#2022-199 Vertical Bridge Monopine Tower
Special Use Permit & Zoning Variation
Project Review for Planning and Zoning Commission

Meeting Date: October 5, 2022

Request: A Special Use Permit for a wireless communication tower and variations from Article 2-400 to allow the Monopine style tower and for the tower to be setback less than 110% of the height of the tower from the west, east and south property lines.

Location: 269 Liberty Drive

Acreage: Approximately 1.2 acres

Existing Zoning: M (Manufacturing)

Surrounding Properties:
North: B-2 (General Commercial)
South: M (Manufacturing) Three Oaks Recreation Area
East: B-2 PUD (General Commercial) future Water's Edge
West: M PUD (Manufacturing)

Staff Contact: Kathryn Cowlin (815.356.3798)

Background:

- Existing Use: The property is currently improved with a commercial recreation building that teaches scuba diving.
- The petitioner explored locating the wireless communication facilities on existing private towers and public utilities. According to the petitioner, there are currently no existing structures that could accommodate the communications facility within the petitioner's targeted area.
- The proposed tower is designed as a Monopine to look like a large pine tree. There is a tree line behind the property so the Monopine tower tree will blend with other nearby vegetation.

- UDO Requirements: A special use permit is required for wireless communication towers.
- Variations: The petitioner is requesting variations from two of the criteria:
    - The requirements to paint the tower a grey or sky color requires a variation since they have selected a Monopine design.
    - The requirement for wireless communication facilities to be setback 110% of the height of the tower, or 115.5 feet from all property lines. The tower would be setback only:
        - 52 feet from the west property line
        - 100 feet from the east property line
        - 65 feet from the south property line
- Land Use: The land use map shows the area as Industry. This land use designation is appropriate for this use.
- Zoning: The site is zoned M (Manufacturing).

Proposed Development Description

- The proposed improvement is for a 105-foot Monopine tower in a 50-foot by 50-foot fenced area.
- The fenced area is setback about 260 feet from the roadway. The fence will be an eight-foot solid screening fence and inside will house the equipment.
- There is additional room within the fenced area to accommodate multiple carriers.
- The "pine" branches are manufactured of steel and the "needles" are an artificial material, which has been wind tunnel tested to over 100 mph winds.

2030 Comprehensive Land Use Plan Review:

The Comprehensive Plan designates the subject property as Industry, which allows for existing and future manufacturing uses. The proposed wireless communication tower falls under Community Facilities. This project meets the following goal:

Community Facilities – Public Facilities

Goal: Support the specific needs and goals of public facilities to ensure cooperation between public and city facilities for the health, safety, and needs of the community.

This can be accomplished with the following supporting action:

Supporting Action: Carefully plan for utility service extensions to ensure compatibility with existing infrastructure and land uses.

Findings of Fact:

SPECIAL USE PERMIT

Special Uses require a separate review because of their potential to impact surrounding properties and the orderly development of the City. Section 2-400 of the Unified Development Ordinance establishes standard for all Special Uses in Crystal Lake. The criteria are as follows:

1. That the proposed use is necessary or desirable, at the location involved, to provide a service or facility which will further the public convenience and contribute to the general welfare of the neighborhood or community.

   ☐ *Meets* ☐ *Does not meet*

2. That the proposed use will not be detrimental to the value of other properties or improvements in the vicinity.

   ☐ *Meets* ☐ *Does not meet*

3. That the proposed use will comply with the regulations of the zoning district in which it is located and this Ordinance generally, including, but not limited to, all applicable yard and bulk regulations, parking and loading regulations, sign control regulations, watershed, wetlands, and flood plain regulations, Building and Fire Codes and all other applicable City Ordinances.

   ☐ *Meets* ☐ *Does not meet*

4. That the proposed use will not negatively impact the existing off-site traffic circulation; will adequately address on-site traffic circulation; will provide adequate on-site parking facilities; and, if required, will contribute financially, in proportion to its impact, to upgrading roadway and parking systems.

   ☐ *Meets* ☐ *Does not meet*

5. That the proposed use will not negatively impact existing public utilities and municipal service delivery systems and, if required, will contribute financially, in proportion to its impact, to the upgrading of public utility systems and municipal service delivery systems.

   ☐ *Meets* ☐ *Does not meet*

6. That the proposed use will not impact negatively on the environment by creating air, noise, or water pollution; ground contamination; or unsightly views.

   ☐ *Meets* ☐ *Does not meet*

7. That the proposed use will maintain, where possible, existing mature vegetation; provide adequate screening to residential properties; provide landscaping in forms of ground covers, trees and shrubs; and provide architecture, which is aesthetically appealing, compatible or complementary to surrounding properties and acceptable by community standards, as further detailed in Article 4, Development and Design Standards.

   ☐ *Meets* ☐ *Does not meet*

8. That the proposed use will meet standards and requirements established by jurisdictions other than the City such as Federal, State or County statutes requiring licensing procedures or health/safety inspections, and submit written evidence thereof.

   ☐ *Meets* ☐ *Does not meet*

9. That the proposed use shall conform to any stipulations or conditions approved as part of a Special Use Permit issued for such use.

   ☐ *Meets* ☐ *Does not meet*

10. That the proposed use shall conform to the standards established for specific special uses as provided in this section.

    ☐ *Meets* ☐ *Does not meet*

Radio transmission towers, wireless communication facilities. All radio transmission towers and wireless communication facilities must comply with the following standards:

1. Towers shall be designed to meet the wind loading requirements specified in the American National Standards Institute TIA-222-F Report, as amended.

   ☐ *Meets* ☐ *Does not meet*

   They have submitted documents which show they are complying with this criterion.

2. The owner/applicant shall provide documentation to the City demonstrating that the structural integrity of the towers and antenna will continue to comply with state and federal standards, local building codes, and the applicable standards for towers published by the American National Standards Institute (ANSI), as amended. If, upon inspection, it is determined a tower fails to comply with such standards and constitutes a danger to persons or property, the owner shall be notified that he/she has 30 days to bring the tower into compliance. Failure to bring the tower into compliance within 30 days shall constitute grounds for the removal of the tower at the owner's expense.

   ☐ *Meets* ☐ *Does not meet*

   They have submitted documents which show they are complying with this criterion.

3. Freestanding wireless communication or radio transmission towers shall not exceed 200 feet in height as measured from the tower base to the highest point of the tower and any attached receiving or transmitting device.

   ☐ *Meets* ☐ *Does not meet*

   They have submitted documents which show they are complying with this criterion.

4. Franchises and licenses: The operator shall provide documentation to the City to demonstrate that all franchises and licenses required by law for the construction and/or operation of a tower or antenna have been obtained.

   ☐ *Meets* ☐ *Does not meet*

   They have submitted documents which show they are complying with this criterion.

5. Towers shall either maintain a galvanized steel finish or, subject to any applicable standards of the FAA, be painted a neutral color (i.e., light grey) to reduce visual obtrusiveness or painted in a sky-tone above the top of surrounding trees and in an earth-tone below the treetop level.

   ☐ *Meets* ☐ *Does not meet*

   The proposed tower is a Monopine style to look like a pine tree.

6. At a tower site, the design of buildings and related structures shall, to the maximum extent practicable, use materials, colors and architectural styles that blend into the natural setting and surrounding buildings.

   ☐ *Meets* ☐ *Does not meet*

   They have submitted documents which show they are complying with this criterion.

7. Storage: No outside storage shall be allowed on any facility site.

   ☐ *Meets* ☐ *Does not meet*

   They have submitted documents which show they are complying with this criterion.

8. Lighting: Towers shall not be artificially lighted, unless required by the FAA or other applicable authority.

   ☐ *Meets* ☐ *Does not meet*

   They have submitted documents which show they are complying with this criterion.

9. A single sign measuring no more than two square feet in size shall be located on or near the tower, and shall identify the tower owner, the street address of the tower, the owner's identification code for the tower, and a twenty-four-hour emergency contact telephone number.

   ☐ *Meets* ☐ *Does not meet*

   They have submitted documents which show they are complying with this criterion.

10. No commercial advertising shall be allowed on the tower or its related facilities.

    ☐ *Meets* ☐ *Does not meet*

    They have submitted documents which show they are complying with this criterion.

11. Single lot: Towers, guy anchors, equipment buildings, and any other appurtenances related to the tower shall be considered as being located on one zoning lot.

    ☐ *Meets* ☐ *Does not meet*

    They have submitted documents which show they are complying with this criterion.

12. Setbacks: Wireless communications facilities shall comply with the following setback standards. Self supporting and monopole towers shall be setback from all property lines by a distance of 110% of the height of the tower.

    ☐ *Meets* ☐ *Does not meet*

    They have requested a variation from this setback requirement from the west, south and east property lines.

13. Equipment buildings associated with a wireless communication facility shall meet the minimum setback requirements for the zoning district where located.

    ☐ *Meets* ☐ *Does not meet*

    They have submitted documents which show they are complying with this criterion.

14. Separation: If an applicant proposes a new wireless communications tower or radio transmission tower within 1,200 feet of an existing tower, the applicant shall submit a statement indicating the reasons why the existing tower(s) was inadequate or unavailable. The Zoning Administrator shall allow the owner of such existing tower an opportunity to comment prior to making a decision.

    ☐ *Meets* ☐ *Does not meet*

    They have submitted documents which show they are complying with this criterion.

15. Collocation: New wireless communication or radio transmission towers shall provide evidence that the tower is structurally designed to support at least three additional users, and provide a written statement that the owner of the tower is willing to permit other user(s) to attach communication facilities, on a commercially reasonable basis, which do not interfere with the primary purpose of the tower. The site plan shall indicate a location for at least one equipment building in addition to that proposed for use by the applicant. A tower which is modified or reconstructed to accommodate the collocation of an additional antenna shall be of the same tower type as the existing tower, unless a monopole is determined more appropriate at the specific location. If an existing tower is increased in height or reconstructed to accommodate the collocation of additional antenna it shall meet the height restrictions outlined within this section of the Ordinance.

    ☐ *Meets* ☐ *Does not meet*

They have submitted documents which show they are complying with this criterion.

16. Landscaping: Unless existing vegetation provides a buffer strip, all property lines along roadways or visible to existing abutting or nearby buildings (within 1/4 mile radius), for all facilities shall be landscaped as follows:
    a. With six-foot to eight-foot evergreen shrubs planted in an alternate pattern, five feet on center and within 15 feet of the site boundary; or
    b. With at least one row of deciduous trees, not less than 2 1/2 inch to three inches caliper measured three feet above grade, and spaced not more than 30 feet apart and within 25 feet of the site boundary; or
    c. With at least one row of evergreen trees at least four to five feet in height when planted, and spaced not more than 15 feet apart within 40 feet of the site boundary.
    d. In lieu of the foregoing, the Planning and Zoning Commission may determine that the existing vegetation must be supplemented to meet an equivalent means of achieving the desired goal of minimizing the visual impact.

    ☐ *Meets* ☐ *Does not meet*

    They have submitted documents which show they are complying with this criterion.

17. Security fencing: Towers, guy anchor supports, and ground-based equipment buildings shall be enclosed by security fencing not less than eight feet in height and equipped with an appropriate anti-climbing device.

    ☐ *Meets* ☐ *Does not meet*

    They have submitted documents which show they are complying with this criterion.

18. Radiation reporting: It shall be demonstrated that the proposed tower, antenna, and supporting equipment complies with FCC nonionizing radiation requirements for individual and combined facilities.

    ☐ *Meets* ☐ *Does not meet*

    They have submitted documents which show they are complying with this criterion.

19. Interference: No wireless communications tower, antenna, or supporting equipment shall interfere with equipment operated by the City of Crystal Lake.

    ☐ *Meets* ☐ *Does not meet*

    They have submitted documents which show they are complying with this criterion.

[Continue to next page.]

Recommended Conditions:

If a motion to recommend approval of the petitioner's request is made, it should be with the following conditions:

1. Approved plans, reflecting staff and advisory board recommendations, as approved by the City Council:
   A. Application (Koch, received 07/28/22)
   B. Narrative Letter (Insite, dated 08/18/22, received 08/26/22)
   C. Fall Zone Letter (Valmont, dated 08/24/22, received 08/26/22)
   D. Site Design (Edge, dated 08/02/22, received 08/26/22)
   E. Site Photos (Edge, dated 06/23/22, received 08/26/22)
   F. Radio Frequency Letter (Bernardo, undated, received 08/26/22)
   G. Coverage Map (undated, received 08/26/22)
   H. Emission Report (Waterford, dated 07/18/22, received 08/26/22)

2. No outside storage shall be allowed on any facility site.

3. Towers shall not be artificially lighted, unless required by the FAA or other applicable authority.

4. A single sign measuring no more than two square feet in size can be located on or near the tower, and shall identify the tower owner, the street address of the tower, the owner's identification code for the tower, and a twenty-four-hour emergency contact telephone number.

5. No commercial advertising shall be allowed on the tower or its related facilities.

6. The petitioner shall work with staff to enhance the landscaping buffer along the property lines, especially to the east.

7. The driveway leading to the new cell tower will need to be paved per City standards.

8. If any portion of the equipment structure is visible above the fence the entire structure shall be constructed of brick. Any metal structure shall be painted a light grey or sky color to blend in.

9. The structural integrity of the tower and antenna will continue to comply with state and federal standards, local building codes, and the applicable standards for towers published by the American National Standards Institute (ANSI), as amended. If, upon inspection, it is determined a tower fails to comply with such standards and constitutes a danger to persons or property, the owner shall be notified that he/she has 30 days to bring the tower into compliance. Failure to bring the tower into compliance within 30 days shall constitute grounds for the removal of the tower at the owner's expense.

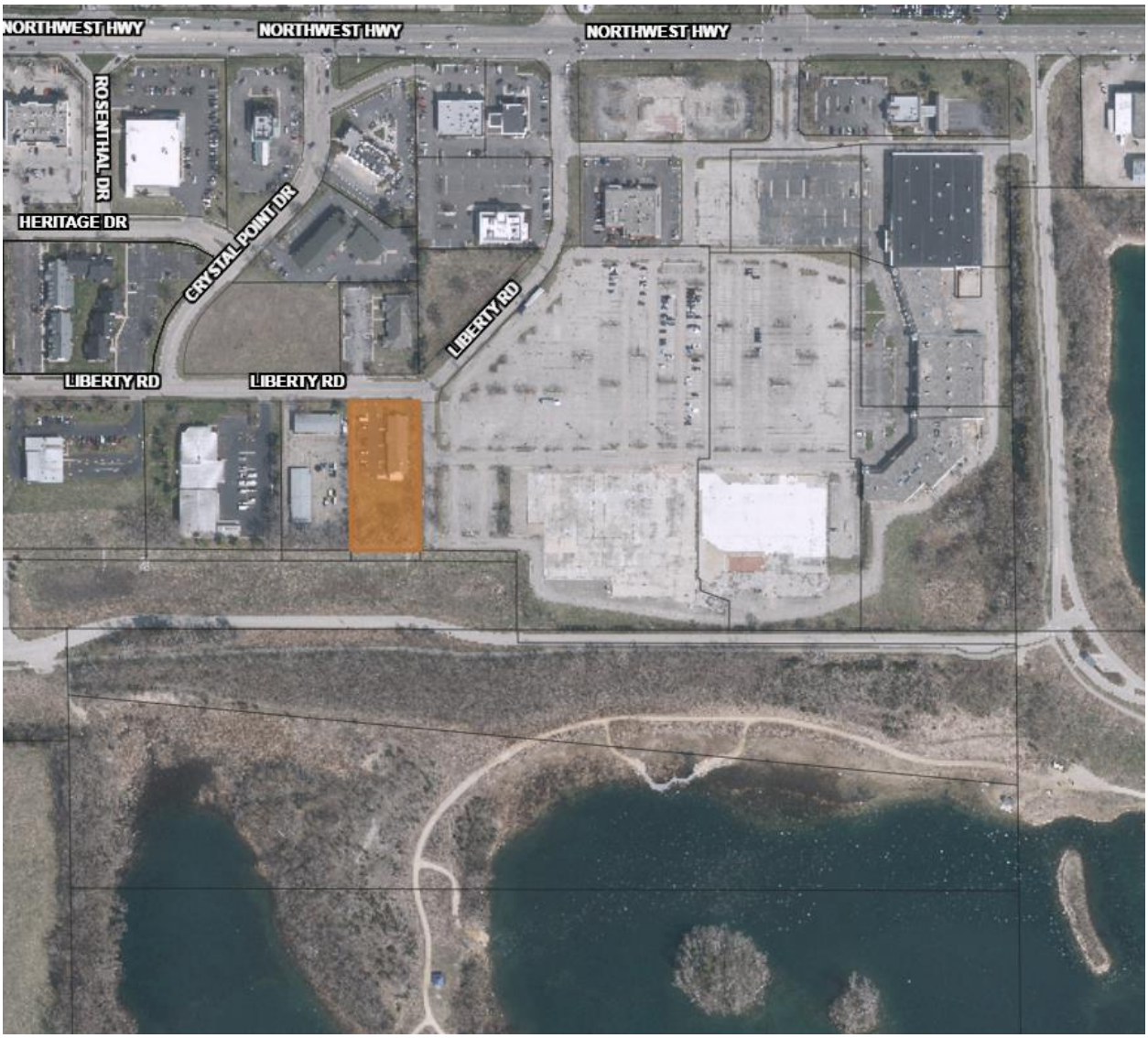
10. The tower and antennas shall meet or exceed current standards and regulations of the FAA, the FCC, and any other agency of the state or federal government that regulates towers and antennas. If such standards and regulations change, owners shall be responsible for bringing the towers and antennas into compliance with the changed standards and regulations within six months of their effective date, unless a different compliance schedule is mandated by the

controlling regulations (Failure to bring towers and antennas into compliance shall constitute grounds for removal of the tower or antenna, at the owner's expense.).

11. The monopine pole camouflaging elements must be maintained and the upkeep of the appearance/finish of the materials is the responsibility of the pole owner or property owner. Any missing camouflaging elements must be replaced if found missing, any debris that is blown into the camouflaging must be removed and any debris that sheds from the pole must be cleaned by the pole owner or property owner.

12. The petitioner shall address all of the review comments and requirements of the Community Development, Public Works and Engineering, Fire and Police Departments.

PIQ Map
269 Liberty Road



City of Crystal Lake
Development Application
Ownership Sign-off Acknowledgement Form

The following information is related to a development application. As the owner of the property in question, I (we) acknowledge that the information provided in the submittal was reviewed and approved.

Owner Information

Name: Arthur Koch

Address: 269 Liberty Road

Crystal Lake, IL 60014

Phone: 815-479-0996

E-mail: sealevel@sealeveldiving.com

Project Name & Description: Proposed Monopine Design Cell Tower at 269 Liberty Road

Project Address/Location: 269 Liberty Road (Sea Level Diving)

Signature

Arthur Koch July 28/2022

Owner: Print and Sign name Date

NOTE: If the property is held in a trust, the trust officer must sign this petition as owner. In addition, the trust officer must provide a letter that names all beneficiaries of the trust.

To whom it may concern,

Calypso Ventures, LLC an Illinois limited partnership, is owned by Arthur and Gina Koch of 828 Oak Hollow Dr, Crystal Lake, IL. Arthur Koch, as owner, has the authority to sign on behalf of Calypso Ventures, LLC.

Arthur Koch
Sea Level Diving
269 Liberty rd
Crystal Lake, IL 60014
815-479-0996

Northwest Herald

NORTHWEST HERALD

Publication Name:
Northwest Herald

Publication URL:
www.nwherald.com

Publication City and State:
Crystal Lake, IL

Publication County:
McHenry

Notice Popular Keyword Category:

Notice Keywords:
liberty

Notice Authentication Number:
202209211030540720772
213731298

Notice URL:

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Notice Publish Date:
Saturday, September 17, 2022

Notice Content

PUBLIC NOTICE BEFORE THE PLANNING AND ZONING COMMISSION OF THE CITY OF CRYSTAL LAKE, MCHENRY COUNTY, ILLINOIS IN THE MATTER OF THE APPLICATION OF Insite Inc. LEGAL NOTICE Notice is hereby given in compliance with the Unified Development Ordinance (UDO) of the City of Crystal Lake, Illinois, that a public hearing will be held before the Planning and Zoning Commission upon the application by Mike Howley with Insite Inc. representing Vertical Bridge, on behalf of Calypso Ventures, LLC for approval of a Special Use Permit and Variations to allow a Wireless Communication Tower at the following real estate known as 269 Liberty Road, Crystal Lake, Illinois 60014, PIN: 19-09-104-015. This application is filed for the purpose of seeking a Special Use Permit with Variations from the required setback, the color/design, and any other variations as noted at the public hearing to allow a new MonoPine Wireless Communication Tower pursuant to Unified Development Ordinance Article 2, Article 4, and Article 9. Plans for this project can be viewed at the City of Crystal Lake Planning and Economic Development Department at City Hall. A public hearing before the Planning and Zoning Commission on the request will be held at 7:00 p.m. on Wednesday, October 5, 2022, at the Crystal Lake City Hall, 100 West Woodstock Street, at which time and place any person determining to be heard may be present. Jeff Greenman, Chairperson Planning and Zoning Commission City of Crystal Lake (Published in the Northwest Herald on September 17, 2022)2017272

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August 25, 2022

Elizabeth Maxwell AICP/City Planner
City of Crystal Lake, Community Development
100 W. Woodstock Street
Crystal Lake, Illinois 60014

RE: 269 Liberty Road Special Use Zoning Petition; Letter to Address City SUP and Variance to Tower Setback Standards

Ms. Maxwell:

Please allow the following responses to address the applicable City of Crystal Lake Special Use Standards for wireless communication facilities.

2-400 Par. 48 Radio transmission towers, wireless communication facilities. …wireless communication facilities must comply with the following standards:

(a) Purpose and Intent: The purpose of this section is to establish general standards for the siting of …, wireless communication towers and antennas. The intent is that facilities must comply with the following standards:

(i) The proposed wireless communication facility is located in a manufacturing zoning district that is a significant from the nearest residential area. Moreover, to further limit any potential adverse impact, the applicant has designed a monopine style tower that visually blends in with the surrounding mature tree line. Photo simulations of the proposed tower are provided with this application;

(ii) The proposed wireless communication facility is consistent with the Crystal Lake standards for siting wireless communication towers because the subject site is located in a M District and is a significant distance from the nearest existing residential area;

(iii, iv) A new wireless communication tower is proposed only because there is no existing suitable existing structure within the required area of coverage need. A signed statement from the radio frequency engineer has been provided as further support. However, the subject tower will be designed to accommodate multiple wireless carriers and thereby, help minimize the future need for new towers in the City;

(v) The proposed wireless communication tower will be a monopine style tower so as to better blend in with the existing tree canopy. This innovative camouflage technique will minimize any adverse visual impacts on the area. Moreover, the proposed site will include an opaque fence that will visually screen all ground equipment at street level;

(vi) The construction of the proposed wireless communication tower will enable T-Mobile and any future wireless carriers to provide cutting edge wireless and data services to the community quickly, effectively and efficiently;

(vii) The subject wireless communication tower will be engineered in a way that in the event of a catastrophic event that causes tower failure, the structure will collapse on itself so as not to impact or damage adjacent properties. An engineer stamped fall zone letter is provided as part of this application for zoning relief;

d. Standards for ….wireless communication towers: Freestanding wireless communication….towers, …, shall comply with the following standards:

(i) Safety:

I. The proposed wireless communication facility will be designed to meet the wind loading requirements specified in American National Standards Institute TIA-222-F Report, as amended.

II. The applicant will provide documentation to the City that demonstrates that the structural integrity of the towers and antennas will continue to comply with state and federals standards, local building codes, and the applicable standards for towers published by the ANSI, as amended;

(ii) Height:
The proposed height of the wireless antenna facility is well below the city's maximum tower height of 200 feet;

(iii) Franchises and licenses:
The operator will provide City with documentation to demonstrate that all franchises and licenses required by law for the construction and/or operation of a tower or antenna have been obtained;

(iv) Color:

I. The proposed monopine design tower is designed to reduce visual obtrusiveness;

II. The applicant has selected opaque fencing that will screen all carrier ground equipment and the fencing will be a color that blends with the natural surroundings of the tree lined subject parcel;

(v) Storage:
There will be no outside storage of materials on site;

(vi) Lighting:
The proposed wireless communication tower will not be artificially lit;

(vii) Signage:

I and II A single sign no more than two square feet in size will identify the tower and there will be no commercial advertising on site;

(viii) Single lot:

The proposed wireless communication tower and related equipment will be placed on one zoning lot;

(ix) Setbacks:

I. The proposed wireless communication tower does not satisfy the 110% of tower height setback from all property lines so a setback variance is requested as part of this application for zoning relief.

II. Not applicable to the proposed tower as this is not a guyed tower design;

III. There are no proposed equipment buildings related to the current proposal. T-Mobile uses outdoor cabinets to house its radios and related equipment. The outdoor cabinets satisfy the minimum setback in the M zoning district from the nearest property line;

x. Separation:

The proposed wireless communication tower is located greater than 1,200 feet from the nearest existing cell tower;

xi. Collocation:

The applicant will provide evidence that the tower is structurally designed to support at least three additional users and will provide a written statement that the tower owner is willing to permit other users on the tower on a commercially reasonable basis. The submitted site plan depicts the potential location for a second wireless provider;

xii. Landscaping:

No landscaping is included in design given the tree lined nature of the subject parcel and the opaque fence will shield all ground-based equipment from view;

xiii. Security fencing:

The proposed wireless communication tower will be surrounded with an 8' opaque fence and the tower will include anti-climbing safeguards;

xiv. Radiation reporting:

The applicant has included an independent EME study that confirms that the proposed wireless antenna facility will comply with all FCC emission standards;

xv. Interference:

The proposed wireless antenna facility will not interfere with equipment operated by the City of Crystal Lake;

e. Compliance with state or federal laws and regulations:

The proposed wireless antenna facility will meet all FAA, FCC and any other state or local standards or regulations governing such facilities. The tower owner and any wireless carriers utilizing the tower will maintain compliance with said applicable laws and regulations and shall achieve compliance within 6 months of the effective date of any change in standards, laws or regulations, unless a different compliance schedule is mandated by the controlling regulations. It is understood that failure to bring towers and antennas into compliance shall constitute grounds for removal of the tower or antennas, at the owner's expense.

The subject proposal also will require zoning relief from the applicable City of Crystal Lake setback requirement that tower be setback from property line by 110% of tower height. Since a variance from the tower setback will be required, the following addresses the City of Crystal Lake Variance Standards:

B.

Standards.

(1)

The enforcement officer may grant variances to the provisions of this chapter if the petitioner provides evidence demonstrating that:

(a)

Failure to grant the variance would result in an unreasonable hardship;

The proposed facility is designed to fill a coverage gap in T-Mobile's network. Coverage gaps result in a substandard wireless signal, which, to the end user, means a dropped call or weak data connection. At this location, the antennas and hence, the tower, must be located at the proposed height to meet the coverage objectives. Carrying out the strict letter of the code would result in a unreasonable hardship since meeting the setback would result in a tower that is too low to adequately fill the coverage gap and would not provide adequate wireless service to your community;

and

(b)

The variance is necessary due to unique and exceptional physical circumstances or a condition of a particular property;

The property owner's situation is a result of the unique circumstance of the operation of wireless technology. Indeed, the need to locate wireless antennas at a height necessary to receive and transmit

signals has resulted in the owner's plight. Such hardship is a result of wireless technology and topography of the physical surroundings of the subject property, not anyone having an ownership interest in the property.

and

(c)

The variance is the minimum necessary to afford relief;

The applicant is proposing a tower that is the minimum height necessary for T-Mobile to adequately improve its wireless voice and data needs in the area of coverage need;

and

(d)

The variance will not cause detriment to the public good, safety or welfare;

The establishment, maintenance and operation of this wireless antenna facility will not be injurious to the public health, safety, morals, or general welfare of the community. To the contrary, improved wireless service in your community provides vital communications and residents and emergency personnel commonly will use the service for a wide variety of business, personal, "911" and other uses; thereby actively promoting the general public's health, safety and welfare.

The wireless telecommunications facility will not create any material noise, glare, smoke, debris, traffic flow or any other nuisance.

The proposed wireless communication facility will be licensed and regulated by the Federal Communications Commission ("FCC"), which imposes strict health, safety and interference standards. These standards are set by independent safety and standard groups such as the American National Standards Institute ("ANSI") and the Institute of Electrical Electronics ("IEEE").

and

(e)

The variance will not cause an increase in the water surface profile within a floodway;

The proposed wireless antenna facility has no impact on this standard.

and

(f)

The variance will not cause an increase in the water surface profile upstream of the development site,

The proposed wireless antenna facility has no impact on this standard.

and

(g)

The variance will not be contrary to the spirit, purpose and intent of this chapter;

The variance, if granted, would be in harmony with the City of Crystal Lake Ordinance since it would be constructed at a suitable height to accommodate multiple wireless providers and thereby would limit the number of future towers needed to serve this area of the community. The proposed facility meets all other provisions of this ordinance and, therefore will be in harmony with the provisions thereof and with the general purpose and intent of this chapter;

and

(h)

The regulated development meets the minimum federal, state, and other local regulations, including those of IDNR/OWR and FEMA for participation in the NFIP.

The proposed development will meet all applicable federal, state and other local regulations noted above.

verticalbridge

August 18, 2022

Elizabeth Maxwell AICP/City Planner
City of Crystal Lake, Community Development
100 W. Woodstock Street
Crystal Lake, Illinois 60014

RE: 269 Liberty Road Special Use Zoning Petition; Letter to Address City SUP Standards

Ms. Maxwell:

Please allow this letter to address a number of the City of Crystal Lake SUP Standards applicable to the applicant's proposal to construct a wireless communication facility at 269 Liberty Road.

1) The proposed tower will be designed to meet the wind loading requirements specified in the American National Standards Institute TIA-222-F Report, as amended.

2) The proposed tower will be designed to support at least three additional users and Vertical Bridge is willing to permit other users to attach communication facilities, on a commercially reasonable basis, which do not interfere with the primary purpose of the tower.

3) Vertical Bridge shall provide the City of Crystal Lake with documentation that demonstrates that the structural integrity of the tower and antenna will continue to comply with state and federal standards, local building codes, and the applicable standards for towers published by the American National Standards Institute (ANSI), as amended.

vertical bridge

4) Vertical Bridge shall provide documentation to the City of Crystal Lake to demonstrate that all franchises and licenses required by law for the construction and/or operation of a tower or antenna have been obtained.

5) The proposed tower and antennas shall meet or exceed current standards and regulations of the FAA, the FCC, and any other agency of the state or federal government that regulates towers and antennas. If such standards and regulations change, Vertical Bridge shall be responsible for bringing the tower and antennas into compliance with the changed standards and regulations within six months of their effective date, unless a different compliance schedule is mandated by the controlling regulations

Sincerely,

Ariel Rubin

Vice President of Tower Development

VB BTS II, LLC

750 Park of Commerce Drive, Suite 200

Boca Raton, FL 33487

September 27, 2022

Elizabeth Maxwell AICP/City Planner
City of Crystal Lake, Community Development
100 W. Woodstock Street
Crystal Lake, Illinois 60014

RE: 269 Liberty Road Special Use Zoning Petition; Letter to Address City Variance Standards for Tower Color

Ms. Maxwell:

The subject proposal also will require zoning relief from the applicable City of Crystal Lake tower color requirement in Section 2-400 (48)(d)(iv) that provides:

(iv) Color: I. Towers shall either maintain a galvanized steel finish or, subject to any applicable standards of the FAA, be painted a neutral color (i.e., light grey) to reduce visual obtrusiveness or painted in a sky-tone above the top of surrounding trees and in an earth-tone below the treetop level. II. At a tower site, the design of buildings and related structures shall, to the maximum extent practicable, use materials, colors and architectural styles, that blend into the natural setting and surrounding buildings.

Since a variance from the tower color will be required, the following addresses the City of Crystal Lake Variance Standards:

B.

Standards.

(1)

The enforcement officer may grant variances to the provisions of this chapter if the petitioner provides evidence demonstrating that:

(a)

Failure to grant the variance would result in an unreasonable hardship;

The proposed facility is designed to fill a coverage gap in T-Mobile's network. Coverage gaps result in a substandard wireless signal, which, to the end user, means a dropped call or weak data connection. At this location, the antennas and hence, the tower, must be located at the proposed height to meet the coverage objectives. The applicant designed this monopine style tower based on the particular treelined characteristics of this property with the belief that the monopine style would offer the most appealing appearance. As such, the applicant contends that the monopine should be allowed as an alternative to the UDO's design and color requirements since it best blends with the immediate surroundings and is therefore consistent with the spirit and intent of the UDO. It is applicant's position that not allowing this variance would result in a tower that is more visually obtrusive to your community;

and

(b)

The variance is necessary due to unique and exceptional physical circumstances or a condition of a particular property;

The property owner's situation is a result of the unique circumstance of the operation of wireless technology. Indeed, the need to locate wireless antennas at a height necessary to receive and transmit signals has resulted in the owner's plight. Such hardship is a result of wireless technology and topography of the physical surroundings of the subject property, not anyone having an ownership interest in the property. As depicted in the photo simulations provided, given the treelined nature of this property, it is applicant's contention that the proposed monopine design provides the least visual intrusiveness and better reflects the spirit and intent of the zoning code to camouflage the tower;

and

(c)

The variance is the minimum necessary to afford relief;

The applicant is proposing a tower that is the minimum height necessary for T-Mobile to adequately improve its wireless voice and data needs in the area of coverage need. Furthermore, it is applicant's belief that as set adjacent to the mature treeline to the south and west, the proposed monopine style tower presents the least visually intrusive design;

and

(d)

The variance will not cause detriment to the public good, safety or welfare;

The establishment, maintenance and operation of this wireless antenna facility will not be injurious to the public health, safety, morals, or general welfare of the community. To the contrary, improved wireless service in your community provides vital communications and residents and emergency personnel commonly will use the service for a wide variety of business, personal, "911" and other uses; thereby actively promoting the general public's health, safety and welfare.

The wireless telecommunications facility will not create any material noise, glare, smoke, debris, traffic flow or any other nuisance.

The proposed wireless communication facility will be licensed and regulated by the Federal Communications Commission ("FCC"), which imposes strict health, safety and interference standards. These standards are set by independent safety and standard groups such as the American National Standards Institute ("ANSI") and the Institute of Electrical Electronics ("IEEE").

and

(e)

The variance will not cause an increase in the water surface profile within a floodway;

The proposed wireless antenna facility has no impact on this standard.

and

(f)

The variance will not cause an increase in the water surface profile upstream of the development site,

The proposed wireless antenna facility has no impact on this standard.

and

(g)

The variance will not be contrary to the spirit, purpose and intent of this chapter;

The variance, if granted, would be in harmony with the City of Crystal Lake Ordinance since the monopine design is intended to reduce visual obtrusiveness through utilization of tower materials and color that help it blend with the surrounding tree line far better than simply painting the tower a neutral grey or sky color above the tree line. The portion of the monopine tower up to the existing tree line utilizes earth tones that mimic the surrounding treescape. Therefore, it is applicant's position that given the surrounding environment at this location, the proposed monopine facility will be in harmony with the provisions thereof and with the general purpose and intent of this chapter;

and

(h)

The regulated development meets the minimum federal, state, and other local regulations, including those of IDNR/OWR and FEMA for participation in the NFIP.

The proposed development will meet all applicable federal, state and other local regulations noted above.

Date: 24th August, 2022

VB BTS II, LLC

Attn: Christopher Molloy

SUBJECT: Project Number: 561031-P1
Site Name: Northwest Hwy - US-IL-5744
Structure to be Designed with a Theoretical Fall Radius of less than 50-ft

Communications structures designed by Valmont are sized in accordance with the latest governing revision of the ANSI/TIA 222 standard unless otherwise requested by our customer. This standard has been approved by ANSI/ASCE, which has dealt with the design of antenna support structures for over 50 years. The TIA standard, based on provisions of this nationally known specification, has a long history of reliability. Its core philosophy is first and foremost to safeguard and maintain the health and welfare of the public.

Valmont's communication structures have proven to be very reliable products. To our knowledge Valmont has never experienced an in-service failure of a communication structure due to weather induced overloading. We use the latest standards, wind speed information, and sophisticated analytical tools to ensure that we maintain our unblemished record for quality.

This structure will be designed to the following criteria:

- ANSI/TIA-222-H & ANSI/TIA-222-G
- Exposure Category C
- Topographical Category 1
- Risk Category II
- Site Elevation 887 feet
- 107 MPH Ultimate Wind Speed (no ice) per ASCE 7-16
- 40 MPH with 1.50 inch ice

The theoretical failure point will be designed at 50-ft or less from top of tower, by purposely over designing the structural components below this point. The predicted mode of wind induced failure would be local buckling of the shaft at or above this failure point with the upper section(s) folding over onto the intact lower section(s). The result, if it were to fail, would be a maximum theoretical fall zone equal to the height above the failure point at ground level.

I hope these comments address any issues that you might encounter relative to the anticipated performance of this structure.

Sincerely,

Chandra Sekhar Rugada,
Assistant Manager - Design
Email: Chandra.Rao@Valmont.Com

LICENSED STRUCTURAL ENGINEER
RONALD E. GLOVER, JR.
081007768
EXP. 11/30/22
STATE OF ILLINOIS

08/24/2022

Valmont Microflect
3575 25th Street SE
Salem, OR 97302 USA

NORTH

LIBERTY ROAD

LIBERTY ROAD

EXISTING BUILDING

EXTENTS OF PROPOSED 20' WIDE VB BTS ACCESS AND UTILITY EASEMENT

EXISTING BUILDING

APPROX. PROPERTY LINE

261'-8"±

APPROX. PROPERTY LINE

EXISTING BUILDING

PROPOSED MONOPINE DESIGNED BY OTHERS; SEE T-201 FOR DETAILS

PROPOSED 50' x 50' FENCED COMPOUND

52'-11"±

100'-0"±

65'-6"±

PROPOSED VB BTS II 50' x 50' LEASE AREA

APPROX. PROPERTY LINE

A **AERIAL OVERVIEW OF SITE**

30' 0 30' 60'

SCALE: 11" x 17" - 1" = 60'
22" x 34" - 1" = 30'

L:\33800\33894\Design\CAD\LE\Plot\C-101.dgn

CONSULTANT:
Edge
Consulting Engineers, Inc.
624 WATER STREET
PRAIRIE DU SAC, WI 53578
608.644.1449 VOICE
608.644.1549 FAX
www.edgeconsult.com

CLIENT:
vertical bridge
VB BTS, LLC
750 PARK OF COMMERCE DRIVE
SUITE 200
BOCA RATON, FL 33487

SITE PLAN

US-IL-5744 NORTHWEST HWY
CRYSTAL LAKE, ILLINOIS

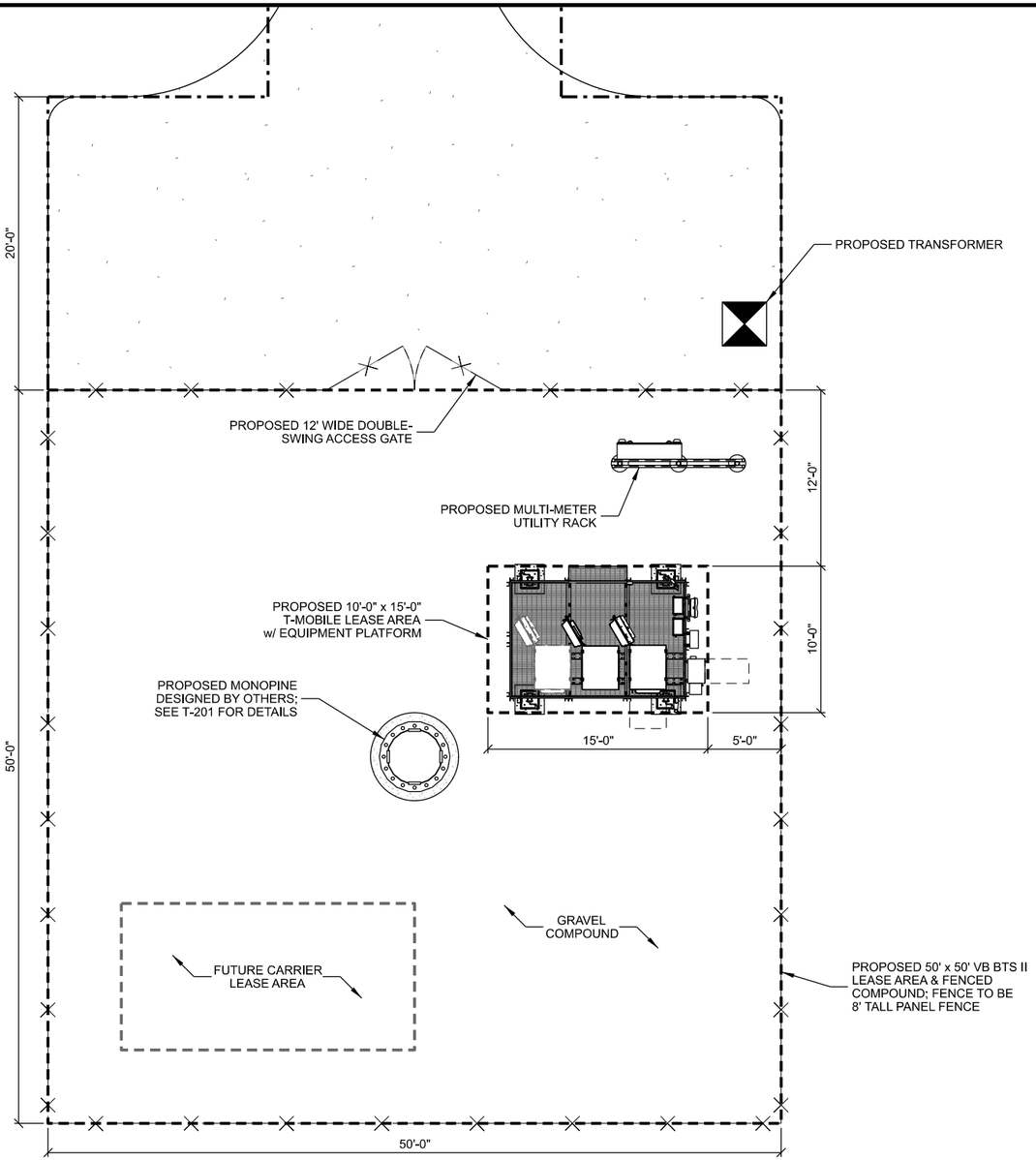
SHEET TITLE:

SUBMITTAL:

INT.	DATE:	DESCRIPTION:
ADP	6/16/2022	REV. A
ADP	6/29/2022	REV. B
ADP	8/2/2022	REV. C

CHECKED BY	KCB
PLOT DATE	8/2/2022
PROJECT NUMBER	33894
SET TYPE	PRELIM. DWGS.
SHEET NUMBER	**C-101**

NORTH



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CLIENT:

verticalbridge
VB BTS, LLC
750 PARK OF COMMERCE DRIVE
SUITE 200
BOCA RATON, FL 33487

ENLARGED SITE PLAN

US-IL-5744 NORTHWEST HWY
CRYSTAL LAKE, ILLINOIS

SHEET TITLE:

SUBMITTAL:

INT.	DATE:	DESCRIPTION:
ADP	6/16/2022	REV. A
ADP	6/29/2022	REV. B
ADP	8/2/2022	REV. C

CHECKED BY	KCB
PLOT DATE	8/2/2022
PROJECT NUMBER	33894
SET TYPE	PRELIM. DWGS.
SHEET NUMBER	C-102

10' 0 10' 20'
SCALE: 11" x 17" - 1" = 20'
22" x 34" - 1" = 10'

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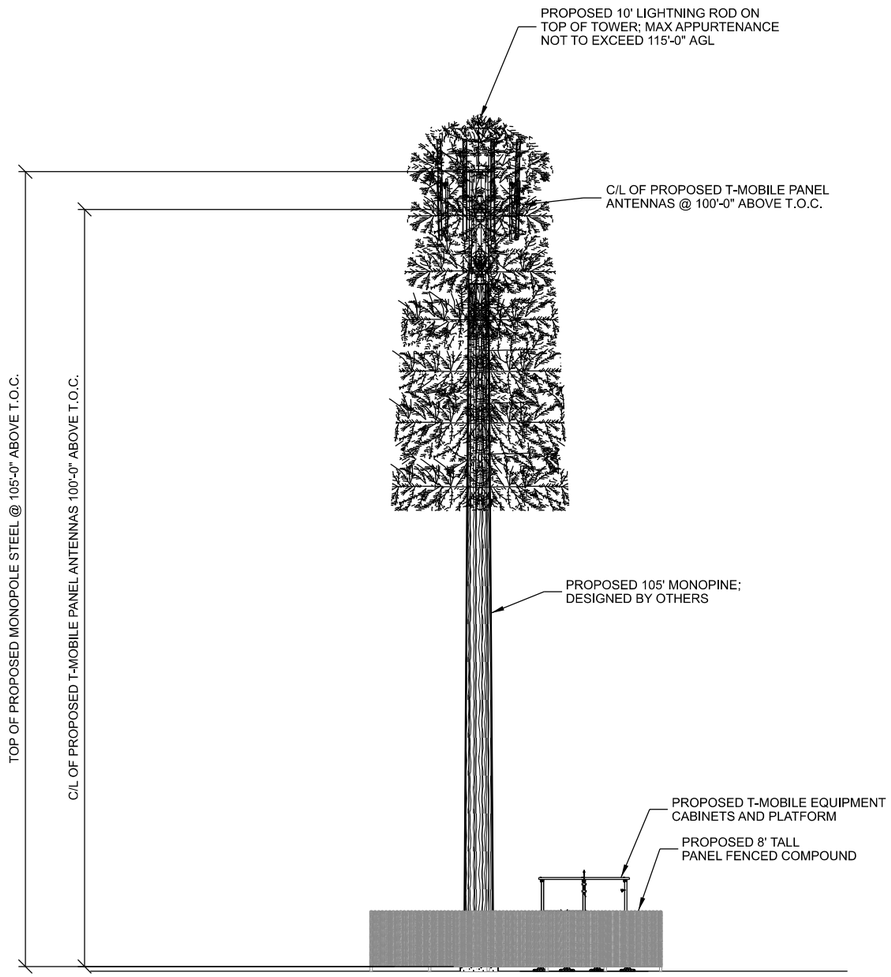

SPECIAL NOTE:

TOWER TO BE EQUIPPED WITH ANTI-CLIMBING DEVICE AS NECESSARY

NOTES:
1. ANCHOR BOLTS AND NUTS TO BE MARKED WITH INDELIBLE INK, 1/8" LINE.

A **SITE ELEVATION**

SCALE: 11" x 17" - 1" = 30'-0"
22" x 34" - 1" = 15'-0"

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CLIENT:

verticalbridge
VB BTS, LLC
750 PARK OF COMMERCE DRIVE
SUITE 200
BOCA RATON, FL 33487

SHEET TITLE:

SITE ELEVATION

US-IL-5744 NORTHWEST HWY
CRYSTAL LAKE, ILLINOIS

SUBMITTAL:

INT.	DATE:	DESCRIPTION:
ADP	6/16/2022	REV. A
ADP	6/29/2022	REV. B
ADP	8/2/2022	REV. C

CHECKED BY	KCB
PLOT DATE	8/2/2022
PROJECT NUMBER	33894
SET TYPE	PRELIM. DWGS.
SHEET NUMBER	T-201

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PHOTO SIM NOTES:

1. INTERPRETATION OF THE GENERAL APPEARANCE OF THE PROPOSED INSTALLATION. EACH SIMULATION IS BASED ON THE SCALING CRITERIA OR ASSUMPTIONS IDENTIFIED.
2. THE FINAL DESIGN AND DIMENSIONS WERE NOT AVAILABLE AT THE TIME THIS SIMULATION WAS PREPARED. THEREFORE, A TYPICAL TOWER/ANTENNA OF SIMILAR SIZE WAS USED FOR SIMULATION PURPOSES.
3. AN OBJUECT OF KNOWN HEIGHT WAS NOT AVAILABLE FOR REFERENCE IN THE DIRECT VICINITY OF THE TOWER LOCATION, LIMITING RELIABILITY OF THE HEIGHT INTERPRETATION.
4. THE HORIZON LINE AT THE PROPOSED TOWER BASE IS NOT VISIBLE; A HORIZON LINE HAS BEEN ESTIMATED AT THE TOWER BASE FOR THE PHOTO SIMULATIONS.
5. PHOTO SIMULATIONS GENERATED USING A SIMILAR TOWER OF SIMILAR HEIGHT AT A SIMILAR DISTANCE; ARTISTIC INTERPRETATIONS USED TO ESTIMATE THE APPROXIMATE TOWER SIZE AND APPEARANCE.
6. THE DIFFERENCE IN ELEVATION BETWEN THE PHOTOGRAPH LOCATION AND TOWER LOCATION HAS BEEN TAKEN INTO CONSIDERATION.
7. TOPOGRAPHICAL FEATURES BETWEEN THE PHOTOGRAPH LOCATION ARE INTERPRETED AS BEST AS POSSIBLE. VISIBILITY OF THE TOWER WILL BE DRASTICALLY REDUCED WITHIN AREAS OF MATURE VEGETATION AND VALLEYS AND INCREASED WITHIN LARGE OPEN FIELDS AT HIGHER ELEVATIONS.
8. A STRUCTURAL ANALYSIS WAS NOT INCLUDED IN THE SCOPE OF WORK FOR THE INCLUDED PHOTO SIMULATIONS. EQUIPMENT & MOUNTING DEPECTED IS FOR AESTHETIC & LOCATION APPROVAL ONLY.

SITE INFORMATION:

SITE NAME: NORTHWEST HWY
SITE NUMBER: US-IL-5744
LOCATION: CRYSTAL LAKE, IL
EDGE PROJECT #: 33894

INT.	DATE	DESCRIPTION
ALP	07/07/22	REV. 0

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PHOTO SIMULATION 1

PHOTO LOCATION: PHOTO IS TAKEN FROM THE NORTH SIDE OF LIBERTY ROAD FACING SOUTH TOWARDS THE PROJET SITE

SITE INFORMATION:

SITE NAME: NORTHWEST HWY

SITE NUMBER: US-IL-5744

LOCATION: CRYSTAL LAKE, IL

EDGE PROJECT #: 33894

INT.	DATE	DESCRIPTION
ALP	06/29/22	REV. 0

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PROPOSED 110’ MONOPINE

EXISTING CONDITIONS
PHOTO TAKEN: 6/6/22

PHOTO SIMULATION 2

PHOTO LOCATION: PHOTO IS TAKEN FROM THE SOUTHEAST CORNER OF THE NORTH PARKING LOT AT THREE OAK RECREATION AREA FACING NORTHWEST

SITE INFORMATION:

SITE NAME: NORTHWEST HWY
SITE NUMBER: US-IL-5744
LOCATION: CRYSTAL LAKE, IL
EDGE PROJECT #: 33894

INT.	DATE	DESCRIPTION
ALP	06/23/22	REV. 0

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PROPOSED 110' MONOPINE

PHOTO SIMULATION 3

PHOTO LOCATION: PHOTO IS TAKEN FROM THE INTERSECTION OF THREE OAKS RECREATION AREA DRIVE AND MAYFAIR CARPET AND FURNITURE DRIVEWAY

SITE INFORMATION:

SITE NAME: NORTHWEST HWY
SITE NUMBER: US-IL-5744
LOCATION: CRYSTAL LAKE, IL
EDGE PROJECT #: 33894

INT.	DATE	DESCRIPTION
ALP	06/23/22	REV. 0

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PHOTO SIMULATION 4

PHOTO LOCATION: PHOTO IS TAKEN FROM THE SOUTH END OF THE PARKING LOT FACING NORTH TOWARD THE PROPOSED TOWER AND COMPOUND

SITE INFORMATION:

SITE NAME: NORTHWEST HWY
SITE NUMBER: US-IL-5744
LOCATION: CRYSTAL LAKE, IL
EDGE PROJECT #: 33894

INT.	DATE	DESCRIPTION
ALP	07/07/22	REV. 0

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verticalbridge

T-Mobile Central LLC
PROPOSED WIRELESS TELECOMMUNICATIONS FACILITY
269 LIBERTY ROAD, CRYSTAL LAKE, IL 60014

I, Rosemarie Bernardo, representing T-Mobile Central LLC, d/b/a T-Mobile, a Delaware limited liability company (hereinafter "T-Mobile"), whose address is 1400 Opus Place, 7th Floor, Downers Grove, Illinois, state the following:

1. I am the Senior Radio Frequency Engineer engaged in the development and deployment of T-Mobile's Chicago area network and involved in network design and optimization, including evaluation and selection of candidates for wireless telecommunications base station sites in the network.

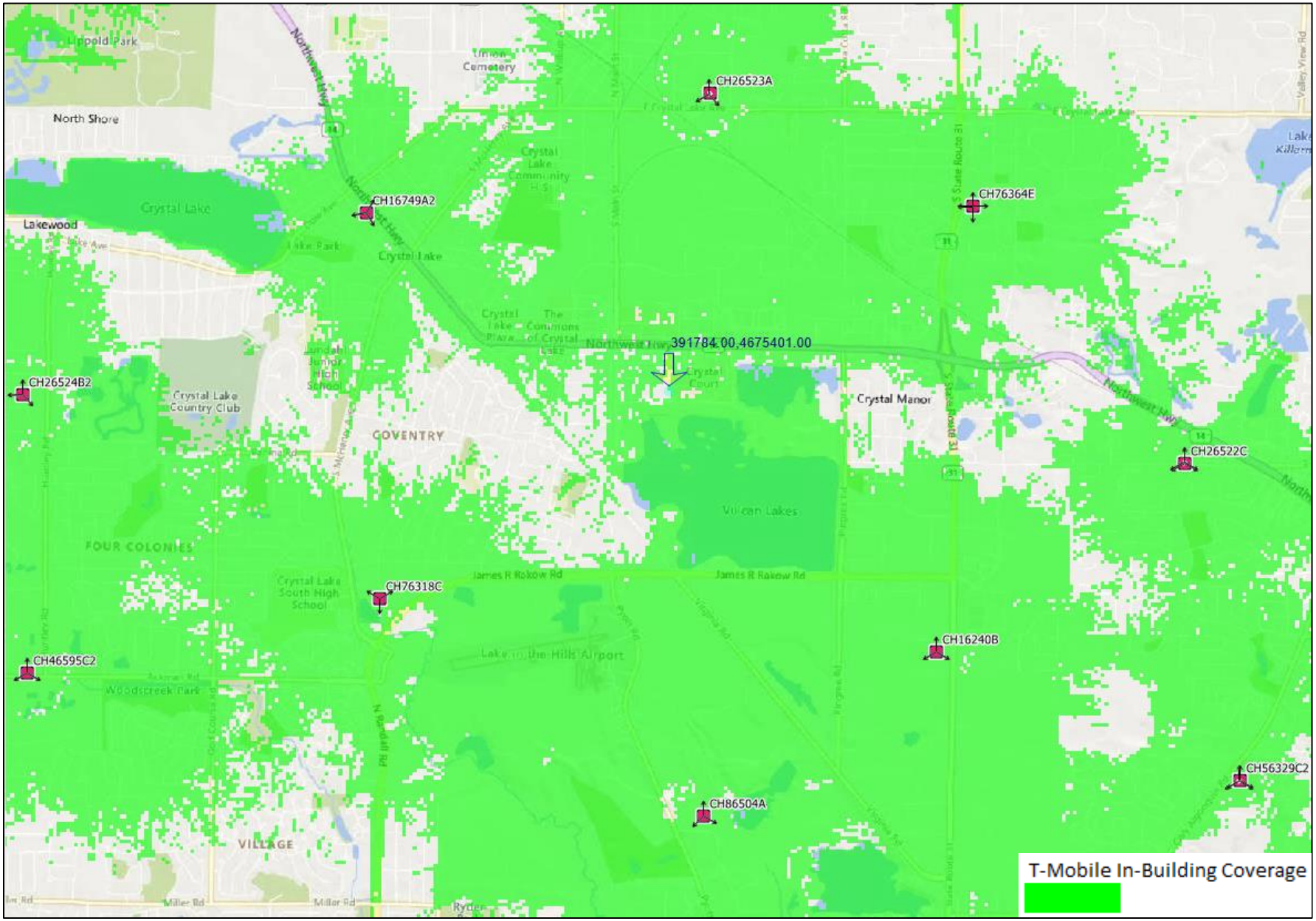
2. In an effort to provide seamless in-building coverage in the City of Crystal Lake, T-Mobile has determined that it is necessary to obtain in the vicinity of 269 LIBERTY ROAD, CRYSTAL LAKE, IL 60014. This new site will help in offloading the existing on-air sites CH16749A on the west side of the ring and to support CH76318C on the south west side of the ring. This candidate will also serve the intersection of Northwest Hwy and S Main St., nearby commercial business areas, S Virginia Rd. and residential areas to the west of the ring. T-Mobile MUST be able to add a new site in order to maintain seamless service and high data capacity demand in the area.

3. There are no existing tower structures or feasible building structures with a suitable height of 100' within the desired area of coverage need.

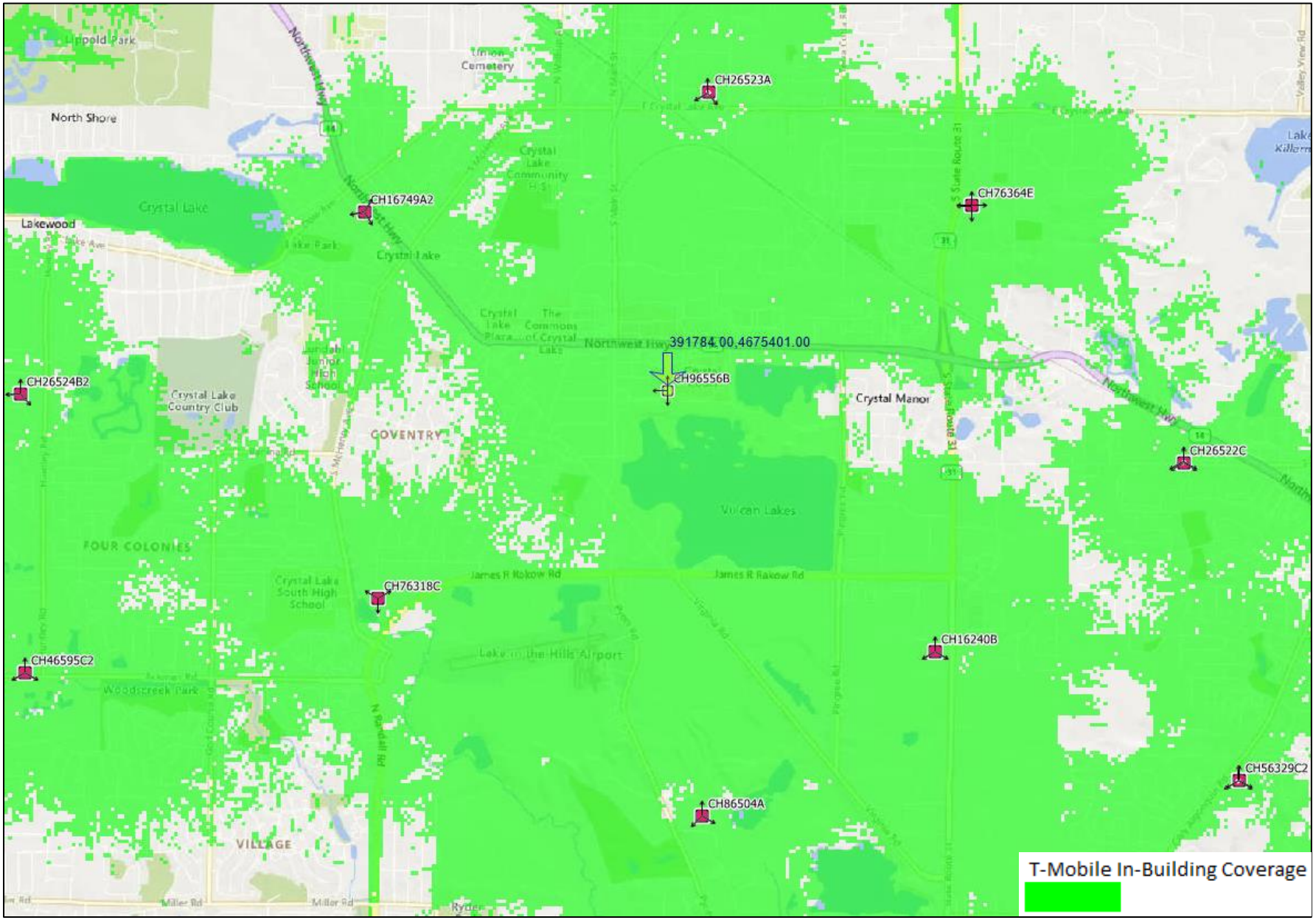
4. My evaluation, conducted in the normal course of T-Mobile's operations, consisted of predicting signal propagation via industry-standard software models. T-Mobile calculated the proposed site's contribution to T-Mobile's needs for coverage and capacity in the area intended to be served by the site within reference to surrounding proposed sites.

Rosemarie Bernardo

T-Mobile Existing In-Building Coverage



T-Mobile Proposed In-Building Coverage



RF EMISSIONS COMPLIANCE REPORT

Prepared for:

Vertical Bridge

Site:

US-IL-5744 - CH96556B - Sea Level Diving
269 Liberty Road
Crystal Lake, IL
42.223298, -88.311267

July 18, 2022

This site will be in compliance with

FCC Regulations and MPE Limits:

T-Mobile Is 3.943% of General Population (GP) Limit

(0.789% of Occupational (Occ) Limit)

Certification
I have reviewed this RF Emissions assessment report and believe it to be both true and accurate to the best of my knowledge.

David Charles Cotton, Jr.
Licensed Professional Engineer
State of Illinois, 062.062055

Analysis completed using Waterford's NIERTool© software

Only clients and client representatives are authorized to provide input data through the Waterford web portal. In securing that authorization, clients and client representatives warrant the accuracy of all input data. Waterford Consultants, LLC attests to the accuracy of the engineering calculations. Waterford also attests that the results of those engineering calculations are correctly summarized in this report.

RF EMISSIONS COMPLIANCE STATEMENT

Site:
US-IL-5744 - CH96556B - Sea Level Diving
269 Liberty Road
Crystal Lake, IL

Compliance Statement

Subject site COMPLIES with Radiofrequency Radiation Exposure Limits of 47 C.F.R. §§ 1.1307(b)(3) and 1.1310.

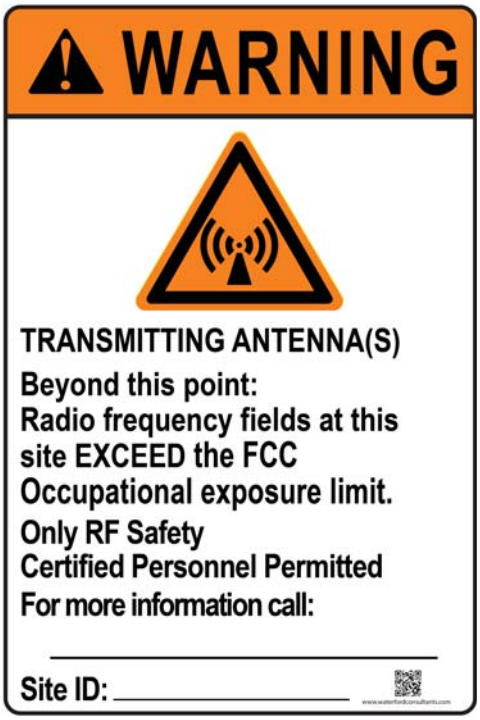
Ground Level Site Summary

Predicted cumulative RF power density at ground level as a percentage of the FCC General Population limits. This result is the sum of the maximum ground level MPE for each RF emitter by band of operation. Sites below 100% are in full compliance.

Source	Predicted Power Density, % of Limit (GP)
T-Mobile 600 MHz	0.257 %
T-Mobile 700 MHz	0.318 %
T-Mobile 1900 MHz	0.254 %
T-Mobile 2100 MHz	0.087 %
T-Mobile 2500 MHz	3.026 %
Sum of Listed Sources	**3.943%**

RF Alerting Signage

The Warning RF sign should be posted at the last accessible area before someone can potentially enter an area that can cause exposure. It should be placed and at the base of the cell tower.



Technical Framerwork: Basis for Compliance Statement

The compliance framework is derived from the Federal Communications Commission (FCC) Rules and Regulations for preventing human exposure in excess of the applicable Maximum Permissible Exposure ("MPE") limits listed in Table 1 of 47 C.F.R. § 1.1310. Calculations using input data provided to Waterford by client or client's representative numerically confirm the subject site can operate at a 100% duty cycle without exceeding the FCC MPE limits in areas of uncontrolled access.

At this site, the radio frequency (RF) power density resulting from each transmitter at any location may be expressed as a percentage of the frequency-specific limits and added to determine if 100% of the exposure limit has been exceeded. The FCC Rules define two tiers of permissible exposure differentiated by the situation in which the exposure takes place and/or the status of the individuals who are subject to exposure. General Population / Uncontrolled exposure limits apply to those situations in which persons may not be aware of the presence of electromagnetic energy, where exposure is not employment related, or where persons cannot exercise control over their exposure. Occupational / Controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment, have been made fully aware of the potential for exposure, and can exercise control over their exposure. Based on the criteria for these classifications, continuous exposure to RF power density levels below the FCC General Population limits is not hazardous. The FCC General Population limits are 5 times more restrictive than the Occupational limits..

	Limits for General Population/ Uncontrolled Exposure		*Limits for Occupational/ Controlled Exposure*	
Frequency (MHz)	Power Density (mW/cm^2)	Averaging Time (minutes)	Power Density (mW/cm^2)	Averaging Time (minutes)
30-300	0.2	30	1	6
300-1500	f/1500	30	f/300	6
1500-100,000	1.0	30	5.0	6

In situations where the predicted MPE exceeds the General Population threshold in an accessible area because of emissions from multiple transmitters, FCC licensees that contribute greater than 5% of the aggregate MPE share responsibility for mitigation.

For any location where radiofrequency (RF) power densities exceed 100% MPE of the General Population limits, access controls with appropriate RF alerting signage must be available to be visible upon approach from any direction to provide notification of potential conditions within these areas. Subject to other site security requirements, occupational personnel should be trained in RF safety and equipped with personal protective equipment (e.g. RF personal monitor) designed for safe work in the vicinity of RF emitters. Waterford Consultants, LLC recommends that any work activity in these designated areas or in front of any transmitting antennas be coordinated with the wireless operators.

Predictive Modeling

Based on the computational guidelines set forth in FCC Office of Engineering and Technology, Bulletin 65 ("OET65"), Waterford Consultants, LLC has developed software to predict the overall MPE possible at any particular location given the spatial orientation and operating parameters of multiple RF sources. These theoretical results represent worst-case predictions as emitters are assumed to be operating at 100% duty cycle.

The tabular analysis in this report calculates the spatial peak power density produced at ground level from each RF emitter. The far field power density in milliWatts per square centimeter is expressed as Sff = 33.4 x ERP / R2 where ERP is the Effective Radiated Power along a specific azimuth in Watts and R is the distance from the antenna radiation center in meters. The antenna manufacturer's horizontal and vertical radiation patterns have been considered in determining the ERP in any direction. This computation is based on the maximum ERP and includes a 1.6-fold increase in field strength due to ground reflection. The result provides a conservative estimate of spatially averaged power density at ground level and may be higher than predicted MPE in the graphical plots described below.

As the limits are frequency dependent, the contribution of any RF source at a specific location may be expressed as a percentage of the FCC General Population MPE limits at the associated operating frequency. The percentage contributions from all RF sources are added to determine the overall exposure level. If this result is less than 100%, the predicted cumulative exposure level is below the General Population limits set forth in the FCC Rules. The cumulative MPE depicted on the summary page is the summation of maximum MPE values for each emitter regardless of antenna orientation.

A graphical plot of calculated spatially averaged RF power density, based on the Cylindrical Model as described in OET65, predicts spatially averaged MPE conditions at areas in near proximity to the antenna. In the vertical display, predicted MPE is depicted at the center of the 6 ft vertical zone that a person could occupy.

Qualifications of Waterford

With more than 100 team-years of experience, Waterford Consultants, LLC [Waterford] provides technical consulting services to clients in the radio communications and antenna locating industry. Waterford retains professional engineers who are placed in responsible charge of the processes for analysis.

Waterford is familiar with 47 C.F.R. § § 1.1307(b)(3) and 1.1310 along with the general rules, regulations, and policies of the FCC. Waterford work processes incorporate all specifications of FCC Office of Engineering and Technology, Bulletin 65 ("OET65"), from the website: www.fcc.gov/oet/rfsafety and follow criteria detailed in 47 CFR § 1.1310 "Radiofrequency radiation exposure Limits".

Within the technical and regulatory framework detailed above, Waterford developed tools according to recognized and generally accepted good engineering practices. Permissible exposure limits are band specific, and the Waterford computerized modeling tools correctly calculate permissible exposure based on the band(s) specified in the input data. Only clients and client representatives are authorized to provide input data through the Waterford web portal. In securing that authorization, clients and client representatives attest to the accuracy of all input data.

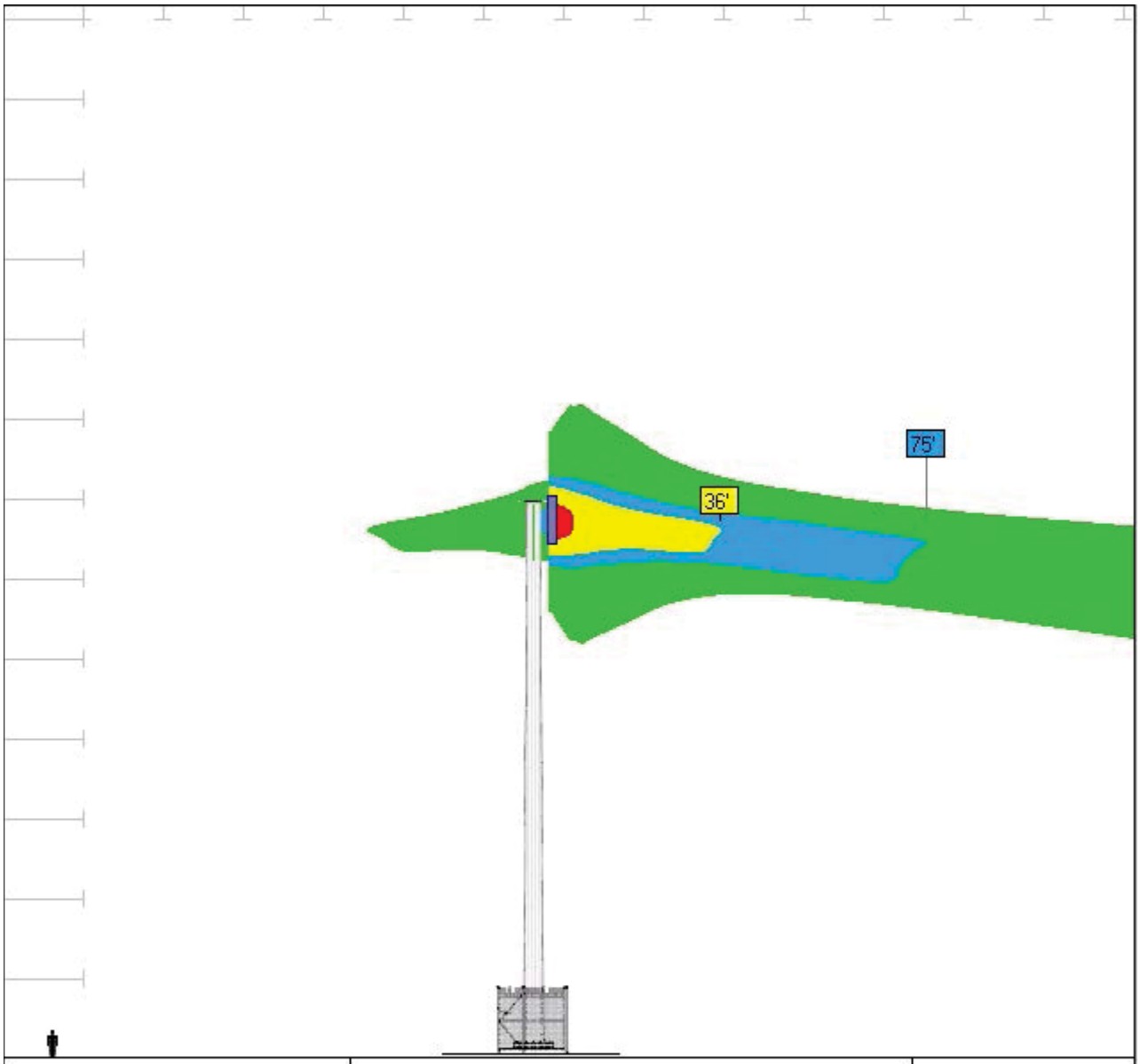
Waterford Consultants, LLC attests to the accuracy of the engineering calculations computed by those modeling tools. Furthermore, Waterford attests that the results of those engineering calculations are correctly summarized in this report.

Antenna Inventory

#	Operator	Make	Model	Freq (MHz)	Az (deg)	Tilt (deg)	HorBW (deg)	Ant (ft)	TPO (w)	Paths	Loss (db)	Ant Gain	Radiated Power (W)	RC AGL (ft)
1	T-Mobile	COMMSCOPE	FFVV-65C-R3-V1 02DT 600	600	0	0	66	7.995	30	2	0	13.24dBd	1265.180 ERP	100
2	T-Mobile	COMMSCOPE	FFVV-65C-R3-V1 02DT 600	600	180	0	66	7.995	30	2	0	13.24dBd	1265.180 ERP	100
3	T-Mobile	COMMSCOPE	FFVV-65C-R3-V1 02DT 600	600	270	0	66	7.995	30	2	0	13.24dBd	1265.180 ERP	100
4	T-Mobile	COMMSCOPE	FFVV-65C-R3-V1 02DT 700	700	0	0	61	7.995	30	2	0	13.26dBd	1271.020 ERP	100
5	T-Mobile	COMMSCOPE	FFVV-65C-R3-V1 02DT 700	700	180	0	61	7.995	30	2	0	13.26dBd	1271.020 ERP	100
6	T-Mobile	COMMSCOPE	FFVV-65C-R3-V1 02DT 700	700	270	0	61	7.995	30	2	0	13.26dBd	1271.020 ERP	100
7	T-Mobile	COMMSCOPE	FFVV-65C-R3-V1 02DT 1900	1900	0	0	62	7.995	20	4	0	15.55dBd	4709.060 EIRP	100
8	T-Mobile	COMMSCOPE	FFVV-65C-R3-V1 02DT 1900	1900	0	0	62	7.995	40	1	0	15.55dBd	2354.530 EIRP	100
9	T-Mobile	COMMSCOPE	FFVV-65C-R3-V1 02DT 1900	1900	180	0	62	7.995	20	4	0	15.55dBd	4709.060 EIRP	100
10	T-Mobile	COMMSCOPE	FFVV-65C-R3-V1 02DT 1900	1900	180	0	62	7.995	40	1	0	15.55dBd	2354.530 EIRP	100
11	T-Mobile	COMMSCOPE	FFVV-65C-R3-V1 02DT 1900	1900	270	0	62	7.995	20	4	0	15.55dBd	4709.060 EIRP	100
12	T-Mobile	COMMSCOPE	FFVV-65C-R3-V1 02DT 1900	1900	270	0	62	7.995	40	1	0	15.55dBd	2354.530 EIRP	100
13	T-Mobile	COMMSCOPE	FFVV-65C-R3-V1 02DT 2100	2100	0	0	55	7.995	10	4	0	16.31dBd	2804.810 EIRP	100
14	T-Mobile	COMMSCOPE	FFVV-65C-R3-V1 02DT 2100	2100	180	0	55	7.995	10	4	0	16.31dBd	2804.810 EIRP	100
15	T-Mobile	COMMSCOPE	FFVV-65C-R3-V1 02DT 2100	2100	270	0	55	7.995	10	4	0	16.31dBd	2804.810 EIRP	100
16	T-Mobile	NOKIA	SON_AEHC 120deg #6 00DT-07DT 2500	2500	0	0	14	3.182	150	1	0	22.68dBd	45596.880 EIRP	100
17	T-Mobile	NOKIA	SON_AEHC 120deg #5#1 00DT-07DT 2500	2500	0	0	14	3.182	90	1	0	22.67dBd	27295.200 EIRP	100
18	T-Mobile	NOKIA	SON_AEHC 120deg #5#1 00DT-07DT 2500	2500	180	0	14	3.182	90	1	0	22.67dBd	27295.200 EIRP	100
19	T-Mobile	NOKIA	SON_AEHC 120deg #6 00DT-07DT 2500	2500	180	0	14	3.182	150	1	0	22.68dBd	45596.880 EIRP	100
20	T-Mobile	NOKIA	SON_AEHC 120deg #6 00DT-07DT 2500	2500	270	0	14	3.182	150	1	0	22.68dBd	45596.880 EIRP	100
21	T-Mobile	NOKIA	SON_AEHC 120deg #5#1 00DT-07DT 2500	2500	270	0	14	3.182	90	1	0	22.67dBd	27295.200 EIRP	100

ELEVATION DETAIL

Predicted MPE depicted at the center of the 6 ft vertical zone that a person could occupy



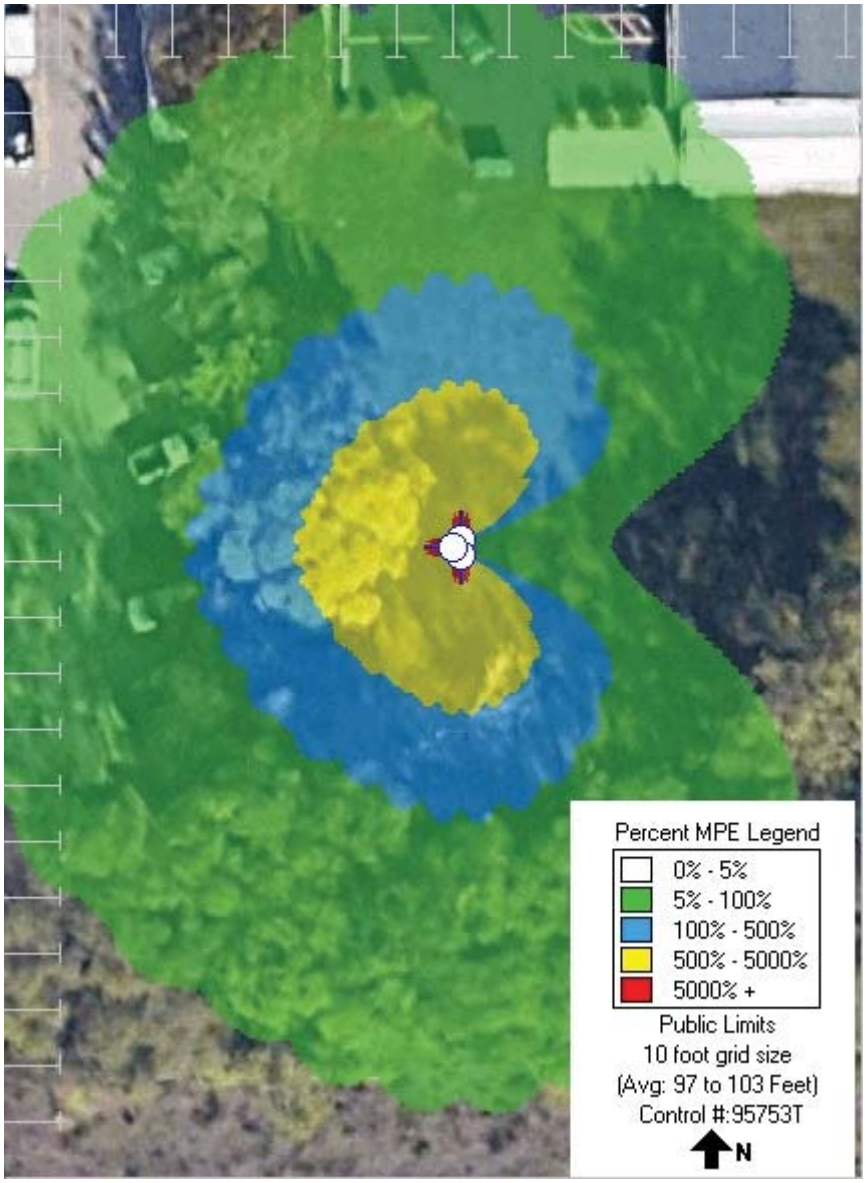
Occ Limit Exceeded at: 96' AGL
GP Limit Exceeded at: 94' AGL
Control #:95753
Structure Type: Monopole
Antenna Rad. Center Height: 100'

Percent MPE Legend

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

Public Limits
15 foot grid size
(Elevation View)

TOP DOWN DETAIL



GROUND LEVEL MPE BY RF EMITTER

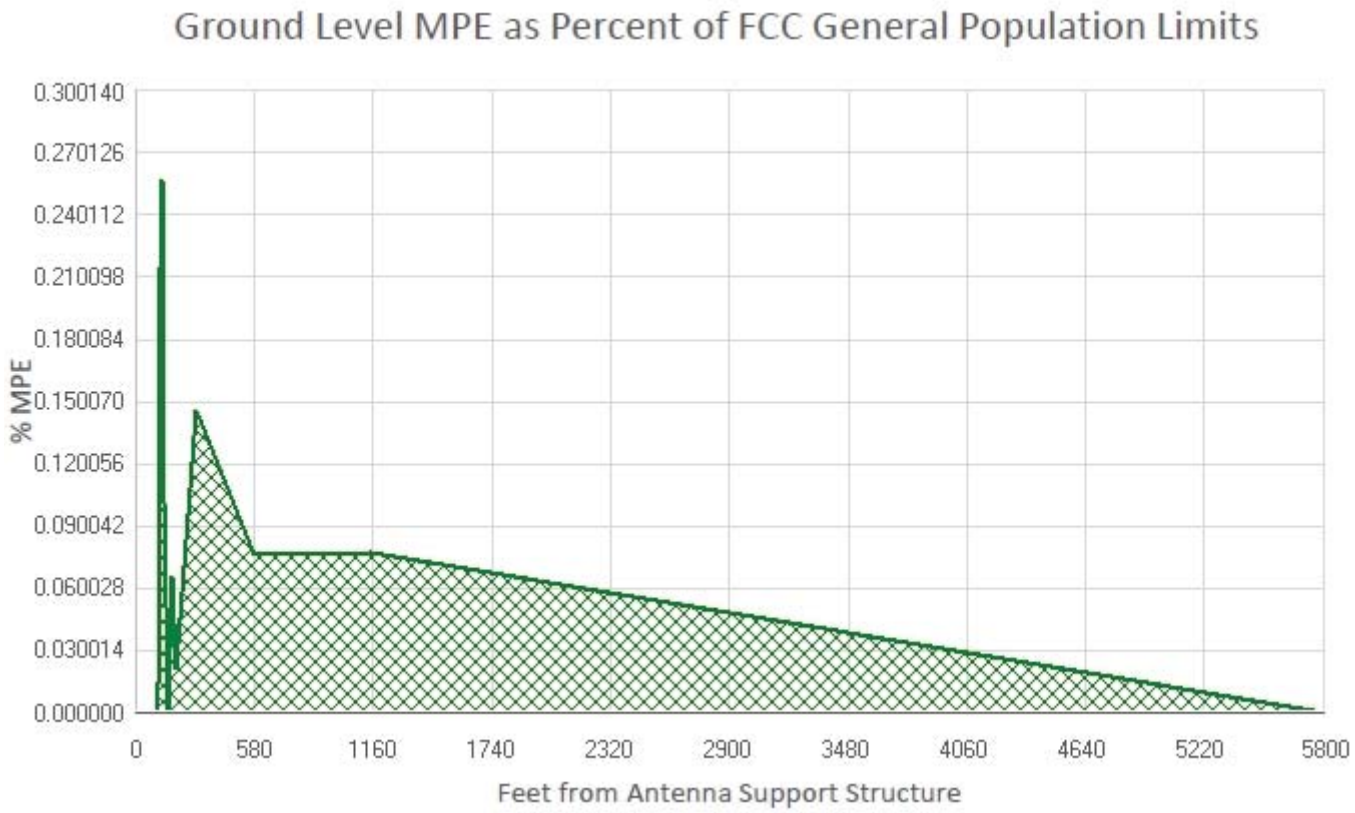
The maximum ground level MPE along the azimuth of orientation for each RF emitter by band of operation is listed below. The computational approach is described in the Predictive Modeling section. The maximum MPE by operator and band is contributive to the cumulative ground level MPE summary table presented above.

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
COMMSCOPE - FFVV-65C-R3-V1 02DT 600 180° Sector

Maximum Exposure Limit - 600 MHz

Limit (GP): 400.000 µW/cm^2

ERP		**Height**		**Downtilt**	
(Watts)	1265.180	(feet)	100.000	(Degrees)	0



Maximum power density at ground level: 1.029 µW/cm^2

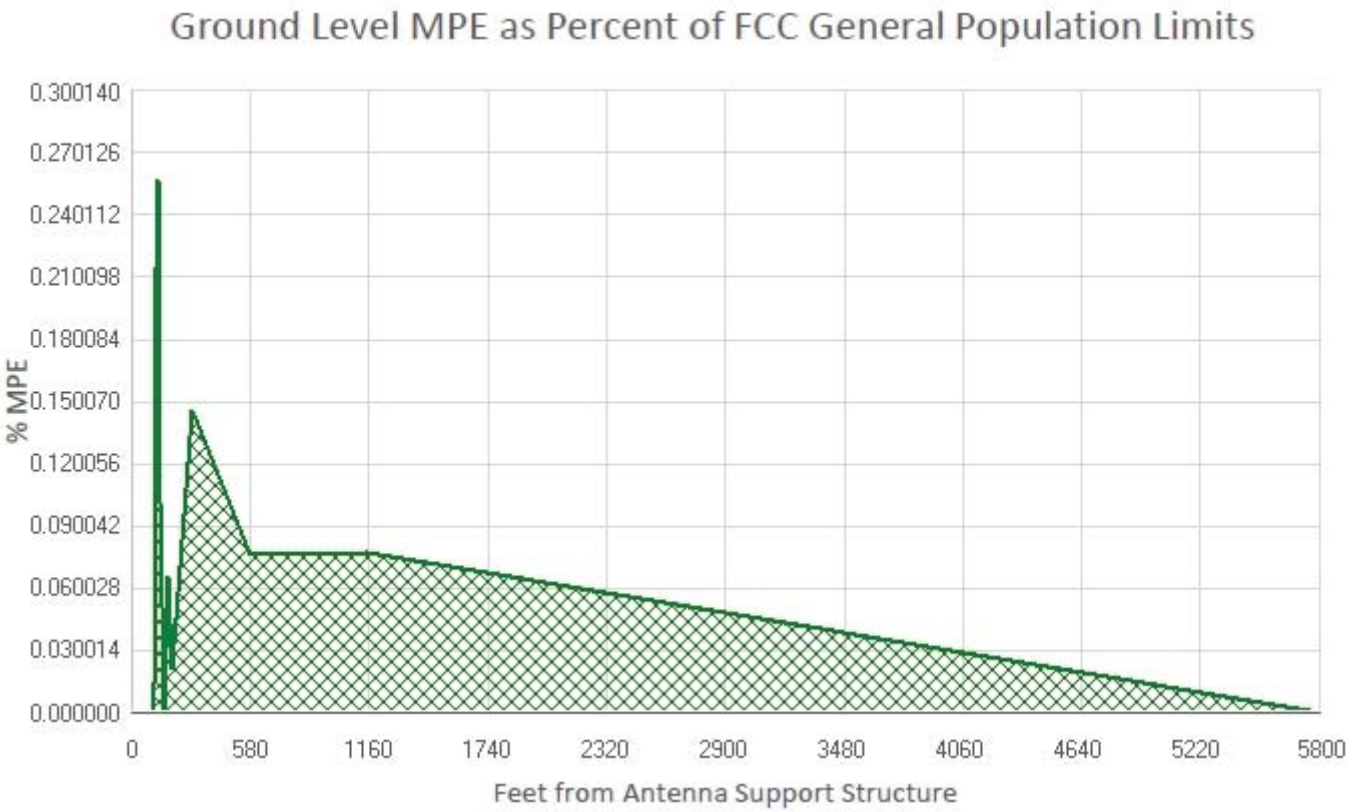
Highest percentage of Maximum Exposure Limit: 0.257 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
COMMSCOPE - FFVV-65C-R3-V1 02DT 600 270° Sector

Maximum Exposure Limit - 600 MHz

Limit (GP): 400.000 µW/cm^2

ERP		**Height**		**Downtilt**	
(Watts)	1265.180	(feet)	100.000	(Degrees)	0



Maximum power density at ground level: 1.029 µW/cm^2

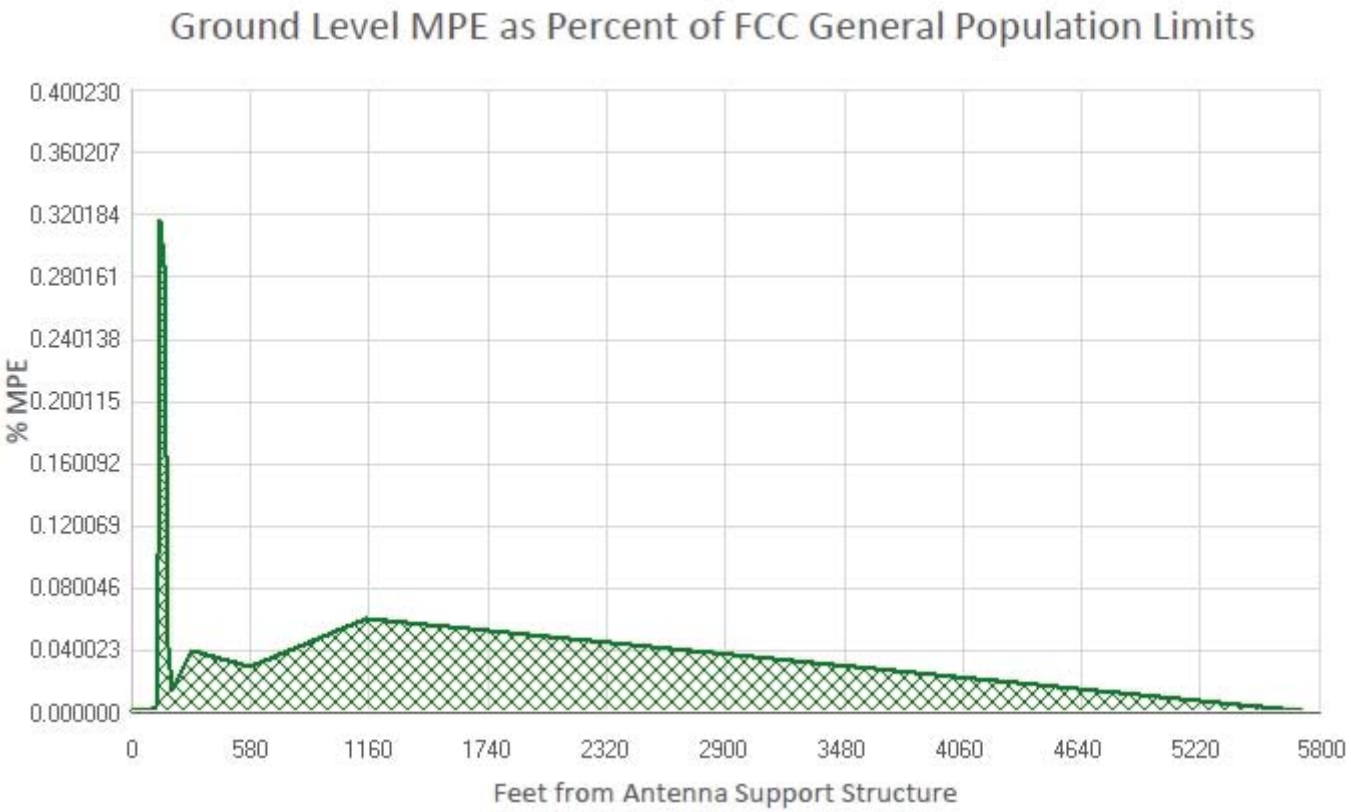
Highest percentage of Maximum Exposure Limit: 0.257 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
COMMSCOPE - FFVV-65C-R3-V1 02DT 700 180° Sector

Maximum Exposure Limit - 700 MHz

Limit (GP): 466.000 µW/cm^2

ERP		**Height**		**Downtilt**	
(Watts)	1271.020	(feet)	100.000	(Degrees)	0



Maximum power density at ground level: 1.485 µW/cm^2

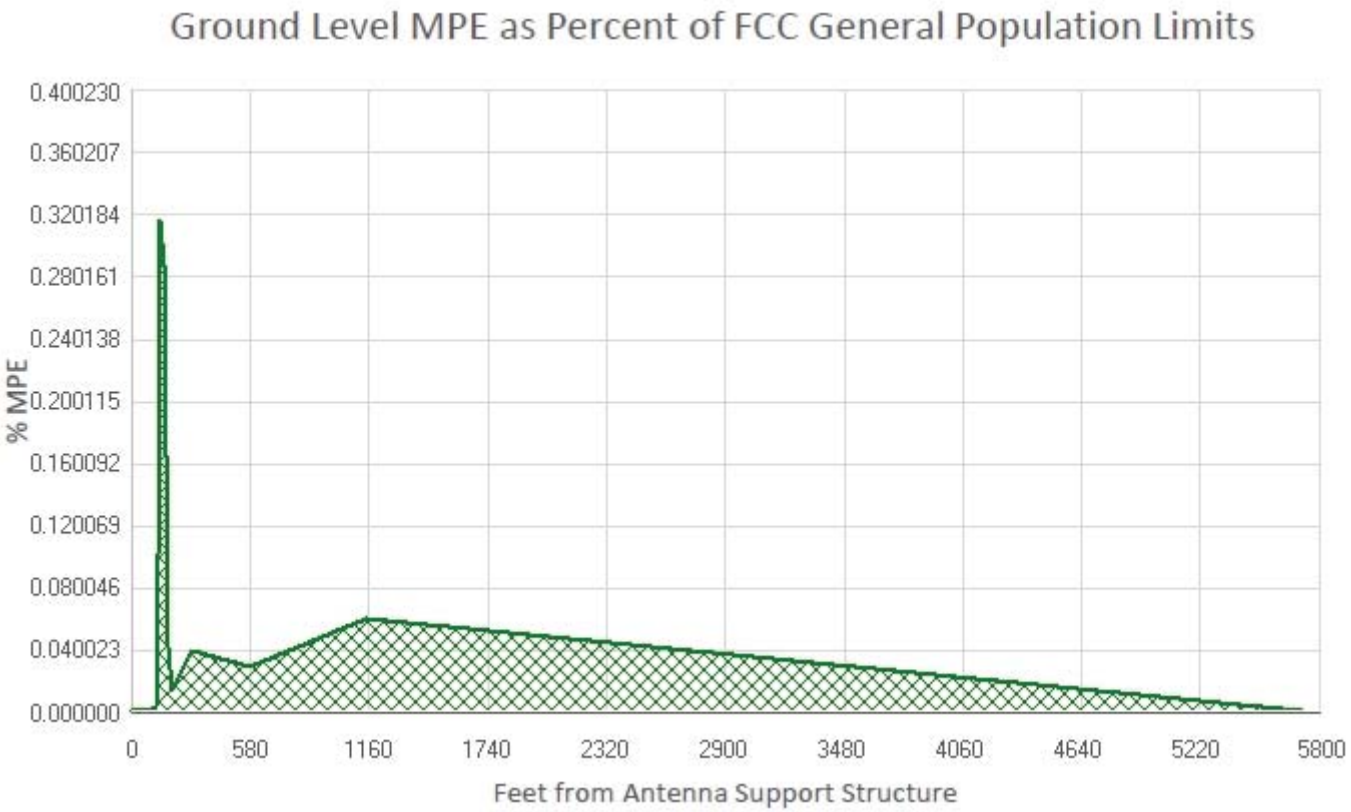
Highest percentage of Maximum Exposure Limit: 0.318 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
COMMSCOPE - FFVV-65C-R3-V1 02DT 700 270° Sector

Maximum Exposure Limit - 700 MHz

Limit (GP): 466.000 µW/cm^2

ERP		**Height**		**Downtilt**	
(Watts)	1271.020	(feet)	100.000	(Degrees)	0



Maximum power density at ground level: 1.485 µW/cm^2

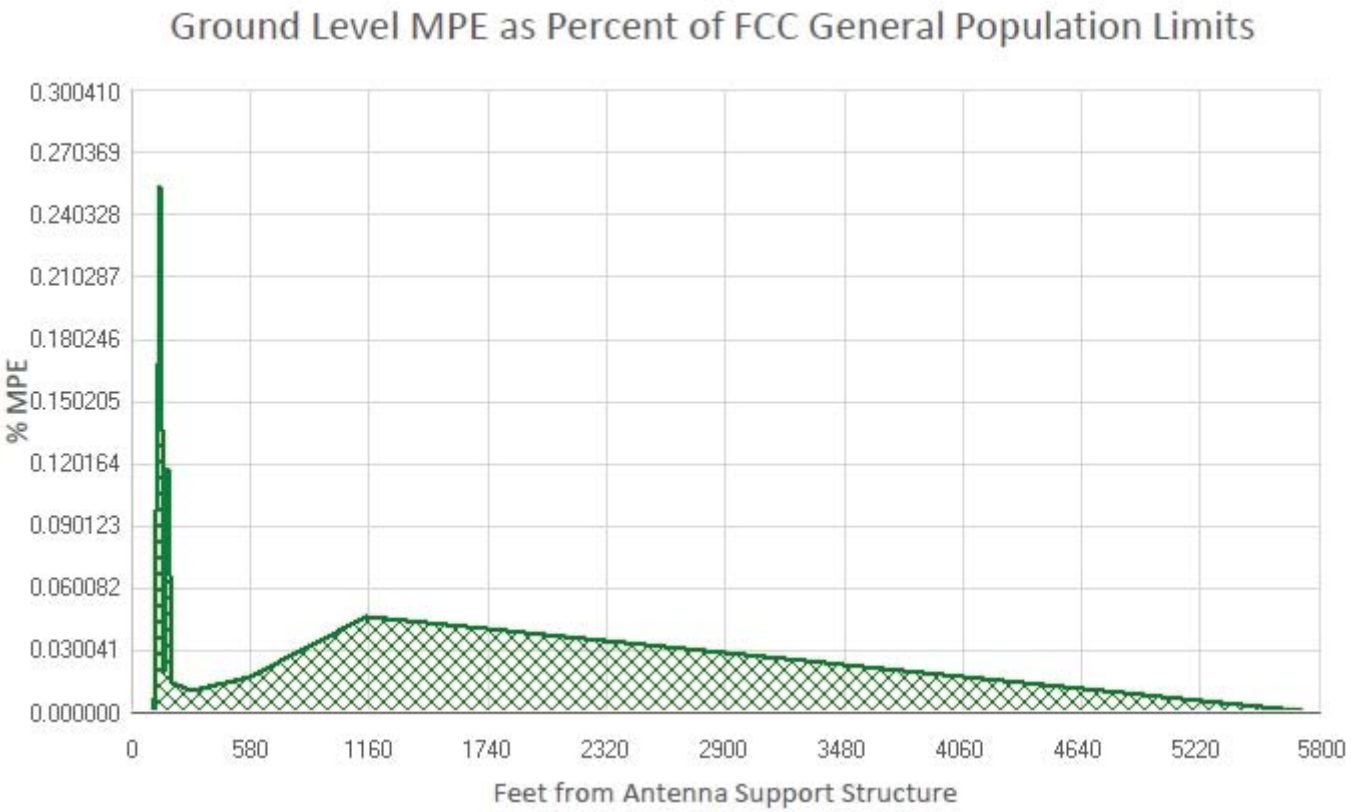
Highest percentage of Maximum Exposure Limit: 0.318 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
COMMSCOPE - FFVV-65C-R3-V1 02DT 1900 0° Sector

Maximum Exposure Limit - 1900 MHz

Limit (GP): 1000.000 µW/cm^2

EiRP		**Height**		**Downtilt**	
(Watts)	4709.060	(feet)	100.000	(Degrees)	0



Maximum power density at ground level: 2.544 µW/cm^2

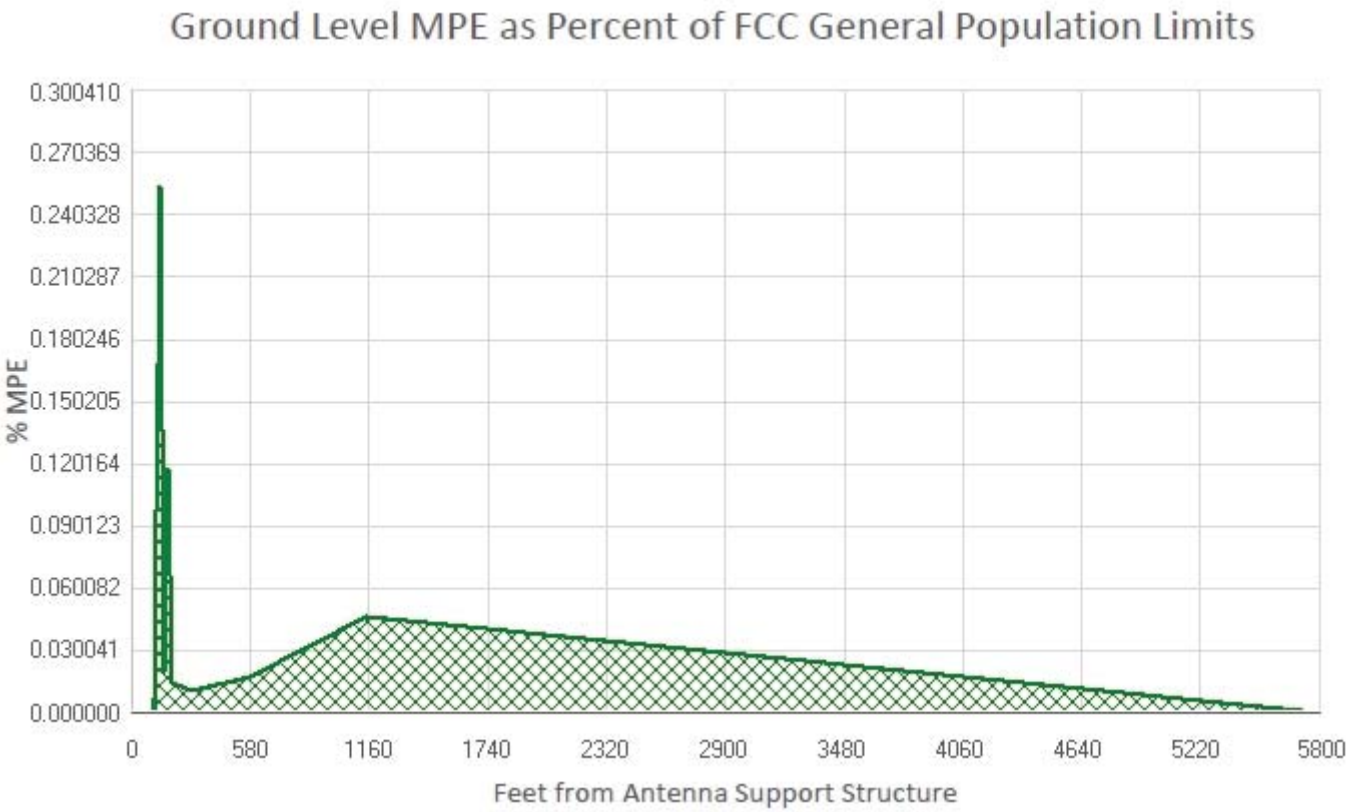
Highest percentage of Maximum Exposure Limit: 0.254 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
COMMSCOPE - FFVV-65C-R3-V1 02DT 1900 180° Sector

Maximum Exposure Limit - 1900 MHz

Limit (GP): 1000.000 µW/cm^2

EiRP		**Height**		**Downtilt**	
(Watts)	4709.060	(feet)	100.000	(Degrees)	0



Maximum power density at ground level: 2.544 µW/cm^2

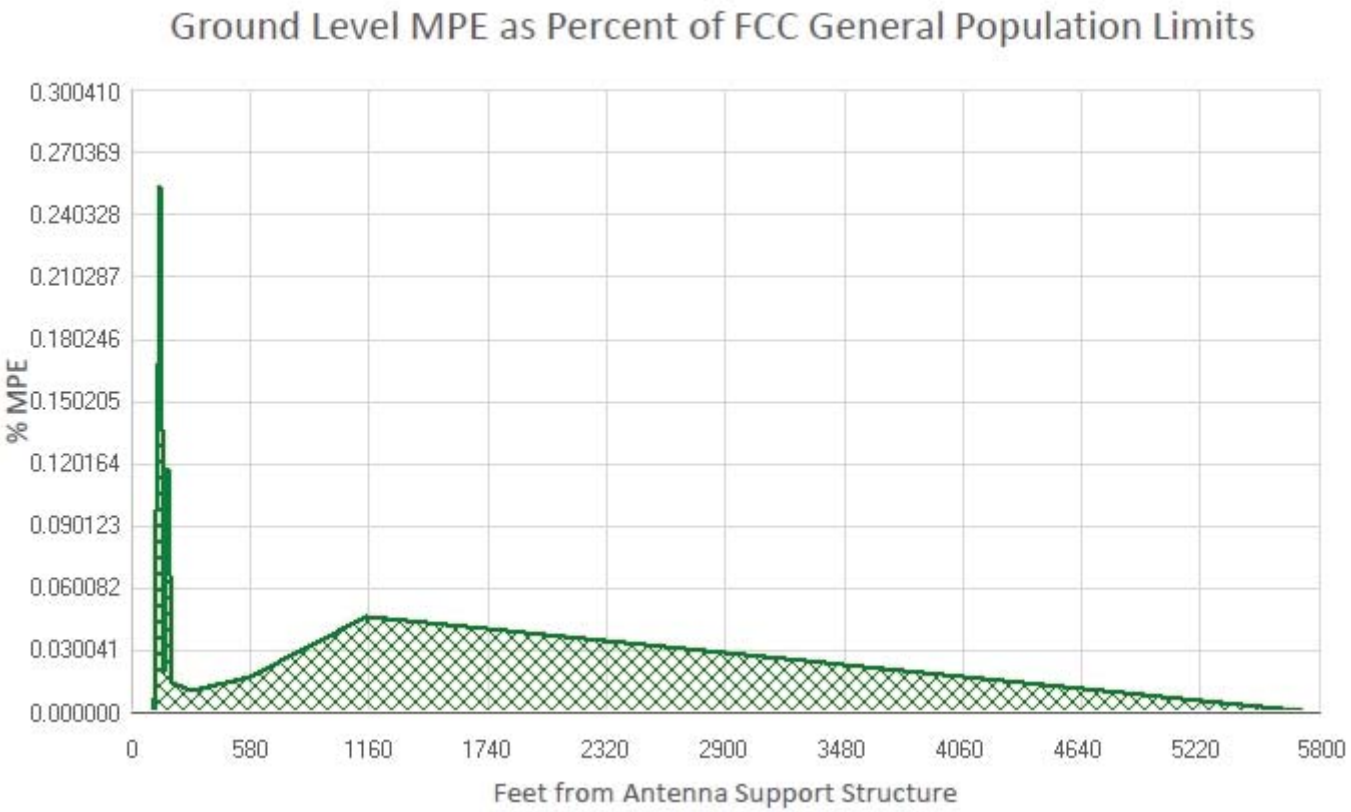
Highest percentage of Maximum Exposure Limit: 0.254 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
COMMSCOPE - FFVV-65C-R3-V1 02DT 1900 270° Sector

Maximum Exposure Limit - 1900 MHz

Limit (GP): 1000.000 µW/cm^2

EiRP		**Height**		**Downtilt**	
(Watts)	4709.060	(feet)	100.000	(Degrees)	0



Maximum power density at ground level: 2.544 µW/cm^2

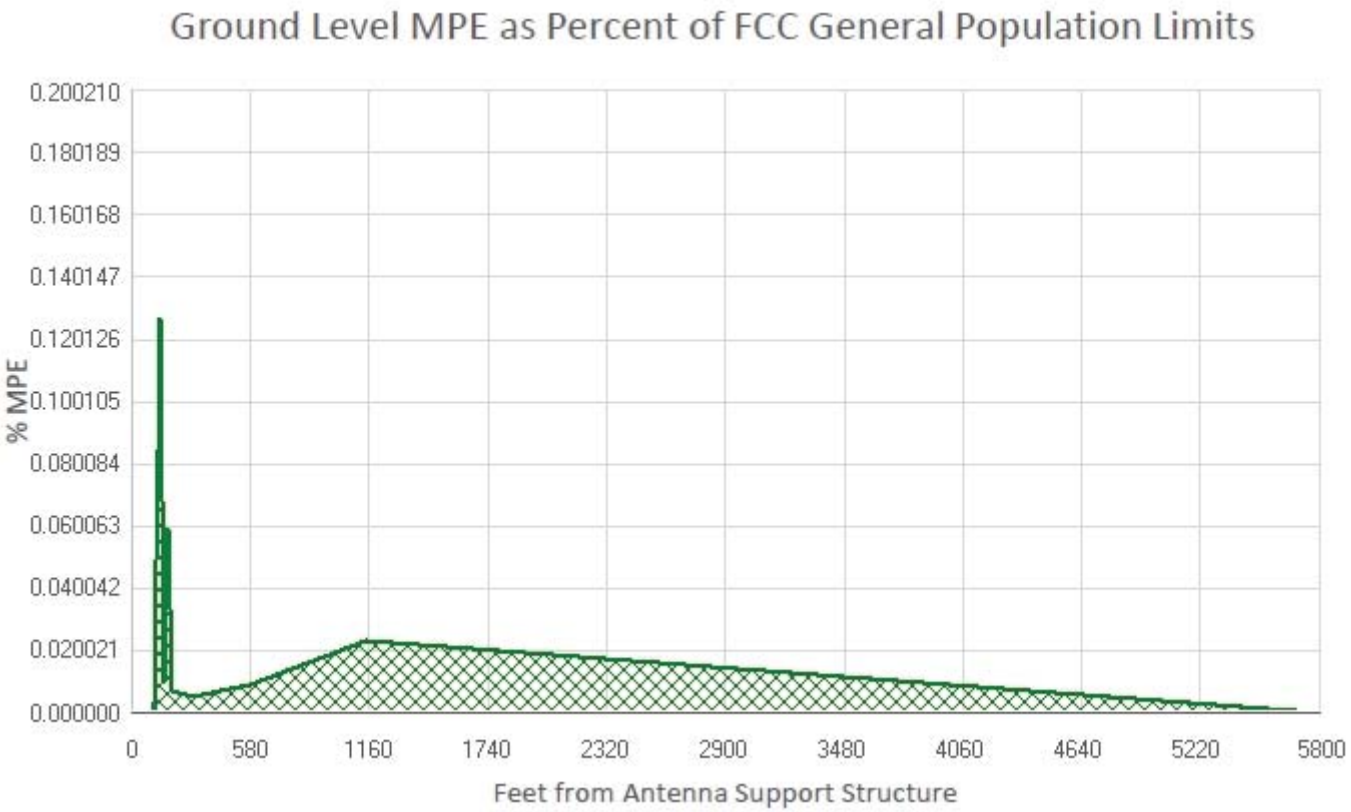
Highest percentage of Maximum Exposure Limit: 0.254 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
COMMSCOPE - FFVV-65C-R3-V1 02DT 1900 180° Sector

Maximum Exposure Limit - 1900 MHz

Limit (GP): 1000.000 µW/cm^2

EiRP		**Height**		**Downtilt**	
(Watts)	2354.530	(feet)	100.000	(Degrees)	0



Maximum power density at ground level: 1.272 µW/cm^2

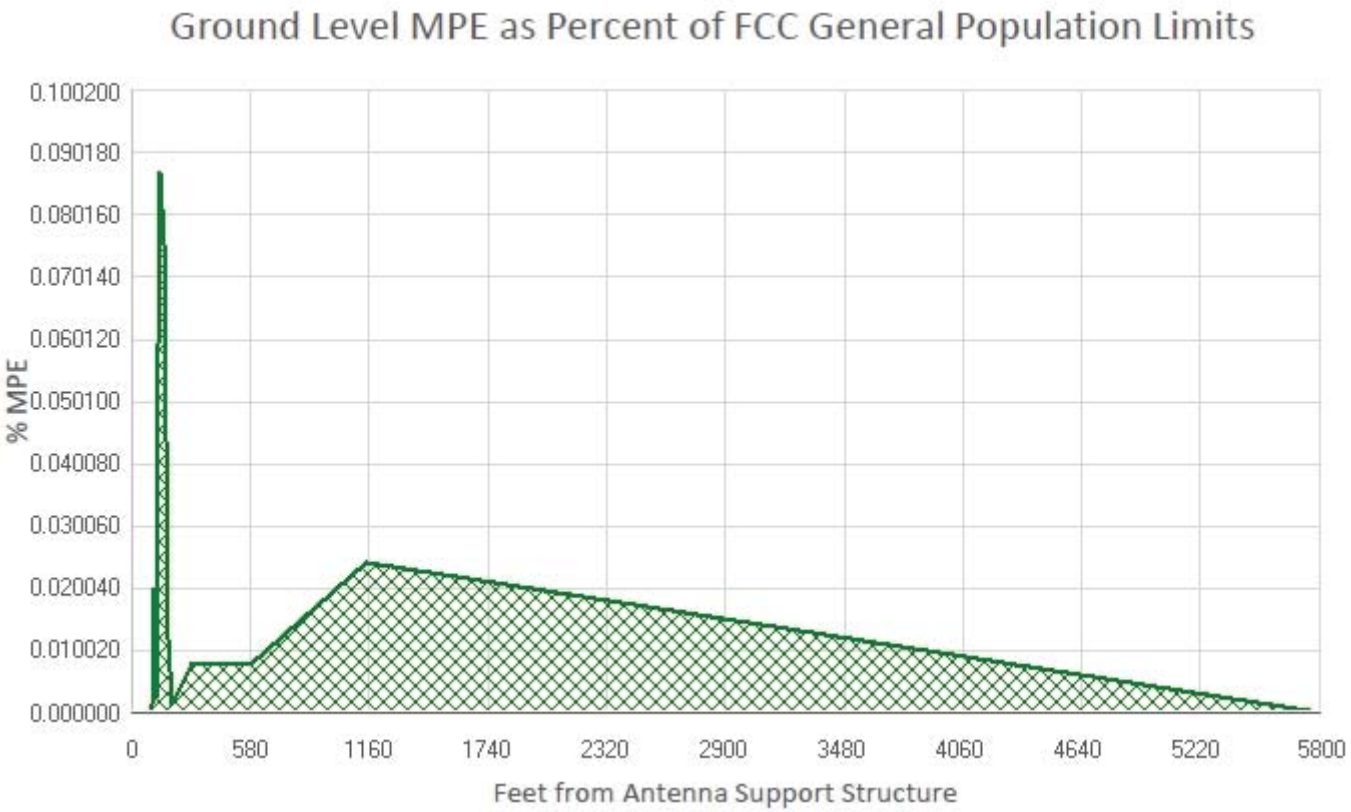
Highest percentage of Maximum Exposure Limit: 0.127 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
COMMSCOPE - FFVV-65C-R3-V1 02DT 2100 0° Sector

Maximum Exposure Limit - 2100 MHz

Limit (GP): 1000.000 µW/cm^2

EiRP		**Height**		**Downtilt**	
(Watts)	2804.810	(feet)	100.000	(Degrees)	0



Maximum power density at ground level: 0.872 µW/cm^2

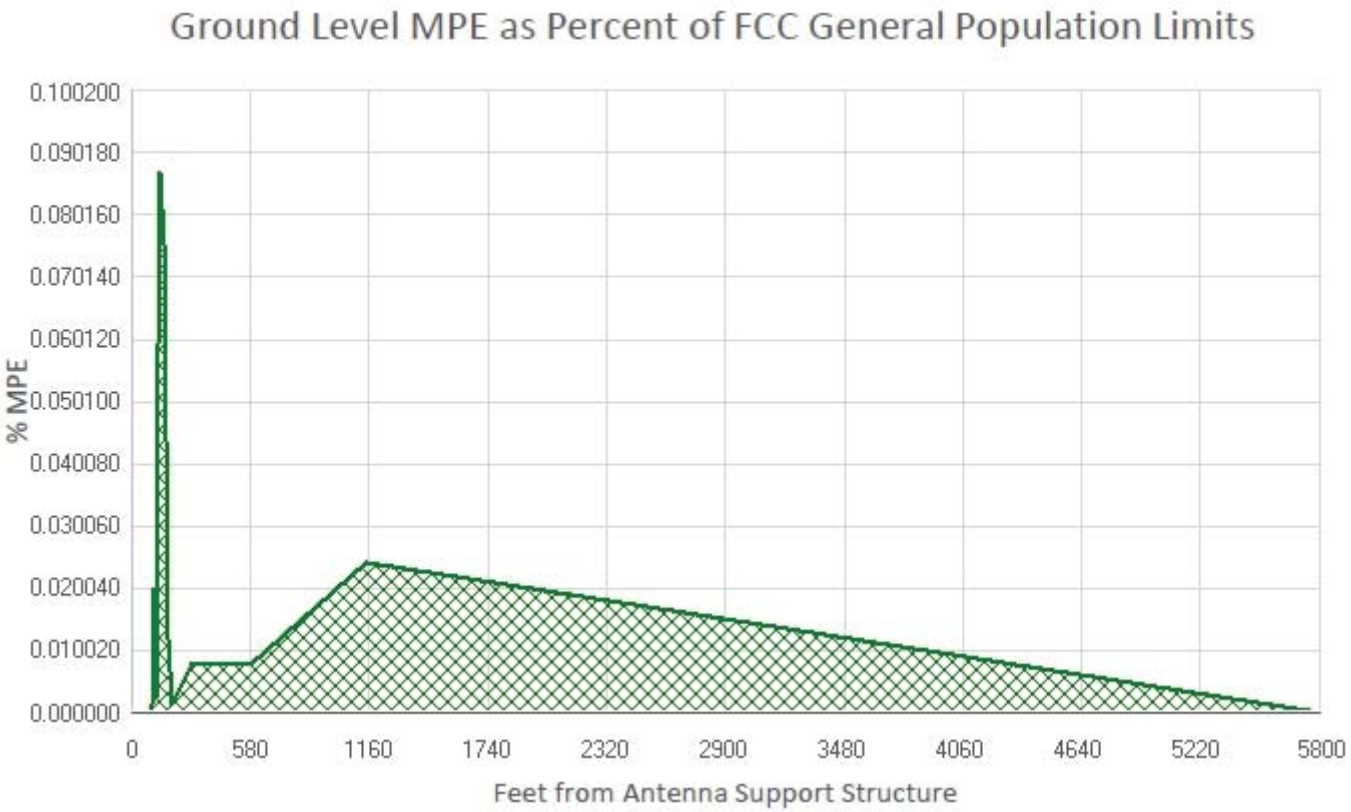
Highest percentage of Maximum Exposure Limit: 0.087 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
COMMSCOPE - FFVV-65C-R3-V1 02DT 2100 180° Sector

Maximum Exposure Limit - 2100 MHz

Limit (GP): 1000.000 µW/cm^2

EiRP		**Height**		**Downtilt**	
(Watts)	2804.810	(feet)	100.000	(Degrees)	0



Maximum power density at ground level: 0.872 µW/cm^2

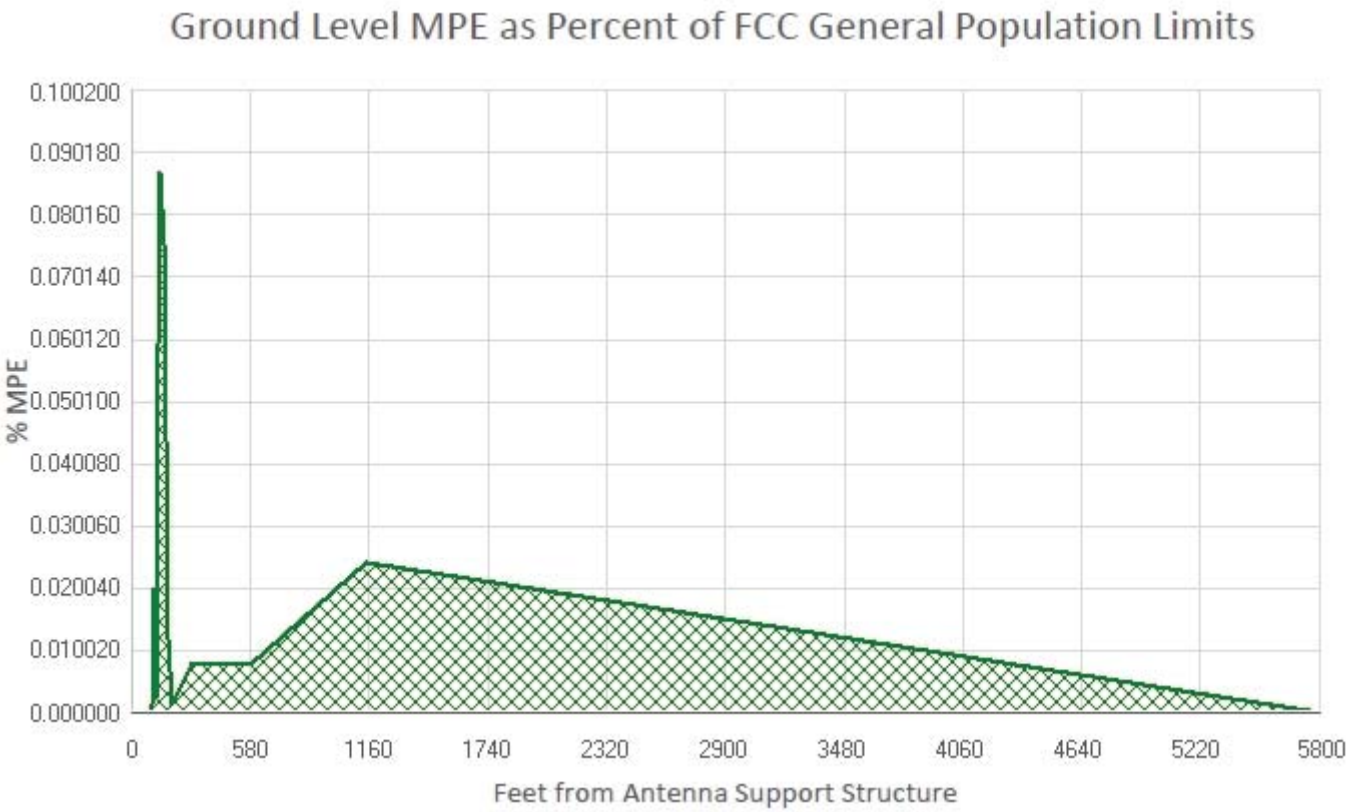
Highest percentage of Maximum Exposure Limit: 0.087 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
COMMSCOPE - FFVV-65C-R3-V1 02DT 2100 270° Sector

Maximum Exposure Limit - 2100 MHz

Limit (GP): 1000.000 µW/cm^2

EiRP		**Height**		**Downtilt**	
(Watts)	2804.810	(feet)	100.000	(Degrees)	0



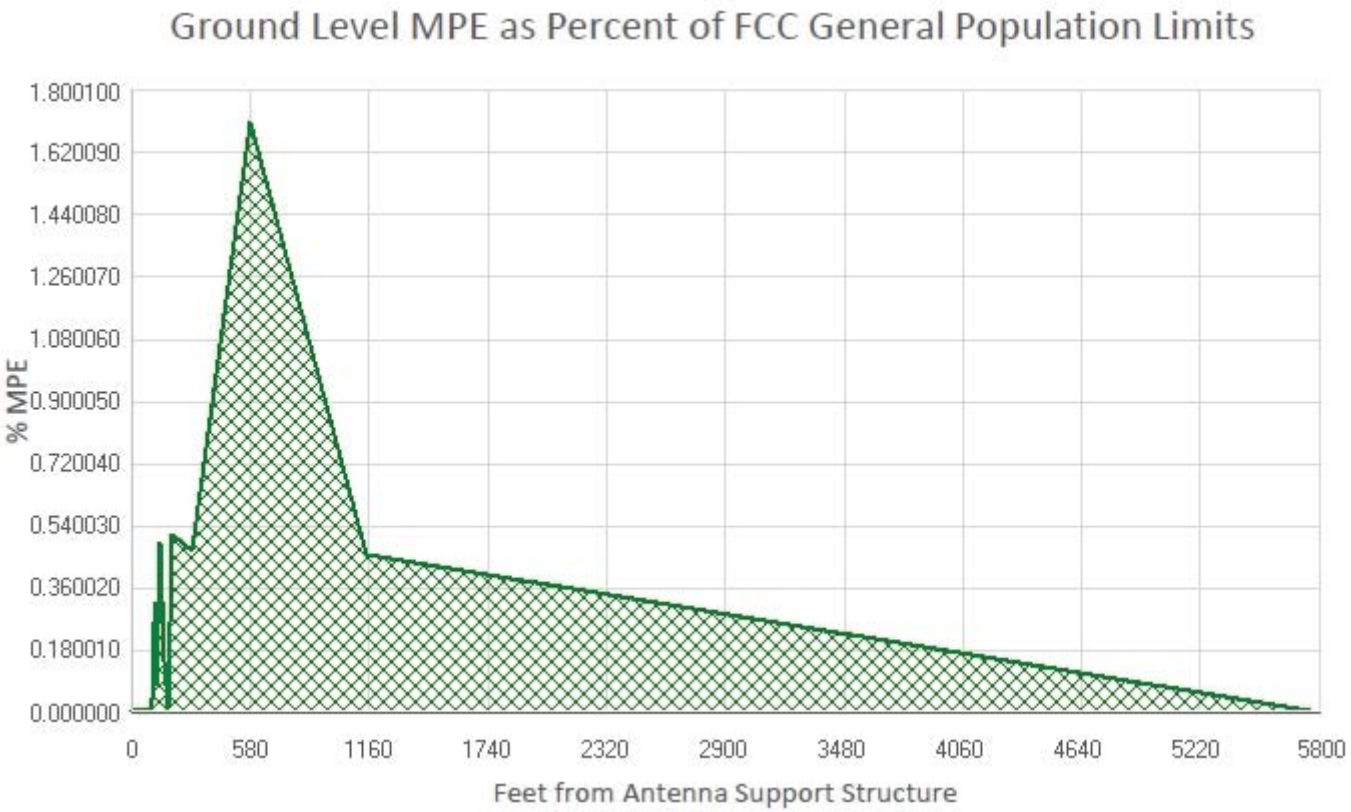
Maximum power density at ground level: 0.872 µW/cm^2

Highest percentage of Maximum Exposure Limit: 0.087 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
NOKIA - SON_AEHC 120deg #5#1 00DT-07DT 2500 0° Sector

Maximum Exposure Limit - 2500 MHz
Limit (GP): 1000.000 µW/cm^2

EiRP (Watts)	27295.200	Height (feet)	100.000	Downtilt (Degrees)	0

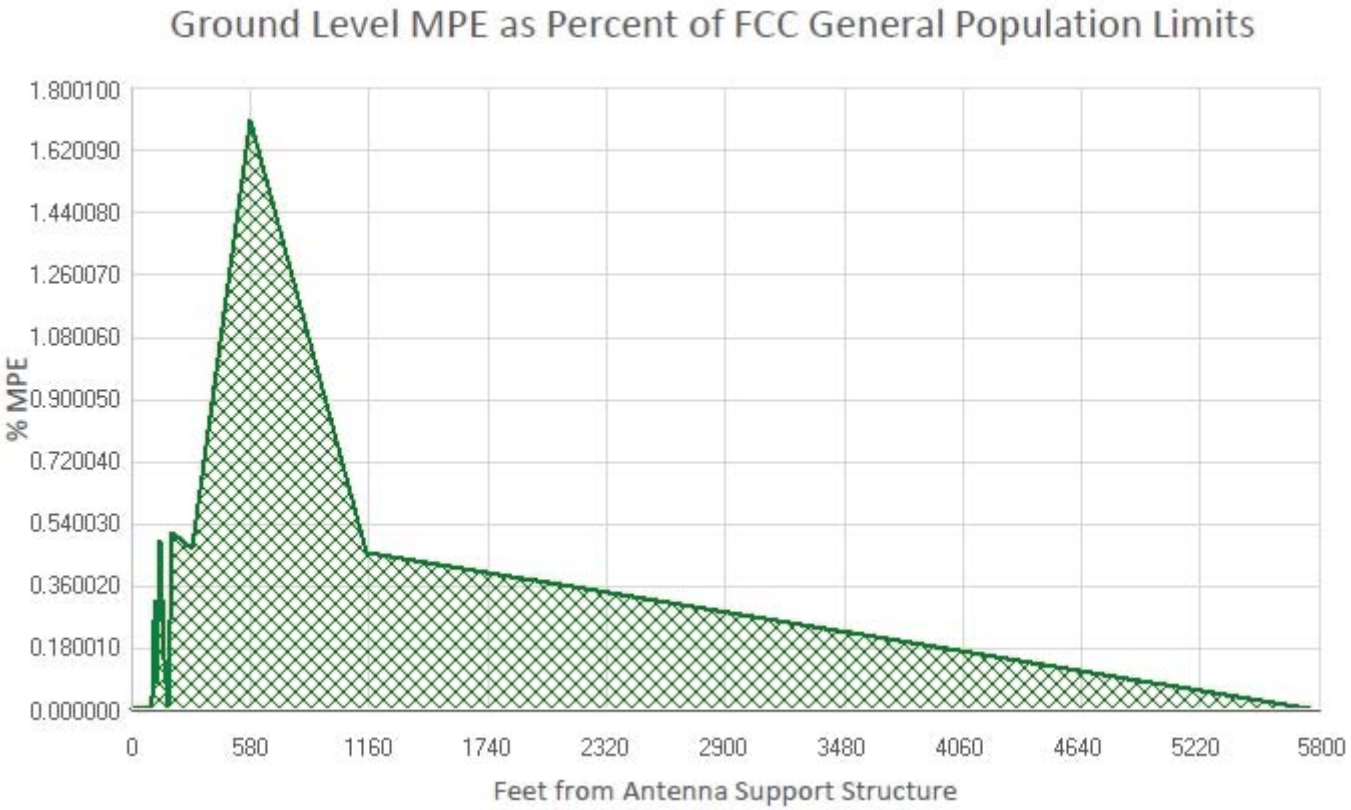


Maximum power density at ground level: 17.101 µW/cm^2
Highest percentage of Maximum Exposure Limit: 1.710 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
NOKIA - SON_AEHC 120deg #5#1 00DT-07DT 2500 180° Sector

Maximum Exposure Limit - 2500 MHz
Limit (GP): 1000.000 µW/cm^2

EiRP		Height		Downtilt	
(Watts)	27295.200	(feet)	100.000	(Degrees)	0

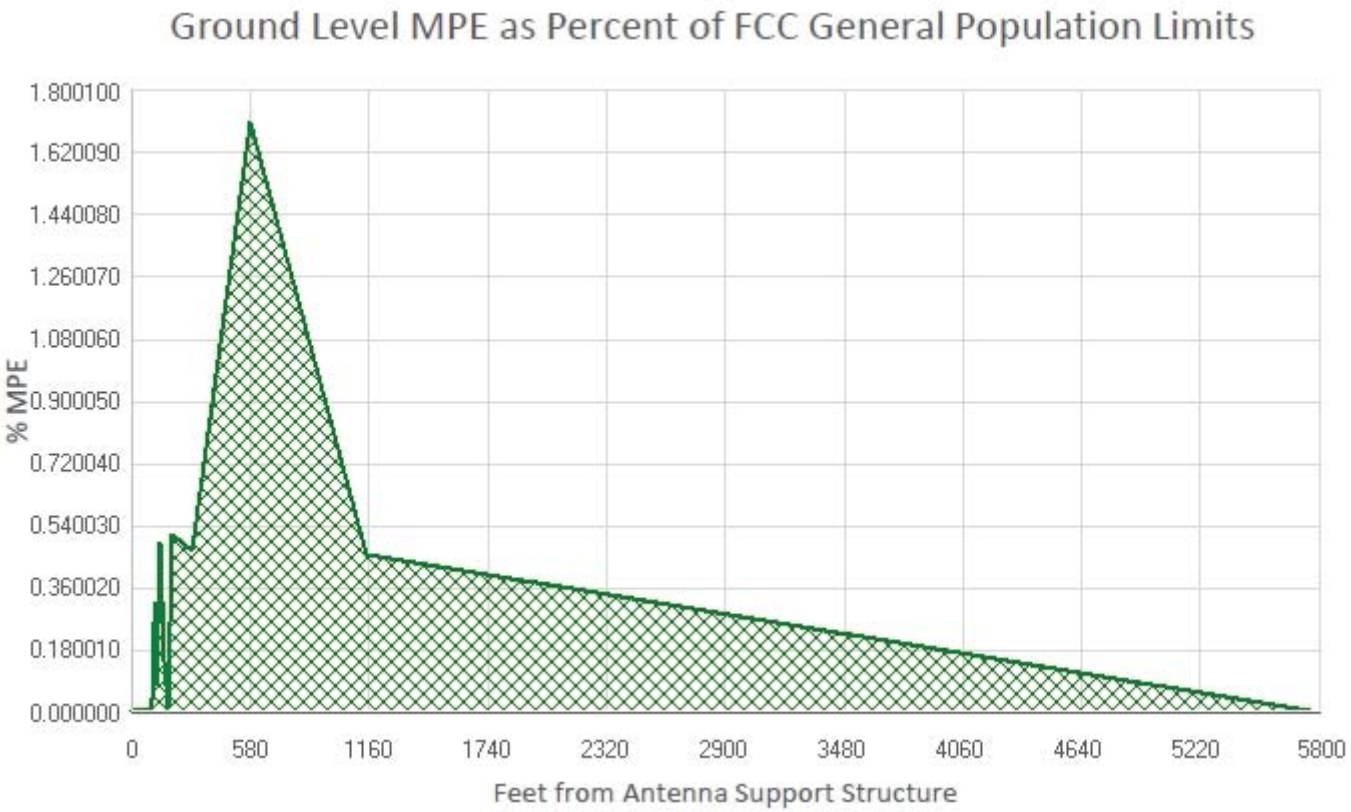


Maximum power density at ground level: 17.101 µW/cm^2
Highest percentage of Maximum Exposure Limit: 1.710 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
NOKIA - SON_AEHC 120deg #5#1 00DT-07DT 2500 270° Sector

Maximum Exposure Limit - 2500 MHz
Limit (GP): 1000.000 µW/cm^2

EiRP		Height		Downtilt	
(Watts)	27295.200	(feet)	100.000	(Degrees)	0

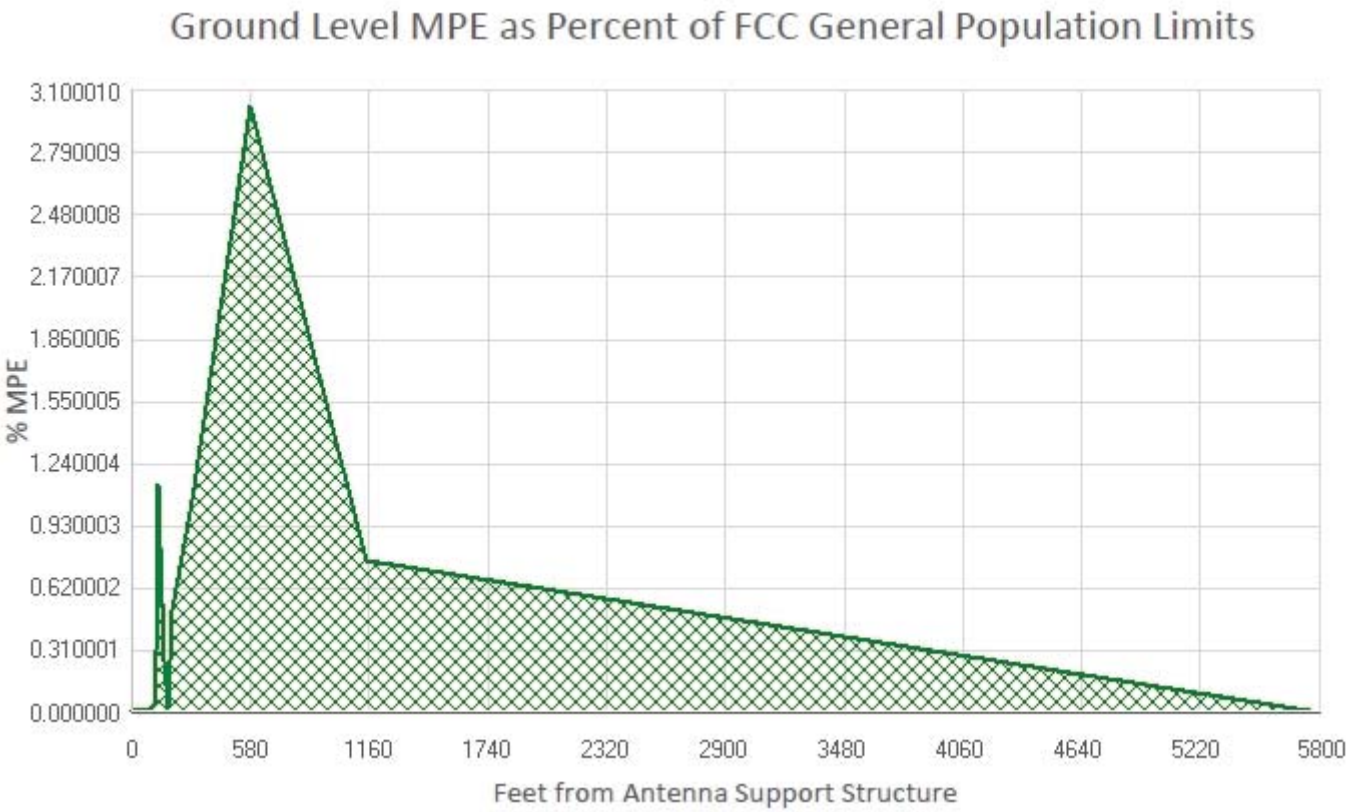


Maximum power density at ground level: 17.101 µW/cm^2
Highest percentage of Maximum Exposure Limit: 1.710 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
NOKIA - SON_AEHC 120deg #6 00DT-07DT 2500 0° Sector

Maximum Exposure Limit - 2500 MHz
Limit (GP): 1000.000 µW/cm^2

EiRP		Height		Downtilt	
(Watts)	45596.880	(feet)	100.000	(Degrees)	0

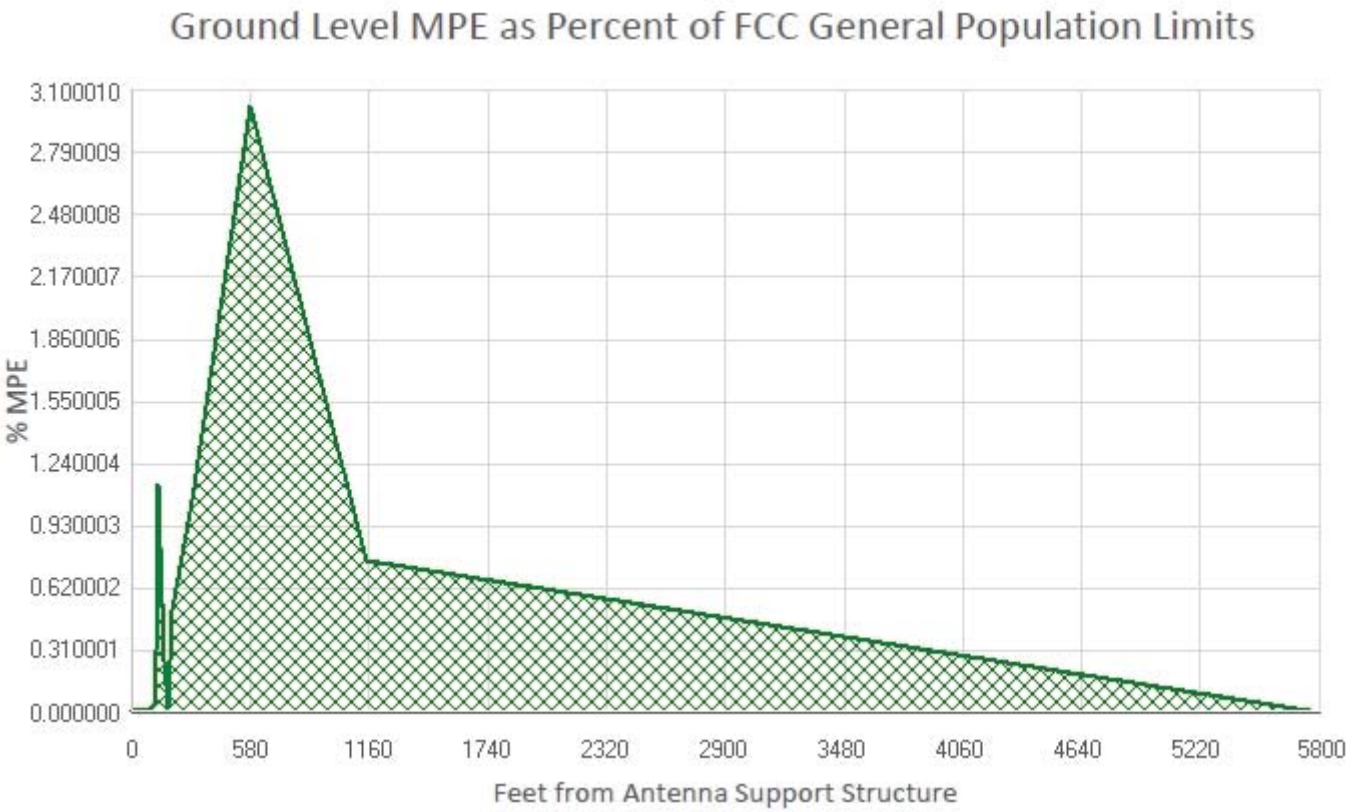


Maximum power density at ground level: 30.260 µW/cm^2
Highest percentage of Maximum Exposure Limit: 3.026 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
NOKIA - SON_AEHC 120deg #6 00DT-07DT 2500 180° Sector

Maximum Exposure Limit - 2500 MHz
Limit (GP): 1000.000 µW/cm^2

EiRP		Height		Downtilt	
(Watts)	45596.880	(feet)	100.000	(Degrees)	0

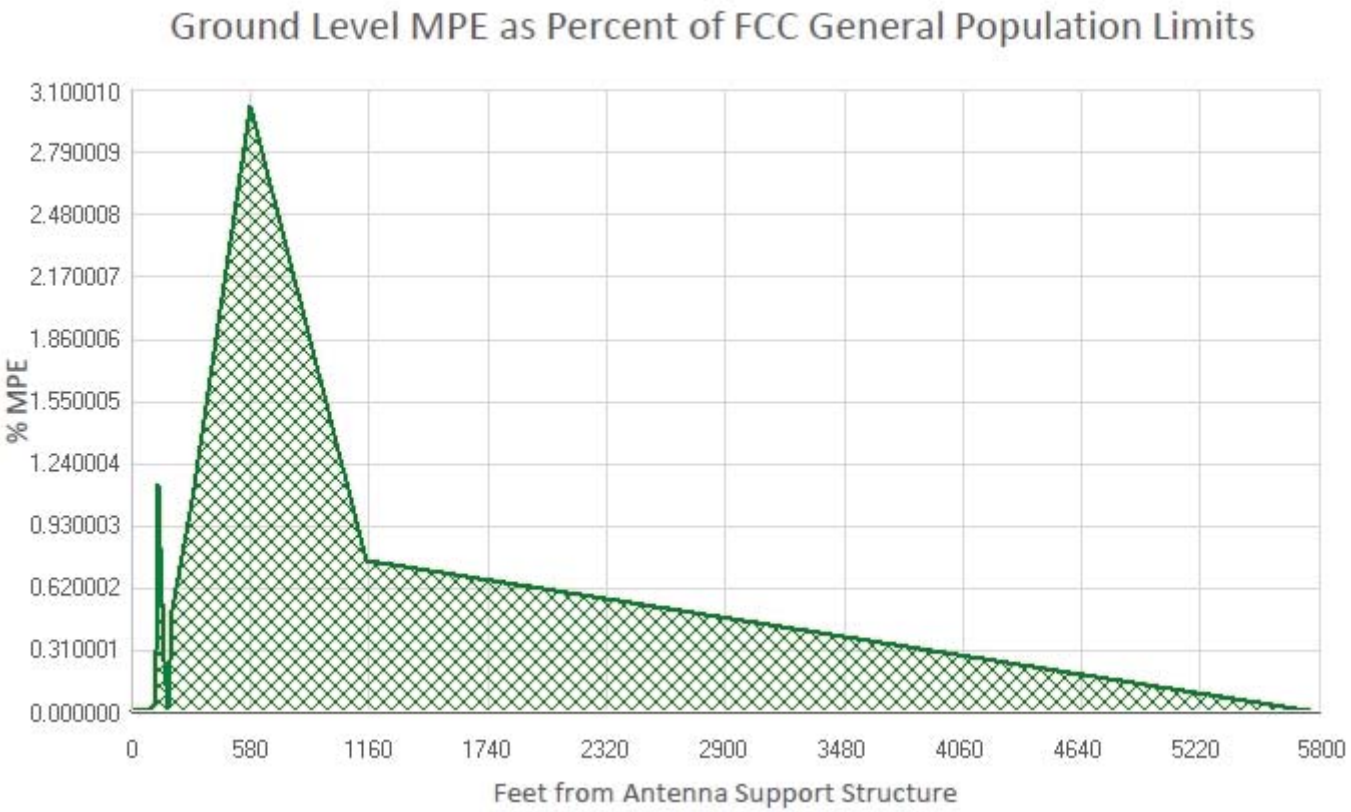


Maximum power density at ground level: 30.260 µW/cm^2
Highest percentage of Maximum Exposure Limit: 3.026 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
NOKIA - SON_AEHC 120deg #6 00DT-07DT 2500 270° Sector

Maximum Exposure Limit - 2500 MHz
Limit (GP): 1000.000 µW/cm^2

EiRP (Watts)	45596.880	Height (feet)	100.000	Downtilt (Degrees)	0



Maximum power density at ground level: 30.260 µW/cm^2

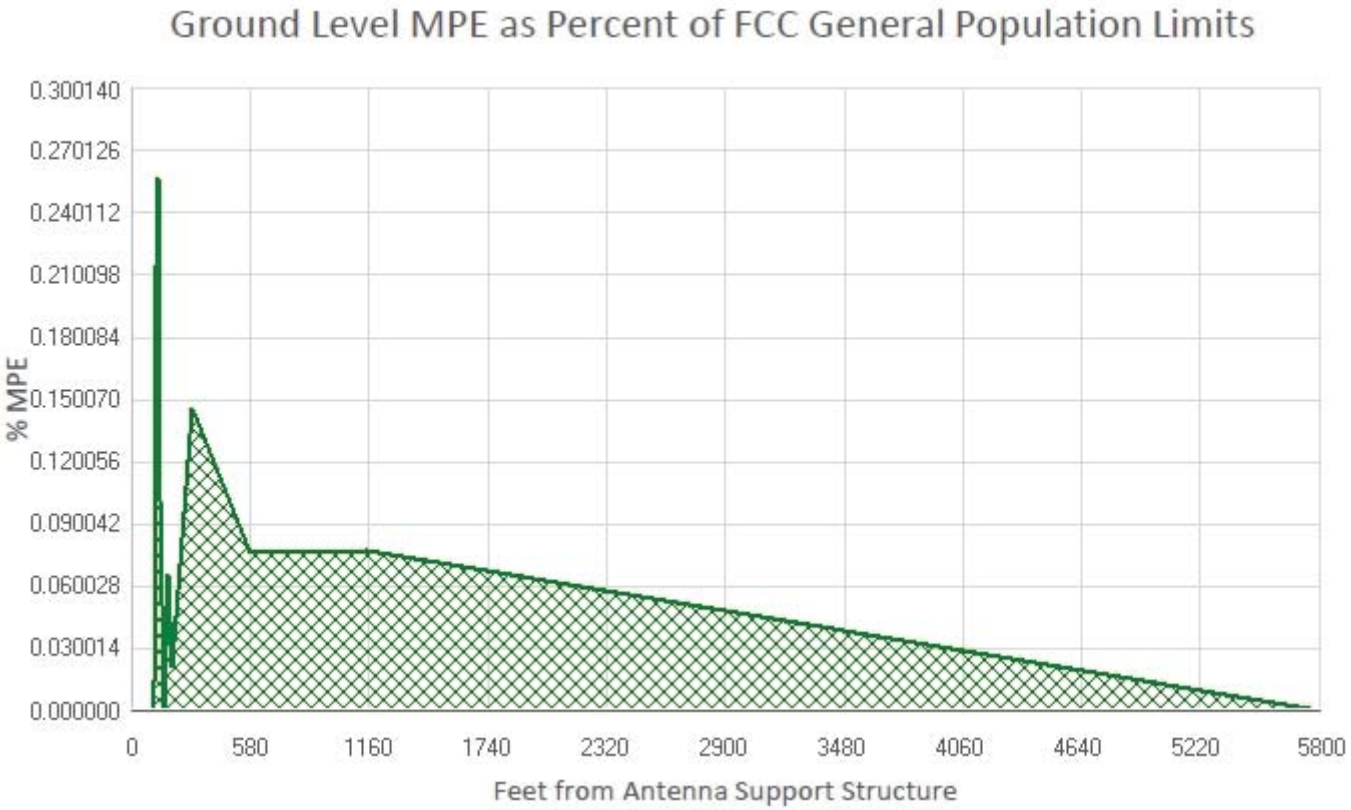
Highest percentage of Maximum Exposure Limit: 3.026 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
COMMSCOPE - FFVV-65C-R3-V1 02DT 600 0° Sector

Maximum Exposure Limit - 600 MHz

Limit (GP): 400.000 µW/cm^2

ERP		Height		Downtilt	
(Watts)	1265.180	(feet)	100.000	(Degrees)	0



Maximum power density at ground level: 1.029 µW/cm^2

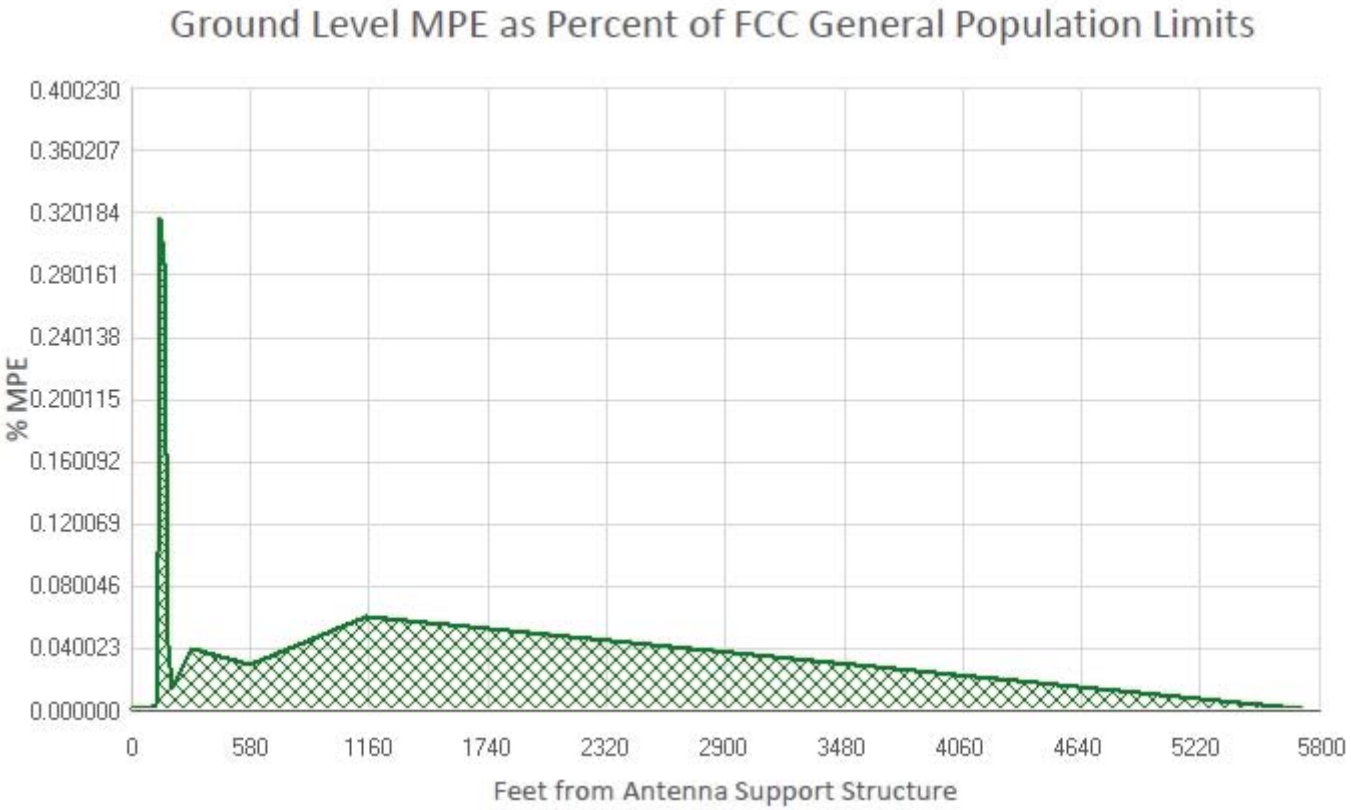
Highest percentage of Maximum Exposure Limit: 0.257 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
COMMSCOPE - FFVV-65C-R3-V1 02DT 700 0° Sector

Maximum Exposure Limit - 700 MHz

Limit (GP): 466.000 µW/cm^2

ERP		Height		Downtilt	
(Watts)	1271.020	(feet)	100.000	(Degrees)	0



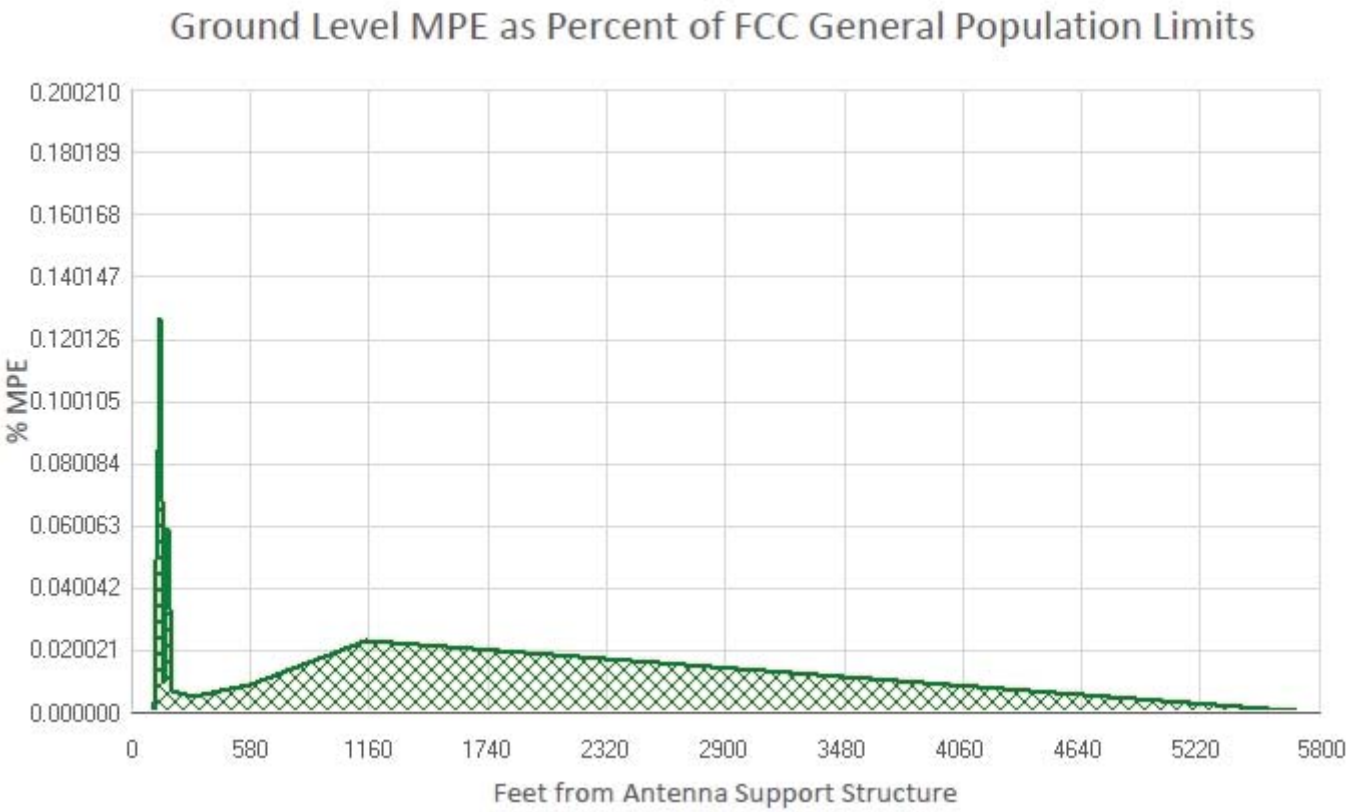
Maximum power density at ground level: 1.485 µW/cm^2

Highest percentage of Maximum Exposure Limit: 0.318 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
COMMSCOPE - FFVV-65C-R3-V1 02DT 1900 0° Sector

Maximum Exposure Limit - 1900 MHz
Limit (GP): 1000.000 µW/cm^2

EiRP		Height		Downtilt	
(Watts)	2354.530	(feet)	100.000	(Degrees)	0

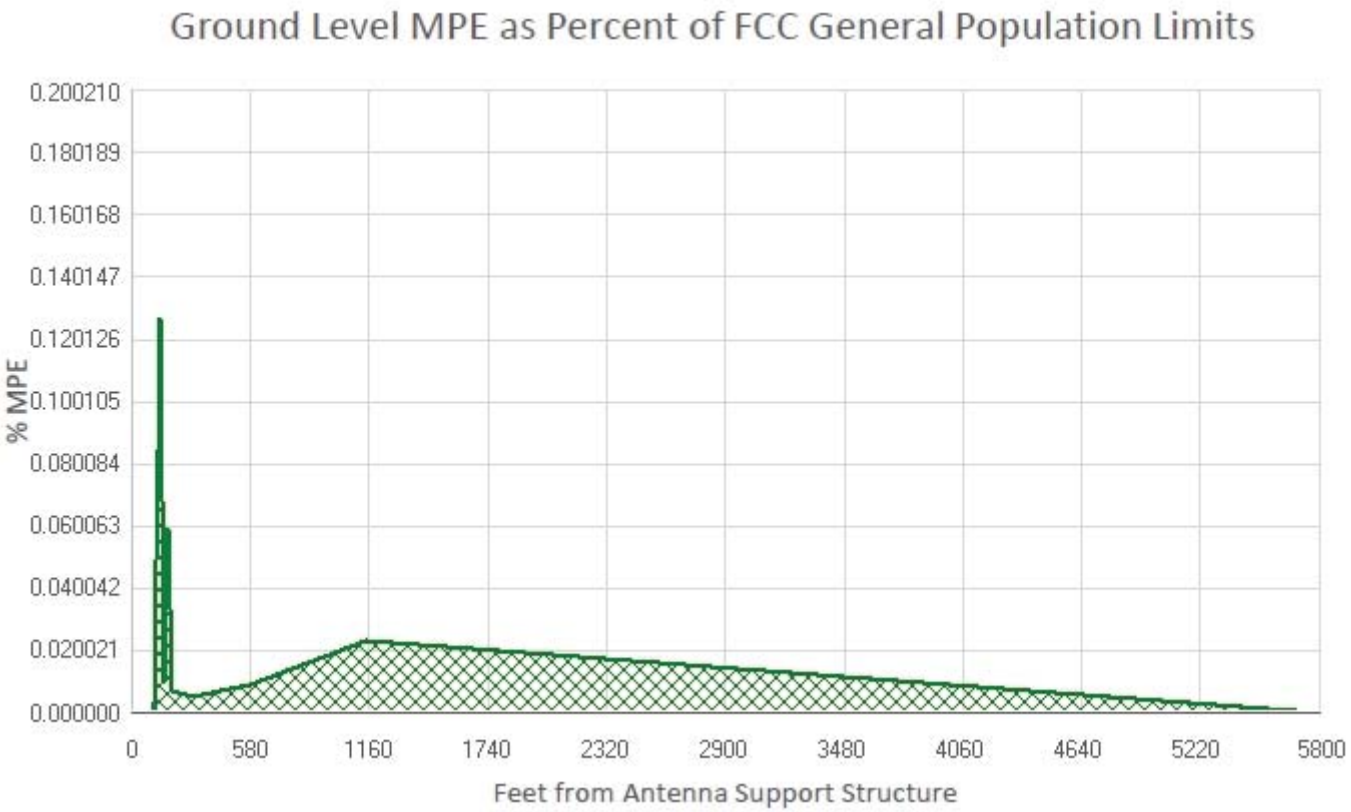


Maximum power density at ground level: 1.272 µW/cm^2
Highest percentage of Maximum Exposure Limit: 0.127 %

T-Mobile
US-IL-5744 - CH96556B - Sea Level Diving
COMMSCOPE - FFVV-65C-R3-V1 02DT 1900 270° Sector

Maximum Exposure Limit - 1900 MHz
Limit (GP): 1000.000 µW/cm^2

EiRP		Height		Downtilt	
(Watts)	2354.530	(feet)	100.000	(Degrees)	0



Maximum power density at ground level: 1.272 µW/cm^2
Highest percentage of Maximum Exposure Limit: 0.127 %

SBA Communications Corporation
8051 Congress Avenue
Boca Raton, FL 33487-1307

T + 561.995.7670
F + 561.995.7626

sbasite.com

Vertical Bridge REIT LLC's request for a Special Use Permit
Telecommunications Tower at 269 Liberty Road, Crystal Lake, Illinois 60014

AFFIDAVIT OF KENT MEIER

Kent Meier, being duly sworn, deposes and states that he has personal knowledge of the facts set forth in this Affidavit and if called to testify in this matter, he would swear to the following facts as true and correct:

1. I am a Site Marketing Manager for SBA Communications Corporation ("SBA"), have been in this position for over 20 years and have direct knowledge relating to T-Mobile's ("TMO") relationship with SBA.
2. It is my job to interact with carriers, such as TMO, who have located, or are interested in locating, onto SBA cell towers located in several states, including Illinois.
3. I maintain an open line of communication with the carriers to discuss tenant issues, including but not limited to collocation, new equipment, centerline placement of equipment onto SBA cell towers and other related matters, which includes the cell tower SBA has owned, operated, and maintained since April 2018 in Crystal Lake, Illinois on property commonly known as 6251 Commercial Boulevard, Crystal Lake, Illinois 60014 (the "Existing Cell Tower").
4. SBA has a national pricing agreement in place with respect to TMO wishing to collocate on any of SBA's existing towers.
5. VB BTS, LLC, a subsidiary of Vertical Bridge REIT LLC ("Vertical Bridge"), has submitted a Development Application to the City of Crystal Lake, Illinois requesting to construct a new 115-foot monopine on behalf of TMO located 0.46 miles from the Existing Cell Tower.
6. As with all other matters TMO has previously been directed to send any communication related to SBA's cell towers in Illinois to my attention.
7. I communicate with TMO on a weekly basis and they have never mentioned the proposed construction of the subject tower, collocating on the Existing Cell Tower, nor have they inquired whether the Existing Cell Tower could accommodate their equipment.
8. TMO collocating onto the Existing Cell Tower would prevent the unnecessary and needless proliferation of telecommunication towers.
9. Having reviewed my corporate records, SBA can accommodate additional equipment for TMO on the Existing Cell Tower, including 5G equipment, at 110', 100', and 90'.
10. Should TMO's current needs require modifications to the Existing Cell Tower, SBA is willing to discuss this with and attempt to accommodate TMO.
11. There is ample structural capacity for the Existing Cell Tower to handle more equipment as SBA constructed the Existing Cell Tower to house multiple tenants.
12. Having reviewed the radio frequency ("RF") coverage comparison map and study along with the RF Maps submitted by Vertical Bridge, the T-Mobile maps indicate that their coverage target/area of improvement is to the West and as such, the Existing Cell Tower would actually provide better coverage to this area since it is West of their proposed location.
13. If called upon I would testify consistent with the foregoing.

[signature follows on next page]

Dated this 29th day of September, 2022

Kent Meier

Kent Meier

Subscribed and sworn to before me this
29th day of SEPTEMBER, 2022

Notary Public

Official Seal
Patrick C Turner
Notary Public State of Illinois
My Commission Expires 06/01/2023

SBA