

June 26, 2019

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

RE: Request of Sigfox NIP LLC for an Order to Approve the Shared Use of an Existing Tower at 1069 Connecticut Avenue, Bridgeport, CT 066077

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes ("C.G.S.") §16-50aa, as amended, Sigfox NIP LLC ("Sigfox") hereby requests an order from the Connecticut Siting Council ("Council") to approve the shared use by Sigfox of an existing telecommunication tower at 1069 Connecticut Avenue, Bridgeport, CT (the "Property"). The existing 126-foot monopole is owned by American Tower Corp. ("ATC"), the underlying property is also owned by ATC. Sigfox requests that the Council find that the proposed shared use of the ATC tower satisfies the criteria of C.G.S. §16-50aa and issue an order approving the proposed shared use. A copy of this filing is being mailed to the City of Bridgeport and ATC.

#### **Background**

The existing ATC facility consists of a 126-foot monopole tower located within an approximate 2900 square foot compound positioned near the northwest quadrant of the Connecticut Avenue/Bishop Avenue intersection. There are existing carrier antennas located at the 131-foot level, 120-foot level, 110-foot level and the 101-foot level. Equipment associated with these antennas is located at various positions within the fenced tower compound.

Sigfox is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. Sigfox and ATC have agreed to the proposed shared use of the 1069 Connecticut Avenue tower pursuant to mutually acceptable terms and conditions. Likewise, Sigfox and ATC have agreed to the proposed installation of equipment cabinets on the ground on the north side of the tower within the compound. ATC has authorized Sigfox to apply for all necessary permits and approvals that may be required to share the existing tower. (See the attached Letter of Authorization).

Sigfox proposes to add one (1) omni antenna, one (1) line of coaxial cable; one (1) filter, and one (1) TMA on the existing tower at 88-feet above ground level. They propose to add one (1) equipment cabinet within the existing ground space.



- C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the Council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such a shared use." Sigfox respectfully submits that the shared use of the tower satisfies these criteria.
- A. <u>Technical Feasibility</u>. The existing ATC tower is structurally capable of supporting Sigfox's proposed improvements. The proposed shared use of this tower is, therefore, technically feasible. A Feasibility Structural Analysis Report ("Structural Report") prepared for this project confirms that this tower can support Sigfox's proposed loading. A copy of the Structural Report has been included in this application.
- **B.** Legal Feasibility. Under C.G.S. § 16-50aa, the Council has been authorized to issue order approving the shared use of an existing tower such as the ATC tower. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50x(a) directs the Council to "give such consideration to the other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.
- C. <u>Environmental Feasibility</u>. The proposed shared use of the ATC tower would have a minimal environmental effect for the following reasons:
  - 1. The proposed installation of one (1) omni antenna, one (1) line of coaxial cable; one (1) filter, and one (1) TMA on the existing tower at 88-feet above ground level, would have no visual impact on the area of the tower. Sigfox's cabinet will be installed within the facility compound. Sigfox's shared use of this tower therefore, does not cause any significant change or alteration in the physical or environmental characteristics of the existing site.
  - 2. Operation of Sigfox's antennas at this site would not exceed the RF emissions standard adopted by the Federal Communications Commission ("FCC"). Included in the EME report of this filing are the approximation tables that demonstrate that Sigfox's proposed facility will operate well within the FCC RF emissions safety standards.
  - 3. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the ATC facility other

#### T-SQUARED SITE SERVICES



than periodic maintenance. The proposed shared use of the ATC tower, would, therefore, have a minimal environmental effect, and is environmentally feasible.

- **D.** Economic Feasibility. As previously mentioned, Sigfox has entered into an agreement with ATC for the shared use of the existing facility subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible. (Please see included authorization.)
- E. <u>Public Safety Concerns</u>. As discussed above, the tower is structurally capable of supporting Sigfox's full array of one (1) omni antenna, one (1) line of coaxial cable; one (1) filter, and one (1) TMA and all related equipment. Sigfox is not aware of any public safety concerns relative to the proposed sharing of the existing ATC tower.

#### Conclusion

For the reasons discussed above, the proposed shared use of the existing Crown Castle tower at 1069 Connecticut Avenue satisfies the criteria state in C.G.S. §16-50aa and advances the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the prosed shared use.

Sincerely.

Craig A. Russo, P.E.

Engineer

T-Squared Site Services

Cray Y. Kum

2500 Highland Road, Suite 201

Hermitage, PA 16148

724.308.7855

craig.r@t-sqrd.com



#### Attachments:

Exhibit-1: Compound Plan and Elevation Depicting the Planned Changes

Exhibit-2: Structural Modification Report

Exhibit-3: General Power Density Table report (RF Emissions Analysis Report)

Exhibit-4: Letter of Authorization

Exhibit-5: Proof of Mailing to Local Municipality

Exhibit-6: Proof of Mailing to Tower Owner/Property Owner

#### Copies to:

Mr. Thomas F. Gill Director of OPED Office of Planning and Economic Development 999 Broad Street Bridgeport, CT 06604

Mr. Jason Hastie Account Project Manager, Vertical Markets/Broadcast Repack American Tower Corporation 10 Presidential Way Woburn, MA 018901



## EXHIBIT 1:

Compound Plan and Elevation Depicting the Planned Changes



# **SITE NUMBER: CT9000**

1069 CONNECTICUT AVE. BRIDGEPORT, CT 06607 FAIRFIELD COUNTY



# VICINITY MAP

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#### DRAWING INDEX TITLE SHEET C-1 COMPOUND PLAN & ELEVATION A-1 ANTENNA PLAN AND DETAILS F-1 **ELECTRICAL DETAILS** GROUNDING DETAILS Digitally signed by Gary Clower DN: c=US, st=Pennsylvania, I=Hermitage, o=T-Squared Site Services, cn=Gary Clower, email=gary.c@t-sqrd.com Date: 2019.01.28 14:20:13 -05'00

# DO NOT SCALE DRAWINGS

HESE DRAWINGS ARE FORMATTED TO BE FULL-SIZE AT 11"X17". CONTRACTOR SHALL ERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND HALL IMMEDIATELY NOTIFY THE DESIGNER / ENGINEER IN WRITING OF ANY ISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR MATERIAL ORDERS OR BE ESPONSIBLE FOR THE SAME. CONTRACTOR SHALL USE BEST MANAGEMENT PRACTICE O PREVENT STORM WATER POLLUTION DURING CONSTRUCTION.

	Greater Paridgeport Transit	Cest 28	85.700 Ave	Bruce Pond	
	SITE-	Bridgeport Rescue Mission	Connecticus Ave	Bridgeport Onobling Range	
Walmod Avie	(3) Logano Si Hollischer Avre	Smallad Ave all		Control Contro	

PROJEC	T TEAM	

APPLICANT:

SCOPE OF WORK:

SIGFOX SITE NUMBER:

OWNER SITE NUMBER:

LATITUDE (NAD 83):

JURISDICTION:

ADDRESS:

PARCEL OWNER:

LONGITUDE (NAD 83):

GROUND ELEVATION:

STRUCTURE TYPE:

STRUCTURE HEIGHT

911 SITE ADDRESS

TOWER OWNER:

SIGFOX, INC.

545 BOYLSTON STREET, 10TH FLOOR BOSTON, MA. 02116

SITE INFORMATION

(1) CAVITY FILTER

1069 CONNECTICUT AVE.

AMERICAN TOWER CORP.

AMERICAN TOWER CORP

BOSTON, MA 02116

BOSTON, MA 02116

302469

41.18361°

-73.15838°

FAIRFIELD

32' AMSL

MONOPOLE

128' (AGL)

116 HUNTINGTON AVE. 11TH FLOOR

116 HUNTINGTON AVE. 11TH FLOOR

BRIDGEPORT, CT 06607

(1) 1/2" COAX CABLE (1) RG6 CABLE

PROJECT CONSISTS OF INSTALLING THE FOLLOWING:

(1) EQUIPMENT CABINET FOR BASE STATION

(1) PROCOM CXL-900-3LW OMNI ANTENNA (1) 2.5' SATELLITE DISH ANTENNA

PROJECT MANAGEMENT FIRM:

T-SQUARED SITE SERVICES, LLC 2500 HIGHLAND ROAD, SUITE 201

HERMITAGE, PA. 16148

ENGINEERING FIRM:

T-SQUARED SITE SERVICES, LLC 2500 HIGHLAND ROAD, SUITE 201 HERMITAGE, PA. 16148

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH T	THE
CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING	
AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUCTED TO PERMIT WORK NOT	
CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES	

CODE COMPLIANCE

2015 INTERNATIONAL BUILDING CODE

2017 NATIONAL ELECTRIC CODE

• 2015 INTERNATIONAL ENERGY CONSERVATION CODE

2015 INTERNATIONAL EXISTING BUILDING CODE

2015 INTERNATIONAL FIRE CODE

2015 INTERNATIONAL MECHANICAL CODE

2015 INTERNATIONAL RESIDENTIAL CODE

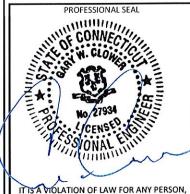
APPROV.	AL BLOCK			
PROPERTY OWNER	DATE	APPROVED	APPROVED AS NOTED	DISAPPROVED REVISE
SITE ACQUISITION	DATE			
CONSTRUCTION MANAGER	DATE			
ZONING	DATE			
RF ENGINEER	DATE			



545 BOYLSTON STREET 10TH FLOOR

BOSTON, MA. 02116

	REVISIONS			
NAL CD		01.28.19	KE	В
RELIMINARY		12.3.18	KE	A
	DESCRIPTION	DATE	BY	REV



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UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL

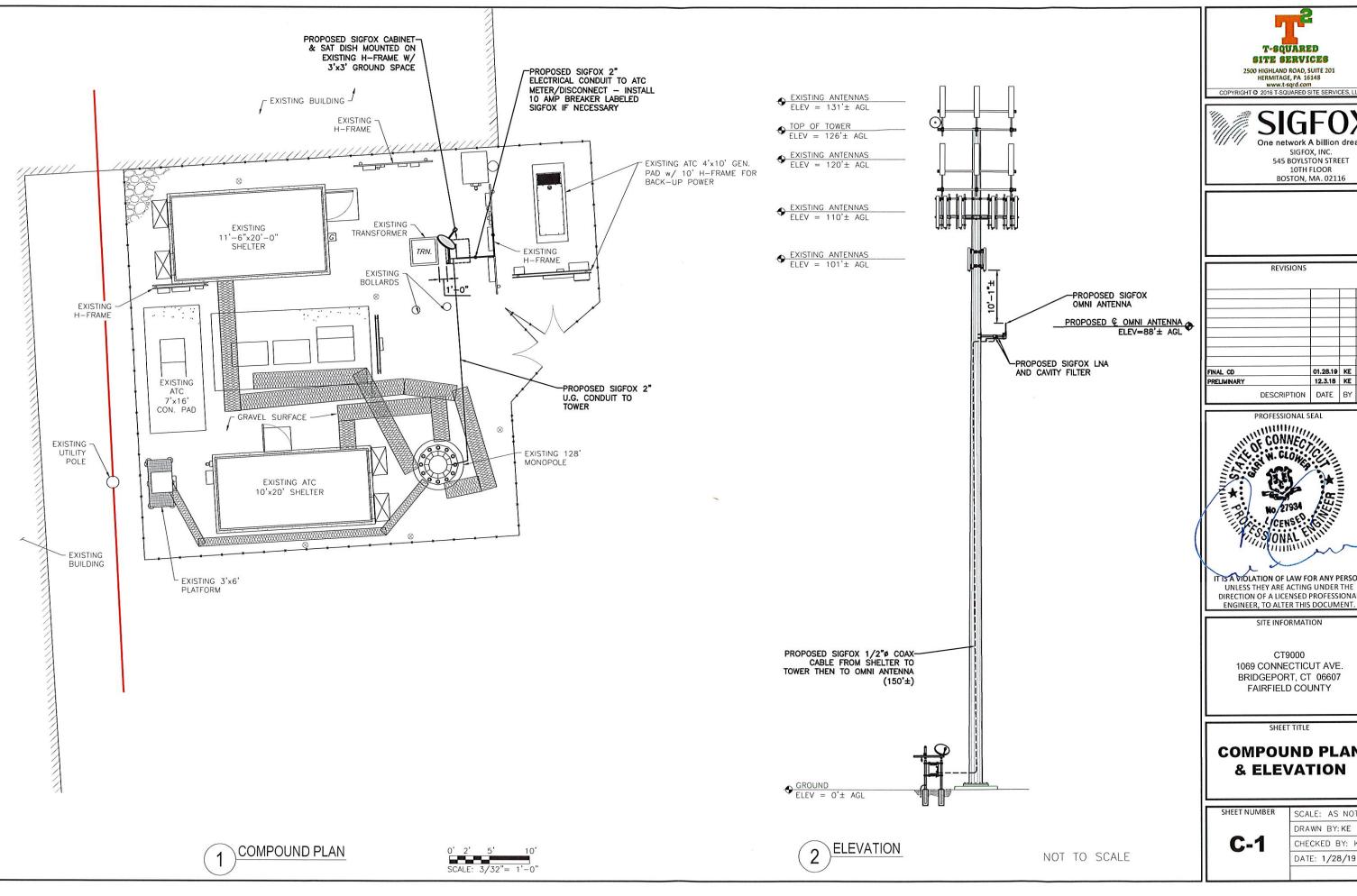
CT9000 1069 CONNECTICUT AVE. BRIDGEPORT, CT 06607 FAIRFIELD COUNTY

SHEET TITLE

TITLE SHEET

SCALE: AS NOTED DRAWN BY: KE

CHECKED BY: KE DATE: 1/28/19







REVISIONS 01.28.19 KE B 12.3.18 KE A DESCRIPTION DATE BY REV

PROFESSIONAL SEAL



SITE INFORMATION

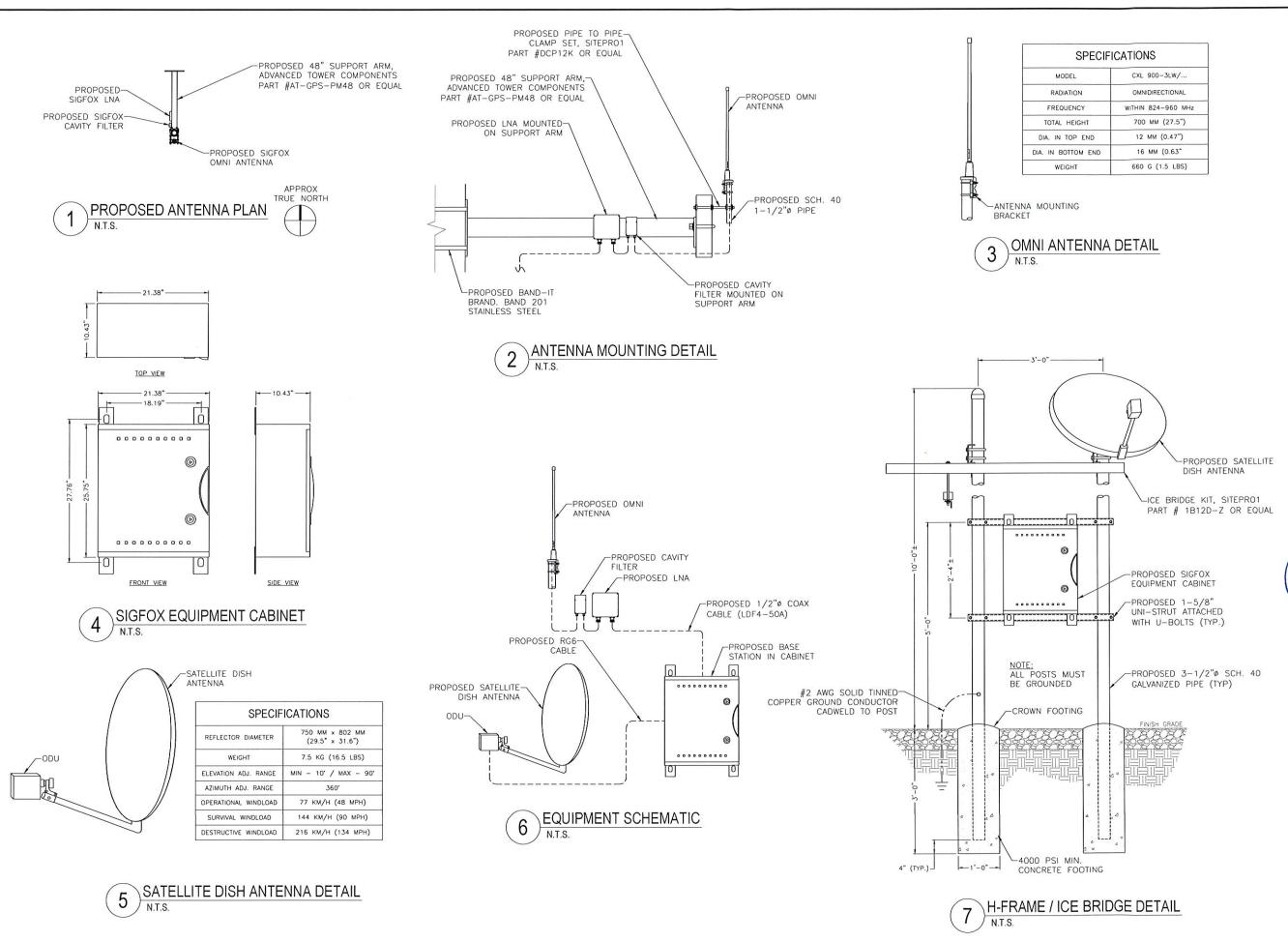
CT9000 1069 CONNECTICUT AVE. BRIDGEPORT, CT 06607 FAIRFIELD COUNTY

SHEET TITLE

## **COMPOUND PLAN** & ELEVATION

DRAWN BY: KE CHECKED BY: KE DATE: 1/28/19

SCALE: AS NOTED

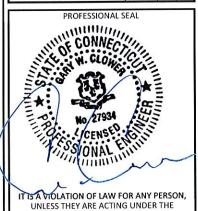


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HERMITAGE, PA 16148
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FINAL CD 01.28.19 KE B
PRELIMINARY 12.3.18 KE A

DESCRIPTION DATE BY REV



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SHEET TITLE

ANTENNA PLAN
AND DETAILS

SHEET NUMBER

A-1

DRAWN BY: KE
CHECKED BY: KE
DATE: 1/28/19

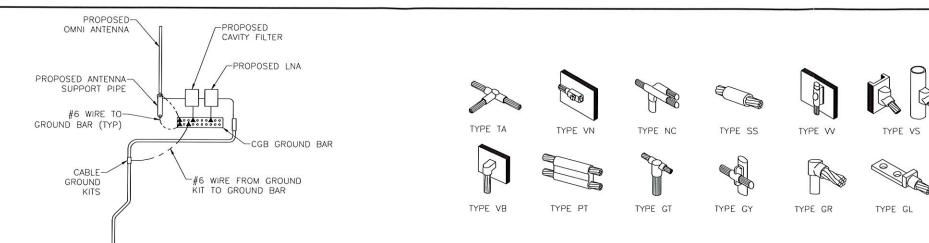
SCALE: AS NOTED

#### GROUNDING NOTES

- GROUNDING SHALL COMPLY WITH BED ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTING PROTECTION SHALL BE DONE IN ACCORDANCE WITH METRO MOD CELL SITE GROUNDING
- GROUND CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS CABLE GROUNDING KITS SUPPLIED BY PROJECT
- 3. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING
- ALL POWER AND GROUND CONNECTIONS TO BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND NUTS BY HARGER (OR APPROVED EQUAL) RATED FOR OPERATION AT NO LESS THAN 75°C OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
- ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
- CONNECTIONS TO BE GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
- APPLY OXIDE INHIBITING COMPOUND TO ALL MECHANICAL GROUND CONNECTIONS.
- 8. CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MAKER SYSTEM (EMS) CALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN EXISTING TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
- CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMNS MINIMUM RESISTANCE REQUIRED
- 10. CONTRACTOR SHALL CONDUCT ANTENNA, CABLE, AND LNA RETURN-LOSS AND DISTANCE-TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.



COMPRESSION FITTING CONNECTION EXOTHERMIC WELD CONNECTION -- PROPOSED GROUND WIRING ---- EXISTING GROUND WIRING



PROPOSED SATELLITE

METER

GRADE

#2 AWG TINNED SOLID

COPPER GROUND LEADS

TO PROPOSED GROUND

RING IN LIQUID-TITE

CONDUIT (TYP)

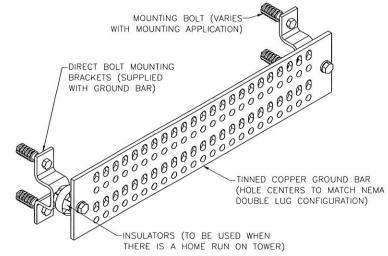
DISH ANTENNA

-PANEL

EQUIP

CABINE

N.T.S.

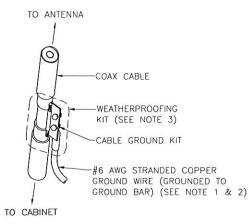


GROUND BAR SCHEDULE						
TYPE 01Y MANUFACTURER PART NO. REMARKS						
MGB	2	COMMSCOPE	UGBKIT-0120-T	OR EQUAL		
CBG	1	COMMSCOPE	UGBKIT-0412	OR EQUAL		



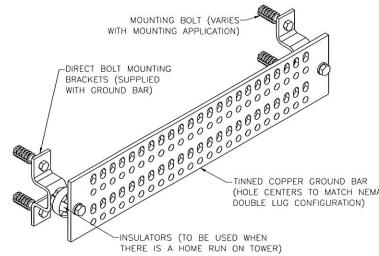


- 2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
- WEATHER PROOFING SHALL BE TWO-PART TAPE SUPPLIED WITH KIT. COLD SHRINK SHALL NOT BE USED.



COAXIAL CABLE GROUNDING 6 N.T.S.





	00111110001 E	1 0081111 0112
	GROUND	BAR DETAIL
( '	3 101100110	DAIL DE IAIL
	N.T.S.	

SHEET TITLE

**GROUNDING DETAILS** 

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SITE SERVICES

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One network A billion dream SIGFOX, INC.

545 BOYLSTON STREET

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01.28.19 KE B

12.3.18 KE A

DESCRIPTION DATE BY REV

PROFESSIONAL SEAL

IT IS A VIOLATION OF LAW FOR ANY PERSON,

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DIRECTION OF A LICENSED PROFESSIONAL

ENGINEER, TO ALTER THIS DOCUMENT. SITE INFORMATION

CT9000

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FAIRFIELD COUNTY

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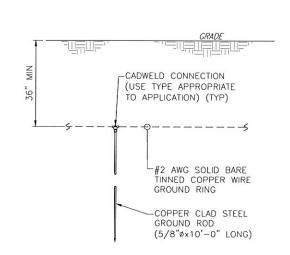
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G-1

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CHECKED BY: KE DATE: 12/3/18



TYPICAL GROUND ROD DETAIL N.T.S.

PROPOSED-

COAX CABLE

GROUND KIT-

#6 WIRE FROM-

GROUND BAR

LOWER EGB-

(MOUNTED

TO TOWER)

GROUND KIT TO

LOCATED BEFORE

HORIZONTAL BEND

EXISTING TOWER

GROUND RING

PROPOSED-

(TYP)

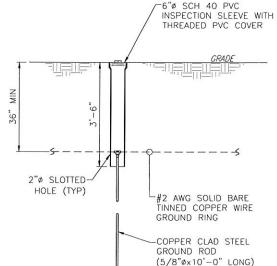
GROUNDING RISER DIAGRAM

GROUND ROD

GROUND BAR

....

-ICE BRIDGE



PROPOSED EQUIPMENT-

GROUND RING

**GROUNDING ROD INSPECTION WELL** 



## EXHIBIT 2:

Structural Modification Report



Structural Evaluation					
ATC Site Number & Name	302469, Bridgeport CT 2, CT				
Carrier Site Number & Name	CT9000, CT9000_ATC_302469				
Site Location	1069 Connecticut Avenue				
Bridgeport, CT 06607-1226, Fairfield County					
	41.18361667 N / 73.15838333 W				
Tower Description	126 ft Monopole				
Basic Wind Speed	100 mph (3-Second Gust, V <sub>asd</sub> ) / 129 mph (3-Second Gust, V <sub>ult</sub> )				
Basic Wind Speed w/ Ice	50 mph (3-Second Gust) w/ ¾" ice				
Code	ANSI/TIA-222-G / 2015 IBC / 2016 Connecticut State Building Code				

**Existing and Reserved Equipment** 

Elevation			ved Equipment				
Mount	RAD	Qty	Antenna	Mount Type	Lines	Carrier	
		6	Alcatel-Lucent RRH2x50-08				
125.7	125.7 131.0	3	Alcatel-Lucent 1900MHz 4X45 RRH	Diatform w/ Handraile	(3) 1 1/4" Hybriflex		
125.7	151.0	3	Nokia 2.5G MAA - AAHC	Platform w/ Handrails	(1) 1.7" Hybrid		
		3	Commscope NNVV-65B-R4			Clearwire	
		2	DragonWave Horizon Compact		(3) 1/2" Coax		
124.0	127.0	1	DragonWave A-ANT-23G-1-C	T-Arm	(2) 2" conduit		
		1	DragonWave A-ANT-18G-2-C		(2) 2 Conduit		
		3	Kathrein Smart Bias Tee		(18) 1 5/8" Coax (2) 1 1/4" Fiber (1) 1 5/8" Fiber		
		3	Ericsson KRY 112 144/2				
	120.0	3	Ericsson KRY 112 489/2	Low Profile Platform		T-Mobile	
116.0	116.0	3	Ericsson AIR-32 B2A/B66Aa				
		3	Ericsson Air 3246 B66				
		3	RFS APXVAARR24_43-U-NA20				
	116.0	3	Ericsson Radio 4449 B12,B71				
		3	Kaelus DBC0061F1V51-2				
		6	Kaelus DBC0062F3V52-1				
		6	Powerwave LGP21401				
		2	Raycap DC6-48-60-18-8F		(12) 1 5/8" Coax (4) 0.78" 8 AWG 6		
110.0	110.0	3	Ericsson Radio 8843 - B2 + B66A	Platform w/ Handrails		AT&T Mobility	
		3	Ericsson RRUS 32 B30		(2) 0.39" Fiber Trunk		
		3	Ericsson RRUS-11				
		3	Powerwave 7750.00				
		6	CCI OPA-65R-LCUU-H4				
101.0	101.0	3	RCU	Flush	(6) 1 5/8" Coax	Metro PCS	
101.0	101.0	3	Kathrein 800 10504	Flush	(1) 3/8" Coax	IVIEU O PCS	



Equipment to be Removed

Elevation <sup>1</sup> (ft) Mount RAD	Qty	Antenna	Mount Type	Lines	Carrier
		No loading consi	idered as to be removed		

**Proposed Equipment** 

Elevation	Elevation <sup>1</sup> (ft)		Automore	NA	11	6 :	
Mount	RAD	Qty	Antenna	Mount Type	Lines	Carrier	
		1	Procom CXL 900-3LW				
88.0	88.0	1	5" x 3" x 2" Cavity Filter	Side Arm	(1) 1/2" Coax	(1) 1/2" Coax SigfoxS./	SigfoxS.A.
		1	Low Noise Amplifier				

<sup>&</sup>lt;sup>1</sup> Mount elevation is defined as height above bottom of steel structure to bottom of mount, RAD elevation is defined as center of antenna above grade level (AGL).

Install proposed coax inside of the pole shaft.

The existing and proposed loads listed in the tables above are compared to the tower's current design capacity or previous structural analysis. The tower should be re-evaluated as future loads are added or if actual loads are found different from those listed in the tables. The subject tower and foundation *are adequate* to support the above stated loads in conformance with specified requirements.

PJG/ANG



Authorized by "EOR" Jan 11 2019 4:43 PM





## **EXHIBIT 3:**

General Power Density Table report (RF Emissions Analysis Report)



# RF EMISSIONS COMPLIANCE REPORT

# T-Squared Site Services on behalf of Sigfox S.A.

ATC Site Name: Bridgeport CT 2
Sigfox S.A. Site Name: CT9000\_ATC\_302469
Sigfox S.A. Site #: CT9000
1069 CONNECTICUT AVENUE
BRIDGEPORT, CT
2/7/2019

# **Report Status:**

# Sigfox S.A. Is Compliant



sealed 10feb2019 mike@h2dc.com H2DC PLLC Ct CoA#: 0001714

Prepared By:

Sitesafe, LLC

#### Engineering Statement in Re: Electromagnetic Energy Analysis T-Squared Site Services BRIDGEPORT, CT

My signature on the cover of this document indicates:

That I am registered as a Professional Engineer in the jurisdiction indicated; and

That I, Michael A McGuire, am currently and actively licensed to provide (in this state/jurisdiction as indicated within the professional electrical engineering seal on the cover of this document) professional electrical engineering services, as an employee of Hurricane Hill Development Company, PLLC, a duly authorized/registered engineering firm (in this state, as applicable) on behalf of SiteSafe, LLC; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission ("the FCC" and "the FCC Rules") both in general and specifically as they apply to the FCC's Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; and

That the technical information serving as the basis for this report was supplied by T-Squared Site Services (See attached Site Summary and Carrier documents), and that Sigfox S.A.'s installations involve communications equipment, antennas and associated technical equipment at a location referred to as the "Bridgeport CT 2" ("the site"); and

That Sigfox S.A. proposes to operate at the site with transmit antennas listed in the carrier summary and with a maximum effective radiated power as specified by Sigfox S.A. and shown on the worksheet, and that worst-case 100% duty cycle have been assumed; and

That in addition to the emitters specified in the worksheet, there are additional collocated point-to-point microwave facilities on this structure and, the antennas used are highly directional oriented at angles at or just below the horizontal and, that the energy present at ground level is typically so low as to be considered insignificant and have not been included in this analysis; and

That this analysis has been performed with the assumption that the ground immediately surrounding the tower is primarily flat or falling; and

That at this time, the FCC requires that certain licensees address specific levels of radio-frequency energy to which workers or members of the public might possibly be exposed (at §1.1307(b) of the FCC Rules); and

That such consideration of possible exposure of humans to radio-frequency radiation must utilize the standards set by the FCC, which is the Federal Agency having jurisdiction over communications facilities; and

That the FCC rules define two tiers of permissible exposure guidelines: 1) "uncontrolled environments," defined as situations in which persons may not be aware of (the "general public"), or may not be able to control their exposure to a transmission facility; and (2) "controlled environments," which defines situations in which persons are aware of their potential for exposure (industry personnel); and

That this statement specifically addresses the uncontrolled environment (which is more conservative than the controlled environment) and the limit set forth in the FCC rules for licensees of Sigfox S.A.'s operating frequency as shown on the attached antenna worksheet; and

That when applying the uncontrolled environment standards, the predicted Maximum Power Density at two meters above ground level from the proposed Sigfox S.A. operation is no more than 0.001% of the maximum in any accessible area on the ground and

That it is understood per FCC Guidelines and OET65 Appendix A, that regardless of the existent radio-frequency environment, only those licenses whose contributions exceed five percent of the exposure limit pertinent to their operation(s) bear any responsibility for bringing any non-compliant area(s) into compliance; and

That when applying the uncontrolled environment standards, the cumulative predicted energy density from the proposed operation is no more than 4.243% of the maximum in any accessible area up to two meters above the ground per OET-65; and

That the calculations provided in this report are based on data provided by the client and antenna pattern data supplied by the antenna manufacturer, in accordance with FCC guidelines listed in OET-65. Horizontal and vertical antenna patterns are combined for modeling purposes to accurately reflect the energy two meters above ground level where on-axis energy refers to maximum energy two meters above the ground along the azimuth of the antenna and where area energy refers to the maximum energy anywhere two meters above the ground regardless of the antenna azimuth, accounting for cumulative energy from multiple antennas for the carrier and frequency range indicated; and

That the Occupational Safety and Health Administration has policies in place which address worker safety in and around communications sites, thus individual companies will be responsible for their employees' training regarding Radio Frequency Safety.

In summary, it is stated here that the proposed operation at the site would not result in exposure of the Public to excessive levels of radio-frequency energy as defined in the FCC Rules and Regulations, specifically 47 CFR 1.1307 and that Sigfox S.A.'s proposed operation is completely compliant.

Finally, it is stated that access to the tower should be restricted to communication industry professionals, and approved contractor personnel trained in radio-frequency safety; and that the instant analysis addresses exposure levels at two meters above ground level and does not address exposure levels on the tower, or in the immediate proximity of the antennas.

# T-Squared Site Services Bridgeport CT 2 Site Summary

Carrier	Area Maximum Percentage MPE
AT&T Mobility, LLC	0.465 %
AT&T Mobility, LLC	0.726 %
AT&T Mobility, LLC	0.668 %
AT&T Mobility, LLC	0.413 %
AT&T Mobility, LLC	0.293 %
MetroPCS (Decommissioned)	0 %
Sigfox S.A. (Proposed)	0.001 %
Sprint	0.167 %
Sprint	0.177 %
Sprint	0.177 %
Sprint	0.102 %
Sprint	0.103 %
T-Mobile	0.156 %
T-Mobile	0.169 %
T-Mobile	0.493 %
T-Mobile	0.133 %
Composite Site MPE:	4.243 %

Frequency:

2300

MHz

Maximum Permissible Exposure (MPE):

1000

µW/cm^2

Maximum power density at ground level:

4.65458

Highest percentage of Maximum Permissible Exposure:

μW/cm<sup>2</sup> 0.46546

					On A	Axis	Ar	ea
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density (μW/cm^2)	Percent of MPE	Max Power Density (μW/cm^2)	Percent of MPE
CCI Antennas	OPA-65R-LCUU-H4	110	0	2661	3.464927	0.346493	4.607349	0.460735
CCI Antennas	OPA-65R-LCUU-H4	110	120	2661	3.464927	0.346493	4.607349	0.460735
CCI Antennas	OPA-65R-LCUU-H4	110	240	2661	3.517424	0.351742	4.607349	0.460735

Frequency:

2100

MHz

Maximum Permissible Exposure (MPE):

1000 7.25541 μW/cm<sup>2</sup>

Maximum power density at ground level: Highest percentage of Maximum Permissible Exposure:

μW/cm^2 0.72554 %

					On A	Axis	Are	ea
Antenna Make	Model	Height (feet)	Orientation (degrees true)	\$1925 (\$0.025	Max Power Density (µW/cm^2)	Percent of MPE	Max Power Density (μW/cm^2)	Percent of MPE
CCI Antennas	OPA-65R-LCUU-H4	110	0	4257	5.179932	0.517993	7.181985	0.718198
CCI Antennas	OPA-65R-LCUU-H4	110	120	4257	5.179932	0.517993	7.181982	0.718198
CCI Antennas	OPA-65R-LCUU-H4	110	240	4257	5.265439	0.526544	7.181982	0.718198

Frequency:

1900

MHz

Maximum Permissible Exposure (MPE):

1000

μW/cm^2 μW/cm^2

Maximum power density at ground level: Highest percentage of Maximum Permissible Exposure: 6.68201 0.6682

%

					On A	Axis	Ar	ea
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density (μW/cm^2)	Percent of MPE	Max Power Density (μW/cm^2)	Percent of MPE
CCI Antennas	OPA-65R-LCUU-H4	110	0	3541	5.275219	0.527522	6.627374	0.662737
CCI Antennas	OPA-65R-LCUU-H4	110	120	3541	5.275219	0.527522	6.627375	0.662737
CCI Antennas	OPA-65R-LCUU-H4	110	240	3541	5.300828	0.530083	6.627374	0.662737

					On A	Axis	Are	ea
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density (μW/cm^2)	Percent of MPE	Max Power Density (μW/cm^2)	Percent of MPE
CCI Antennas	OPA-65R-LCUU-H4	110	0	1902	1.936599	0.394152	2.009134	0.408915
CCI Antennas	OPA-65R-LCUU-H4	110	120	1902	1.93818	0.394474	2.009134	0.408915
CCI Antennas	OPA-65R-LCUU-H4	110	240	1902	1.936599	0.394152	2.009135	0.408915

Frequency:

850

Maximum Permissible Exposure (MPE):

566.67

μW/cm^2

MHz

Maximum power density at ground level:

1.65839

μW/cm^2

Highest percentage of Maximum Permissible Exposure:

0.29266 %

					On A	Axis	Are	ea
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density (μW/cm^2)	Percent of MPE	Max Power Density (μW/cm^2)	Percent of MPE
Powerwave	7750.00	110	0	1378	1.59975	0.282309	1.638633	0.289171
Powerwave	7750.00	110	120	1378	1.599749	0.282309	1.638633	0.289171
Powerwave	7750.00	110	240	1378	1.599749	0.282309	1.638633	0.289171

# MetroPCS (Decommissioned) Bridgeport CT 2 Carrier Summary

				,	On A	Axis	Are	ea
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density (μW/cm^2)	Percent of MPE	Max Power Density (μW/cm^2)	Percent of MPE
Kathrein-Scala	80010504	101	0	0	0	0	0	0
Kathrein-Scala	80010504	101	120	0	0	0	0	0
Kathrein-Scala	80010504	101	240	0	0	0	0	0

# Sigfox S.A. (Proposed) Bridgeport CT 2 Carrier Summary

				9	On A	On Axis Ar  Max Power Max Power Density Percent of Density	ea	
Height Antenna Make Model (feet)	Orientation (degrees true)	ERP (Watts)		Percent of MPE		Percent of MPE		
Procom	CXL 900-3LW	88	0	1.22	0.007655	0.001269	0.007655	0.001269

Frequency:

2500

Maximum Permissible Exposure (MPE):

1000

μW/cm<sup>2</sup>

Maximum power density at ground level:

1.668

μW/cm<sup>2</sup>

MHz

Highest percentage of Maximum Permissible Exposure:

0.1668

					On A	Axis	Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density (μW/cm^2)	Percent of MPE	Max Power Density (µW/cm^2)	Percent of MPE
Nokia	AAHC	131	0	3389	1.325128	0.132513	1.652326	0.165233
Nokia	AAHC	131	120	3389	1.325129	0.132513	1.652326	0.165233
Nokia	AAHC	131	240	3389	1.330204	0.13302	1.652326	0.165233

Frequency:

1990

MHz μW/cm^2

Maximum Permissible Exposure (MPE):

1000 1.7701

Maximum power density at ground level:

μW/cm^2

Highest percentage of Maximum Permissible Exposure:

0.17701 %

					On /	Axis	Ar	ea
Antenna Make	Model	Height (feet)		ERP (Watts)	Max Power Density (µW/cm^2)	Percent of MPE	Max Power Density (μW/cm^2)	Percent of MPE
Commscope	NNVV-65B-R4	131	0	2781	1.33049	0.133049	1.756174	0.175617
Commscope	NNVV-65B-R4	131	120	2781	1.32592	0.132592	1.756174	0.175617
Commscope	NNVV-65B-R4	131	240	2781	1.33049	0.133049	1.756174	0.175617

Frequency:

1900

MHz

Maximum Permissible Exposure (MPE):

1000

μW/cm^2

Maximum power density at ground level:

1.7701

μW/cm^2

Highest percentage of Maximum Permissible Exposure:

0.17701

%

					On /	Axis	Are	ea
Antenna Make	Height Orientation nna Make Model (feet) (degrees true)	ERP (Watts)	Max Power Density (μW/cm^2)	Percent of MPE	Max Power Density (μW/cm^2)	Percent of MPE		
Commscope	NNVV-65B-R4	131	0	2781	1.33049	0.133049	1.756174	0.175617
Commscope	NNVV-65B-R4	131	120	2781	1.32592	0.132592	1.756174	0.175617
Commscope	NNVV-65B-R4	131	240	2781	1.33049	0.133049	1.756174	0.175617

Frequency:

869

69 MHz

Maximum Permissible Exposure (MPE):

579.33

Maximum power density at ground level:

0.59275 μW/cm<sup>2</sup>

μW/cm<sup>2</sup>

Highest percentage of Maximum Permissible Exposure:

0.10232 %

				,	On A	Axis	Arc	ea
Antenna Make	Model	Height (feet)	Orientation (degrees true)E	RP (Watts)	Max Power Density (µW/cm^2)	Percent of MPE	Max Power Density (µW/cm^2)	Percent of MPE
Commscope	NNVV-65B-R4	131	0	951	0.530329	0.091541	0.534933	0.092336
Commscope	NNVV-65B-R4	131	120	951	0.529316	0.091366	0.534933	0.092336
Commscope	NNVV-65B-R4	131	240	951	0.530329	0.091541	0.534933	0.092336

Frequency:

862

Maximum Permissible Exposure (MPE):

574.67 μW/cm<sup>2</sup>

Maximum power density at ground level:

MHz 0.59275 μW/cm<sup>2</sup>

Highest percentage of Maximum Permissible Exposure:

0.10315

Antenna Make				,	On A	Axis	Ar	ea
	Model	Height (feet)	Orientation (degrees true) B	ERP (Watts)	Max Power Density (µW/cm^2)	Percent of MPE	Max Power Density (μW/cm^2)	Percent of MPE
Commscope	NNVV-65B-R4	131	0	951	0.530329	0.092285	0.534933	0.093086
Commscope	NNVV-65B-R4	131	120	951	0.529316	0.092108	0.534933	0.093086
Commscope	NNVV-65B-R4	131	240	951	0.530329	0.092285	0.534933	0.093086

Frequency:

700

MHz

Maximum Permissible Exposure (MPE):

466.67 μW/cm<sup>2</sup>

Maximum power density at ground level:

0.72681 μW/cm<sup>2</sup>

Highest percentage of Maximum Permissible Exposure:

0.15575 %

					On A	Axis	Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density (µW/cm^2)	Percent of MPE	Max Power Density (μW/cm^2)	Percent of MPE
RFS	APXVAARR24_43-U-NA20	120	0	1307	0.594716	0.127439	0.624247	0.133767
RFS	APXVAARR24_43-U-NA20	120	120	1307	0.594488	0.12739	0.624247	0.133767
RFS	APXVAARR24_43-U-NA20	120	240	1307	0.594716	0.127439	0.624247	0.133767

Frequency:

600

MHz

Maximum Permissible Exposure (MPE):

400 μW/cm^2

Maximum power density at ground level:

0.67718 μW/cm<sup>2</sup>

Highest percentage of Maximum Permissible Exposure:

0.16929 %

					On /	Axis	Ar	ea
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density (µW/cm^2)	Percent of MPE	Max Power Density (µW/cm^2)	Percent of
RFS	APXVAARR24_43-U-NA20	120	0	1251	0.613812	0.153453	0.624478	0.15612
RFS	APXVAARR24_43-U-NA20	120	120	1251	0.615017	0.153754	0.624478	0.15612
RFS	APXVAARR24_43-U-NA20	120	240	1251	0.613812	0.153453	0.624478	0.15612

Frequency:

2100 MHz

Maximum Permissible Exposure (MPE):

1000 μW/cm<sup>2</sup> 4.93395 μW/cm<sup>2</sup>

Maximum power density at ground level:

Highest percentage of Maximum Permissible Exposure:

0.49339 %

				8.	On A	xis	Area	
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density (μW/cm^2)	Percent of MPE	Max Power Density (μW/cm^2)	Percent of MPE
Ericsson	AIR 32 B2A-B66AA	120	0	2313	3.421866	0.342187	3.421866	0.342187
Ericsson	AIR 3246	120	0	2313	0.788069	0.078807	0.907317	0.090732
Ericsson	AIR 32 B2A-B66AA	120	120	2313	3.401904	0.34019	3.416065	0.341607
Ericsson	AIR 3246	120	120	2313	0.788069	0.078807	0.907317	0.090732
Ericsson	AIR 32 B2A-B66AA	120	240	2313	3.421866	0.342187	3.421866	0.342187
Ericsson	AIR 3246	120	240	2313	0.7883	0.07883	0.907317	0.090732

Antenna Make					On Axis		Are	ea	
	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	Max Power Density (µW/cm^2)	Percent of MPE	Max Power Density (µW/cm^2)	Percent of MPE	
Ericsson	AIR 32 B2A-B66AA	120	0	2313	0.788069	0.078807	0.907317	0.090732	
Ericsson	AIR 32 B2A-B66AA	120	120	2313	0.788069	0.078807	0.907317	0.090732	
Ericsson	AIR 32 B2A-B66AA	120	240	2313	0.7883	0.07883	0.907317	0.090732	



## EXHIBIT 4:

Letter of Authorization



#### **LETTER OF AUTHORIZATION**

SITE NO: See Site List Below

SITE NAME: See Site List Below

**ADDRESS: See Site List Below** 

I, Margaret Robinson, Senior Counsel, US Tower Division on behalf of American Tower\*, owner of the tower facility located at the address identified below (the "Tower Facilities"), do hereby authorize SIGFOX NIP LLC dba SIGFOX S.A., its successors and assigns, to act as American Tower's non-exclusive agent for the purpose of filing and securing any zoning, land-use, building permit and/or electrical permit application(s) and approvals of the applicable jurisdiction for and to conduct the construction of the installation of antennas and related telecommunications equipment on the Tower Facility located at the above address. This installation shall not affect adjoining lands and will occur only within the area leased by American Tower.

American Tower understands that the application may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by American Tower of conditions related to American Tower's installation. Any such conditions of approval or modifications will not be effective unless approved in writing by American Tower.

The above authorization does not permit SIGFOX NIP LLC dba SIGFOX S.A to modify or alter any existing permit(s) and/or zoning or land-use conditions or impose any additional conditions unrelated to American Tower's installation of telecommunications equipment without the prior written approval of American Tower.

Sites Authorized (continued on the next page):

CT9000	ATC 302469
CT9001	ATC 88018
CT9081	ATC 88017
CT9122	ATC 88008
CT9123	ATC 88011
CT9184	ATC 88010



Asset Number	Site Name	Site Address	Site City	Site State	Site Zip
302469	Bridgeport CT 2	1069 Connecticut Avenue	Bridgeport	Connecticut	06607-1226
88018	STAMFORD (KATOONA)	168 Catoona Lane	Stamford	Connecticut	06902-4573
88017	SHELTON- TRUMBULL	14 OXFORD DRIVE/BOOTH HILL RD	SHELTON	Connecticut	06484-3455
88008	BETHANY CT	93 Old Amity Road	Bethany	Connecticut	06524-3400
88011	EAST KILLINGLY NORTH	1375 North Road	Killingly	Connecticut	06241-1404
88010	DURHAM CT	373 CHAMBERLAIN HILL RD	Higganum	Connecticut	06441-4062

Signature:

Margaret Robinson, Senior Counsel US Tower Division

#### **NOTARY BLOCK**

COMMONWEALTH OF MASSACHUSETTS County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Senior Counsel of American Tower (Tower Facility owner), personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same.

WITNESS my hand and official seal, this 18th day of June, 2019.

NOTA

MELISSA ANN METZLER

Notary Public

Commonwealth of Massachusetts

My Commission Expires March 14, 2025

Notary Public My Commission Expires: March 14, 2025

<sup>\*</sup> American Tower as used herein is defined as American Tower Corporations and any of its affiliates or subsidiaries.



## **EXHIBIT 5:**

Proof of Mailing to Local Municipality



#### After printing this label:

- 1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
- 2. Fold the printed page along the horizontal line.
- 3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

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.



#### Shipment Receipt

Address Information

Ship to:

Ship from:

Mr. Thomas F. Gill

T-Squared Site Services,

LLC

Office of Planning and

Economic Dev

999 Broad Street

2500 Highland Rd

Suite 201

BRIDGEPORT, CT

Hermitage, PA

06604

16148

US

US 7243087855

7243087855

#### **Shipment Information:**

Tracking no.: 775580773595

Ship date: 06/27/2019

Estimated shipping charges: 8.65 USD

#### **Package Information**

Pricing option: FedEx One Rate Service type: FedEx Express Saver Package type: FedEx Envelope

Number of packages: 1

Total weight:

Declared Value: 0.00 USD

Special Services:

Pickup/Drop-off: pickup confirmation number:YNGA41

#### **Billing Information:**

Bill transportation to: My Account - 350-350

Your reference:

P.O. no.: Invoice no.: Department no.:

Thank you for shipping online with FedEx ShipManager at fedex.com.

#### Please Note

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 \$1000, e.g., Guide for details.

The estimated shipping charge may be different than the actual charges for your shipment. Differences may occur based on actual weight, dimensions, and other factors. Consult the applicable Fedex Service Guide or the FedEx Rate Sheets for details on how shipping charges are calculated.



## EXHIBIT 6:

Proof of Mailing to Tower Owner/Property Owner

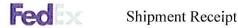


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#### Address Information

Ship to: Ship from:

Mr. Jason Hastie T-Squared Site Services,

LLC

American Tower Corporation

10 Presidentail Way 2500 Highland Rd

Suite 201

WOBURN, MA Hermitage, PA

01801 16148 US US

7243087855 7243087855

#### **Shipment Information:**

Tracking no.: 775580833675

Ship date: 06/27/2019

Estimated shipping charges: 8.65 USD

#### Package Information

Pricing option: FedEx One Rate Service type: FedEx Express Saver Package type: FedEx Envelope

Number of packages: 1

Total weight:

Declared Value: 0.00 USD

Special Services:

Pickup/Drop-off: pickup confirmation number: YNGA42

#### **Billing Information:**

Bill transportation to: My Account - 350-350

Your reference:

P.O. no.: Invoice no.: Department no.:

Thank you for shipping online with FedEx ShipManager at fedex.com.

#### Please Note

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 \$1000, e.g., jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits; Consult the applicable FedEx Service Guide for details.

Office to details.

The estimated shipping charge may be different than the actual charges for your shipment. Differences may occur based on actual weight, dimensions, and other factors. Consult the applicable FedEx Service Guide or the FedEx Rate Sheets for details on how shipping charges are calculated.