Radio Frequency Emission Compliance Report

GCB Services

Delivering solutions for your success

Site Name: AT&T LAND LINE SWITCH (CSL04566 - NSB)	
Site Address: 202 W. OJAI AVE, OJAI, CA 93023	
USID: 286597	FA Location: 10581690
Site Type: Roof Top	Latitude & Longitude: 34.4480360, -119.2484620
Report Date: 10/27/2020	Pace: MRLOS060094/MRLOS059634/MRLOS060156/ MRLOS060031/MRLOS059839/MRLOS060165/MRLOS052847
RFDS ID: 4201467 | CSL04566 | 10/18/2020 | V1.00	
Construction Drawing: ATT-CSL04566- 100_ZDs 10-19-20	

Site Compliance Statement: Based on the result of simulations, this site will be in compliance with FCC Standards for General Population upon applying the proposed changes in Section 2.

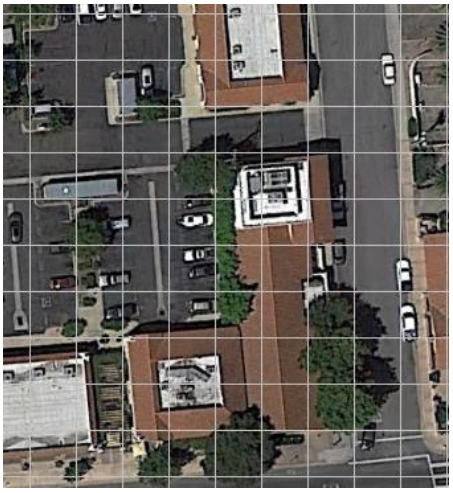

Image to show distance to surrounding buildings on 30' Grid

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1. Executive Summary

AT&T has contracted with GCB Services, an independent Radio Frequency consulting firm, to conduct a Radio Frequency Exposure (RFE) Compliance Assessment of the **AT&T LAND LINE SWITCH (CSL04566 - NSB)** cell site. The following report contains a detailed summary of the Radio Frequency environment as it relates to Federal Communications Commission (FCC) and Occupational Safety & Health Administration (OSHA) Rules and Regulations for all individuals.

In this report, it is assumed that all antennas are operating at full power at all times. Software modeling was performed for all transmitting antennas located on the site. GCB Services has further assumed a 100% duty cycle and maximum radiated power. GCB believes this to be a worst case analysis, based on best available data.

Radio Frequency Emissions: Modifications to existing facilities shall submit a completed radio frequency (RF)emissions exposure guidelines checklist contained in Appendix A of the FCC's "A Local Government Official's Guide to Transmitting Antenna RF Emission Safety" to determine if the facility is categorically excluded.

Relevant administrative and compliance–related information about the antenna site area is summarized in the table below:

Max AT&T MPE% at Ground Level:	**2.32%**	**AT&T 5% Contributor to Areas Requiring Mitigation? No**
Max AT&T MPE% at Balcony Level:	**1.99%**	**AT&T 5% Contributor to Areas Requiring Mitigation? No**
Max AT&T MPE% at Lower Slanted Roof Level:	**11.1%**	**AT&T 5% Contributor to Areas Requiring Mitigation? No**
Max AT&T MPE% at Main Roof Level:	**1518.9%**	**AT&T 5% Contributor to Areas Requiring Mitigation? No**
Max AT&T MPE% at Adjacent Slanted Roof Level:	**1.78%**	**AT&T 5% Contributor to Areas Requiring Mitigation? No**
Max AT&T MPE% at Upper Slanted Roof Level:	**2913.3%**	**AT&T 5% Contributor to Areas Requiring Mitigation? No**
Max AT&T MPE% at Adjacent Electric Pole Level:	**59.02%**	**AT&T 5% Contributor to Areas Requiring Mitigation? No**

Table 1 Predictive MPE General Population Standard

This report utilizes the following for predictive modeling of the ambient RF environment:

MPE Modeling Program: ROOFMASTER 10.0.3.20.15
Required Modeling Assumptions: 100% Duty Cycle and Maximum Total Power Output.

The simulation plots show the spatial predicted power exposure as a percentage of the General Population Standard. Please note that 100% MPE of General Population corresponds to 20% of the Occupational Standard.

Ground Level:

AT&T MPE% at this level is 2.32% of General Population Standard. No mitigation required.

Balcony Level:

AT&T MPE% at this level is 1.99% of General Population Standard. No mitigation required.

Lower Slanted Roof Level:

AT&T MPE% at this level is 11.1% of General Population Standard. No mitigation required.

Main Roof Level:

AT&T MPE% at this level is 1518.9% of General Population Standard. Mitigation required.

Adjacent Slanted Roof Level:

AT&T MPE% at this level is 1.78% of General Population Standard. No mitigation required.

Upper Slanted Roof Level:

AT&T MPE% at this level is 2913.3% of General Population Standard. Mitigation required.

Adjacent Electric Pole Level:

AT&T MPE% at this level is 59.02% of General Population Standard. No mitigation required.

Proposed Mitigation:

Sector A: Install 4ft barriers with caution sign 2 at the left side and 5ft barriers with caution sign 2 at right side of antenna array.

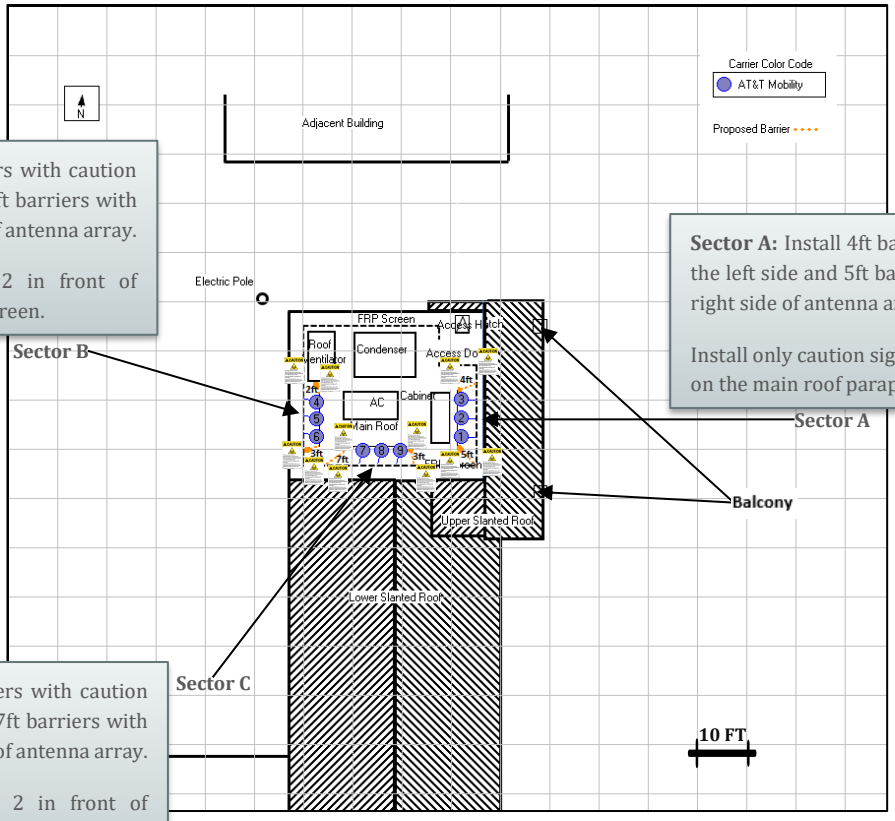
Install only caution sign 2 in front of antenna array on the main roof parapet.

Sector B: Install 3ft barriers with caution sign 2 at the left side and 2ft barriers with caution sign 2 at right side of antenna array.
Install only caution sign 2 in front of antenna array on the FRP Screen.

Sector C: Install 3ft barriers with caution sign 2 at the left side and 7ft barriers with caution sign 2 at right side of antenna array.
Install only caution sign 2 in front of antenna array on the FRP Screen.

2. Compliance Statement

AT&T Mobility Compliance Statement: Based on the information collected, AT&T Mobility will be Compliant with FCC Rules and Regulations at the nearest walking surface if recommendations in the Compliance Summary are implemented.



Sector B: Install 3ft barriers with caution sign 2 at the left side and 2ft barriers with caution sign 2 at right side of antenna array.

Install only caution sign 2 in front of antenna array on the FRP Screen.

Sector A: Install 4ft barriers with caution sign 2 at the left side and 5ft barriers with caution sign 2 at right side of antenna array.

Install only caution sign 2 in front of antenna array on the main roof parapet.

Sector C: Install 3ft barriers with caution sign 2 at the left side and 7ft barriers with caution sign 2 at right side of antenna array.

Install only caution sign 2 in front of antenna array on the FRP Screen.

Figure 1 Presentation of the proposed signs

Signage Legend								------		
	Notice Sign 2	Caution Sign 2	Caution Sign 2A	Caution Sign 2B	Caution Sign 2C	Warning Sign 2	Warning Sign 2A	Barrier		
								Left	Front	Right
Sector A	-	4	-	-	-	-	-	4ft	-	5ft
Sector B	-	4	-	-	-	-	-	3ft	-	2ft
Sector C	-	4	-	-	-	-	-	3ft	-	7ft

3. Antennas Inventory

Ant #	Name	Freq(MHz)	No. Tx	Input Power (watts)	ERP	Mfg	Model	(ft) X	(ft) Y	Z1 (ft)	Z2 (ft)	Z3 (ft)	Z4 (ft)	Z5 (ft)	Z6 (ft)	Z7 (ft)	Gain in dbd	Azimuth	HBW	Down tilt	Length (m)
1	AT&T Mobility	LTE 700	4	160	2945.24	Katherin	800-10965K	22.6	32.8	29	17	11	4.5	8	2	-3	12.65	90	62	0	1.99
1	AT&T Mobility	LTE/5G 850	4	160	3540.96	Katherin	800-10965K	22.6	32.8	29	17	11	4.5	8	2	-3	13.45	90	60	0	1.99
1	AT&T Mobility	LTE 1900	4	160	6013.00	Katherin	800-10965K	22.6	32.8	29	17	11	4.5	8	2	-3	15.75	90	65	0	1.99
2	AT&T Mobility	LTE 700	4	160	2945.24	Katherin	800-10965K	22.6	29	29	17	11	4.5	8	2	-3	12.65	90	62	0	1.99
2	AT&T Mobility	LTE 2100	4	160	6594.00	Katherin	800-10965K	22.6	29	29	17	11	4.5	8	2	-3	16.15	90	62	0	1.99
3	AT&T Mobility	LTE 700	2	80	1506.92	Commscope	JAHH-65B-R3B-V3	22.6	25.2	29	17	11	4.5	8	2	-3	12.75	90	67	0	1.82
3	AT&T Mobility	LTE 2300	4	100	5188.00	Commscope	JAHH-65B-R3B-V3	22.6	25.2	29	17	11	4.5	8	2	-3	17.15	90	64	0	1.82
4	AT&T Mobility	LTE 700	4	160	2945.24	Katherin	800-10965K	6.6	25.8	29	17	11	4.5	8	2	-3	12.65	280	62	0	1.99
4	AT&T Mobility	LTE/5G 850	4	160	3540.96	Katherin	800-10965K	6.6	25.8	29	17	11	4.5	8	2	-3	13.45	280	60	0	1.99
4	AT&T Mobility	LTE 1900	4	160	6013.00	Katherin	800-10965K	6.6	25.8	29	17	11	4.5	8	2	-3	15.75	280	65	0	1.99
5	AT&T Mobility	LTE 700	4	160	2945.24	Katherin	800-10965K	6.6	29.2	29	17	11	4.5	8	2	-3	12.65	280	62	0	1.99
5	AT&T Mobility	LTE 2100	4	160	6594.00	Katherin	800-10965K	6.6	29.2	29	17	11	4.5	8	2	-3	16.15	280	62	0	1.99
6	AT&T Mobility	LTE 700	2	80	1506.92	Commscope	JAHH-65B-R3B-V3	6.6	32.8	29	17	11	4.5	8	2	-3	12.75	280	67	0	1.82
6	AT&T Mobility	LTE 2300	4	100	5188.00	Commscope	JAHH-65B-R3B-V3	6.6	32.8	29	17	11	4.5	8	2	-3	17.15	280	64	0	1.82
7	AT&T Mobility	LTE 700	4	160	2945.24	Katherin	800-10965K	2.8	35.6	29	17	11	4.5	8	2	-3	12.65	190	62	0	1.99
7	AT&T Mobility	LTE/5G 850	4	160	3540.96	Katherin	800-10965K	2.8	35.6	29	17	11	4.5	8	2	-3	13.45	190	60	0	1.99
7	AT&T Mobility	LTE 1900	4	160	6013.00	Katherin	800-10965K	2.8	35.6	29	17	11	4.5	8	2	-3	15.75	190	65	0	1.99
8	AT&T Mobility	LTE 700	4	160	2945.24	Katherin	800-10965K	6.6	35.6	29	17	11	4.5	8	2	-3	12.65	190	62	0	1.99
8	AT&T Mobility	LTE 2100	4	160	6594.00	Katherin	800-10965K	6.6	35.6	29	17	11	4.5	8	2	-3	16.15	190	62	0	1.99
9	AT&T Mobility	LTE 700	2	80	1506.92	Commscope	JAHH-65B-R3B-V3	10.3	35.6	29	17	11	4.5	8	2	-3	12.75	190	67	0	1.82
9	AT&T Mobility	LTE 2300	4	100	5188.00	Commscope	JAHH-65B-R3B-V3	10.3	35.6	29	17	11	4.5	8	2	-3	17.15	190	64	0	1.82

Note: Considered worst case scenario of 4TX for LTE 700 (4*40=160W) and 4TXfor 5G 850 (4*40=160W).

Total power 320W (160W+160W) for RRU 4449.

Ground Level:

Z1 value refers to the antenna bottom tip from the simulated level.

Balcony Level:

Z2 value refers to the antenna bottom tip from the simulated level.

Lower Slanted Roof Level:

Z3 value refers to the antenna bottom tip from the simulated level**.**

Main Roof Level:

Z4 value refers to the antenna bottom tip from the simulated level.

Adjacent Slanted Roof Level:

Z5 value refers to the antenna bottom tip from the simulated level.

Upper Slanted Roof Level:

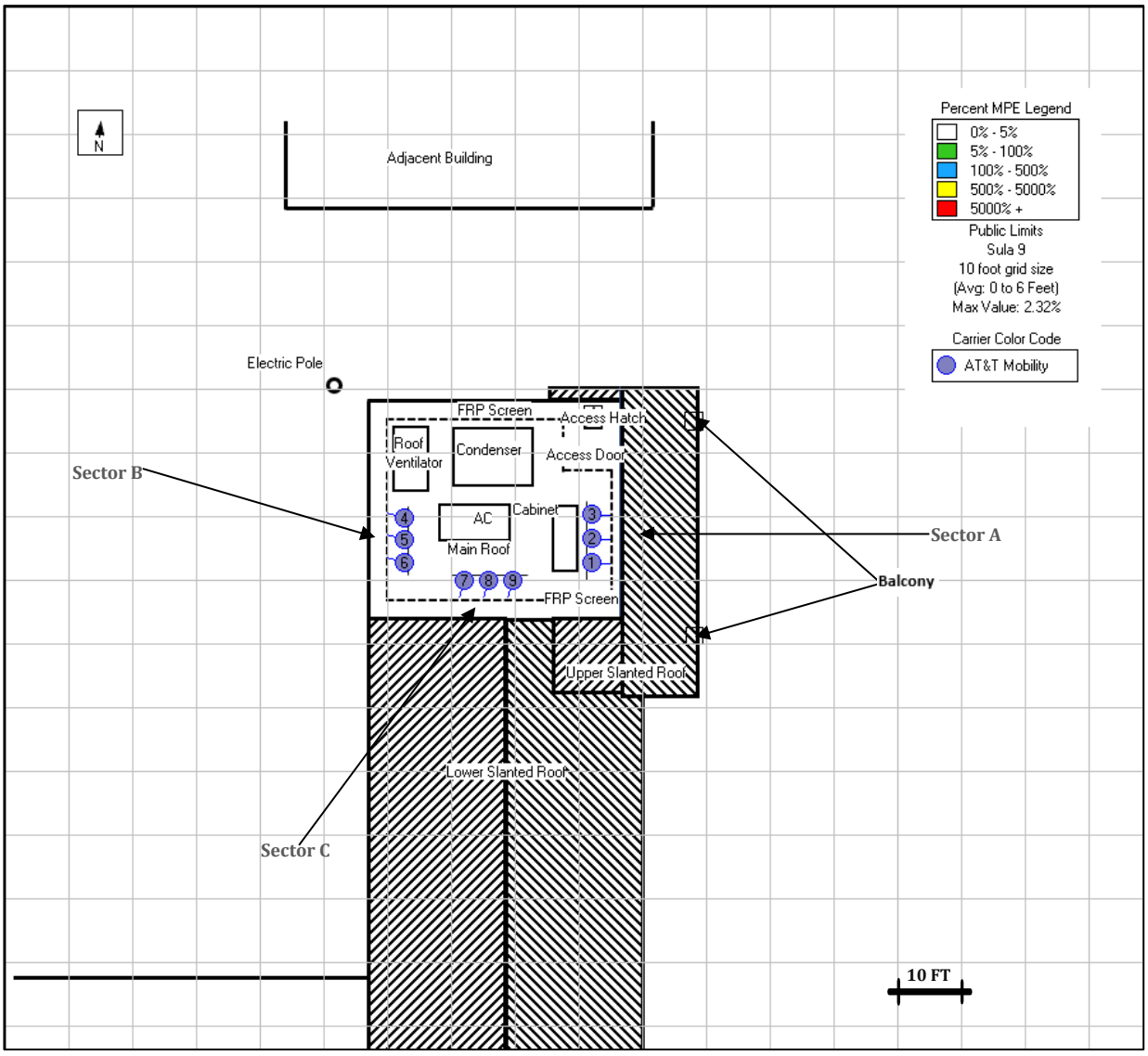
Z6 value refers to the antenna bottom tip from the simulated level.

Adjacent Electric Pole Level:

Z7 value refers to the antenna bottom tip from the simulated level.

4. Computer Modeling Result

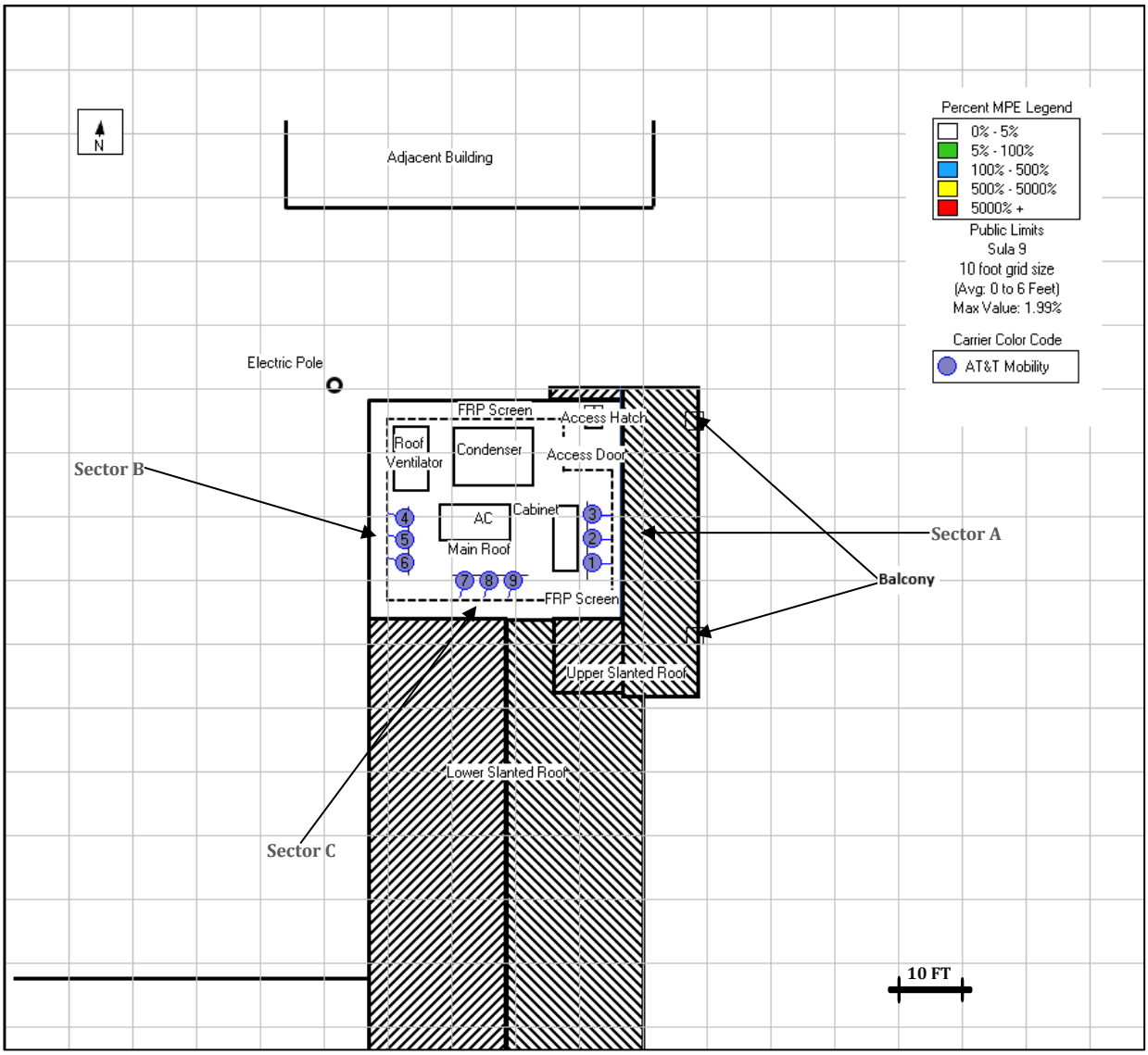
4.1 ALL CARRIERS TRANSMITTING AT GROUND LEVEL (29' BELOW FROM ANTENNA BOTTOM TIP)



5% - 100% MPE **100% - 500% MPE** **500% - 5000%. MPE** **≥ 5000% MPE**

Max MPE: 2.32% General Public

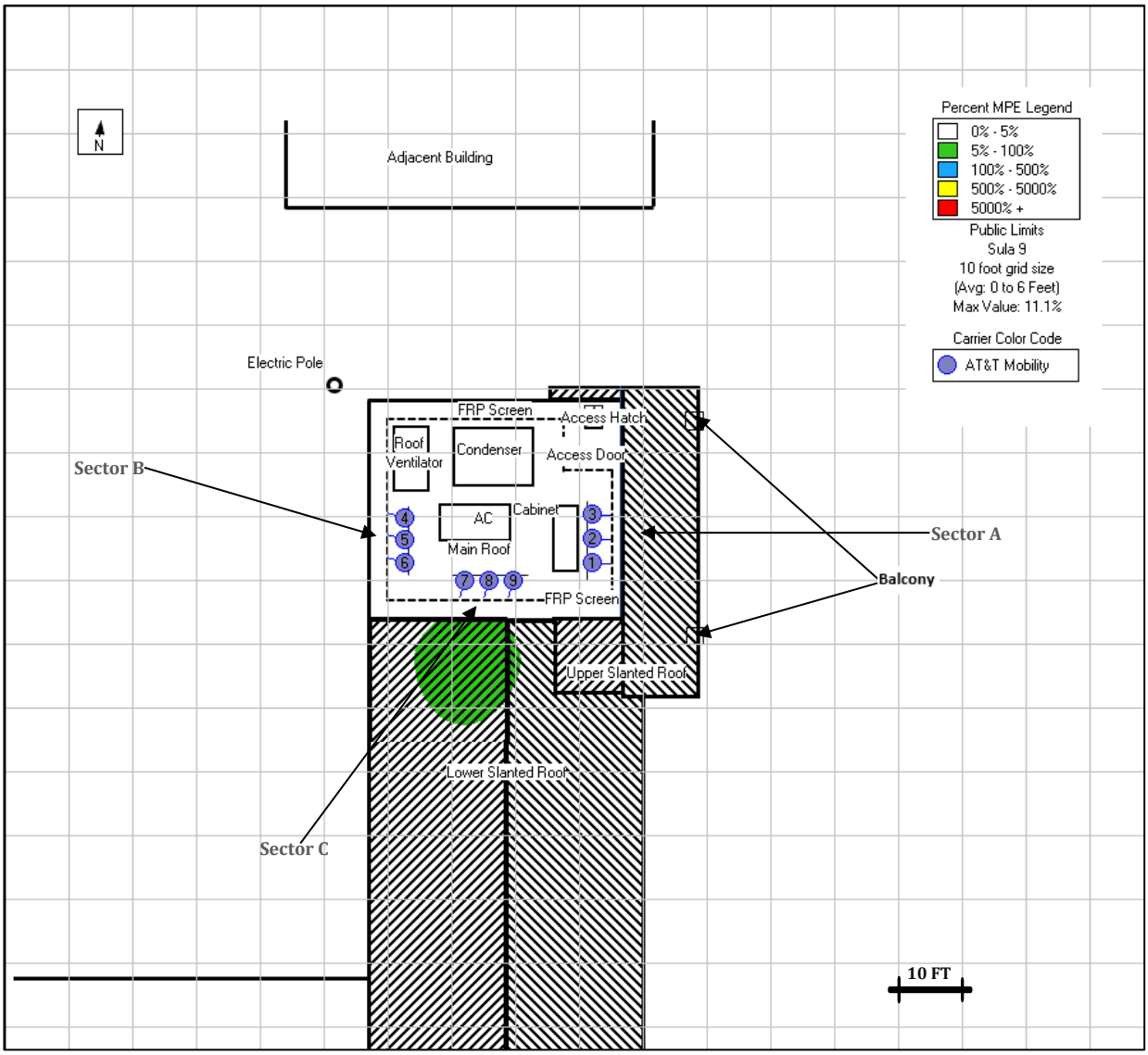
4.2. ALL CARRIERS TRANSMITTING AT BALCONY LEVEL (17' BELOW FROM ANTENNA BOTTOM TIP)



5% - 100% MPE **100% - 500% MPE** **500% - 5000%. MPE** **≥ 5000% MPE**

Max MPE: 1.99% General Public

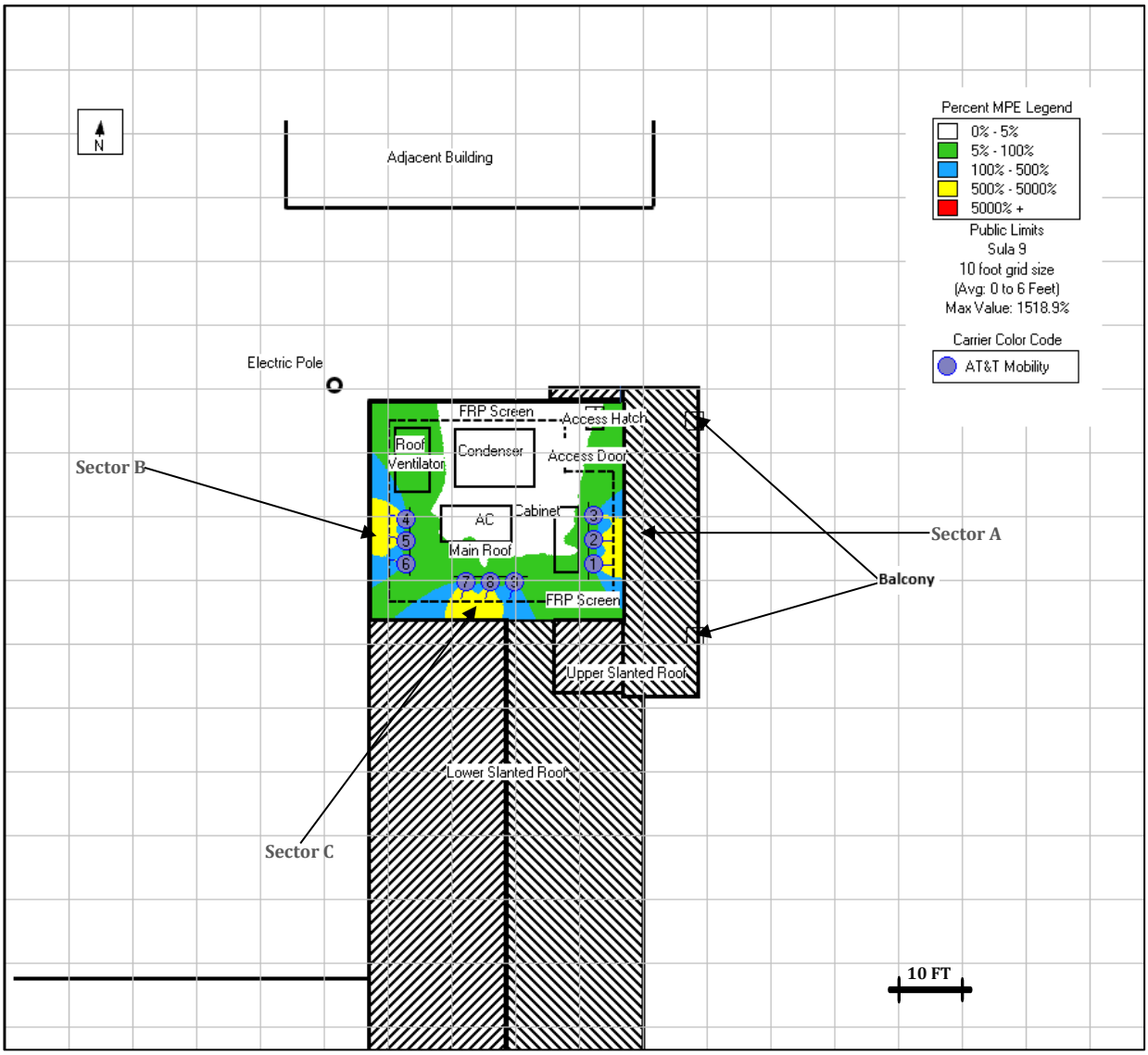
4.3. ALL CARRIERS TRANSMITTING AT LOWER SLANTED ROOF LEVEL (11' BELOW FROM ANTENNA BOTTOM TIP)



5% - 100% MPE **100% - 500% MPE** **500% - 5000%. MPE** **≥ 5000% MPE**

Max MPE: 11.1% General Public

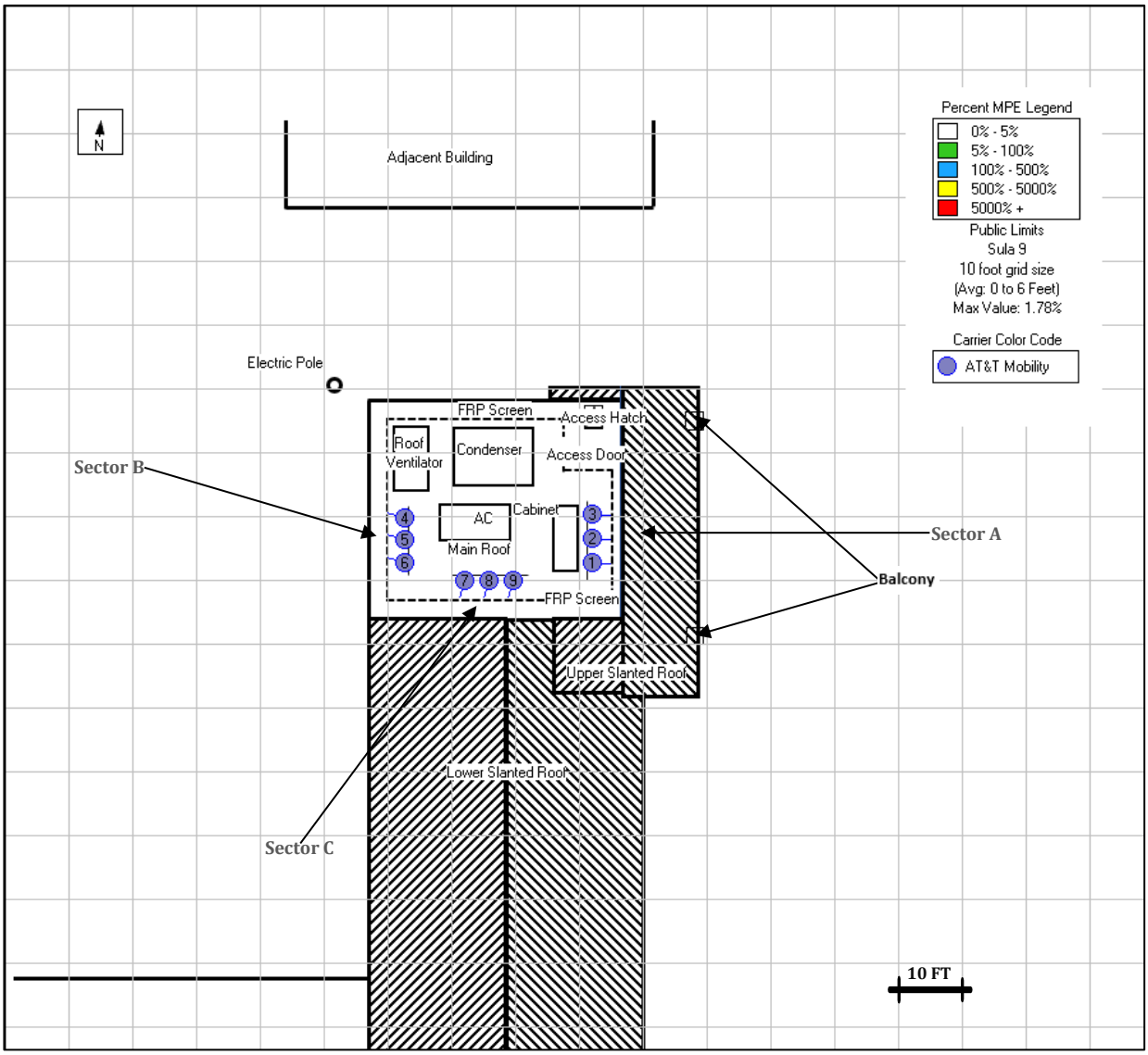
4.4. ALL CARRIERS TRANSMITTING AT MAIN ROOF LEVEL (4.5' BELOW FROM ANTENNA BOTTOM TIP)



5% - 100% MPE **100% - 500% MPE** **500% - 5000%. MPE** **≥ 5000% MPE**

Max MPE: 1518.9% General Public

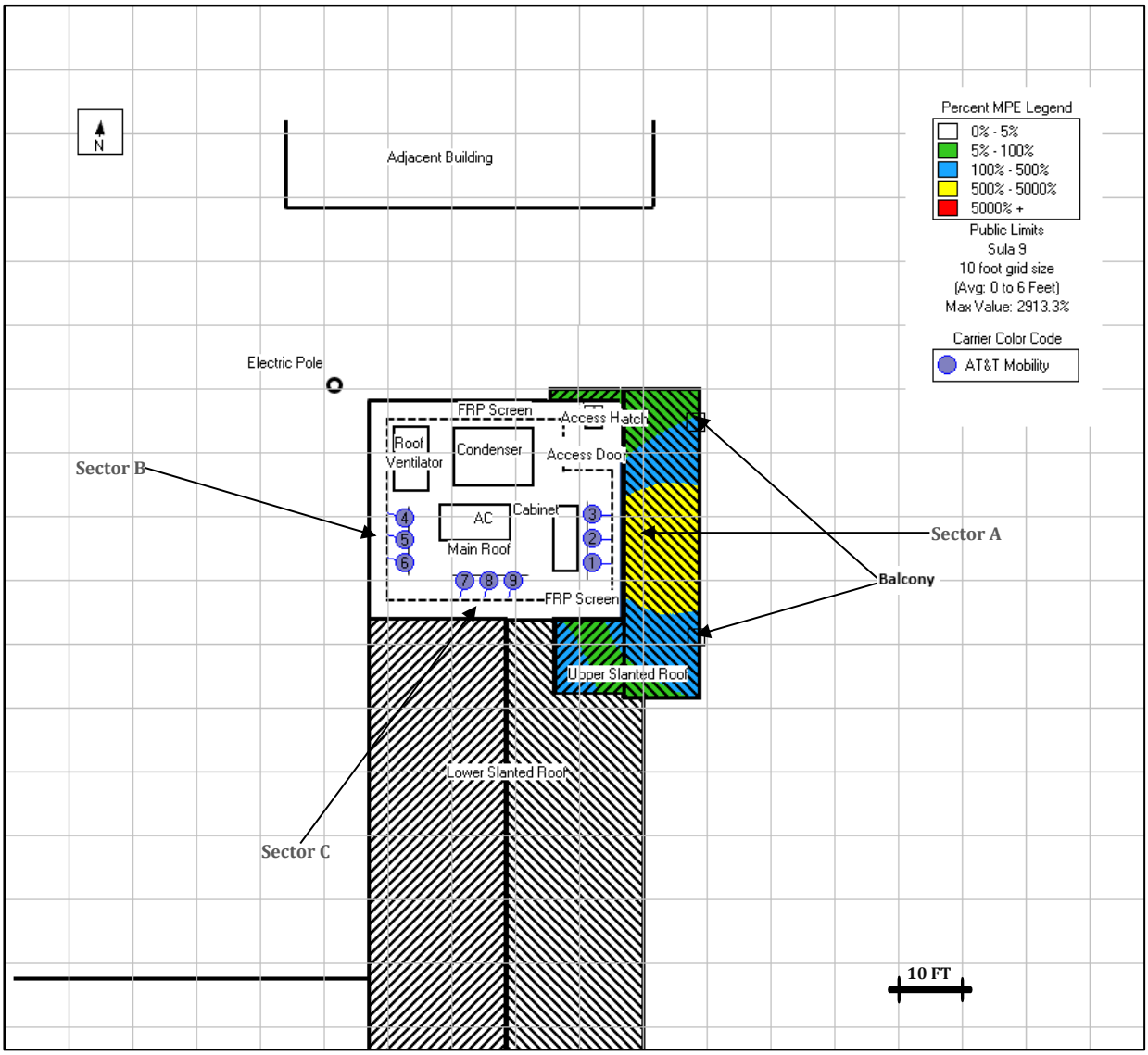
4.5. ALL CARRIERS TRANSMITTING AT ADJACENT SLANTED ROOF LEVEL (8' BELOW FROM ANTENNA BOTTOM TIP)



5% - 100% MPE **100% - 500% MPE** **500% - 5000%. MPE** **≥ 5000% MPE**

Max MPE: 1.78% General Public

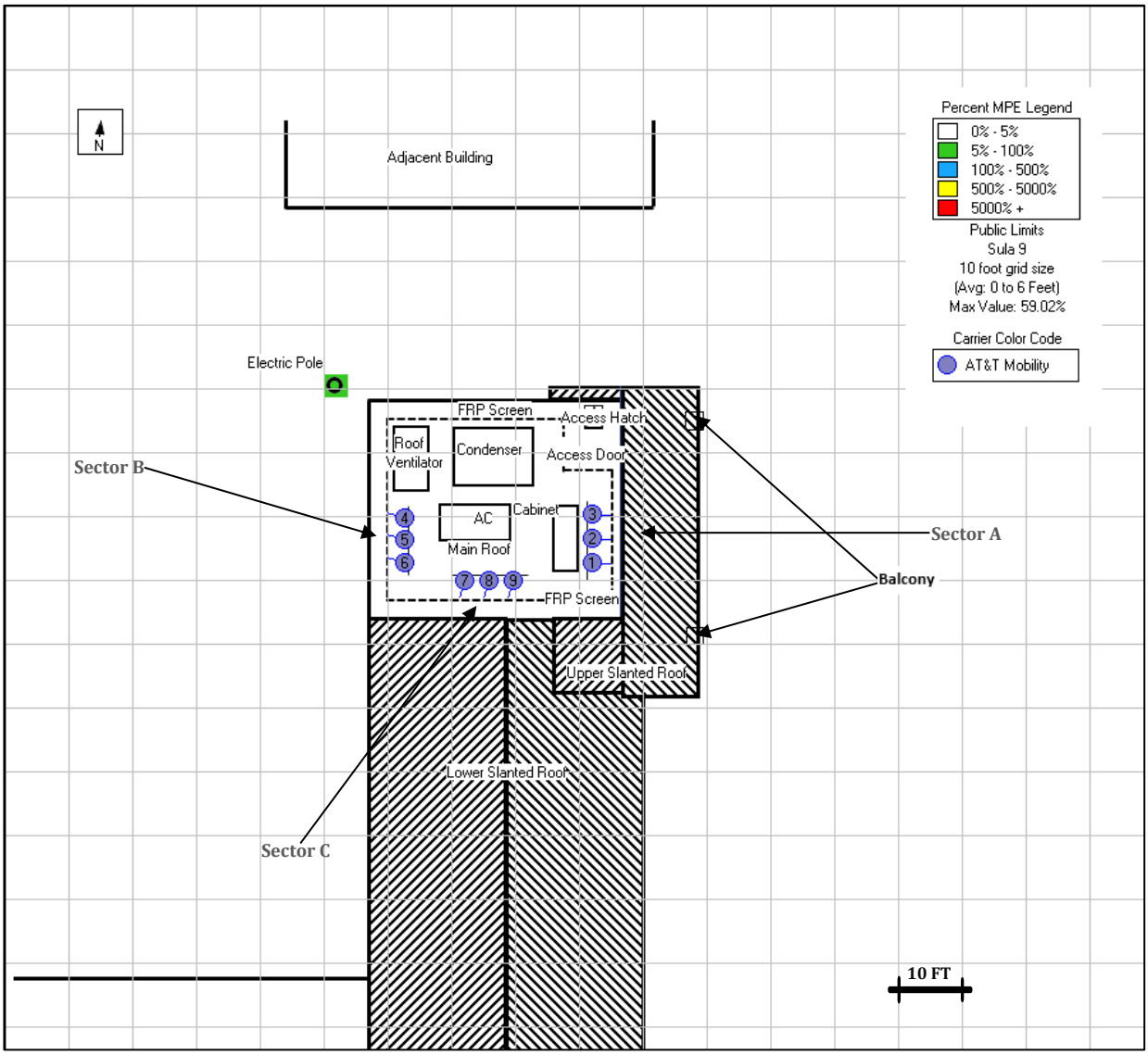
4.6. ALL CARRIERS TRANSMITTING AT UPPER SLANTED ROOF LEVEL (2' BELOW FROM ANTENNA BOTTOM TIP)



5% - 100% MPE **100% - 500% MPE** **500% - 5000%. MPE** **≥ 5000% MPE**

Max MPE: 2913.3% General Public

4.7. ALL CARRIERS TRANSMITTING AT ADJACENT ELECTRIC POLE LEVEL (3' ABOVE FROM ANTENNA BOTTOM TIP)



5% - 100% MPE **100% - 500% MPE** **500% - 5000%. MPE** **≥ 5000% MPE**

Max MPE: 59.02% General Public

5. RoofMaster™ Export File

Antenna Details Table

Ant Num	ID	Name	(MHz) Freq	EIRP	ERP	Mfg	Model	(ft) X	(ft) Y	(ft) Z	Antenna Typ	Aperture Size	Gain in dbd	Orientation	ON flag	Horizontal Be	Downtilt	Length	Screen Orier
1	1	AT&T Mobilit	700	4832	2945.24	Katherin	80010965	22.6	32.8	32			12.65	90	ONI	62	0	1.99	95
1	2	AT&T Mobilit	850	5809	3540.96	Katherin	80010965	22.6	32.8	32			13.45	90	ONI	60	0	1.99	95
1	3	AT&T Mobilit	1900	9865.53	6013	Katherin	80010965	22.6	32.8	32			15.75	90	ONI	65	0	1.99	95
2	4	AT&T Mobilit	700	4832	2945.24	Katherin	80010965	22.6	29	32			12.65	90	ONI	62	0	1.99	95
2	5	AT&T Mobilit	2100	10817.33	6594	Katherin	80010965	22.6	29	32			16.15	90	ONI	62	0	1.99	95
3	6	AT&T Mobilit	700	2472	1506.92	COMMSCOP	JAHH-65E	22.6	25.2	32			12.75	90	ONI	67	0	1.82	95
3	7	AT&T Mobilit	2300	8511.39	5188	COMMSCOP	JAHH-65E	22.6	25.2	32			17.15	90	ONI	64	0	1.82	95
4	8	AT&T Mobilit	700	4832	2945.24	Katherin	80010965	6.6	25.8	32			12.65	280	ONI	62	0	1.99	285
4	9	AT&T Mobilit	850	5809	3540.96	Katherin	80010965	6.6	25.8	32			13.45	280	ONI	60	0	1.99	285
4	10	AT&T Mobilit	1900	9865.53	6013	Katherin	80010965	6.6	25.8	32			15.75	280	ONI	65	0	1.99	285
5	11	AT&T Mobilit	700	4832	2945.24	Katherin	80010965	6.6	29.2	32			12.65	280	ONI	62	0	1.99	285
5	12	AT&T Mobilit	2100	10817.33	6594	Katherin	80010965	6.6	29.2	32			16.15	280	ONI	62	0	1.99	285
6	13	AT&T Mobilit	700	2472	1506.92	COMMSCOP	JAHH-65E	6.6	32.8	32			12.75	280	ONI	67	0	1.82	285
6	14	AT&T Mobilit	2300	8511.39	5188	COMMSCOP	JAHH-65E	6.6	32.8	32			17.15	280	ONI	64	0	1.82	285
7	15	AT&T Mobilit	700	4832	2945.24	Katherin	80010965	2.8	35.6	32			12.65	190	ONI	62	0	1.99	195
7	16	AT&T Mobilit	850	5809	3540.96	Katherin	80010965	2.8	35.6	32			13.45	190	ONI	60	0	1.99	195
7	17	AT&T Mobilit	1900	9865.53	6013	Katherin	80010965	2.8	35.6	32			15.75	190	ONI	65	0	1.99	195
8	18	AT&T Mobilit	700	4832	2945.24	Katherin	80010965	6.6	35.6	32			12.65	190	ONI	62	0	1.99	195
8	19	AT&T Mobilit	2100	10817.33	6594	Katherin	80010965	6.6	35.6	32			16.15	190	ONI	62	0	1.99	195
9	20	AT&T Mobilit	700	2472	1506.92	COMMSCOP	JAHH-65E	10.3	35.6	32			12.75	190	ONI	67	0	1.82	195
9	21	AT&T Mobilit	2300	8511.39	5188	COMMSCOP	JAHH-65E	10.3	35.6	32			17.15	190	ONI	64	0	1.82	195

Report has been prepared by:

PREPARER	REVIEWER
Manvendra Singh	Gyan Sharma
RF Associate	RF Engineer

6. Appendix

6.1 FCC LIMITS FOR MPE

The FCC's MPE limits are based on exposure limits over a wide range of frequencies recommended by the NCRP and the exposure limits developed by the IEEE and adopted by the American National Standards Institute ("ANSI") to replace the 1982 ANSI guidelines. The limits for localized absorption are based on the recommendations of both the ANSI/IEEE and the NCRP. The potential hazard associated with the RF electromagnetic fields is discussed in OET Bulletin No. 65 "Questions and Answers about the Biological Effects and Potential Hazards of RF Electromagnetic Fields". This document can be obtained on the FCC website at http://www.fcc.gov.

Limits for Occupational /Controlled Exposure:

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ 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	6

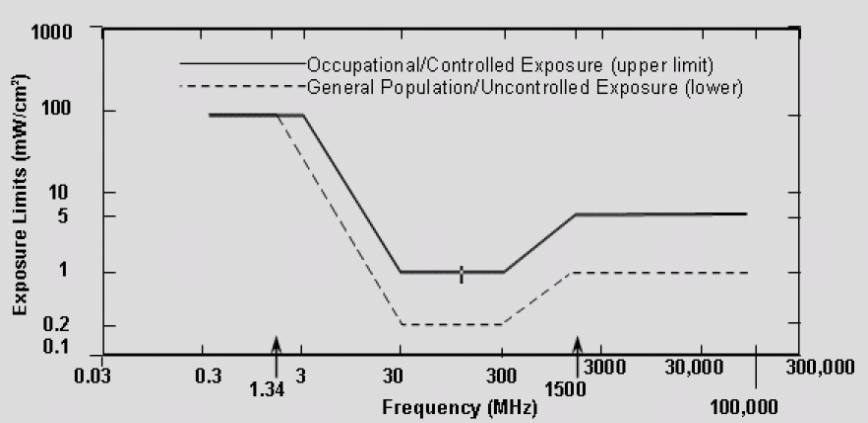
Limits for General Population /Uncontrolled Exposure:

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ 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

NOTE 1: ***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 occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2: ***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 cannot exercise control over their exposure.



6.2 ANALYSIS AND COMPUTATION

Power density is calculated by dividing the surface area of the sphere or the unit area normal to the direction of the propagation. This information is usually shown in units of microwatts per square centimeter (uW/cm^2), mill watt per square centimeters (mW/cm2), or watts per square meter (W/m^2).

$$S = \frac{(P \times KFact)}{(2\pi Rh)}$$

where :

S = power density (mW/cm^2)

P = total power input to the antenna (mW)

K = antenna correction factor / numeric factor for antenna discrimination

R = straight line distance of the antenna from a 6 ft. human (cm)

h = distance between the roof level and the bottom of the antenna (cm) o r the vertical distance from the tip of the antenna to the roof level where a 6 ft. human being is assumed standing directly from the antenna (also equal to R at 0)

MPE% = Calculated exposure level, as a percentage of the FCC MPE limit for continuous exposure of the general population