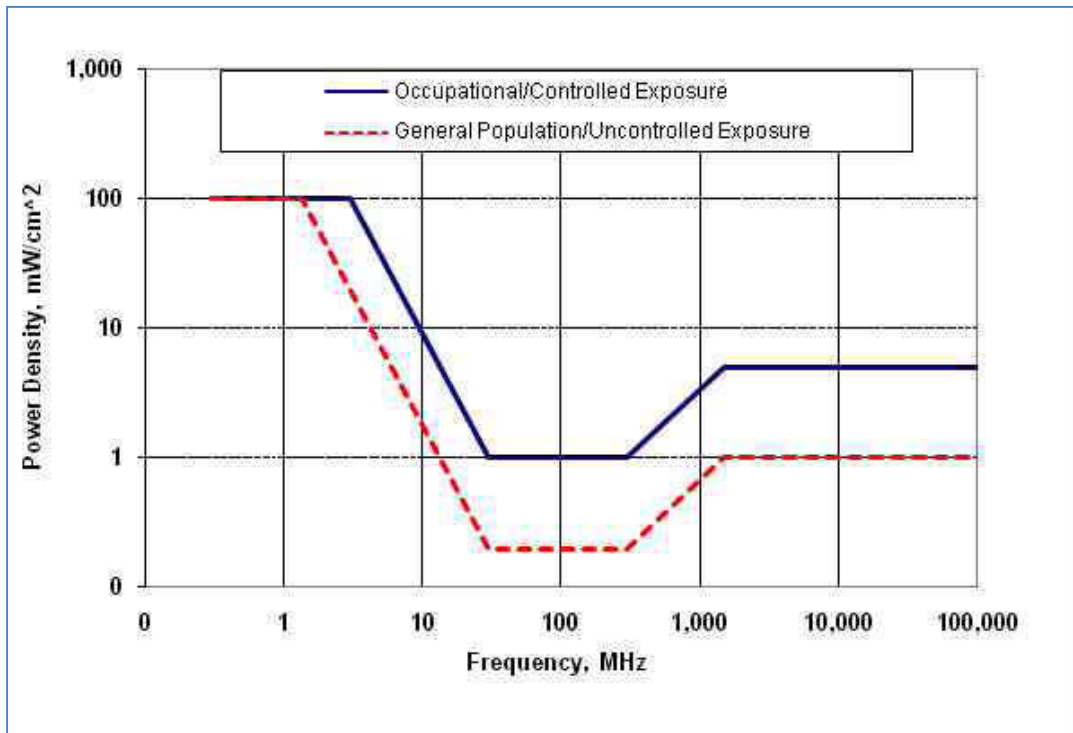
General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can't exercise control over their exposure.

Table 2. MPE Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time for E ² , H ² , or S (Minutes)
0.3 – 3.0	614	1.63	(100)*	6
3.0 – 30	1842/f	4.89/f	(900/f ²)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	--	--	f/300	6
1500– 100,000	--	--	5.0	6
f = frequency in MHz		* = Plane wave equivalent power density		

Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where such occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

FCC RF Exposure Limits

FCC MPE LIMITS (mW/cm ²)		
EXPOSURE ENVIRONMENT	AT&T FREQUENCY BANDS	
	Cellular	PCS
General Public (Uncontrolled)	0.59	1.0
Occupational (Controlled)	2.93	5.0

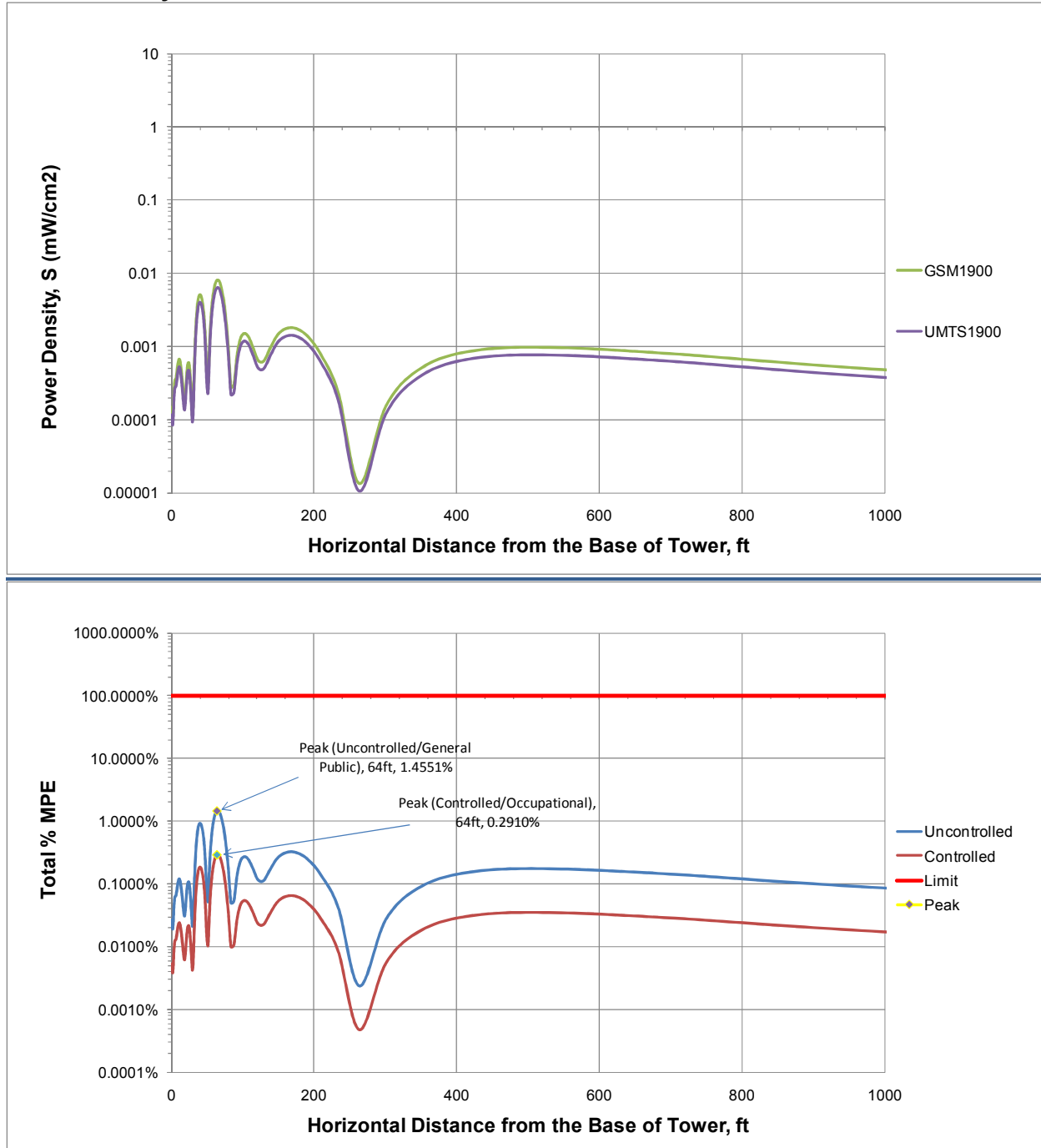


Maximum Permissible Exposures. Occupational/Controlled and General Population/Uncontrolled MPE's are functions of frequency.

Calculation Results

The following charts show the calculated power density levels and % MPE in the environment immediately surrounding the site. The calculation takes into account the antenna patterns of the antennae. Please note that the calculations as represented by the following graphs were done using the far field calculation formulas and should represent the immediate direction of each sector azimuth within the main beam of the antenna.

Power Density and %MPE



Statement of Certification

I certify to the best of my knowledge that the statements contained in this report are true and accurate. The theoretical computations contained are based on FCC recommended methods, with industry standard assumptions & formulas, and complies with FCC mandated Maximum Permissible RF Exposure requirements.

A comprehensive field survey was not performed prior to the generation of this report. If questions arise regarding the calculations herein, SAI Communications recommends that a comprehensive field survey be performed to resolve any disputes.



Charleston N. Sibal
SAI Communications

April 1, 2011

Date