City of Santa Rosa
Planning & Economic
Development Department
01/21/2025
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Radio Frequency – Electromagnetic Energy (RF-EME) Compliance Report

Prepared For AT&T Mobility, LLC

Site name:	Verizon Colocation
FA#:	14537233
USID:	330784
Site ID:	CCL06435
EBI Project Number	016547-PR
Address:	1350 Bennett Valley Road, Santa Rosa, California
County:	Sonoma
Latitude:	38.42697700
Longitude:	-122.69898900
Structure Type:	Monopole
Property Owner:	Complete Wireless
Pace Job:	MRSFR049567
Report Writer:	Rebecca Sinisgalli
Report Date:	14 May 2024

Statement of Compliance

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.

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1. Executive summary

Purpose of Report

EBI Consulting has been contracted by AT&T Mobility, LLC to provide a Radio Frequency Electromagnetic Energy (RF-EME) compliance analysis and report for the above listed AT&T base station facility to determine whether the facility is in compliance with federal standards and regulations regarding RF emissions. This analysis includes theoretical emissions calculations to determine RF-EME exposure levels from proposed AT&T wireless communications equipment at this site. The Federal Communications Commission (FCC) has developed Maximum Permissible Exposure (MPE) Limits for general public exposures and occupational exposures. This report summarizes the results of RF-EME modeling in relation to relevant FCC RF-EME compliance standards for limiting human exposure to RF-EME fields.

This report contains the RF EME analysis for the site, including the following:

- Site Plan with antenna locations
- Graphical representation of theoretical MPE fields based on theoretical modeling
- Graphical representation of recommended signage and/or barriers

This document addresses the compliance of AT&T's transmitting facilities independently and in relation to all collocated facilities at the site.

Site summary

Table 1: Compliance status	
Max Predictive Spatial Average MPE% & Antenna Face Level Location on Site (General Public):	48620%
Max Predictive Spatial Average MPE% at Ground Level (General Public):	8.368%
AT&T Mobility Site Compliance:	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.

Table 2: Documents used to prepare this report	
Construction Drawings	90_ZD_5-2-24_14537233_307204_CCL06435
RFDS	Prelim_RFDS_04_22_2024_CCL06435

2. Predicted Emissions

This section details predicted RF emissions levels present on any on-site applicable walking/working surfaces identified as well as applicable off-site areas, such as ground level or other points of interest, such as adjacent buildings. Results are provided as a percentage of the FCC OET 65 standard (unless otherwise specified).

EBI has conducted theoretical modeling to estimate the worst-case power density from AT&T antennas and other carrier antennas to document potential MPE levels at this location and ensure that site control measures are adequate to meet FCC requirements, as well as AT&T's corporate RF safety policies.

The assumptions used and inputs modelled are based upon information provided by AT&T and information gathered from other sources. Verizon was observed to have antennas on the tower. Information about these antennas was included in the modeling analysis.

Information about the RF Compliance software and calculation methodology used are detailed in Appendix E: RF Compliance Simulation Software. Scale maps are included in highlighting mitigation strategies deployed or proposed to ensure EMF compliance, where applicable, as shown in Section 3: Mitigation Recommendations.

Table 3: Max predictive MPE % by location

Analyzed Surface	Max value	Unit
Sloped Adjacent Roof	14.99	% of FCC OET 65 Public
Sloped Adjacent Roof2	15	% of FCC OET 65 Public
Sloped Adjacent Roof4	10.4	% of FCC OET 65 Public
Sloped Adjacent Roof5	10.09	% of FCC OET 65 Public
Adjacent Roof	9.838	% of FCC OET 65 Public

Table 3: Max predictive MPE % by location		
Analyzed Surface	**Max value**	**Unit**
Adjacent Roof2	8.045	% of FCC OET 65 Public
Adjacent Roof3	15.05	% of FCC OET 65 Public
Adjacent Roof4	10.44	% of FCC OET 65 Public
Adjacent Roof5	11.43	% of FCC OET 65 Public
Adjacent Roof6	14.86	% of FCC OET 65 Public
Sloped Adjacent Roof6	11.41	% of FCC OET 65 Public
Adjacent Roof7	10.37	% of FCC OET 65 Public
EnvironmentalSlice2	8.094	% of FCC OET 65 Public
Adjacent Roof 8	8.762	% of FCC OET 65 Public
Adjacent Light Pole	24.82	% of FCC OET 65 Public
Adjacent Light Pole2	13.72	% of FCC OET 65 Public
Ground Level	8.368	% of FCC OET 65 Public

Table 3: Max predictive MPE % by location		
Analyzed Surface	**Max value**	**Unit**
Antenna Face Level	48620	% of FCC OET 65 Public

Based on worst-case predictive modeling, the worst-case emitted power density may exceed the FCC's general public and occupational limits in areas as shown below:

Table 4: Horizontal stay back Distances by location			
Analyzed Surface	**Sector**	**Occupational Limit Stay Back Distance (ft)**	**General Public Limit Stay Back Distance (ft)**
Sloped Adjacent Roof			
Sloped Adjacent Roof2			
Sloped Adjacent Roof4			
Sloped Adjacent Roof5			
Adjacent Roof			
Adjacent Roof2			
Adjacent Roof3			
Adjacent Roof4			
Adjacent Roof5			
Adjacent Roof6			
Sloped Adjacent Roof6			
Adjacent Roof7			
EnvironmentalSlice2			
Adjacent Roof 8			
Adjacent Light Pole			
Adjacent Light Pole2			
Ground Level			

Table 4: Horizontal stay back Distances by location			
Analyzed Surface	**Sector**	**Occupational Limit Stay Back Distance (ft)**	**General Public Limit Stay Back Distance (ft)**
Antenna Face Level	A,B, and C	45	98

3. Mitigation Recommendations

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.

To reduce the risk of exposure and/or injury, EBI recommends that access to the rooftop or areas associated with the active antenna installation be restricted and secured where possible. Signage is recommended at the site as presented in Section 3: Mitigation Recommendations. Posting of the signage and installation of the recommended barriers brings the site into compliance with FCC rules and regulations and AT&T's corporate RF safety policies. Workers or members of the general public accessing areas directly in front of the other carrier antennas should contact the carrier and/or landlord to determine appropriate setbacks or measures to safely occupy those areas.

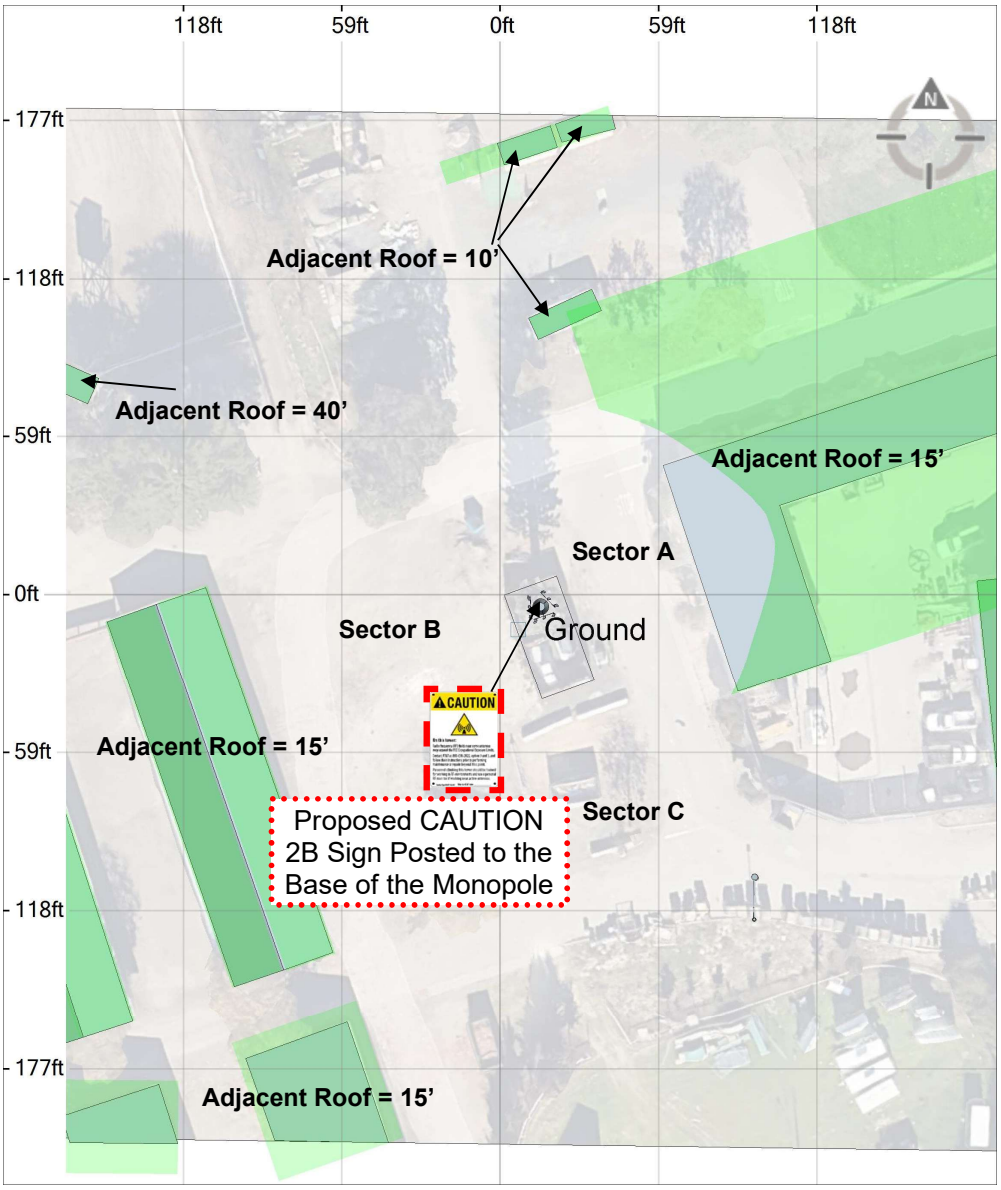
Table 5: Recommended Mitigation

Location	Proposed Signage	Proposed Barrier(s)
Access	▪ Yellow CAUTION 2B sign posted to the base of the monopole.	None
Alpha Sector	▪ No signage required.	None
Beta Sector	▪ No signage required.	None
Gamma Sector	▪ No signage required.	None

Barriers should be constructed of weather-resistant plastic or wood fencing. Barriers may consist of railing, rope, chain, or weather-resistant plastic if no other types are permitted or are feasible. Painted stripes should only be used as a last resort and only in regions where there is little chance of snowfall. If painted stripes are selected as barriers, it is recommended that the stripes and signage be illuminated. The signage and any barriers are graphically represented in the Signage Plan presented below. It is important to note that this Signage Plan is specific for AT&T antennas only, and does not address RF emissions of other carrier antennas.

All workers and individuals accessing the rooftop or persons (including arborists), accessing elevated structures or trees within areas exceeding the general public MPE, must be made aware of the presence and locations of antennas and their associated fields, where applicable.

Exposure Threshold - All Adjacent Rooftops



Items to be removed

Existing Signs

Proposed Signs

Existing Barriers

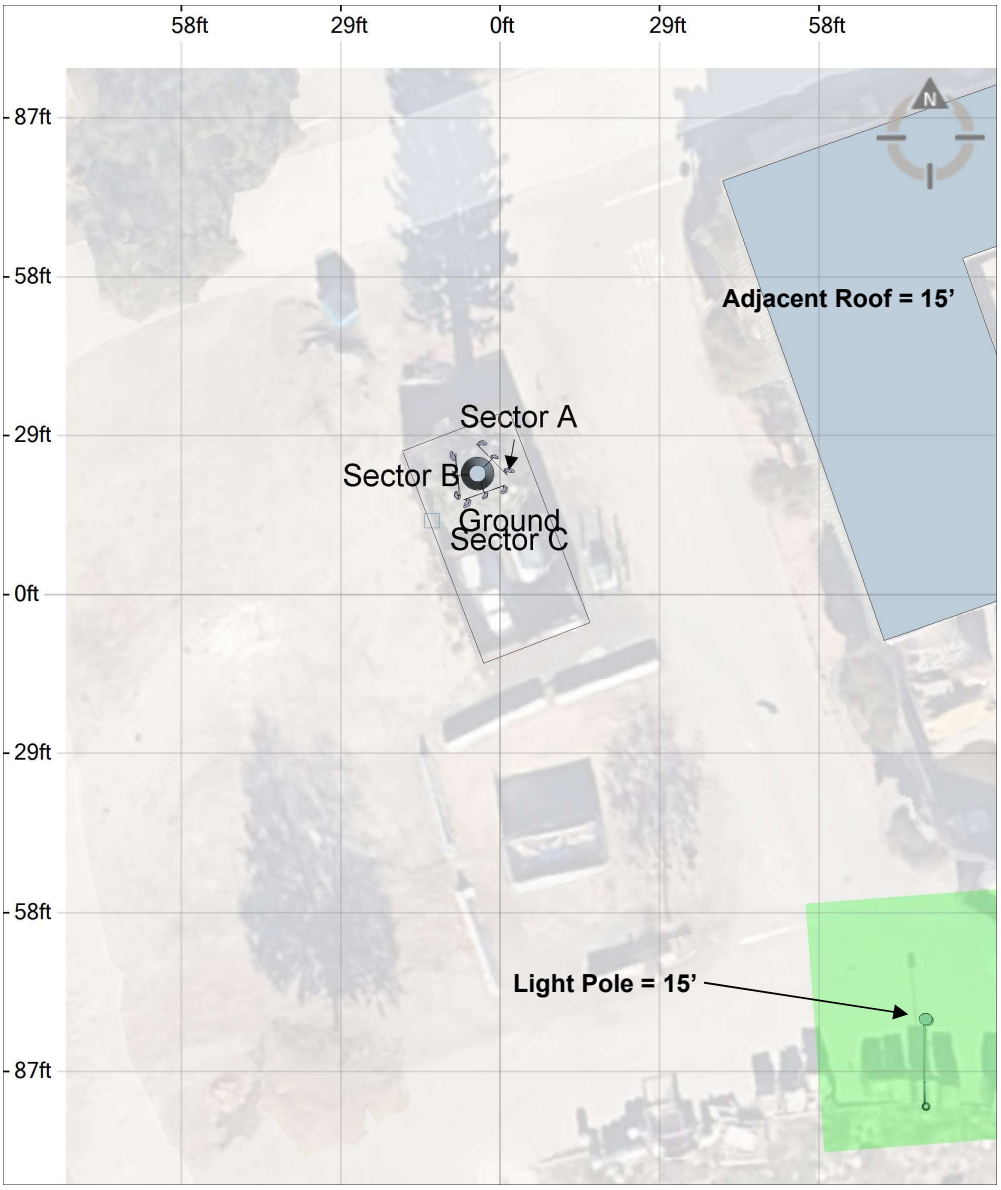
Proposed Barriers

Safety Instructions	Notice 2	Notice 2D	Caution 2	Caution 2A	Caution 2B	Caution 2C	Caution 2D	Warning 1B	Warning 2A

% of FCC OET 65 Public

5000 % + | 500 % - 5000 % | 100 % - 500 % | 5 % - 100 % | 0 % - 5%

Exposure Threshold - Light Pole



Items to be removed

Existing Signs

Proposed Signs

Existing Barriers

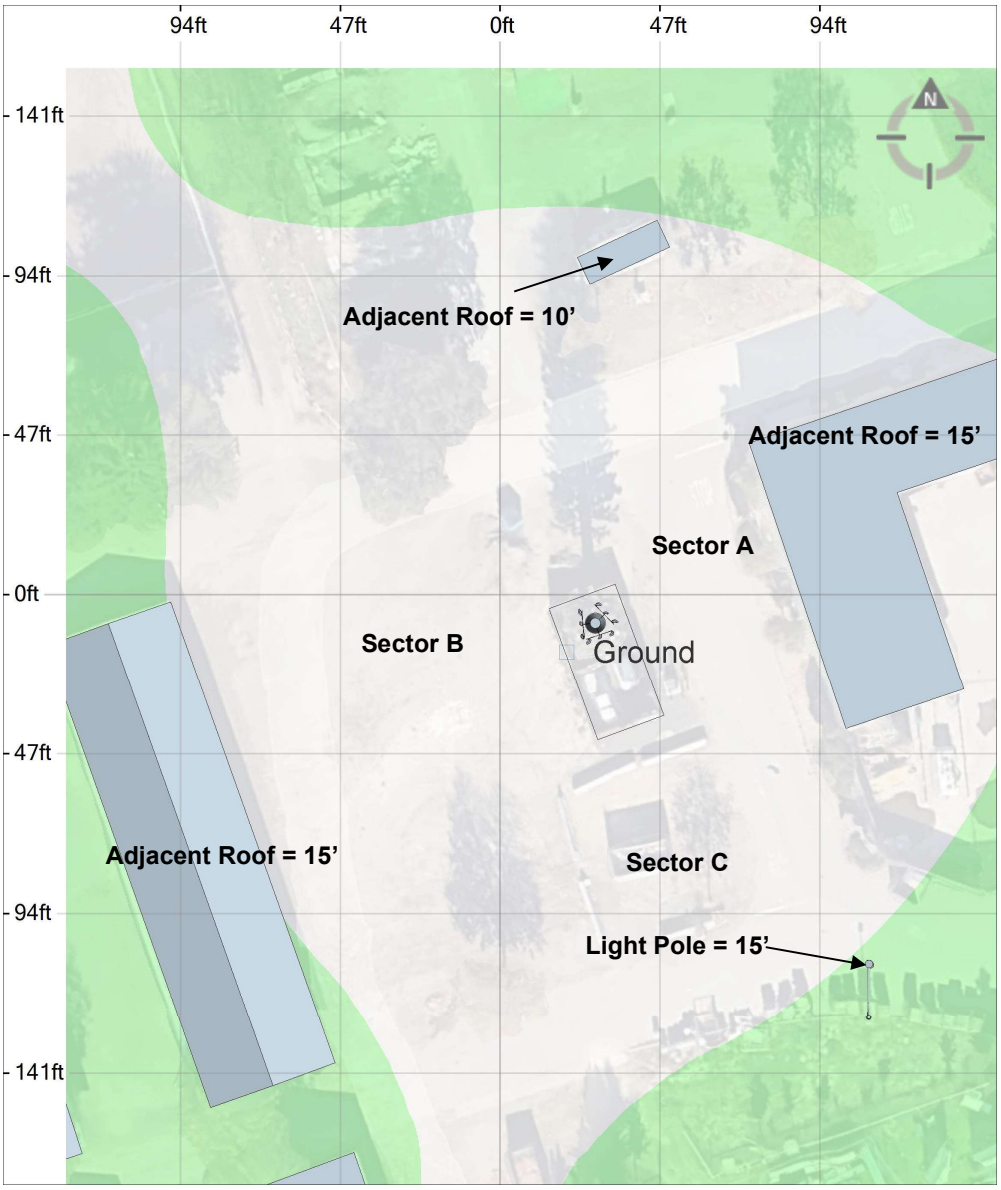
Proposed Barriers

Safety Instructions	Notice 2	Notice 2D	Caution 2	Caution 2A	Caution 2B	Caution 2C	Caution 2D	Warning 1B	Warning 2A

% of FCC OET 65 Public

5000 % + | 500 % - 5000 % | 100 % - 500 % | 5 % - 100 % | 0 % - 5%

Exposure Threshold - Ground Level



Items to be removed

Existing Signs

Proposed Signs

Existing Barriers

Proposed Barriers

Safety Instructions	Notice 2	Notice 2D	Caution 2	Caution 2A	Caution 2B	Caution 2C	Caution 2D	Warning 1B	Warning 2A

% of FCC OET 65 Public

5000 % + | 500 % - 5000 % | 100 % - 500 % | 0 % - 100 %

4. Limitations

This report was prepared for the use of AT&T Mobility, LLC to meet requirements outlined in AT&T's corporate RF safety guidelines. It was performed in accordance with generally accepted practices of the trade, albeit proprietary in specific content, including other consultants undertaking similar studies at the same time and in the same locale under like circumstances. The conclusions provided by EBI and its partners are based solely on information supplied by AT&T, including modeling instructions, inputs, parameters and methods. Calculations, data, and modeling methodologies for C Band equipment Include a statistical factor reducing the power to 32% of maximum theoretical power to account for spatial distribution of users, network utilization, time division duplexing, and scheduling time. AT&T recommends the use of this factor based on a combination of guidance from its antenna system manufacturers, supporting international industry standards, industry publications, and its extensive experience. The observations in this report are valid on the date of the investigation. Any additional information that becomes available concerning the site should be provided to EBI so that our conclusions may be revised and modified, if necessary. This report has been prepared in accordance with Standard Conditions for Engagement and authorized proposal, both of which are integral parts of this report. No other warranty, expressed or implied, is made.

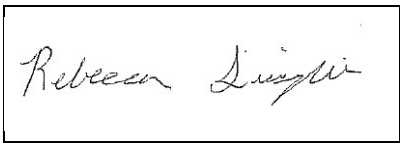
5. Appendices

Appendix A: Certifications

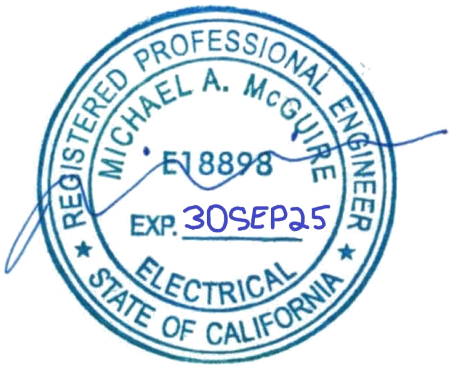
Report Preparer Certification

I, Rebecca Sinisgalli, state that:

- I am an employee of EnviroBusiness Inc. (d/b/a EBI Consulting), which provides RF-EME safety and compliance services to the wireless communications industry.
- I have successfully completed RF-EME safety training, and I am aware of the potential hazards from RF-EME and would be classified “occupational” under the FCC regulations.
- I am fully aware of and familiar with the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation.
- I have been trained in on the procedures outlined in AT&T’s RF Exposure: Responsibilities, Procedures & Guidelines document (dated October 28, 2014) and on RF-EME modelling using IXUS™ modelling software.
- I have reviewed the data provided by the client and incorporated it into this Site Compliance Report such that the information contained in this report is true and accurate to the best of my knowledge.



Reviewed and Approved by:



sealed 15may2024

Michael McGuire
Electrical Engineer
mike@h2dc.com

Note that EBI's scope of work is limited to an evaluation of the Radio Frequency – Electromagnetic Energy (RF-EME) field generated by the antennas and broadcast equipment noted in this report. The engineering and design of the building and related structures, as well as the impact of the antennas and broadcast equipment on the structural integrity of the building, are specifically excluded from EBI's scope of work.

Appendix B: RF Exposure Policy Requirements

AT&T's RF Exposure: Responsibilities, Procedures & Guidelines document, dated May 27, 2015, requires that:

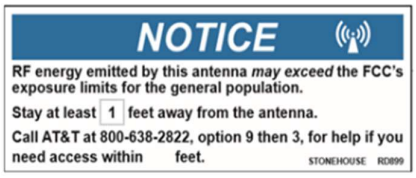
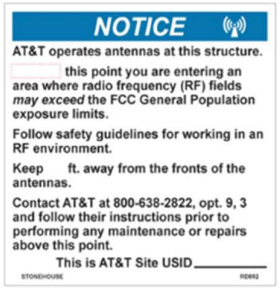
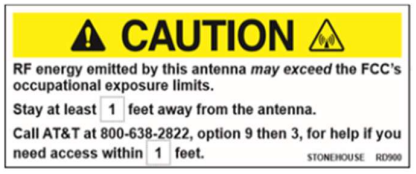
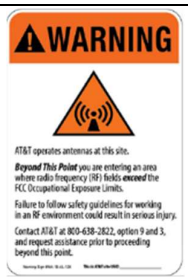
1. All sites must be analyzed for RF exposure compliance;
2. All sites must have that analysis documented; and
3. All sites must have any necessary signage and barriers installed.

Appendix C: AT&T Signage and Mitigation

Signs are the primary means for control of access to areas where RF exposure levels may potentially exceed the MPE. As presented in the AT&T guidance document, the signs must:

- Be posted at a conspicuous point;
- Be posted at the appropriate locations;
- Be readily visible; and
- Make the reader aware of the potential risks prior to entering the affected area.

The table below presents the signs that may be used for AT&T installations.

CRAN / HETNET Small Cell Decals / Signs		Alerting Signs	
	**STONEHOUSE NOTICE DECAL**	**TRILINGUAL NOTICE**	**NOTICE 2**
	**STONEHOUSE NOTICE SIGN**	**CAUTION 2 – ROOFTOP**	**CAUTION 2A**
	**STONEHOUSE CAUTION DECAL**	**CAUTION 2B - TOWER**	**CAUTION 2C - PARAPETS**
	STONEHOUSE CAUTION SIGN	 **WARNING 1B**	**WARNING 2A**

Appendix D: Federal Communications Commission (FCC) Requirements

The FCC has established Maximum Permissible Exposure (MPE) limits for human exposure to Radiofrequency Electromagnetic (RF-EME) energy fields, based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP) and, over a wide range of frequencies, the exposure limits developed by the Institute of Electrical and Electronics Engineers, Inc. (IEEE) and adopted by the American National Standards Institute (ANSI) to replace the 1982 ANSI guidelines. Limits for localized absorption are based on recommendations of both ANSI/IEEE and NCRP.

The FCC guidelines incorporate two separate tiers of exposure limits that are based upon occupational/controlled exposure limits (for workers) and general public/uncontrolled exposure limits for members of the general public.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/ controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general public/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

General public/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment-related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

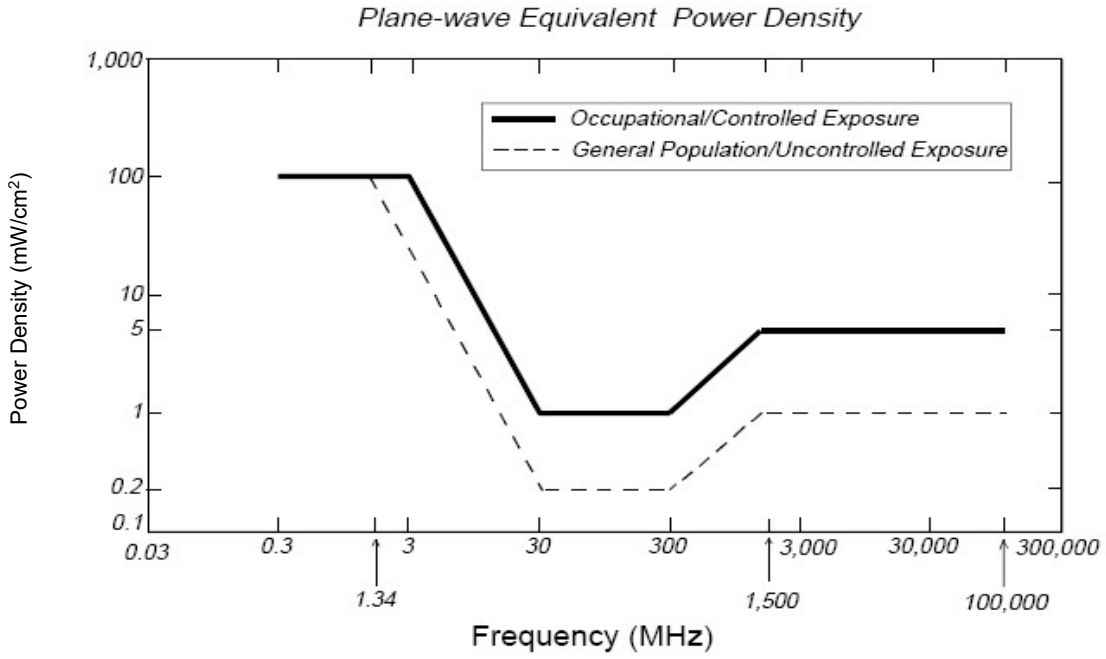
Table 1 and Figure 1 (below), which are included within the FCC's OET Bulletin 65, summarize the MPE limits for RF emissions. These limits are designed to provide a substantial margin of safety. They vary by frequency to take into account the different types of equipment that may be in operation at a particular facility and are "time-averaged" limits to reflect different durations resulting from controlled and uncontrolled exposures.

The FCC's MPEs are measured in terms of power (mW) over a unit surface area (cm^2). Known as the power density, the FCC has established an occupational MPE of 5 milliwatts per square centimeter (mW/cm^2) and an uncontrolled MPE of 1 mW/cm2 for equipment operating in the 1900 MHz frequency range. For the AT&T equipment operating at 700 MHz, the FCC's occupational MPE limit is 2.33 mW/cm^2 and an uncontrolled MPE limit of 0.47 mW/cm^2. For the AT&T equipment operating at 1900 MHz, the FCC's occupational MPE is 5.0 mW/cm^2 and an uncontrolled MPE limit of 1.0 mW/cm^2. These limits are considered protective of these populations.

Table 1: Limits for Maximum Permissible Exposure (MPE)				
(A) 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-I,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Public/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-I,500	--	--	f/1,500	30
1,500-100,000	--	--	1.0	30

f = Frequency in (MHz)
* Plane-wave equivalent power density

Figure 1. *FCC Limits for Maximum Permissible Exposure (MPE)*



Based on the above, the most restrictive thresholds for exposures of unlimited duration to RF energy for several personal wireless services are summarized below:

Personal Wireless Service	Approximate Frequency	Occupational MPE	Public MPE
Microwave (Point-to-Point)	5,000 - 80,000 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Broadband Radio (BRS)	2,600 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Wireless Communication (WCS)	2,300 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Advanced Wireless (AWS)	2,100 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Personal Communication (PCS)	1,950 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Cellular Telephone	870 MHz	2.90 mW/cm^2	0.58 mW/cm^2
Specialized Mobile Radio (SMR)	855 MHz	2.85 mW/cm^2	0.57 mW/cm^2
Long Term Evolution (LTE)	700 MHz	2.33 mW/cm^2	0.47 mW/cm^2
Most Restrictive Frequency Range	30-300 MHz	1.00 mW/cm^2	0.20 mW/cm^2

MPE limits are designed to provide a substantial margin of safety. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

Personal Communication (PCS) facilities used by AT&T in this area operate within a frequency range of 700-1900 MHz. Facilities typically consist of: 1) electronic transceivers (the radios or cabinets) connected to wired telephone lines; and 2) antennas that send the wireless signals created by the transceivers to be received by individual subscriber units (PCS telephones). Transceivers are typically connected to antennas by coaxial cables.

Because of the short wavelength of PCS services, the antennas require line-of-site paths for good propagation, and are typically installed above ground level. Antennas are constructed to concentrate energy towards the horizon, with as little energy as possible scattered towards the ground or the sky. This design, combined with the low power of PCS facilities, generally results in no possibility for exposure to approach Maximum Permissible Exposure (MPE) levels, with the exception of areas directly in front of the antennas.

FCC Compliance Requirement

A site is considered out of compliance with FCC regulations if there are areas that exceed the FCC exposure limits and there are no RF hazard mitigation measures in place. Any carrier which has an installation that contributes more than 5% of the applicable MPE must participate in mitigating these RF hazards.