

RADIO FREQUENCY - ELECTROMAGNETIC ENERGY (RF-EME) COMPLIANCE REPORT

Report Type: Antenna Modification/Theoretical

Site ID: BA01774A

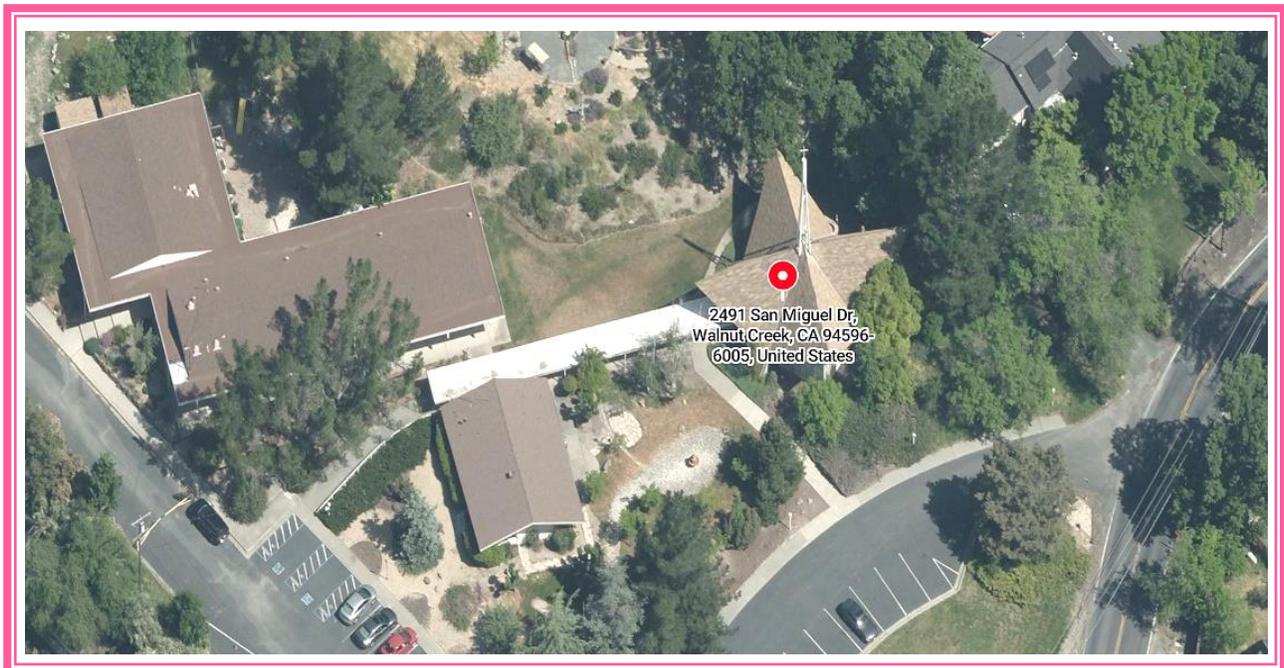
Site Name: EB774 St. Lukes Church

Address: 2491 San Miguel Dr. Walnut Creek, CA 94596

Date of Calculation: September 1, 2024

Date of Report: September 1, 2024

Latitude: 37.883048 N
Longitude: -122.035814 W



Prepared By:



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1.0 Executive Summary / Report Summary

Purpose of Report

Global Technology Associates (GTA) has been contracted by T-Mobile to conduct radio frequency electromagnetic (RF-EME) modeling for T-Mobile site **BA01774A** located at **2491 San Miguel Dr. Walnut Creek, CA 94596** to determine RF-EME exposure levels from existing and proposed T-Mobile wireless communications equipment at this site.

This report summarizes the results of RF-EME modeling 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.

As described in greater detail in the Section titled **“Federal Communications Commission (FCC) Requirements”** of this report, the Federal Communications Commission (FCC) has developed Maximum Permissible Exposure (MPE) Limits for general population exposures and occupational exposures. This report summarizes the results of RF-EME modeling to relevant FCC RF-EME compliance standards for limiting human exposure to RF-EME fields.

T-Mobile Site Summary			
Site ID	BA01774A	Street Address	2491 San Miguel Dr.
Site Name	EB774 St. Lukes Church	City, State, Zip	Walnut Creek, CA 94596
Site Type	structure non building	Latitude	37.883048 N
Classification	occupational	Longitude	-122.035814 W
Access Restrictions	controlled	Access Type	man lift
Site Description	all the antennas are mounted on the inside the radome on the steeple		
Max Predictive RF-EME at T-Mobile Facility (Occupational)	13.6% of FCC’s occupational limit at ground level		
Max Predictive RF-EME at Ground Level (General Population)	67.7% of FCC’s general population limit		
Predictive RF-EME Analysis at T-Mobile Facility	The Proposed Antenna Configuration is In Compliance With FCC Rules & Regulations Upon Completion of the GTA Recommendations.		

Table 1

A result of over 100% does not make a site out of compliance with FCC guidelines. For predicted EME over 100% of the applicable FCC limit, further remediation (e.g. signage and/or barriers preventing access) is required to consider the site compliant. Areas exceeding the FCC limit are presented with the barriers and appropriate signages. Accessible areas outside the demarcated are the safety zones that have predicted EME values below the FCC’s limits. Installation of the recommended mitigation or remediation measures brings the site into compliance. The predictions model antennas as if they are operating at full power, and this assumption yields a worst-case scenario with more conservative results. On-site measurements may yield different results, as antennas do not always operate at full capacity.

Site ID: BA01774A

Methodology

The site to be determined as the compliance is based on theoretical modeling using the RoofView® modeling tool, appropriate RF signage placement recommendations, proposed antenna inventory as provided by T-Mobile in the construction drawings and the type & level of restricted access to the antennas at the site.

Compliance Statement

T-Mobile's operation at **2491 San Miguel Dr. Walnut Creek, CA 94596** will comply with FCC rules and regulations upon completion of recommendations that include the installation of appropriate RF Safety Signages and/or Barriers as described in Section 8.

Actions for Site Compliance

Based on common industry practice and our understanding of FCC and OSHA requirements, this section provides a statement of recommendations for site compliance. If required, RF alert signage recommendations have been proposed based on theoretical analysis of MPE levels. Where applicable, barriers can consist of locked doors, fencing, railing, rope, chain, paint striping or tape, combined with RF alert signage.

T-Mobile will be compliant when the following changes are implemented:

T-Mobile proposed Alpha Sector Location

1 Notice sign on the antenna as depicted in the site map in the later sections of the report.
No need to install Barrier & Chain/Striping/Tapes enclosing this sector.

T-Mobile proposed Beta Sector Location

1 Notice sign on the antenna as depicted in the site map in the later sections of the report.
No need to install Barrier & Chain/Striping/Tapes enclosing this sector.

T-Mobile proposed Gamma Sector Location

1 Notice sign on the antenna as depicted in the site map in the later sections of the report.
No need to install Barrier & Chain/Striping/Tapes enclosing this sector.

T-Mobile proposed Equipment/BTS Location

Ensure that a 1 Guideline, 1 Information & 1 Notice signs are installed at the Equipment/BTS location, as depicted in the site map in the later sections of the report.

2.0 MPE Calculations

For this MPE predictive analysis, GTA considered the area around the accessible areas of the T-Mobile antennas on the site to determine EME field strength levels for the FCC's human exposure limits. Further GTA has identified any areas with higher levels exceeding FCC MPE limits and then determined spatially averaged field levels in areas with highest fields.

GTA has utilized computer-generated modeling software RoofView® 4.15 to generate the compliance report.

Modeling & Input Assumptions

In this Site Compliance Report, it is assumed that

- All antennas are operating at full power at all times.
- The Antenna Inventory Table (Section 3) shows all transmitting antennas at the site.
- A 75% duty cycle and maximum radiated power for each antenna is assumed unless T-Mobile has specified otherwise.
- Obstructions like (screens, trees, buildings, etc.) that would normally attenuate the signal are not taken into account.
- GTA obtained information used in this Compliance Report from T-Mobile which is considered reliable and believes it to be true and correct.
- Due to the complexity of some wireless sites, GTA performed this analysis and created this report utilizing best industry practices and due diligence. The scales and the determinations are based on the A&E drawings provided by T-Mobile.
- On a case-by-case basis, appropriate static gains and losses are considered while doing the simulations to simulate the closest field radiations of the antennas.

3.0 Antenna Inventory

ID	Technology	Antenna Make	Antenna Model	Azimuth (°)	Bottom of ANT from Main Roof (ft)	Bottom of ANT from Ground (ft)
S1A1	N600	RFS	APXVAALL18_43-U-NA20	0	49.50	49.50
S1A1	L700	RFS	APXVAALL18_43-U-NA20	0	49.50	49.50
S1A1	G1900	RFS	APXVAALL18_43-U-NA20	0	49.50	49.50
S1A1	L1900	RFS	APXVAALL18_43-U-NA20	0	49.50	49.50
S1A1	N1900	RFS	APXVAALL18_43-U-NA20	0	49.50	49.50
S1A1	L2100	RFS	APXVAALL18_43-U-NA20	0	49.50	49.50
S1A4	N2500	ERICSSON	AIR6419 B41	0	56.49	56.49
S2A2	N600	RFS	APXVAALL18_43-U-NA20	120	49.50	49.50
S2A2	L700	RFS	APXVAALL18_43-U-NA20	120	49.50	49.50
S2A2	G1900	RFS	APXVAALL18_43-U-NA20	120	49.50	49.50
S2A2	L1900	RFS	APXVAALL18_43-U-NA20	120	49.50	49.50
S2A2	N1900	RFS	APXVAALL18_43-U-NA20	120	49.50	49.50
S2A2	L2100	RFS	APXVAALL18_43-U-NA20	120	49.50	49.50
S2A5	N2500	ERICSSON	AIR6419 B41	120	56.49	56.49
S3A3	N600	RFS	APXVAALL18_43-U-NA20	240	49.50	49.50
S3A3	L700	RFS	APXVAALL18_43-U-NA20	240	49.50	49.50
S3A3	G1900	RFS	APXVAALL18_43-U-NA20	240	49.50	49.50
S3A3	L1900	RFS	APXVAALL18_43-U-NA20	240	49.50	49.50
S3A3	N1900	RFS	APXVAALL18_43-U-NA20	240	49.50	49.50
S3A3	L2100	RFS	APXVAALL18_43-U-NA20	240	49.50	49.50
S3A6	N2500	ERICSSON	AIR6419 B41	240	56.49	56.49

Table 2

4.0 Federal Communications Commission (FCC) Requirements

The FCC has established Maximum Permissible Exposure (MPE) limits for human exposure to Radio frequency 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 population/uncontrolled exposure limits for members of the general population.

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 transient 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.

General population/uncontrolled exposure limits apply to situations in which the general population 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 population 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.

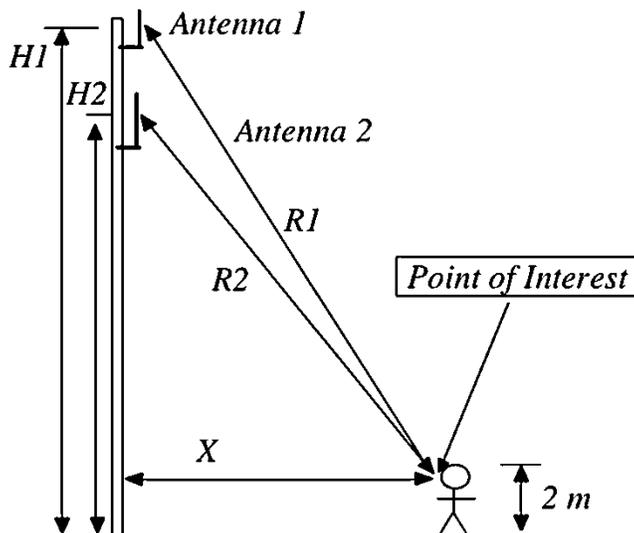


Figure 1

Table 3 and Figure 2 (below), which are included in 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 (cm²). Known as the power density, the FCC has established an occupational MPE of 5 milliwatts per square centimeter (mW/cm²) and an uncontrolled MPE of 1 mW/cm² for equipment operating in the 1900 MHz frequency range. For the T-Mobile equipment operating at 800 MHz, the FCC’s occupational MPE is 2.66 mW/cm² and an uncontrolled MPE of 0.53 mW/cm². These limits are considered protective of these populations.

(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	6 4	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1	6
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) 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	6 4	1.63	(100)*	30
1.34-30	1842/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1,500	--	--	f/1,500	30
1,500-100,000	--	--	1.0	30

Table 3

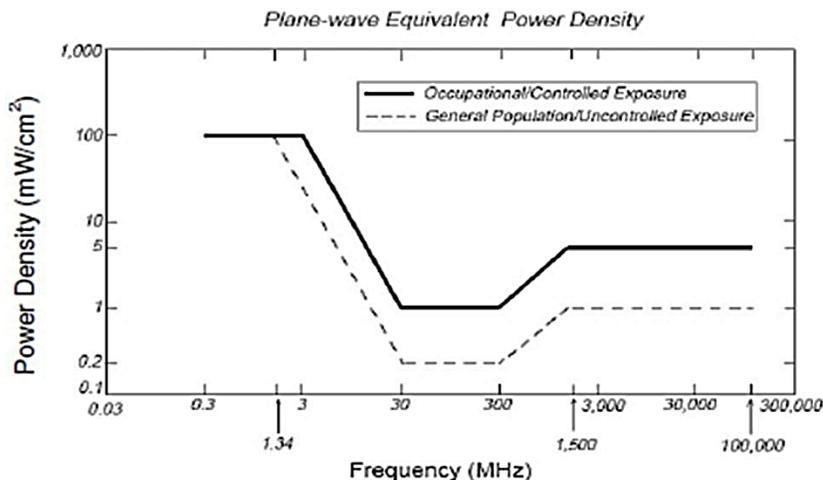


Figure 2

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
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	855 MHz	2.85 mW/cm ²	0.57 mW/cm ²
Most Restrictive Freq. Range	30-300 MHz	1.00 mW/cm ²	0.20 mW/cm ²

Table 4

Personal Communication (PCS) facilities used by T-Mobile in this area operate within a frequency range of 600-2500 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, except in areas directly in front of the antennas.

Statement of Compliance

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 that has an installation that contributes more than 100% of the applicable MPE must participate in mitigating these RF hazards.

5.0 Limitations

This report was prepared for the use of T-Mobile. It was performed following generally accepted practices of other consultants undertaking similar studies at the same time and in the same locale under similar circumstances. The conclusions provided by GTA are based solely on the information provided by T-Mobile. 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 GTA so that our conclusions may be revised and modified, if necessary. This report has been prepared by Standard Conditions for Engagement and authorized proposal, both of which are integral parts of this report. No other warranty, expressed or implied, is made.

6.0 Safety Recommendations

Occupational Safety and Health Administration (OSHA) Requirements

OSHA requires that those in the Occupational classification must complete training in RF Safety, RF Awareness, and Utilization of Personal Protective Equipment. OSHA also provides options for Hazard Prevention and Control:

Hazard Prevention	Control
<ul style="list-style-type: none"> Utilization of good equipment Enact control of hazard areas Limit exposures Employ medical surveillance and accident response 	<ul style="list-style-type: none"> Employ Lockout/Tag out Utilize personal alarms & protective clothing Prevent access to hazardous locations Develop or operate an administrative control program

Table 5

RF Signage and Barriers

All RF signs should be obeyed by at all times.



Figure 3

If there are workers in an area with a sign that they do not understand, they can call the NOC Number at 877-611-5868 for guidance.

7.0 Federal Communications Commission (FCC) Limits

Contribution to Co-Located areas

Any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible for taking corrective actions to bring the site into compliance. All co-located sites should have a separate 5% modeling that shows only T-Mobile antennas transmitting. This separate modeling indicates T-Mobile's contribution in all areas that is recognized to be greater than 100% MPE limits.

Occupational 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.

General Population limits

Apply in situations in which the general population may be exposed, or in which persons who 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. (Those without significant and documented RF Safety & Awareness training)

Controlled Environment

This applies to environments that are restricted or "controlled" to prevent access from members of the General Population classification.

Uncontrolled Environment

This applies to environments that are unrestricted or "uncontrolled" that allow access from members of the General Population classification.

Generic Values

The use of "Unknown" for an operator means the information about the carrier, their FCC license, and/or antenna information was not available. Generic values are used as estimation for Effective Radiated Power (ERP) and antenna characteristics for unknown antennas.

8.0 Compliance Measures

The site needs the following mitigation and/or compliance plan.

The compliance determination is based on theoretical modeling, RF signage placement recommendations, proposed antenna inventory and the level of restricted access to the antennas at the site. At the time of our analysis, T-Mobile will be compliant with the FCC rules and regulations, as described in OET Bulletin 65 upon implementation of below remediation and/or compliance recommendations.

On structure non building :

Recommendations for Site Compliance	Signages on Access Points, Sectors & Equipment					Enclosing Sectors						
												
	Guidelines	NOC INFO	NOTICE	CAUTION	WARNING	Sign	Count	Length	Barrier & Chain			
Access Point(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			Barrier & Chain
Sector Alpha	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			Barrier & Chain
Sector Beta	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			Barrier & Chain
Sector Gamma	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			Barrier & Chain
Equipment/BTS	<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			Barrier & Chain
Total Signage	1	1	4	0	0	0			0			0 ft.

Table 6

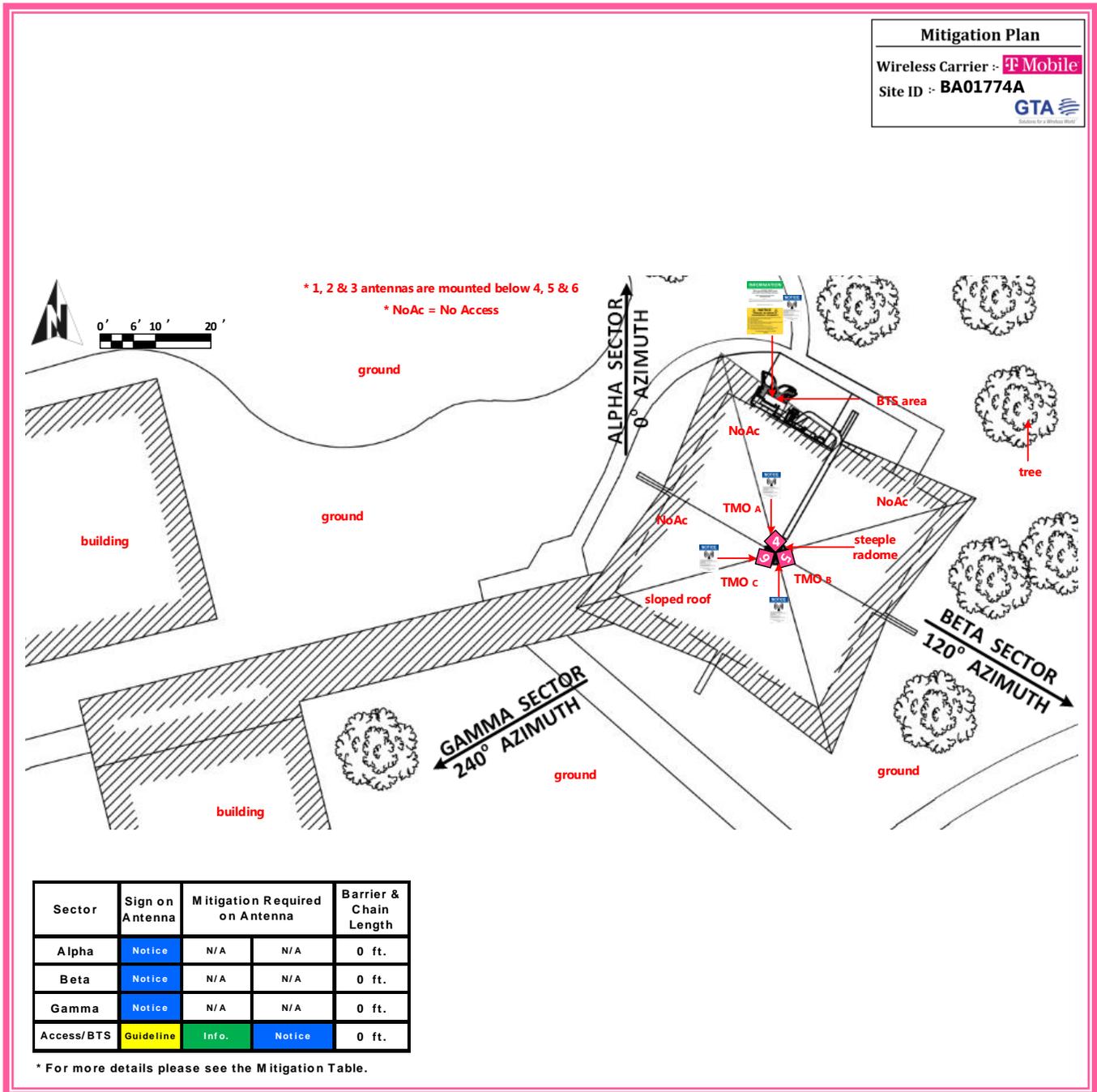
CAUTION: - The table above represents EVERY compliance item that MUST be implemented by the carrier at the site location; please see the Site Plan shown in diagram 1.

It is recommended to have periodic inspections of the components that are involved in the radiation of RF energy. Periodic Electromagnetic Emission (EME) measurement should be conducted to reevaluate the RF radiation level at this site.

GTA recommends that T-Mobile and the authorized personal at the site take additional measures to ensure that persons accessing the roof (for example, roofers or other maintenance workers) are informed of areas where RF levels exceed the FCC general population limit and made aware that these areas must be avoided to maintain compliance with FCC requirements. This is important especially when the placement of barriers, striping, taping, or any other positive access control (areas of the roof that exceed the RF levels of the general population limit) is not possible due to the physical construction or constraints or safety measures surrounding the antennas or on the roof like the sloped roof, tiled roof, chimney, steeples, cupolas, hilly terrain, etc.

It is further recommended to distribute this report to anyone accessing the roof and ensure the confirmation that it has been read and understood.

Diagram 1: Site Scale Plan



◆ T-Mobile Antennas

— Physical Measurement

●—●—●—● Barrier & Chain

● ENTRY

● Important Notes

NOTICE

GUIDELINES

NOTICE

NOTICE

CAUTION

CAUTION

WARNING

WARNING

INFORMATION

INFORMATION

Standard uses 'FCC exposure limits of 5.0 mW/cm2 for occupational and 1.0 mW/cm2 for general population'

9.0 Summary And Conclusions

GTA has prepared this Radiofrequency Emissions Compliance Report for the proposed T-Mobile telecommunications equipment at the site located at **2491 San Miguel Dr. Walnut Creek, CA 94596.**

GTA has conducted theoretical modeling to estimate the worst-case power density from T-Mobile antennas to document potential MPE levels at this location and ensure that site control measures are adequate to meet FCC and OSHA requirements.

As presented in the preceding sections, based on worst-case predictive modeling, **there are no modeled exposures on any accessible ground-level walking/working surface** related to proposed equipment in the area that exceed the FCC's **occupational** exposure limits at this site. Any of the modeled exposure areas exceeding the **occupational** limits need to follow the mitigation/compliance plan proposed in the report to bring the T-Mobile antennas to compliance. As such, the proposed T-Mobile project complies with FCC rules and regulations. **Posting of the signages and the recommendations** presented in Section 8 **brings the site into compliance with FCC rules and regulations.**

At ground-level the anticipated maximum predictive RF-EME at T-Mobile facility will be 13.6% of FCC's 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. 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 population exposure limits at this site. **At ground level, the maximum power density generated by the antennas is approximately 67.7% of FCC's general population limit (13.54% of the FCC's occupational limit). If applicable in special cases and scenarios, appropriate inter-floor radiation losses are taken into account for depicting accurate modeling and simulations at ground level.**

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 that has an installation that contributes more than 5% of the applicable MPE must participate in mitigating these RF hazards.

Modeling indicates that there will be no accessible areas on the walking/working surfaces at the ground-level in front of the T-Mobile antennas that may exceed the FCC standards for the general population and/or occupational exposure after the implementation of mitigation measures. To reduce the risk of exposure and/or injury, GTA recommends that access to the **structure non building** or areas associated with the active antenna installation or mitigation measures are restricted and secured where possible.

To alert any workers or general population potentially accessing the site, a blue Notice sign and/or yellow Caution sign, and/or orange Warning sign based on the simulated exposure limits along with a yellow Guidelines sign are recommended for installation at the access to the rooftop/structure along with the barriers/stripping to exclude the RF radiations exceeding areas per the applicable limits.

10.0 Certification

This report has been prepared under the direction of the following Registered Professional Engineer:

I **Michael A. McGuire PE**, on the date indicated near my seal below hereby certify that:

I am registered as a Professional Engineer with the License number listed below and I am thoroughly familiar with the Regulations of the Federal Communication Commission (FCC), both in general and specifically, as they apply to FCC guidelines for human exposure to Radiofrequency electromagnetic radiation and the EME predictive analysis for the site identified as **BA01774A** located at **2491 San Miguel Dr. Walnut Creek, CA 94596**, has performed on **September 1, 2024** to determine where there might be electromagnetic energy that is more than both the Controlled Environment and Uncontrolled Environment levels; and that I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge.



sealed 03sep2024

RADIO FREQUENCY EMISSION SURVEY

Performed for:  **T-Mobile**


Field	Data
Cascade ID (survey #)	BA01774A
Alt Site ID	EB774 St. Lukes Church
Address	2491 San Miguel Dr.
	Walnut Creek, CA 94596
Lat/Lon	37.883048, -122.035814

Survey Trigger	Annual Compliance/Carrier Add/Mod
Date of Survey	11/02/2025
Date of Report	11/03/2025

FCC COMPLIANT SITE

Site Photo

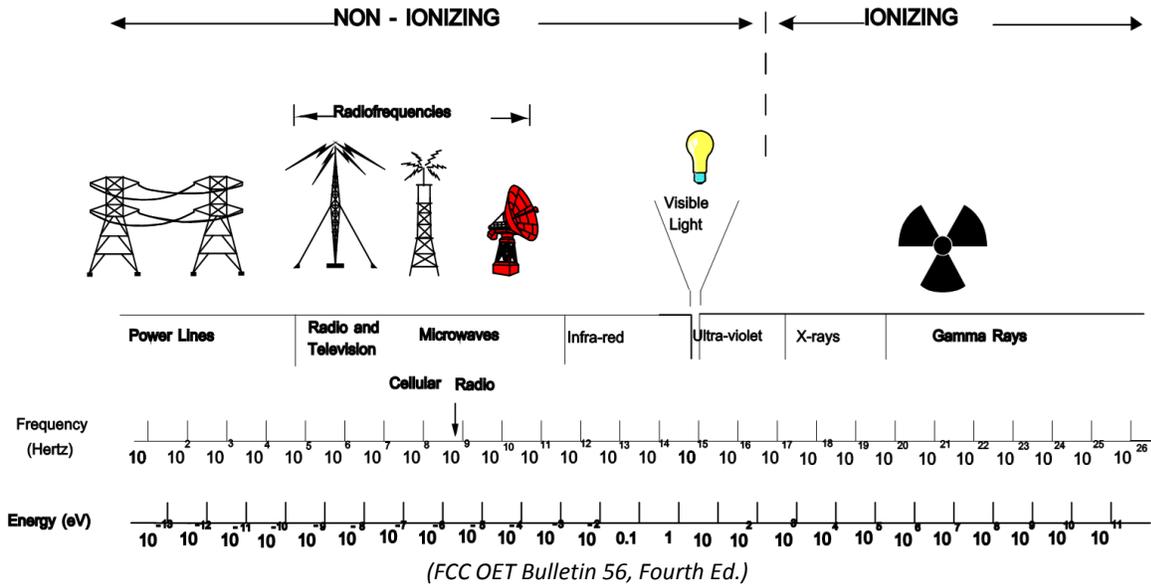


1. Introduction

The electromagnetic spectrum includes various forms of electromagnetic energy from extremely low frequency energy, with very long wavelengths, to x-rays and gamma rays, which have very high frequencies and short wavelengths. In between are radio waves, microwaves, infrared, visible light and ultraviolet, for example.

As depicted in Figure 2-1, the frequencies from T-Mobile’s equipment emit non-ionizing energy. The effects of non-ionizing energy are non-cumulative. Non-ionizing energy can turn into heat, if absorbed. (By comparison, ionizing energy is generally cumulative and can cause chemical and biological changes.)

Figure 1-1



T-Mobile has installed RF transmitting antennas at the following location (the “wireless telecommunications facility”):

**2491 San Miguel Dr.
Walnut Creek, CA 94596
T-Mobile Site ID: BA01774A**

Field	Data
Facility and Access	
Facility Type	sixty five feet church steeple
Access Type	open
Access Restrictions	open
Facility Area Classification	uncontrolled (general population)
RF Signage	
Type(s)	RF caution, RF notice, information, guidelines
Location	BTS area, at antenna A
Measurement Results	
Max RF Level in Accessible Areas on Rooftop/Facility	0.229% of the occupational exposure standard or (1.145% of general population standard)
Max RF Level at Surrounding Street/Ground Level Around Site	1.145% of general population standard
Compliance	
FCC Compliance Conclusion	The site is in compliance with FCC limits and guidelines

Table 1-1 Report Summary

Global Technology Associates performed an RF emission survey of the RF environment surrounding the facilities installed by T-Mobile at this location. Description of the facility: the facility is located on a/an sixty five feet church steeple. Access to the area of interest involved with this survey is via open secured by a/an/the open.

T-Mobile is licensed by the Federal Communications Commission (“FCC”) to provide wireless communications services. As required by the FCC, wireless system operators perform an assessment of the potential human exposure to radio frequency emissions emanating from transmitting antennas at the site.

The physical survey verified antenna placement and technical specifications for accurate recommendations to determine compliance with FCC guidelines. Antenna specifications presented herein are based on direct evidence from an antenna or transmitter cabinet, information from the site manager or building manager, information from the licensees, educated estimates by the field technician or a combination of some or all of these sources.

Certifications

Figure 1-1 Certification of Calibration for NARDA Meter



MICRO PRECISION CALIBRATION, INC.
22835 INDUSTRIAL PLACE
GRASS VALLEY CA 95949
530.268-1860

Certificate of Calibration

Date: Sep 17, 2024
Customer: GLOBAL TECH ASSOC
6626 KENIA COURT
EASTVALE CA 92880

Cert No. 5523631031229920

Work Order #: AZ-5015746
MPC Control #: 1327
Asset ID: 1327
Gage Type: BROADBAND FIELD METER
Manufacturer: NARDA
Model Number: NBM-550
Size: N/A
Temp/RH: 70.0°F / 40.0%
Location: Calibration performed at MPC facility
Serial Number: E-0462
Department: N/A
Performed By: GARLO DOMINGO
Received Condition: IN TOLERANCE
Returned Condition: IN TOLERANCE
Cal. Date: September 17, 2024
Cal. Interval: 24 MONTHS
Cal. Due Date: September 17, 2026

Calibration Notes:

Standards Used to Calibrate Equipment

Table with 7 columns: I.D., Description, Model, Serial, Manufacturer, Cal. Due Date, Traceability #. Rows include SM8718 SURVEY METER WITH PROBE and CH7814 ESG-DP SERIES SIGNAL GENERATOR.

Procedures Used in this Event

Table with 2 columns: Procedure Name, Description. Row: NARDA NBM-550 Rev. VERA, Broadband Field Meter, Narda NBM-550, Ver.A, Apr-08-2009

Calibrating Technician: Garlo N. Domingo
GARLO DOMINGO

QC Approval: Robert S Means
ROBERT MEANS

STATEMENTS OF PASS OR FAIL CONFORMANCE: The uncertainty of measurement has been taken into account when determining compliance with specification. All measurements and test results guard banded to ensure the probability of false-accept does not exceed 2% in compliance with ANSI/NCSL 2540.3-2006.

THE CALIBRATION REPORT STATUS:

PASS- Term used when compliance statement is given, and the measurement result is PASS.
PASS* Term used when compliance statement is given, and the measurement result is conditional passed or PASS*.
FAIL- Term used when compliance statement is given, and the measurement result is FAIL.
FAIL* Term used when compliance statement is given, and the measurement result is conditional failed or FAIL*.
REPORT OF VALUE Term used when reported measurement is not requiring compliance statement in report.
ADJUSTED: When adjustments are made to an instrument which changes the value of measurement from what was measured as found to new value as left.
LIMITED: When an instrument fails calibration but is still functional in a limited manner.

The expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%, unless otherwise stated.
This calibration report complies with ISO/IEC 17025:2017, ANSI/NCSL 2540.3-2009 and ANSI/NCSL 2540.1-1994. Calibration cycles and resulting due dates were submitted/approved by the customer. Any number of factors may cause an instrument to drift out of tolerance before the next scheduled calibration. Recalibration cycles should be based on frequency of use, environmental conditions and customer's established systematic accuracy. All standards are traceable to SI through the National Institute of Standards and Technology (NIST) and/or recognized national or international standards laboratories. Services rendered include proper manufacturer's service instruction and are warranted for no less than thirty (30) days. The information on this report pertains only to the instrument identified; this may not be reproduced in part or in a whole without the prior written approval of the issuing MPC Calibration Laboratory.

Figure 1-2 Certification of Calibration for NARDA Probe



MICRO PRECISION CALIBRATION, INC.
22855 INDUSTRIAL PLACE
GRASS VALLEY CA 95949
530-268-1860

Certificate of Calibration

Date: Sep 13, 2024

Cert No. 5523631031224432

Customer:
GLOBAL TECH ASSOC
8626 KENIA COURT
EASTVALE CA 92880

Work Order #: AZ-5015746

MPC Control #: 1328
Asset ID: 1328
Gage Type: PROBE
Manufacturer: NARDA
Model Number: EA5091
Size: 300 kHz - 50 GHz
Temp/RH: 70.0°F / 40.0%
Location: Calibration performed at MPC facility

Serial Number: 01033
Department: N/A
Performed By: GARLO DOMINGO
Received Condition: IN TOLERANCE
Returned Condition: IN TOLERANCE
Cal. Date: September 13, 2024
Cal. Interval: 24 MONTHS
Cal. Due Date: September 13, 2026

Calibration Notes:

Standards Used to Calibrate Equipment

I.D.	Description	Model	Serial	Manufacturer	Cal. Due Date	Traceability #
SM8718	SURVEY METER WITH PROBE	8718/8722B	01475/16011	NARDA	May 31, 2025	164164 1/164164 2
CH7814	ESG-DP SERIES SIGNAL GENERATOR	E4436B	US39260397	AGILENT	Oct 31, 2024	5523631030444990

Procedures Used in this Event

Procedure Name	Description
NARDA NBM-550 Rev. VER.A	Broadband Field Meter, Narda NBM-550, Ver.A, Apr-08-2009

Calibrating Technician:

Garlo N. Domingo
GARLO DOMINGO

QC Approval:

Robert S Means
ROBERT MEANS

STATEMENTS OF PASS OR FAIL CONFORMANCE: The uncertainty of measurement has been taken into account when determining compliance with specification. All measurements and test results guard banded to ensure the probability of false-accept does not exceed 2% in compliance with ANSI/NCSL Z540.3-2006.

THE CALIBRATION REPORT STATUS:

PASS: Term used when compliance statement is given, and the measurement result is PASS.
PASS*: Term used when compliance statement is given, and the measurement result is conditional passed or PASS*.
FAIL: Term used when compliance statement is given, and the measurement result is FAIL.
FAIL*: Term used when compliance statement is given, and the measurement result is conditional failed or FAIL*.

REPORT OF VALUE: Term used when reported measurement is not requiring compliance statement in report.

ADJUSTED: Where adjustments are made to an instrument which changes the value of measurement from what was measured as found to new value as left.

LIMITED: When an instrument fails calibration but is still functional in a limited manner.

The expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%, unless otherwise stated.
This calibration report complies with ISO/IEC 17025:2017, ANSI/NCSL Z540.3-2006 and ANSI/NCSL Z540.1-1994. Calibration cycles and resulting due dates were submitted/approved by the customer. Any number of factors may cause an instrument to drift out of tolerance before the next scheduled calibration. Recalibration cycles should be based on frequency of use, environmental conditions and customer's established systematic accuracy. All standards are traceable to SI through the National Institute of Standards and Technology (NIST) and/or recognized national or international standards laboratories. Services rendered include proper manufacturer's service instructions, and are warranted for no less than thirty (30) days. The information on this report pertains only to the instrument identified; this may not be reproduced in part or in a whole without the prior written approval of the issuing MP Calibration Laboratory.

A survey was performed on 11/02/2025 to determine the RF emission levels present at the site.

Measurements were performed on the areas considered accessible to the occupational population. At this site, additional steps were taken to access areas accessible to the general population. The results of the measurements were the combined energy levels of T-Mobile antennas. To measure the RF emissions within the vicinity Global Technology Associates utilized the following equipment to perform measurements:

Probe - EA5091 Serial Number: 01033 Freq Range: 300KHz-50GHz | with Meter - NBM-550 Serial Number: E-0462 Calibration was performed by Manufacturer and is due on the following dates: Meter: 09/17/2026 | Probe: 09/13/2026

2. Site Configuration

The data below enumerates the specifications of T-Mobile wireless telecommunications facility.

2-1 Technical Specifications on File: T-Mobile		
Description	1900/2100	N/A
Number of sectors	3	N/A
Number of antennas per sector	1	N/A
Azimuth of Antennas (degrees)	0/120/240	N/A
Model of Antennas	TMBX-6516-R2M	N/A
Manufacturer of Antennas	Andrew	N/A
Centerline Above Ground of Antennas (ft.)	60	N/A
Reference Antenna Numbers	1-3	N/A

Table 2-1

2-2 Verification of Technical Specifications			
Description	Alpha	Beta	Gamma
Azimuth of Antennas (degrees) 1900/2100	0	120	240
Azimuth of Antennas (degrees) 2500	N/A	N/A	N/A
Antenna Height Above Walking Surface (ft.)	57.52 N/A	57.52 N/A	57.52 N/A

Table 2-2

CNV- Can Not Verify, N/A- Not Applicable

2-3 Observed Specifications of Other Carriers					
Carrier/Freq	Type	Ref. Antenna Numbers	Make/Model	Heights*	Azimuths
N/A					

Table 2-3

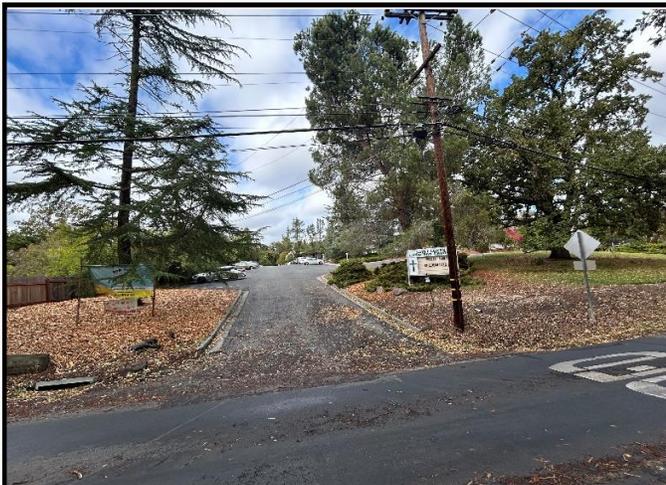
* above walking surface

3. Site Location

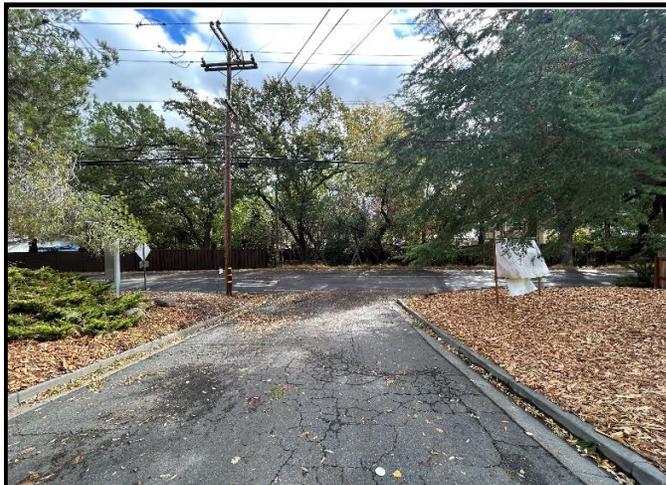


4. Photos

The following photos show the T-Mobile wireless telecommunications facility.



Access Point (Image 1)



Access Point (Image 2)



Signage at Alpha Sector



Equipment/Ground Prospective A



Equipment/Ground Prospective B



Equipment/Ground Prospective C



Equipment/Ground Prospective BTS



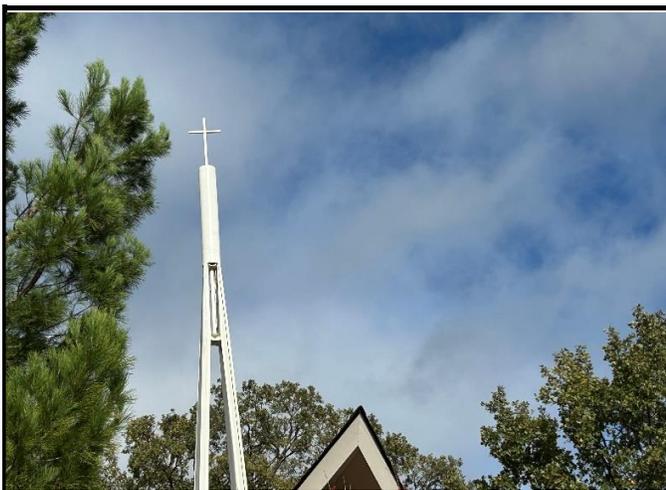
Alpha Sector from rear/above



Alpha Sector diagonal view



Beta Sector from rear/above



Beta Sector diagonal view



Gamma Sector from rear/above



Gamma Sector diagonal view



Alpha Sector View from Ground



Beta Sector View from Ground



Gamma Sector View from Ground



BTS Area (View 1)



BTS Area (View 2)



Site Overview from Street View (Front)



Site Overview from Street View (Diagonal)

5. RF Survey

RF emission levels were assessed through direct measurements at the transmitter site using properly calibrated field probes. Due to the possibility that Electromagnetic Energy (“EME”) fields may exist over a wide frequency range within which the exposure limits vary, field measurements were performed with a meter equipped with a frequency shaped probe that can automatically weigh each field contribution in accordance with its frequency.

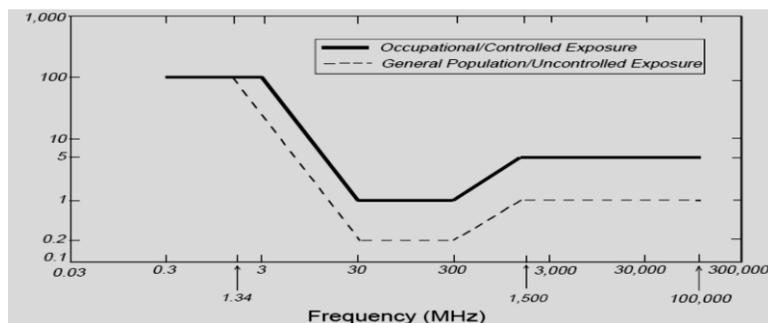
6. FCC Policy on Human Exposure to RF Emissions

The FCC guidelines for human exposure to RF emissions were derived from the recommendations of two expert organizations, the National Council on Radiation Protection and Measurements (“NCRP”) and the Institute of Electrical and Electronics Engineers (“IEEE”). The exposure guidelines are based on thresholds for known adverse effects and they incorporate an appropriate margin of safety. The federal health and safety agencies such as the Environmental Protection Agency (“EPA”), the Food and Drug Administration (“FDA”), the National Institute on Occupational Safety and Health (“NIOSH”) and the Occupational Safety and Health Administration (“OSHA”) have also been actively involved in monitoring and investigating issues related to RF exposure.

The FCC’s Maximum Permissible Exposure (“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”). 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. 56 “Question and Answer about the Biological Effects and Potential Hazards of Radiofrequency Electromagnetic Fields.” This document can be obtained on the FCC website at www.fcc.gov. The table and the graph below represent the FCC limits for both occupational and general population exposures to different radio frequencies:

Frequency Range (f) (MHz)	Occupational Exposure (mW/cm ²)	General Population Exposure (mW/cm ²)
0.3 – 1.34	100	100
1.34 - 3.0	100	180 / f ²
3.0 - 30	900 / f ²	180 / f ²
30 – 300	1	0.2
300 – 1,500	f / 300	f / 1500
1,500 – 100,000	5	1

Table 6-1 FCC Limits for Maximum Permissible Exposure



Graph 6-1 FCC Limits for Maximum Permissible Exposure

7. Discussion of Safety Criteria

Energy levels associated with the RF radiations are not great enough to cause the ionization of atoms and molecules. "Ionization" is a process by which electrons are stripped from atoms and molecules. This process can produce molecular changes that can lead to damage in biological tissue including effects on DNA, the genetic material. This process requires interaction with high levels of electromagnetic energy. Those types of electromagnetic radiation with enough energy to ionize biological material include x-radiation and gamma radiation. Therefore, x-rays and gamma rays are examples of ionizing radiation (see Section 1 for additional information).

RF energy is a type of non-ionizing radiation. Other types of non-ionizing radiation include visible light, infrared radiation and other forms of electromagnetic radiation with relatively low frequencies. Often the term "radiation" is used to apply to ionizing radiation associated with nuclear power plants. Ionizing radiation should not be confused with the lower energy, non-ionizing radiation with respect to possible biological effects.

The RF emissions from antennas used for wireless telecommunications typically result in exposure levels at the site that are well below the limits recommended by the FCC. These limits were adopted by the FCC based on the recommendations of expert organizations and endorsed by agencies of the Federal Government responsible for health and safety. Therefore, there is little reason to believe that such antennas could pose a potential health hazard to the general population.

Other antennas, such as those used for radio and television broadcast transmissions, use power levels that are generally higher than those used for wireless antennas. Therefore, in some cases, there could be a potential for higher levels of exposure on the site. However, all broadcast stations are also required to demonstrate compliance with the FCC guidelines.

8. Field Measurements

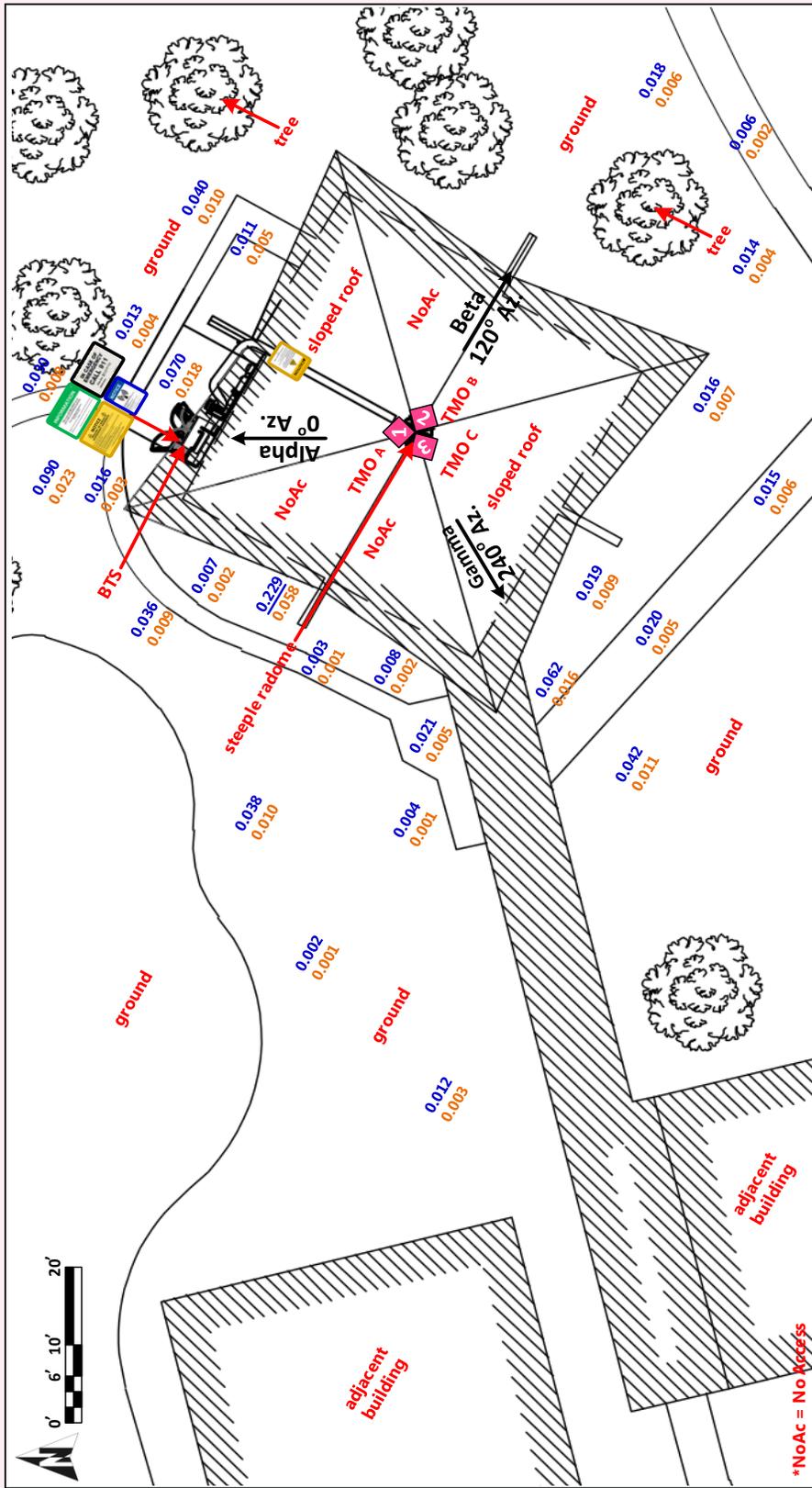
8-1 Ground Level Readings

A RF emissions survey was performed on the wireless telecommunications facility. This survey included walking around the structure and noting the maximum max hold readings encountered. The maximum value of the max hold readings of RF emissions encountered on the ground level was: 0.229% of the occupational exposure standard or (1.145% of general population standard).

Below is the layout depicting the actual readings (% of the FCC MPE Occupational or General Population Standard limits) at various locations at the site. Various measurements were taken to indicate the RF emissions levels that can be encountered by an individual who gains access to the area of interest involved with the survey.

Recommendations for Site Compliance	Signages on Access Points, Sectors & Equipment						Enclosing Sectors (Barrier/Tape/Striping)				
											
	Guidelines	INFO BTS	NOC INFO	NOTICE	CAUTION	WARNING	NOTICE	CAUTION	WARNING	Striping/Tape/Barrier & Chain	
Access Point(s)											
Sector Alpha					✓	1					
Sector Beta											
Sector Gamma											
Equipment/BTS	✓	1		✓	1						
Total Signage	1	0	1	1	1	0	0	0	0		

Figure 8-1 Site Diagram with MPE Measurements (Occupational)



Site Plan with Monitoring Results

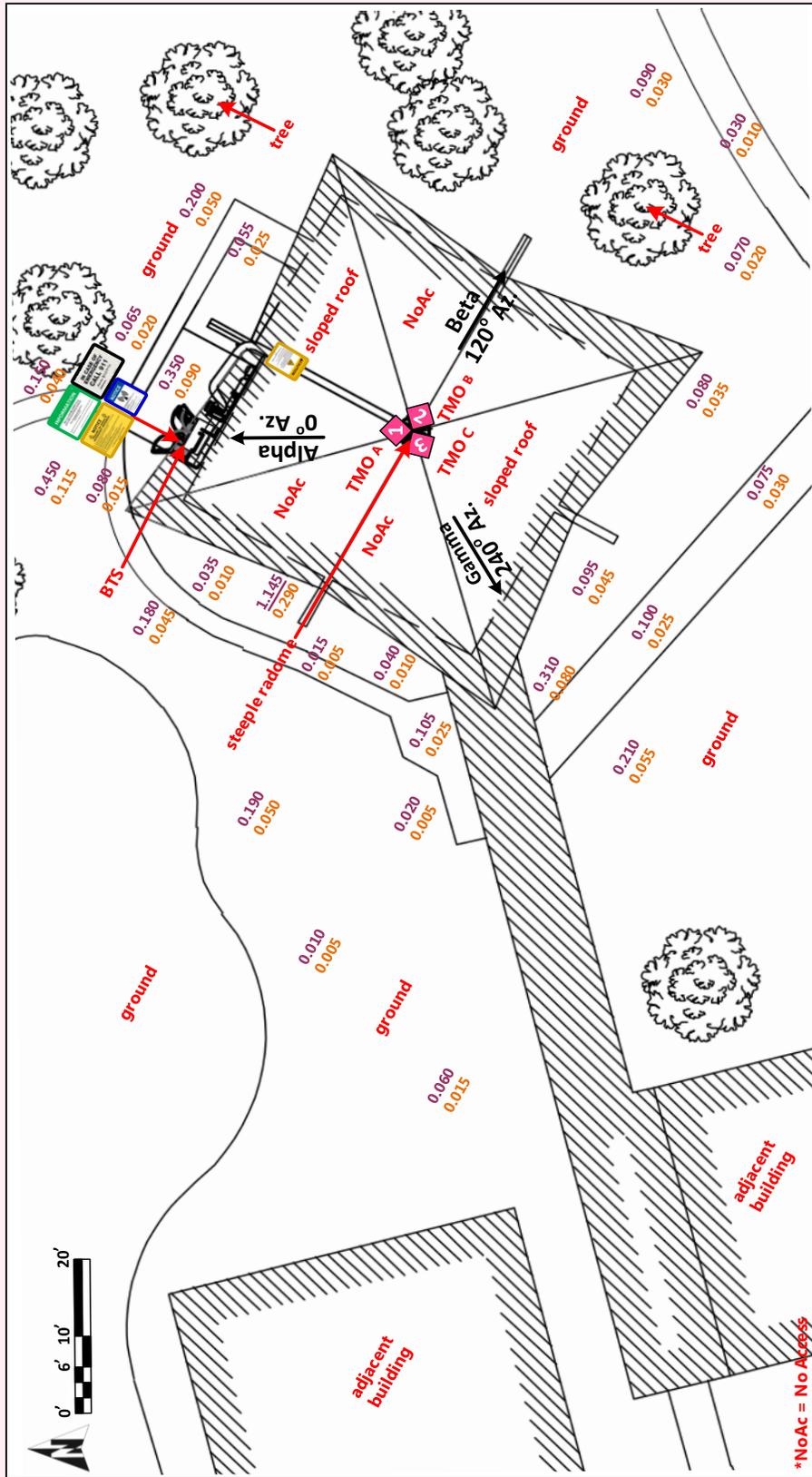
Facility Operator: **T-Mobile**
 Site Number: BA01774A
 Site Name: EB774 St. Lukes Church
 Site Visit Date: 11-02-2025

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	T-Mobile Antennas		RF Max Roof-Top and/or Occupational Population Area Measurement
	T-Mobile MW Dish Antennas		RF Max Ground and/or General Population Area Measurement
	Other(s) Antennas		RF Max Spatial Average Measurement
	Other(s) Antennas		Important Notes

T-Mobile Standard uses FCC exposure limits of 5.0 mW/cm2 for occupational and 1.0 mW/cm2 for general population*

Figure 8-2 Site Diagram with MPE Measurements (General Population)



Site Plan with Monitoring Results

Facility Operator: **T-Mobile**
 Site Number: BA01774A
 Site Name: EB774 St. Lukes Church
 Site Visit Date: 11-02-2025

GTA
 Solutions for a Wireless World

Legend	RF Max Roof-Top and/or Occupational Population Area Measurement	RF Max Ground and/or General Population Area Measurement	RF Max Spatial/Average Measurement	Important Notes
◆ T-Mobile Antennas	%	%	%	ENTRY
● T-Mobile MW Dish Antennas	%	%	%	
● Other(s) Antennas(s)	%	%	%	
● Other(s) Antennas(s)	%	%	%	ENTRY

T-Mobile Standard uses FCC exposure limits of 5.0 mW/cm² for occupational and 1.0 mW/cm² for general population*

8-2 Antenna Vicinity Measurements of T-Mobile NV/2.5 Antennas and Others

Measurements taken from each antenna. This is performed at distances of 1 foot, 3 foot, and 6 foot, whenever possible. NV/2.5 taken from the rear of the antenna when front is not available, taken from the facility ground level proximal to antenna placement when antenna level access is not available. Other antennas taken only when antenna face is within reachable level of measurement and/or when it is a significant contributor to the overall RF environment.

Antenna Readings (refer to sketch 8-2/site configuration section 2)					
Antenna 1 (Alpha NV or Tri-Band)		Antenna 2 (Beta NV or Tri-Band)		Antenna 3 (Gamma NV or Tri-Band)	
1' (MH)	NoAc	1' (MH)	NoAc	1' (MH)	NoAc
3' (MH)	NoAc	3' (MH)	NoAc	3' (MH)	NoAc
6' (MH)	NoAc	6' (MH)	NoAc	6' (MH)	NoAc
<i>n/a</i>		<i>n/a</i>		<i>n/a</i>	
<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
<i>n/a</i>		<i>n/a</i>		<i>n/a</i>	
<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
<i>n/a</i>		<i>n/a</i>		<i>n/a</i>	
<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
<i>n/a</i>		<i>n/a</i>		<i>n/a</i>	
<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>

NoAc = No Access To Ant. For Walk Off Measurements - Height/Surface Restriction max reading attained in red
 (MH) Max Hold - Quick Measurement (always higher than true measurement)
 (SA) Spatial Average - True Measurement (shown when Max Hold > 20% occupational / 100% general population)
 The above measurements are shown for the FCC's General Population Levels.

Any antennas not listed 1-18 had either no access to the antennas, was barred, was out of reach, or had a minimal contribution to overall environment and was not recorded

9. Conclusion

Compliance with the FCC’s rules on human exposure to RF emissions at wireless telecommunications facilities generally is determined by comparing actual measurements taken at the facility to the FCC’s MPE limits.

The results of the instant survey indicate the maximum levels of RF emissions exposure do not exceed applicable FCC MPE limits for occupational and general population exposure.

The highest level of RF emissions measured was 0.229% of the FCC’s MPE limits based on the occupational exposure standard or (1.145% of general population standard).

A controlled/occupational environment assumes that access to the facility is generally restricted to authorized personnel and facility management and members of the general population will not be able to access the rooftop and/or wireless telecommunications facility.

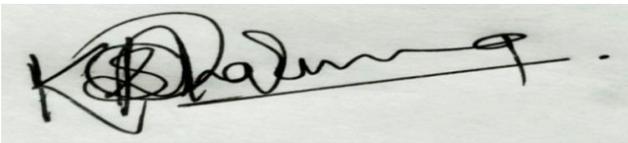
An uncontrolled/general population environment assumes that access to the facility is not generally restricted to authorized personnel and facility management and members of the general population will be able to access the rooftop and/or wireless telecommunication facility.

This facility's Area of Interest is considered a uncontrolled (general population) environment. The site is in compliance with FCC limits and guidelines per MPE standard for the environment.

10. Certification

This report was prepared for T-Mobile and serves as certification for compliance of the existing T-Mobile wireless telecommunications facility. The analysis and computation provided herein is based on applicable FCC regulations concerning RF safety and the control of human exposure to RF emissions. The information and analysis contained in this report is accurate and complete to the best knowledge and belief of the undersigned.

Prepared by:



11/03/2025

Amit Kumar Sharma - Project Manager

Global Technology Associates (GTA)

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