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environmental | engineering | due diligence

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February 11, 2022

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: EM-T-MOBILE-155-211122 – T-Mobile notice of intent to modify an existing telecommunications facility CTHA864A located at 27-31 South Main Street in West Hartford, Connecticut

Dear Ms. Bachman:

ENVIROBUSINESS, INC. (EBI) has been contracted by Crown Castle for the subject filing; we have reviewed and are responding to your January 25, 2022 denial letter regarding the T-Mobile exempt modification filing. Your correspondence recommended that Crown Castle provide a Radio Frequency Analysis Report for the proposed modifications to the facility that documents a cumulative General Public/Uncontrolled MPE at or below 100% to meet the exemption criteria outlined in the Council's regulations at Section 16-50j-72(b).

We are pleased to provide the enclosed Radio Frequency Electromagnetic Energy (RF-EME) Supplemental Technical Report for the referenced site. This report provides the results of theoretical MPE modeling using RoofMaster™ software to estimate the worst-case power density at the site's nearby broadcast levels resulting from operation of the antennas. RoofMaster™ is a widely-used predictive modeling program to predict RF power density values for rooftop and tower telecommunications sites produced by vertical collinear antennas that are typically used in the cellular, PCS, paging and other communications services. The programs uses methods set forth in Federal Communications Commission (FCC) Office of Engineering & Technology (OET) Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields" (OET-65), RoofMaster™ calculates predicted power density, expressed as a percentage of the FCC limits. RoofMaster™ models consist of the Far Field model as specified in OET-65 and an implementation of the OET-65 Cylindrical Model (Sula9). As manufacturer antenna pattern data is utilized in these calculations, it provides an accurate representation of the maximum predicted emissions levels located on the site's parking garage top floor, directly beneath the tower and installed antennas.

The Supplemental Technical Report concludes that the maximum predicted emissions value (including both T-Mobile and AT&T emissions) is 22.3400% of the FCC's general public limit (4.4680% of the FCC's occupational limit) at the nearest publicly-accessible walking/working surface (the parking garage roof level); the proposed modifications at the site will therefore be in compliance with FCC radio frequency regulations. We respectfully request your review and consideration of the report findings to approve the exempt modification filing.

Please do not hesitate to contact me at (781) 254-5727, or kmcmanus@ebiconsulting.com with any comments or questions you may have regarding this letter and enclosed report.

Sincerely yours,

Kevin McManus
Senior Program Director

Enclosure 1: Supplemental Technical Report

Radio Frequency – Electromagnetic Energy (RF-EME) Supplemental Technical Compliance Report

T-Mobile Proposed Facility Modifications

Site ID: CTHA864A
876328
27-31 South Main Street, West Hartford, Connecticut 06110

February 11, 2022

EBI Project Number:
6221007047

Status:	**Compliant**

Remarks: No additional mitigation is required.

Prepared by:

EBI Consulting
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1.0 Executive Summary

EnviroBusiness Inc. (dba EBI Consulting) has been contracted by T-Mobile to conduct radio frequency electromagnetic (RF-EME) modeling for T-Mobile Site CTHA864A located at 27-31 South Main Street in West Hartford, Connecticut to determine RF-EME exposure levels from proposed T-Mobile wireless communications equipment at this site. As described in detail in Appendix B of this report, 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 a detailed summary of the RF EME analysis for the site.

This document addresses the compliance of T-Mobile's proposed transmitting facilities independently and in relation to all existing collocated facilities at the site.

The Maximum Composite Emissions Value is 22.3400% of the FCC's general public limit (4.4680% of the FCC's occupational limit) at the penthouse roof level. The proposed site is in compliance with Federal regulations regarding (radio frequency) RF Emissions.

At the nearest walking/working surfaces to the T-Mobile antennas on the penthouse roof level, the maximum power density generated by the T-Mobile antennas is approximately 22.2700 percent of the FCC's general public limit (4.4540 percent of the FCC's occupational limit).

Based on worst-case predictive modeling, there are no modeled exposures on any accessible penthouse roof level-walking/working surface related to T-Mobile's equipment in the area that exceed the FCC's occupational and/or general public exposure limits at this site. There are no modeled areas on the rooftop or ground that exceed the FCC's limits for general public or occupational exposure in front of the other carrier antennas.

Signage is not required at the site as presented in Attachment 1. The site is compliant with FCC rules and regulations.

2.0 MPE Calculations

Calculations were completed for the proposed T-Mobile Wireless antenna lattice tower facility located at 27-31 South Main Street in West Hartford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC Office of Engineering & Technology (OET) Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields" (OET-65). Because of the short wavelength of PCS services, the antennas require line-of-site paths for good propagation and are typically installed a distance 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 in the immediate vicinity of the antennas.

In accordance with T-Mobile's RF Exposure policy, EBI performed theoretical modeling using RoofMaster™ software to estimate the worst-case power density at the site rooftop and ground-level resulting from operation of the antennas. Using the computational methods set forth in OET-65, RoofMaster™ calculates power density in a scalable grid based on the contributions of all RF sources characterized in the study scenario. At each grid location, the cumulative power density is expressed as a percentage of the FCC limits. Manufacturer antenna pattern data is utilized in these calculations. RoofMaster™ models consist of the Far Field model as specified in OET-65 and an implementation of the OET-65 Cylindrical Model (Sula9). The models utilize several operational specifications for different types of antennas to produce a plot of spatially-averaged power densities that can be expressed as a percentage of the applicable exposure limit.

For this report, EBI utilized antenna and power data provided by T-Mobile and compared the resultant worst-case MPE levels to the FCC's general public/uncontrolled exposure limits outlined in OET Bulletin 65. EBI has performed theoretical worst-case modeling using RoofMaster™ to estimate the maximum potential power density from each proposed antenna based on worst-case assumptions for the number of antennas and power. All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmission paths per carrier prescribed configuration. Modeling for Ericsson AIR 6449 and AIR 6488 antennas is based on worst-case assumptions that include all beams transmitting simultaneously. This is to ensure that all areas of potential concern are taken into consideration. As such, the results are conservative in nature and reflect potentially higher levels of RF emissions compared to actual on-air conditions. It is recommended that areas of concern be confirmed with onsite measurements once the site is active.

The assumptions used in the modeling are based upon information provided by T-Mobile in the supplied drawings and known configuration information gathered from other sources to approximate each additional carrier's contribution.

Based on drawings and aerial photography review, AT&T wireless antennas are also present on the lattice tower. These antennas were included in the modeling analysis.

The Maximum Emissions Value for the additional carriers included in the modeling is 3.47% of the FCC general public limit (0.69% of the FCC occupational limit) at the rooftop or ground walking/working surfaces.

The data for all T-Mobile antennas used in this analysis is shown in Section 4.0. Actual antenna gains for each antenna were used per manufacturer's specifications. All calculations were done with respect to the FCC's general public/uncontrolled threshold limits.

Based on information provided by T-Mobile, access to this site is considered uncontrolled.

3.0 T-Mobile Antenna Inventory

Sector	Antenna Number	Antenna Make	Antenna Model	Centerline Height (ft) Above Nearest Walking Surface	Azimuth (°)	Technology	Frequency Band	Power Per Channel (W)	Number of Channels	ERP (W)
A	1	RFS	APXVAALL24 43-U-NA20 02DT 600	38.6	30	LTE	600 MHz	30	2	1034
A	1	RFS	APXVAALL24 43-U-NA20 02DT 600	38.6	30	NR	600 MHz	80	1	1379
A	1	RFS	APXVAALL24 43-U-NA20 02DT 700	38.6	30	LTE	700 MHz	30	2	1215
A	1	RFS	APXVAALL24 43-U-NA20 02DT 1900	38.6	30	GSM	PCS - 1900 MHz	30	4	3649
A	1	RFS	APXVAALL24 43-U-NA20 02DT 1900	38.6	30	LTE	PCS - 1900 MHz	60	2	3649
A	1	RFS	APXVAALL24 43-U-NA20 02DT 2100	38.6	30	LTE	AWS - 2100 MHz	60	2	4594
A	2	ERICSSON	SON_AIR6449 2500 LTE TB	38.6	30	LTE	2500 MHz	60	1	10307
A	2	ERICSSON	SON_AIR6449 2500 LTE TB	38.6	30	NR	2500 MHz	20	1	3436
A	2	ERICSSON	SON_AIR6449 2500 LTE MACRO	38.6	30	LTE	2500 MHz	120	1	6444
A	2	ERICSSON	SON_AIR6449 2500 LTE MACRO	38.6	30	NR	2500 MHz	40	1	2148
B	1	RFS	APXVAALL24 43-U-NA20 02DT 600	38.6	170	LTE	600 MHz	30	2	1034
B	1	RFS	APXVAALL24 43-U-NA20 02DT 600	38.6	170	NR	600 MHz	80	1	1379
B	1	RFS	APXVAALL24 43-U-NA20 02DT 700	38.6	170	LTE	700 MHz	30	2	1215
B	1	RFS	APXVAALL24 43-U-NA20 02DT 1900	38.6	170	GSM	PCS - 1900 MHz	30	4	3649
B	1	RFS	APXVAALL24 43-U-NA20 02DT 1900	38.6	170	LTE	PCS - 1900 MHz	60	2	3649
B	1	RFS	APXVAALL24 43-U-NA20 02DT 2100	38.6	170	LTE	AWS - 2100 MHz	60	2	4594
B	2	ERICSSON	SON_AIR6449 2500 LTE TB	38.6	170	LTE	2500 MHz	60	1	10307
B	2	ERICSSON	SON_AIR6449 2500 LTE TB	38.6	170	NR	2500 MHz	20	1	3436
B	2	ERICSSON	SON_AIR6449 2500 LTE MACRO	38.6	170	LTE	2500 MHz	120	1	6444
B	2	ERICSSON	SON_AIR6449 2500 LTE MACRO	38.6	170	NR	2500 MHz	40	1	2148
C	1	RFS	APXVAALL24 43-U-NA20 02DT 600	38.6	270	LTE	600 MHz	30	2	1034
C	1	RFS	APXVAALL24 43-U-NA20 02DT 600	38.6	270	NR	600 MHz	80	1	1379
C	1	RFS	APXVAALL24 43-U-NA20 02DT 700	38.6	270	LTE	700 MHz	30	2	1215
C	1	RFS	APXVAALL24 43-U-NA20 02DT 1900	38.6	270	GSM	PCS - 1900 MHz	30	4	3649
C	1	RFS	APXVAALL24 43-U-NA20 02DT 1900	38.6	270	LTE	PCS - 1900 MHz	60	2	3649
C	1	RFS	APXVAALL24 43-U-NA20 02DT 2100	38.6	270	LTE	AWS - 2100 MHz	60	2	4594
C	2	ERICSSON	SON_AIR6449 2500 LTE TB	38.6	270	LTE	2500 MHz	60	1	10307
C	2	ERICSSON	SON_AIR6449 2500 LTE TB	38.6	270	NR	2500 MHz	20	1	3436
C	2	ERICSSON	SON_AIR6449 2500 LTE MACRO	38.6	270	LTE	2500 MHz	120	1	6444
C	2	ERICSSON	SON_AIR6449 2500 LTE MACRO	38.6	270	NR	2500 MHz	40	1	2148

• This table contains an inventory of T-Mobile Antennas and Power Values. Note that EBI uses an assumed set of antenna specifications and powers for unknown and other carrier antennas for modeling purposes as detailed in Section 2.0.
• Based on drawings and aerial photography review, AT&T wireless antennas are also present on the lattice tower. These antennas were included in the modeling analysis. Information about these antennas is included in the Roofmaster™ Import File (Attachment 2).

4.0 Summary and Conclusions

All calculations performed for this analysis yielded results that were within the allowable limits for exposure to RF Emissions. Based on predictive modeling, there are no modeled exposures on any accessible penthouse roof level-walking/working surface related to T-Mobile's equipment in the area that exceed the FCC's occupational and/or general public exposure limits at this site. There are no modeled areas on the rooftop or ground that exceed the FCC's limits for general public or occupational exposure in front of the other carrier antennas.

Based on drawings and aerial photography review, AT&T wireless antennas are also present on the lattice tower. These antennas were included in the modeling analysis.

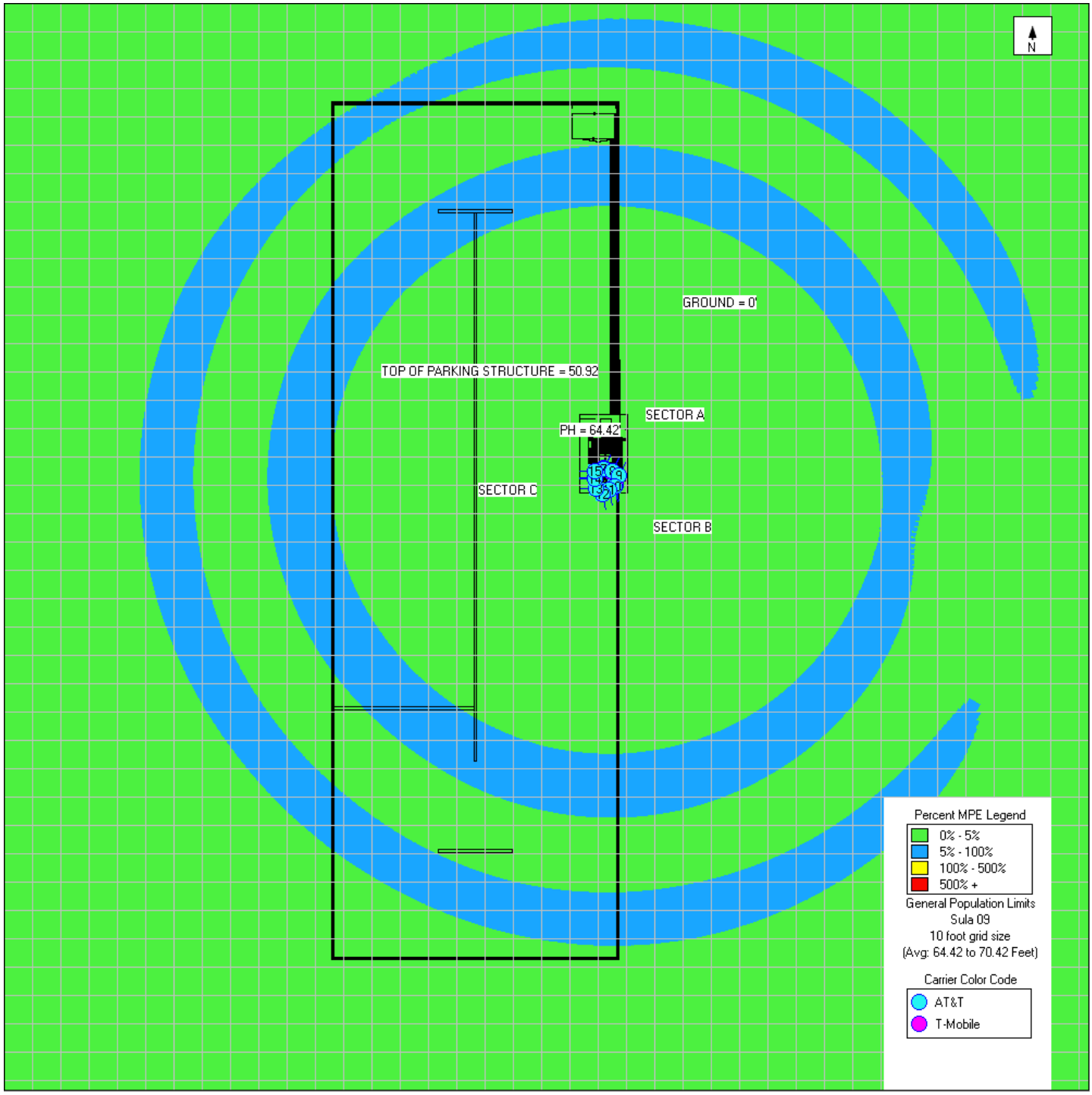
The anticipated maximum contribution from each sector of the proposed T-Mobile facility is 22.2700% of the allowable FCC established general public limit (4.4540% of the FCC occupational limit). This was determined through calculations along a radial from each sector taking full power values into account as well as actual vertical plane antenna gain values per the manufacturer-supplied specifications for gain.

The anticipated maximum composite MPE value for this site is 22.34% of the allowable FCC established general public limit (4.468% of the FCC occupational limit). This is based upon worst-case modeling performed on the penthouse roof level taking emissions contributions from all carriers present into account. This value will determine whether the proposed site will be in compliance with regards to electromagnetic emissions. Based on worst-case predictive modeling, there are no areas at ground level related to the proposed antennas that exceed the FCC's occupational or general public exposure limits at this site. At ground level, the maximum power density generated by the antennas is approximately 2.5300% of the FCC's general public limit (0.5060% of the FCC's occupational limit).

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. For this facility, the calculated values were within the allowable 100% threshold standard per the federal government.

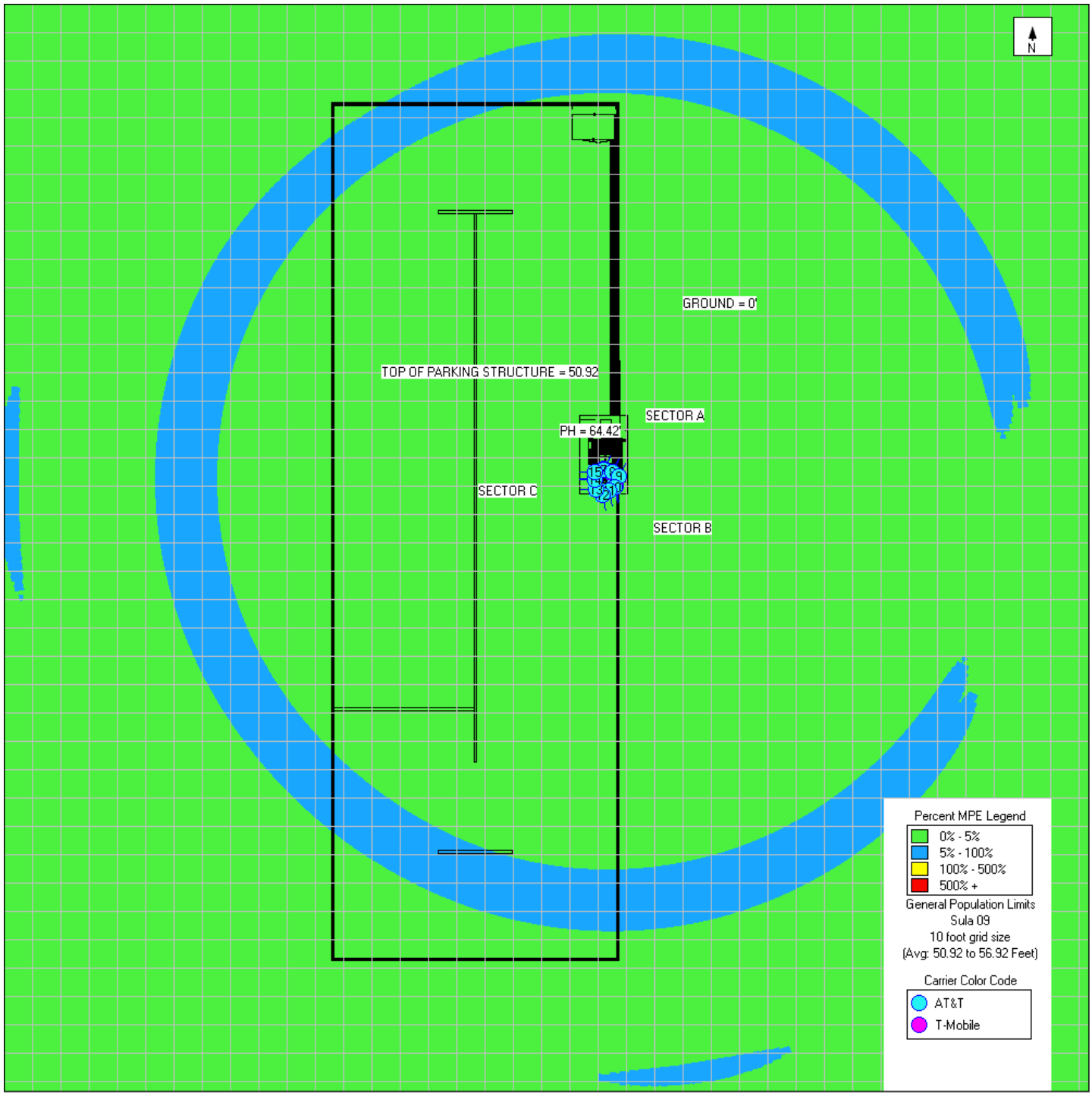
Signage is not required because there is no access within 30 feet of an antenna. To reduce the risk of exposure and/or injury, EBI recommends that access to the lattice tower or areas associated with the active antenna installation be restricted and secured where possible.

Attachment 1a: MPE Analysis and Recommended Signage (Penthouse Roof Level)



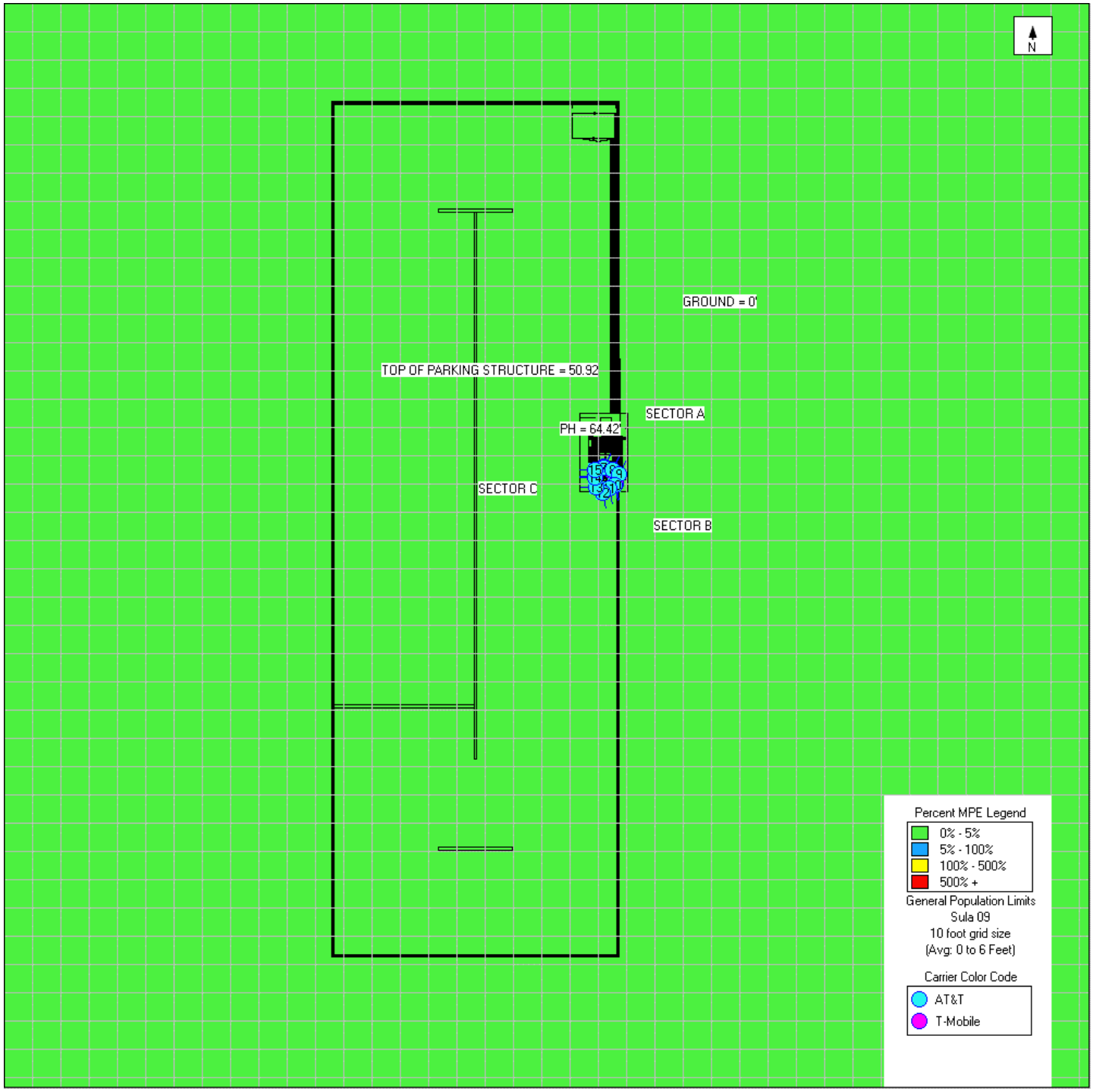
Signage is not required
because there is no access
within 30 feet of an antenna.

Attachment 1b: MPE Analysis and Recommended Signage (Top Parking Structure Level)



Signage is not required
because there is no access
within 30 feet of an antenna.

Attachment 1c: MPE Analysis (Ground Level)



Signage is not required
because there is no access
within 30 feet of an antenna.

Sign	Sign Count	Description	Posting Instructions
	**N/A**	**Blue Notice Sign** Used to notify individuals they are entering an area where the power density emitted from transmitting antennas may exceed the FCC's MPE limit for general public exposures.	Signage is not required because there is no access within 30 feet of an antenna.
	**N/A**	**Guidelines** Informational sign used to notify workers that there are active antennas installed and provide guidelines for working in RF environments.	Signage is not required because there is no access within 30 feet of an antenna.
	**N/A**	**Yellow Caution Sign** Used to notify individuals that they are entering a hot spot where occupational FCC's MPE limit is or could be exceeded.	Signage not required.
	**N/A**	**Orange Warning Sign** Used to notify individuals that they are entering a hot zone where occupational FCC's MPE limit has been exceeded by a factor of 10.	Signage not required.
	**N/A**	**Red Danger Sign** Used to notify individuals that they are entering a hot zone where the occupational FCC's MPE limit has been exceeded by a factor of 10, where immediate and serious injury will occur on contact.	Signage not required.
Notes:	The actual number of access points may vary based on documentation provided and/or if a survey was conducted. Recommended signage locations, if applicable, are based on T-Mobile's guidance for the worst-case scenario in each sector. The actual signage installation is dependent on accessibility of the facility and antennas. Locations deemed inaccessible due to OSHA safety standards (proximity to unprotected roof edge or slope, etc.) will be compliant upon installation of recommended signage at the closest accessible point.		

Attachment 2: RoofMaster™ Import File

Carrier	Antenna Number	Emitter Number	Caption	Pattern(.ant)	Frequency	Power (W) ERP/EiRP	Length (m)	Azimuth(n)	Mechanical Downtilt	Height(ft)	X(ft)	Y(ft)
T-Mobile	1	1	ANT 1	APXVAALL24 43-U-NA20 02DT 600.ant	600	1034.31	2.44	30	0	103.0	0.4	5.5
T-Mobile	1	2	ANT 1	APXVAALL24 43-U-NA20 02DT 600.ant	600	1379.08	2.44	30	0	103.0	0.4	5.5
T-Mobile	1	3	ANT 1	APXVAALL24 43-U-NA20 02DT 700.ant	700	1215.21	2.44	30	0	103.0	0.4	5.5
T-Mobile	1	4	ANT 1	APXVAALL24 43-U-NA20 02DT 1900.ant	1900	5984.46	2.44	30	0	103.0	0.4	5.5
T-Mobile	1	5	ANT 1	APXVAALL24 43-U-NA20 02DT 1900.ant	1900	5984.46	2.44	30	0	103.0	0.4	5.5
T-Mobile	1	6	ANT 1	APXVAALL24 43-U-NA20 02DT 2100.ant	2100	7533.99	2.44	30	0	103.0	0.4	5.5
T-Mobile	2	1	ANT 2	SON_AIR6449 2500 LTE TB.ant	2500	16904.22	0.84	30	0	103.0	2.3	3.9
T-Mobile	2	2	ANT 2	SON_AIR6449 2500 LTE TB.ant	2500	5634.74	0.84	30	0	103.0	2.3	3.9
T-Mobile	2	3	ANT 2	SON_AIR6449 2500 LTE MACRO.ant	2500	10568.79	0.84	30	0	103.0	2.3	3.9
T-Mobile	2	4	ANT 2	SON_AIR6449 2500 LTE MACRO.ant	2500	3522.93	0.84	30	0	103.0	2.3	3.9
T-Mobile	3	1	ANT 3	APXVAALL24 43-U-NA20 02DT 600.ant	600	1034.31	2.44	170	0	103.0	3.9	0.8
T-Mobile	3	2	ANT 3	APXVAALL24 43-U-NA20 02DT 600.ant	600	1379.08	2.44	170	0	103.0	3.9	0.8
T-Mobile	3	3	ANT 3	APXVAALL24 43-U-NA20 02DT 700.ant	700	1215.21	2.44	170	0	103.0	3.9	0.8
T-Mobile	3	4	ANT 3	APXVAALL24 43-U-NA20 02DT 1900.ant	1900	5984.46	2.44	170	0	103.0	3.9	0.8
T-Mobile	3	5	ANT 3	APXVAALL24 43-U-NA20 02DT 1900.ant	1900	5984.46	2.44	170	0	103.0	3.9	0.8
T-Mobile	3	6	ANT 3	APXVAALL24 43-U-NA20 02DT 2100.ant	2100	7533.99	2.44	170	0	103.0	3.9	0.8
T-Mobile	4	1	ANT 4	SON_AIR6449 2500 LTE TB.ant	2500	16904.22	0.84	170	0	103.0	1.6	2.3
T-Mobile	4	2	ANT 4	SON_AIR6449 2500 LTE TB.ant	2500	5634.74	0.84	170	0	103.0	1.6	2.3
T-Mobile	4	3	ANT 4	SON_AIR6449 2500 LTE MACRO.ant	2500	10568.79	0.84	170	0	103.0	1.6	2.3
T-Mobile	4	4	ANT 4	SON_AIR6449 2500 LTE MACRO.ant	2500	3522.93	0.84	170	0	103.0	1.6	2.3
T-Mobile	5	1	ANT 5	APXVAALL24 43-U-NA20 02DT 600.ant	600	1034.31	2.44	270	0	103.0	3.1	2
T-Mobile	5	2	ANT 5	APXVAALL24 43-U-NA20 02DT 600.ant	600	1379.08	2.44	270	0	103.0	3.1	2
T-Mobile	5	3	ANT 5	APXVAALL24 43-U-NA20 02DT 700.ant	700	1215.21	2.44	270	0	103.0	3.1	2
T-Mobile	5	4	ANT 5	APXVAALL24 43-U-NA20 02DT 1900.ant	1900	5984.46	2.44	270	0	103.0	3.1	2
T-Mobile	5	5	ANT 5	APXVAALL24 43-U-NA20 02DT 1900.ant	1900	5984.46	2.44	270	0	103.0	3.1	2
T-Mobile	5	6	ANT 5	APXVAALL24 43-U-NA20 02DT 2100.ant	2100	7533.99	2.44	270	0	103.0	3.1	2
T-Mobile	6	1	ANT 6	SON_AIR6449 2500 LTE TB.ant	2500	16904.22	0.84	270	0	103.0	3.5	2
T-Mobile	6	2	ANT 6	SON_AIR6449 2500 LTE TB.ant	2500	5634.74	0.84	270	0	103.0	3.5	2
T-Mobile	6	3	ANT 6	SON_AIR6449 2500 LTE MACRO.ant	2500	10568.79	0.84	270	0	103.0	3.5	2
T-Mobile	6	4	ANT 6	SON_AIR6449 2500 LTE MACRO.ant	2500	3522.93	0.84	270	0	103.0	3.5	2
AT&T	7	1	ANT 7	PANEL 6FT 00DT 700.ant	700	2736.02	1.83	30	0	89.0	0.4	5.1
AT&T	7	2	ANT 7	PANEL 6FT 00DT 850.ant	850	2924.96	1.83	30	0	89.0	0.4	5.1
AT&T	8	1	ANT 8	PANEL 6FT 00DT 700.ant	700	1368.01	1.83	30	0	89.0	2.7	4.3
AT&T	8	2	ANT 8	PANEL 6FT 00DT 1900.ant	1900	10068.48	1.83	30	0	89.0	2.7	4.3
AT&T	9	1	ANT 9	PANEL 6FT 00DT 2100.ant	2100	11427.83	1.83	30	0	89.0	5.1	2.7
AT&T	9	2	ANT 9	PANEL 6FT 00DT 2300.ant	2300	6868.21	1.83	30	0	89.0	5.1	2.7
AT&T	10	1	ANT 10	PANEL 6FT 00DT 700.ant	700	2736.02	1.83	170	0	89.0	3.5	1.2
AT&T	10	2	ANT 10	PANEL 6FT 00DT 850.ant	850	2924.96	1.83	170	0	89.0	3.5	1.2
AT&T	11	1	ANT 11	PANEL 6FT 00DT 700.ant	700	1368.01	1.83	170	0	89.0	1.6	2.3
AT&T	11	2	ANT 11	PANEL 6FT 00DT 1900.ant	1900	10068.48	1.83	170	0	89.0	1.6	2.3
AT&T	12	1	ANT 12	PANEL 6FT 00DT 2100.ant	2100	11427.83	1.83	170	0	89.0	0.8	3.9
AT&T	12	2	ANT 12	PANEL 6FT 00DT 2300.ant	2300	6868.21	1.83	170	0	89.0	0.8	3.9
AT&T	13	1	ANT 13	PANEL 6FT 00DT 700.ant	700	2736.02	1.83	270	0	89.0	3.1	2
AT&T	13	2	ANT 13	PANEL 6FT 00DT 850.ant	850	2924.96	1.83	270	0	89.0	3.1	2
AT&T	14	1	ANT 14	PANEL 6FT 00DT 700.ant	700	1368.01	1.83	270	0	89.0	3.5	1.6
AT&T	14	2	ANT 14	PANEL 6FT 00DT 1900.ant	1900	10068.48	1.83	270	0	89.0	3.5	1.6
AT&T	15	1	ANT 15	PANEL 6FT 00DT 2100.ant	2100	11427.83	1.83	270	0	89.0	3.5	4.3
AT&T	15	2	ANT 15	PANEL 6FT 00DT 2300.ant	2300	6868.21	1.83	270	0	89.0	3.5	4.3

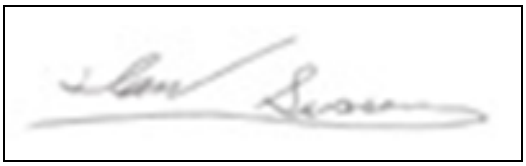
Note that Power (W) ERP/EiRP values are listed respective to the frequency of the antenna. (Values less than 1,000 MHz are listed as ERP and greater than 1,000 MHz are listed as EiRP.)

Appendix A: Certifications

Preparer Certification

I, Ian Swanson, state that:

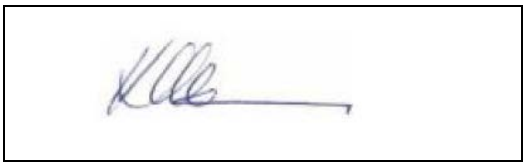
- I am an employee of EnviroBusiness Inc. (d/b/a EBI Consulting), which provides RF-EME safety and compliance services to the wireless communications industry.
- I have successfully completed RF-EME safety training, and I am aware of the potential hazards from RF-EME and would be classified "occupational" 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 on RF-EME modeling using RoofMaster™ modeling 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.



Reviewer Certification

I, Kevin McManus, 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 on RF-EME modeling using RoofMaster™ modeling 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.



Appendix B: Federal Communications Commission (FCC) Requirements

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/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.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 700 and 800 MHz Bands is 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively, and the general population exposure limit for the PCS and AWS bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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 population/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.

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.

Additional details can be found in FCC OET 65.