April 30, 2018

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

## RE: Notice of Exempt Modification for Sprint Crown Site BU: 845993 <br> Sprint Site ID: CT54XC708 <br> 12 Nepaug Road, Burlington, Hartford County, CT 06013 <br> Latitude: $41^{\circ} 46^{\prime} 56.86^{\prime \prime} /$ Longitude: $-72^{\circ} 59^{\prime} 22.68^{\prime \prime}$

Dear Ms. Bachman:
Sprint currently maintains (3) antennas at the 119-foot level of the existing 119.5-foot monopole at 12 Nepaug Road, Burlington, Connecticut 06013. The tower is owned by Crown Castle. The property is owned by American Tower. Sprint intends to install (3) antennas, (4) lines, and (12) RRHs.

The facility was approved by the Connecticut Siting Council's on February 18, 2004, Docket No. 268. This approval was given subject to the following conditions, listed below as represented in the original decision:

1. The tower shall be constructed no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of AT\&T Wireless and other entities, both public and private, but such tower shall not exceed a height of 120 feet above ground level.
2. The Certificate Holder shall prepare a Development and Management (D\&M) Plan for this site in compliance with Sections $16-50 \mathrm{j}-75$ through $16-50 \mathrm{j}-77$ of the Regulations of Connecticut State Agencies. The D\&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include:
a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment building, access road, utility line, and landscaping; and
b) construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worstcase modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August
4. The Certificate Holder shall ensure a recalculated report of electromagnetic radio frequency power density is submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.
5. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
6. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
7. The Certificate Holder shall provide reasonable space on the tower for no compensation for any municipal antennas, provided such antennas are compatible with the structural integrity of the tower.
8. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
9. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.
10. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved.

Sprint's proposed installation complied with all of the conditions referenced above.
Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § $16-50 \mathrm{j}-73$, for construction that constitutes an exempt modification pursuant to R.C.S.A. § $16-50 \mathrm{j}-$ 72(b)(2). In accordance with R.S.C.A. § 16-50j-73, a copy of this letter is being sent to Mr. Theodore Shafer, First-Selectman, Town of Burlington, Mr. Richard A. Miller, Chairman of the Town of Burlington's Planning \& Zoning Commission, the property owner GLP Cell Site IV, LLC (American Tower), and Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, Sprint respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Anne Marie Zsamba.

Sincerely,
Arne Marie Zsamba, Esq.
Real Estate Specialist
3 Corporate Park Drive, Suite 101, Clifton Park, NY 12065
(518) 350-3639
annemarie.zsamba.contractor@crowncastle.com
Attachments:
Tab A: Exhibit-1: Compound plan and elevation depicting the planned changes
Tab B: Exhibit-2: Structural Modification Report
Tab C: Exhibit-3: General Power Density Table Report (RF Emissions Analysis Report)
cc: Mr. Theodore Shafer, First-Selectman
Burlington Town Hall
200 Spielman Highway
Burlington, CT 06013
(860) 673-6789 ext. 1
Planning \& Zoning Commission
Mr. Richard A. Miller, Chair
Burlington Town Hall
200 Spielman Highway
Burlington, CT 06013
(860) 673-6789 ext. 6
GLP Cell Site IV, LLC
C/O American Tower
29637 Network Place
Chicago, IL 60673-1296

DOCKET NO. 268 - AT\&T Wireless PCS, LLC d/b/a AT\&T
Wireless application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility located near Lyon and Nepaug Roads in Burlington, Connecticut.

Connecticut
Siting
Council
February 18, 2004

## Decision and Order: Burlington Site CT-828

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the proposed site, located at the intersection of Lyon and Nepaug Roads, Burlington, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of AT\&T Wireless and other entities, both public and private, but such tower shall not exceed a height of 120 feet above ground level.
2. The Certificate Holder shall prepare a Development and Management (D\&M) Plan for this site in compliance with Sections $16-50 \mathrm{j}-75$ through $16-50 \mathrm{j}-77$ of the Regulations of Connecticut State Agencies. The D\&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include:
a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment building, access road, utility line, and landscaping; and
b) construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of electromagnetic radio frequency power density is submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.
4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
6. The Certificate Holder shall provide reasonable space on the tower for no compensation for any municipal antennas, provided such antennas are compatible with the structural integrity of the tower.
7. If the facility does not initially provide wireless services within one year of completion of construction or ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
8. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.
9. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § $16-50$ p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Hartford Courant.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

Docket 268 - AT\&T Wireless
Burlington
Page 3

The parties and intervenors to this proceeding are:

## Applicant

AT\&T Wireless PCS, LLC
d/b/a AT\&T Wireless

## Intervenor

Sprint Spectrum, L.P. d/b/a Sprint PCS

## Its Representative

Christopher B. Fisher, Esq.
Cuddy \& Feder LLP
90 Maple Avenue
White Plains, New York 10601

## Its Representative

Thomas J. Regan, Esq.
Brown Rudnick Berlack Israels
CityPlace 1
185 Asylum Street
Hartford, CT 06103

## Property Information

| Property Location | 12 NEPAUG RD |
| :---: | :---: |
| Owner | AT\&T MOBILITY |
| Co-Owner |  |
| Mailing Address | 575 MOROSGO DRIVE SUITE 13-F |
|  | ATLANTA GA 30324 |
| Land Use | 402V Ind Bldg Mdi-00 |
| Land Class | 1 |
| Zoning Code |  |
| Census Tract | 4101 |


| Neighborhood |  |
| :--- | :--- |
| Acreage | 0 |
| Utilities |  |
| Lot Setting/Desc |  |
| Additional Info |  |
|  |  |

## Photo



## Sketch

Town of Burlington, CT

Valuation Summary (Assessed value $=70 \%$ of Appraised Value)

| Item | Appraised | Assessed |
| :--- | :--- | :--- |
| Buildings | 0 | 0 |
| Extras | 0 | 0 |
| Improvements | 715100 | 500570 |
| Outbuildings | 715100 | 500570 |
| Land | 0 | 0 |
| Total | 715100 | 500570 |

Sub Areas

| Subarea Type | Gross Area (sq ft) | Living Area (sq ft) |
| :--- | :--- | :--- |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  | 0 |

## Sales History

| Owner of Record | Book/ Page | Sale Date |
| :--- | :---: | :---: | :---: |
| AT\&T MOBILITY | $000 / 000$ | $10 / 1 / 2008$ |















Chanhdara Ratsavong
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Crown Castle
2000 Corparate Drive Canonsburg. PA 15317
(724) 416-9056

## Subject: Structural Analysis Report

Carrier Designation:
Crown Castle Designation:

Engineering Firm Designation:
SIte Data:

Sprint PCS Co-Locate Carrier Site Number: Carrier Site Name:

Crown Castle BU Number:
Crown Castle Site Name:
Crown Castle JDE Job Number: Crown Castle Work Order Number:
Crown Castle Application Number:
Crown Castle Project Number:

CT54XC708
BURLINGTON-NEPAUG ROAD
845993
BURLINGTON-NEPAUG ROAD
474268
1511579
418450 Rev. 0
1511579
12 Nepaug Road, Burlington, Hartford County, CT
Latitude $41^{\circ} 46^{\prime} 56.86^{\prime \prime}$, Longitude -72 $59^{\circ} 22.68^{\prime \prime}$
120 Foot - Monopole Tower

Dear Chanhdara Ratsavong,
Crown Castle is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1511579, in accordance with application 418450, revision 0 .

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

> LC7: Existing + Reserved + Proposed Equipment Note: See Table I and Table il for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3 -second gust wind speed of 120 mph converted to a nominal 3 -second gust wind speed of 93 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception \#5 of Section 1609.1.1. Exposure Category B and Risk Category II were used in this analysis.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at Crown Castle appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Luis Zarate/ KB
Respectfully submitted by:

Maham Barimani, P.E.
Senior Project Engineer
tnxTower Report - version 7.0.5.1

$$
01-12-2018
$$



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## 1) INTRODUCTION

This tower is a 120 ft Monopole tower designed by Engineered Endeavors, Inc. and mapped by FDH in February of 2016. The original design and wind speed are unknown.

## 2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3 -second gust wind speed of 93 mph with no ice, 40 mph with 1 inch ice thickness and 60 mph under service loads, exposure category B.

Table 1 - Proposed Antenna and Cable Information

| Mounting Level (ft) | Center Line Elevation (ft) | $\left\|\begin{array}{c} \text { Number } \\ \text { of } \\ \text { Antennas } \end{array}\right\|$ | Antenna Manufacturer | Antenna Model | Number of Feed Lines | $\left\|\begin{array}{c} \text { Feed } \\ \text { Line } \\ \text { Size }(\text { in }) \end{array}\right\|$ | Note |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 109.0 | 110.0 | 6 | alcatel lucent | RRH2X50-800 | 31 | $\begin{gathered} 1-1 / 4 \\ 7 / 8 \end{gathered}$ | - |
|  |  | 3 | alcatel lucent | $\begin{gathered} \hline \text { PCS 1900MHZ 4X45W } \\ 65 \mathrm{MHZ} \end{gathered}$ |  |  |  |
|  |  | 3 | alcatel lucent | TD-RRH8X20-25 |  |  |  |
|  |  | 3 | kmw communications | ETCR-654L12H6 w/ Mount Pipe |  |  |  |

Table 2 - Existing and Reserved Antenna and Cable Information

| Mounting Level (ft) | Center Line Elevation (ft) | $\left\lvert\, \begin{gathered} \text { Number } \\ \text { of } \\ \text { Antennas } \end{gathered}\right.$ | Antenna Manufacturer | Antenna Model | Number of Feed Lines | $\begin{gathered} \text { Feed } \\ \text { Line } \\ \text { Size (in) } \end{gathered}$ | Note |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 119.0 | 119.0 | 6 | powerwave technologies | 7770.00 w/ Mount Pipe | $\begin{gathered} 12 \\ 2 \\ 2 \end{gathered}$ | $\begin{gathered} 1-5 / 8 \\ 7 / 8 \\ 1 / 2 \end{gathered}$ | 1 |
|  |  | 6 | powerwave technologies | LGP13519 |  |  |  |
|  |  | 6 | powerwave technologies | LGP21401 |  |  |  |
|  |  | 3 | ericsson | RRUS-11 |  |  |  |
|  |  | 3 | $\begin{gathered} \mathrm{kmw} \\ \text { communications } \end{gathered}$ | $\begin{gathered} \text { AM-X-CD-16-65-00T-RET } \\ \text { w/ Mount Pipe } \end{gathered}$ |  |  |  |
|  |  | 1 | gps | GPS_A |  |  |  |
|  |  | 1 | raycap | DC6-48-60-18-8F |  |  |  |
|  |  | 1 | tower mounts | Platform Mount [LP 1201-1] |  |  |  |
| 109.0 | 109.0 | 6 | andrew | 950F85T2E-M w/ Mount Pipe | 6 | 1-5/8 | 3 |
|  |  | 1 | tower mounts | Platform Mount [LP 1201-1] | - | - | 1 |
| 99.0 | 99.0 | 6 | commscope | JAHH-65B-R3B w/ Mount Pipe | 2 | 1-5/8 | 2 |
|  |  | 3 | alcatel lucent | RRH4X45-AWS4 B66 |  |  |  |
|  |  | 3 | nokia | AIRSCALE RRH 4TAR B5 160 W |  |  |  |
|  |  |  | alcatel lucent | RRH2x60-700 |  |  |  |
|  |  | 2 | rfs celwave | DB-T1-6Z-8AB-0Z |  |  |  |
|  |  | 6 | antel | LPA-80080/4CF | 6 | 1-5/8 | 1 |

tnxTower Report - version 7.0.5.1

| Mounting Level (ft) | Center Line Elevation (ft) | $\begin{gathered} \text { Number } \\ \text { of } \\ \text { Antennas } \end{gathered}$ | Antenna Manufacturer | Antenna Model | Number of Feed Lines | Feed Line Size (in) | Note |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | w/ Mount Pipe |  |  |  |
|  |  | 1 | tower mounts | Platform Mount [LP 1201-1] |  |  |  |
| 88.0 | 90.0 | 3 | commscope | LNX-6515DS-A1M w/ Mount Pipe | 7 | 1-5/8 | 1 |
|  |  | 3 | ericsson | ERICSSON AIR 21 B2A B4P w/ Mount Pipe |  |  |  |
|  |  | 3 | ericsson | ERICSSON AIR 21 B4A B2P w/ Mount Pipe |  |  |  |
|  | 88.0 | 1 | tower mounts | T-Arm Mount [TA 602-3] |  |  |  |

Notes:

1) Existing Equipment
2) Reserved Equipment
3) Equipment To Be Removed; Not Considered In This Analysis

Table 3 - Design Antenna and Cable Information

| Mounting <br> Level (ft) | Center <br> Line <br> Elevation <br> (ft) | Number <br> of <br> Antennas | Antenna <br> Manufacturer | Antenna Model | Number <br> of Feed <br> Lines | Feed <br> Line <br> Size (in) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

| Document | Remarks | Reference | Source |
| :---: | :---: | :---: | :---: |
| 4-GEOTECHNICAL REPORTS | Jaworski Geotech, Inc. | 4551029 | CCISITES |
| 4-TOWER FOUNDATION <br> DRAWINGS/DESIGN/SPECS | FDH Velocitel (Mapped) | 6171674 | CCISITES |
| 4-TOWER FOUNDATION <br> DRAWINGS/DESIGN/SPECS | URS | 5072131 | CCISITES |
| 4-TOWER MANUFACTURER <br> DRAWINGS | FDH Velocitel (Mapped) | 6172249 | CCISITES |

## 3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases.
Selected output from the analysis is included in Appendix A.

## 3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the tower

## 4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

| Section <br> No. | Elevation (ft) | Component <br> Type | Size | Critical <br> Element | P(K) | SF*P_allow <br> (K) | \% <br> Capacity | Pass / Fail |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| L1 | $120-97$ | Pole | TP28.93x22.69×0.1875 | 1 | -8.70 | 1079.70 | 17.6 | Pass |
| L2 | $97-48$ | Pole | TP39.7×27.5729×0.25 | 2 | -21.51 | 1957.24 | 54.3 | Pass |
| L3 | $48-0$ | Pole | TP51.04×38.0569×0.3125 | 3 | -33.84 | 3154.51 | 55.8 | Pass |
|  |  |  |  |  |  |  | Summary |  |
|  |  |  |  |  |  | Pole (L3) | 55.8 | Pass |
|  |  |  |  |  | Rating $=$ | 55.8 | Pass |  |

Table 6 - Tower Component Stresses vs. Capacity - LC7

| Notes | Component | Elevation (ft) | \% Capacity | Pass / Fail |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Anchor Rods | 0 | 48.6 | Pass |
| 1 | Base Plate | 0 | 63.6 | Pass |
| 1 | Base Foundation (Structure) | 0 | 49.2 | Pass |
| 1 | Base Foundation (Soil Interaction) | 0 | 47.5 | Pass |


| Structure Rating (max from all components) $=$ | $63.6 \%$ |
| :---: | :---: |

Notes:

1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the \% capacity consumed.

## 4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

# RADIO FREQUENCY EMISSIONS ANALYSIS REPORT EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS 

## SPRINT Existing Facility

## Site ID: CT54XC708

Burlington-Nepaug Road<br>12 Nepaug Road<br>Burlington, CT 06013

April 24, 2018
EBI Project Number: 6218002919

| Site Compliance Summary |  |
| :---: | :---: |
| Compliance Status: | COMPLIANT |
| Site total MPE\% of <br> FCC general <br> population <br> allowable limit: | $19.42 \%$ |

April 24, 2018
SPRINT
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

## Emissions Analysis for Site: CT54XC708 - Burlington-Nepaug Road

EBI Consulting was directed to analyze the proposed SPRINT facility located at 12 Nepaug Road, Burlington, CT, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

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

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

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

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter $\left(\mu \mathrm{W} / \mathrm{cm}^{2}\right)$. The general population exposure limits for the 850 MHz Band is approximately $567 \mu \mathrm{~W} / \mathrm{cm}^{2}$. The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) bands is $1000 \mu \mathrm{~W} / \mathrm{cm}^{2}$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

## CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at 12 Nepaug Road, Burlington, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65 . Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB , was focused at the base of the tower. For this report the sample point is the top of a 6 -foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 1 CDMA channels ( 850 MHz ) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.
2) 2 LTE channels ( 850 MHz ) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.
3) 5 CDMA channels ( $1900 \mathrm{MHz}(\mathrm{PCS})$ ) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.
4) 2 LTE channels ( $1900 \mathrm{MHz}(\mathrm{PCS})$ ) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
5) 8 LTE channels ( 2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

## EBI Consulting

environmental | engineering | due diligence

6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
7) For the following calculations, the sample point was the top of a 6 -foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
8) The antennas used in this modeling are the KMW ETCR-654L12H6 for transmission in the $850 \mathrm{MHz}, 1900 \mathrm{MHz}$ (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB , was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
9) The antenna mounting height centerlines of the proposed antennas are $\mathbf{1 1 0}$ feet above ground level (AGL) for Sector A, 110 feet above ground level (AGL) for Sector B and $\mathbf{1 1 0}$ feet above ground level (AGL) for Sector C.
10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general population threshold limits.

## EBI Consulting

environmental | engineering | due diligence

SPRINT Site Inventory and Power Data by Antenna

| Sector: | A | Sector. | B | Sector: | C |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Antenna \#: | 1 | Antenna\#. | 1 | Antenna\#: | 1 |
| Make / Model | $\begin{gathered} \text { KMW } \\ \text { ETCR-654L12H6 } \end{gathered}$ | Make / Model: | $\begin{gathered} \text { KMW } \\ \text { ETCR-654L12H6 } \end{gathered}$ | Máke / Model | KMW ETCR-654L12H6 |
|  | $\begin{gathered} 13.35 / 15.25 / 15.05 \\ \mathrm{dBd} \\ \hline \end{gathered}$ |  | $\begin{gathered} 13.35 / 15.25 / 15.05 \\ \mathrm{dBd} \\ \hline \end{gathered}$ |  | $\begin{gathered} 13.35 / 15.25 / 15.05 \\ \mathrm{dBd} \end{gathered}$ |
| Werkeight (AGL) | 110 feet | Wixheght (AGL) | 110 feet | 絲綌Height (AGL) | 110 feet |
| Frequency Bands | $\begin{gathered} 850 \mathrm{MHz} / \\ 1900 \mathrm{MHz} \text { (PCS) / } \\ 2500 \mathrm{MHz} \text { (BRS) } \end{gathered}$ | Frequency Bands | $850 \mathrm{MHz} /$ 1900 MHz (PCS) / 2500 MHz (BRS) | Frequency Bands | $850 \mathrm{MHz} /$ 1900 MHz (PCS) / 2500 MHz (BRS) |
| W Channel Count | 18 | Cug ChanrelCount | 18 | \% Channel Count | 18 |
| Whotat TX | 380 Watts |  | 380 Watts |  | 380 Watts |
|  | 11,775.31 |  | 11,775.31 |  | 11,775.31 |
| WhantennaA | 4.24 \% | , vivntennaB1, | 4.24 \% | \%antinac1 | 4.24 \% |


| Site Composite MPE $\%$ |  |
| :---: | :---: |
| Carrier | MPE $\%$ |
| SPRINT - Max per sector | $\mathbf{4 . 2 4 \%}$ |
| AT\&T | $2.52 \%$ |
| T-Mobile | $4.51 \%$ |
| Verizon Wireless | $8.15 \%$ |
| Site Total MPE $\%:$ | $\mathbf{1 9 . 4 2} \%$ |


| SPRINT Sector A Total: | $4.24 \%$ |
| ---: | :---: |
| SPRINT Sector B Total: | $4.24 \%$ |
| SPRINT Sector C Total: | $4.24 \%$ |
| Site Total: | $19.42 \%$ |
| romen |  |


| SPRINT Frequency Band/ Technology Power Values (Per Sector) | \# Channels | Watts ERP (Per Channel) | Height (feet) | Total Power Density ( $\mu \mathrm{W} / \mathrm{cm}^{2}$ ) | Frequency ( MHz ) | Allowable <br> MPE <br> $\left(\mu \mathrm{W} / \mathrm{cmi}^{2}\right)$ | Calculated $\%$ MPE |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Sprint 850 MHz CDMA | 1 | 432.54 | 110 | 1.44 | 850 MHz | 567 | 0.25\% |
| Sprint 850 MHz LTE | 2 | 432.54 | 110 | 2.88 | 850 MHz | 567 | 0.51\% |
| Sprint 1900 MHz (PCS) CDMA | 5 | 535.94 | 110 | 8.91 | 1900 MHz (PCS) | 1000 | 0.89\% |
| Sprint 1900 MHz (PCS) LTE | 2 | 1,339.86 | 110 | 8.91 | 1900 MHz (PCS) | 1000 | 0.89\% |
| Sprint 2500 MHz (BRS) LTE | 8 | 639.78 | 110 | 17.01 | 2500 MHz (BRS) | 1000 | 1.70\% |
|  |  |  |  |  |  | Total: | 4.24\% |

## Summary

All calculations performed for this analysis yielded results that were within the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the SPRINT facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

| SPRINT Sector | Power Density Value (\%) |
| ---: | :--- |
| Sector A: | $4.24 \%$ |
| Sector B: | $4.24 \%$ |
| Sector C: | $4.24 \%$ |
| SPRINT Maximum <br> Total (per sector): | $4.24 \%$ |
| Site Total: | $19.42 \%$ |
| Site Compliance Status: | COMPLIANT |

The anticipated composite MPE value for this site assuming all carriers present is $\mathbf{1 9 . 4 2} \%$ of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a $5 \%$ contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable $100 \%$ threshold standard per the federal government.

From:

## Sent:

To:
Subject:

TrackingUpdates@fedex.com
Tuesday, May 1, 2018 10:14 AM
Zsamba, Anne Marie (Contractor)
FedEx Shipment 772108354044 Delivered

## Your package has been delivered

## Tracking \# 772108354044



## Shipment Facts

Our records indicate that the following package has been delivered.

| Tracking number: | 772108354044 |
| :---: | :---: |
| Status: | Delivered: |
|  | 05/01/2018 10:12 |
|  | AM Signed for By: |
|  | M.TORRES |
| Invoice number: | 982896 |
| Reference: | 1766.668 |
| Signed for by: | M.TORRES |
| Delivery location: | Burlington, CT |




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Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $\$ 100$ per package, whether the result of loss, damage, delay, non-delivery,misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $\$ 100$ or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $\$ 1,000$, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

From:
Sent:
To:
Subject:

TrackingUpdates@fedex.com
Tuesday, May 1, 2018 10:13 AM
Zsamba, Anne Marie (Contractor)
FedEx Shipment 772108362281 Delivered




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From:

## Sent:

To:
Subject:

TrackingUpdates@fedex.com
Tuesday, May 1, 2018 9:30 AM
Zsamba, Anne Marie (Contractor)
FedEx Shipment 772108372639 Delivered

## Your package has been delivered

Tracking \# 772108372639


## Shipment Facts

Our records indicate that the following package has been delivered.

| Tracking number: | 772108372639 |
| :--- | :--- |
| Status: | Delivered: |
|  | $05 / 01 / 2018$ |
|  | 08:28 AM <br>  <br>  <br>  <br>  <br>  <br>  <br> Signed for By: <br> W.COLE |
| Invoice number: | 982896 |
| Reference: | 1766.668 |
| Signed for by: | W.COLE |




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