



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)

[www.ct.gov/csc](http://www.ct.gov/csc)

### VIA ELECTRONIC MAIL

August 7, 2019

Craig A. Russo, PE  
Engineer  
T-Squared Site Services  
2500 Highland Road, Suite 201  
Hermitage, PA 16148

RE: **TS-SIGFOX-015-190702** – Sigfox NIP, LLC request for an order to approve tower sharing at an existing telecommunications facility located at 1069 Connecticut Avenue, Bridgeport, Connecticut.

Dear Mr. Russo:

The Connecticut Siting Council (Council) is in receipt of your correspondence of July 31, 2019 submitted in response to the Council's July 10, 2019 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman  
Executive Director

MAB/IN/emr

## Robidoux, Evan

---

**From:** Craig A. Russo, P.E. <craig.r@t-sqrd.com>  
**Sent:** Wednesday, July 31, 2019 2:56 PM  
**To:** Robidoux, Evan  
**Cc:** CSC-DL Siting Council  
**Subject:** RE: Council Incomplete Letter for TS-SIGFOX-015-190702-ConnecticutAve-Bridgeport  
**Attachments:** CT9000 Siting Council Narrative\_REVISED.pdf

Good Afternoon Evan,

Please find the attached REVISED submission. Please accept this as your digital copy and note that we are providing an original signed document as requested that will go out via FEDEX today.

Thank you!

Craig A. Russo, P.E. | Engineer  
T-Squared Site Services  
724.308.7855 (o) | 724.333.0517 (m)

**From:** Robidoux, Evan <Evan.Robidoux@ct.gov>  
**Sent:** Friday, July 12, 2019 11:23 AM  
**To:** 'Craig A. Russo, P.E.' <craig.r@t-sqrd.com>  
**Cc:** CSC-DL Siting Council <Siting.Council@ct.gov>  
**Subject:** Council Incomplete Letter for TS-SIGFOX-015-190702-ConnecticutAve-Bridgeport

Please see the attached correspondence.

Evan Robidoux  
Clerk Typist  
Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051



July 29, 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.

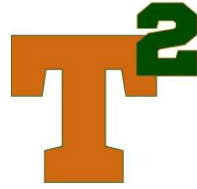
### **Background**

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.

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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. Technical Feasibility.** 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. Environmental Feasibility.** 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





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. **Public Safety Concerns.** 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 proposed shared use.

Sincerely,

Craig A. Russo, P.E.  
Engineer  
T-Squared Site Services  
2500 Highland Road, Suite 201  
Hermitage, PA 16148  
724.308.7855  
craig.r@t-sqrd.com

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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
- Exhibit-7: Proof of Mailing to Property Owner

Copies to:

The Honorable Joseph P. Ganim  
Mayor, City of Bridgeport  
Margaret E. Morton Government Center  
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

WR CT Avenue, LLC  
440 Mamaroneck Avenue  
Suite N-503  
Harrison, NY 10528

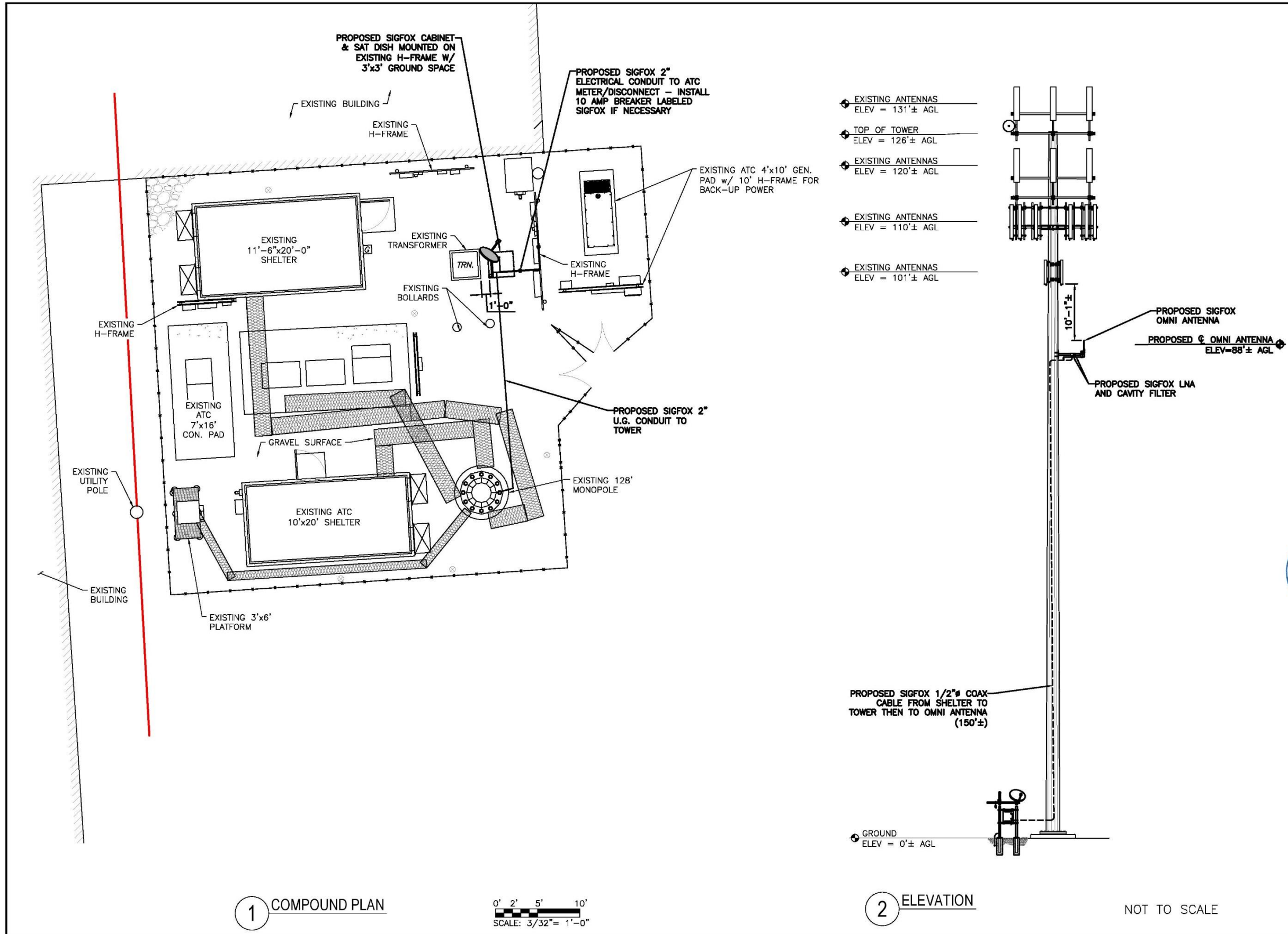


**EXHIBIT 1:**

**Compound Plan and Elevation Depicting the Planned Changes**







**T<sup>2</sup>**  
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 HERMITAGE, PA 16148  
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 SIGFOX, INC.  
 545 BOYLSTON STREET  
 10TH FLOOR  
 BOSTON, MA, 02116

REVISIONS

NO.	DESCRIPTION	DATE	BY	REV

FINAL CD	DATE	BY	REV
PRELIMINARY	01.28.18	KE	B
	12.3.18	KE	A

PROFESSIONAL SEAL

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE INFORMATION

CT9000  
 1069 CONNECTICUT AVE.  
 BRIDGEPORT, CT 06607  
 FAIRFIELD COUNTY

SHEET TITLE

**COMPOUND PLAN & ELEVATION**

SHEET NUMBER	SCALE: AS NOTED
<b>C-1</b>	DRAWN BY: KE
	CHECKED BY: KE
	DATE: 1/28/19







**ELECTRICAL NOTES**

- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED SPECIFICATION REQUIREMENTS.
- THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
- GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
- ELECTRICAL AND TELCO WIRING AT EXPOSED INDOOR LOCATIONS SHALL BE IN ELECTRICAL METALLIC TUBING OR RIGID NONMETALLIC TUBING (RIGID SCHEDULE 40 PVC OR RIGID SCHEDULE 80 PVC FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) (AS PERMITTED BY CODE).
- ELECTRICAL AND TELCO WIRING AT CONCEALED INDOOR LOCATIONS SHALL BE IN ELECTRICAL METALLIC TUBING, ELECTRICAL NONMETALLIC TUBING, OR RIGID NONMETALLIC TUBING (RIGID SCHEDULE 40 PVC AS PERMITTED BY CODE).
- ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING, ABOVE GRADE AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS (RGS) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
- BURIED CONDUIT SHALL BE RIGID NONMETALLIC CONDUIT (RIGID SCHEDULE 40 PVC); DIRECT BURIED IN AREAS OF OCCASIONAL LIGHT TRAFFIC, ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY TRAFFIC.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT SHALL BE USED INDOORS AND OUTDOORS IN AREAS WHERE VIBRATION OCCURS AND FLEXIBILITY IS NEEDED.
- ELECTRICAL WIRING SHALL BE COPPER WITH TYPE THHN, THWN-2, OR THIN INSULATION.

ELECTRICAL PANEL									
PANEL NAME: N/A    120/240 VOLTS    3 WIRE    1 PHASE    MAIN BREAKER: 100A									
CCT NO	LOAD DESCRIPTION	LOAD (VA)	POLE	AMP	AMP	POLE	LOAD (VA)	LOAD DESCRIPTION	CCT NO
1	SIGFOX BASE UNIT	1440	1	10					2
3									4
5									6
7									8
9									10
11									12

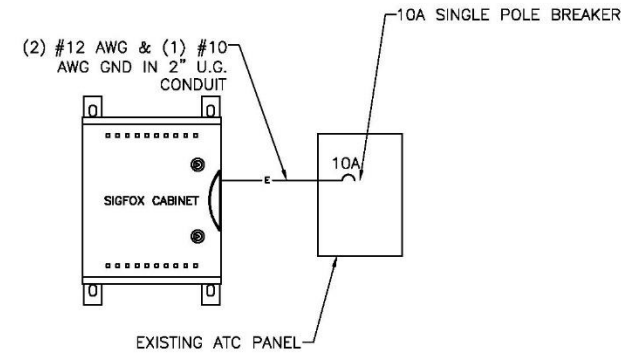
TOTAL CONNECTED LOAD (VA): 1,440  
 MAXIMUM LOAD CURRENT (A): 6  
 PANEL CAPACITY (A): 100  
 SPARE CAPACITY (A): 96

**1** PANEL SCHEDULE  
N.T.S.

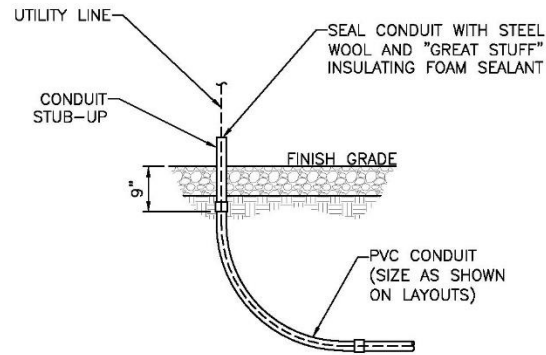
**ELECTRICAL NOTES**

ISOLATION OF SIGFOX POWER MUST BE MAINTAINED USING A 10 AMP SINGLE POLE BREAKER, LABELED SIGFOX, BETWEEN POWER SOURCE AND SIGFOX EQUIPMENT.

SUPPLY NEW BREAKER IN EXISTING PANELS AND/OR NEW BREAKERS IN DISCONNECT IF NEEDED.

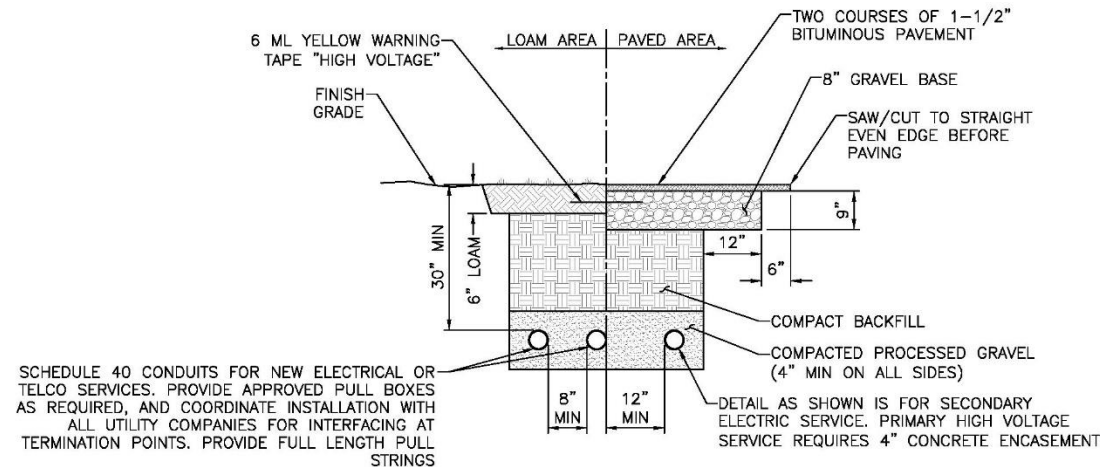


**2** ELECTRICAL ONE-LINE DIAGRAM  
N.T.S.



NOTE:  
CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF CONDUIT STUB-UP

**3** CONDUIT STUB-UP DETAIL (IF NEEDED)  
N.T.S.



SCHEDULE 40 CONDUITS FOR NEW ELECTRICAL OR TELCO SERVICES. PROVIDE APPROVED PULL BOXES AS REQUIRED, AND COORDINATE INSTALLATION WITH ALL UTILITY COMPANIES FOR INTERFACING AT TERMINATION POINTS. PROVIDE FULL LENGTH PULL STRINGS

**4** UTILITY TRENCH DETAIL (IF NEEDED)  
N.T.S.

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 545 BOYLSTON STREET  
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 BOSTON, MA. 02116

REVISIONS

NO.	DESCRIPTION	DATE	BY	REV

FINAL CD	DATE	BY	REV
PRELIMINARY	01.28.19	KE	B
	12.3.18	KE	A

PROFESSIONAL SEAL

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SITE INFORMATION

CT9000  
 1069 CONNECTICUT AVE.  
 BRIDGEPORT, CT 06607  
 FAIRFIELD COUNTY

SHEET TITLE

**ELECTRICAL DETAILS**

SHEET NUMBER: **E-1**

SCALE: AS NOTED

DRAWN BY: KE

CHECKED BY: KE

DATE: 1/28/19

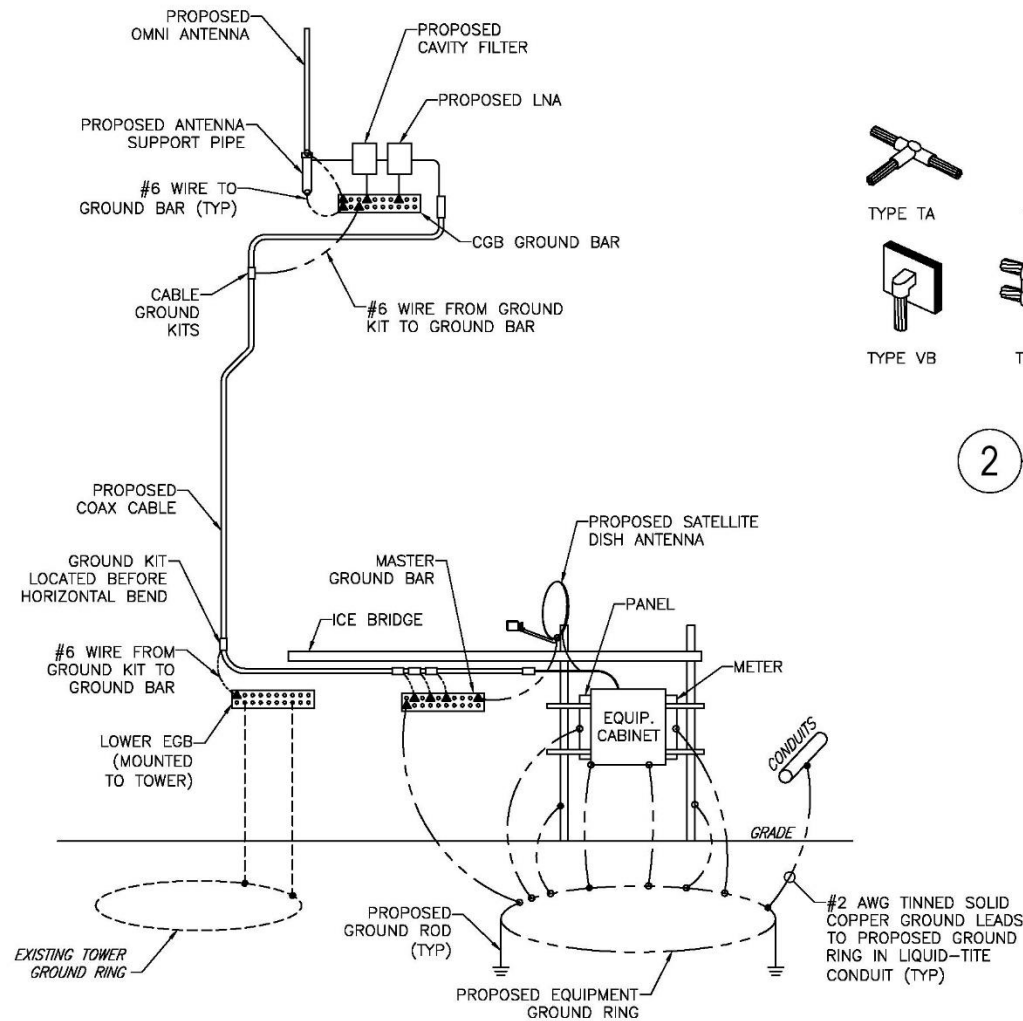




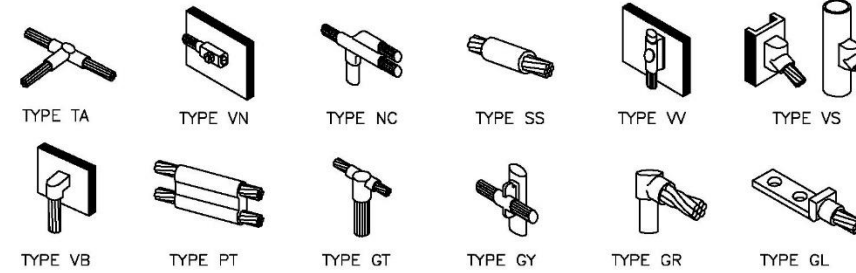
**GROUNDING NOTES**

- GROUNDING SHALL COMPLY WITH BED ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTING PROTECTION SHALL BE DONE IN ACCORDANCE WITH METRO MOD CELL SITE GROUNDING STANDARDS.
- GROUND CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
- 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 AT 6" 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.
- 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 OHMS MINIMUM RESISTANCE REQUIRED.
- CONTRACTOR SHALL CONDUCT ANTENNA, CABLE, AND LNA RETURN-LOSS AND DISTANCE-TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.

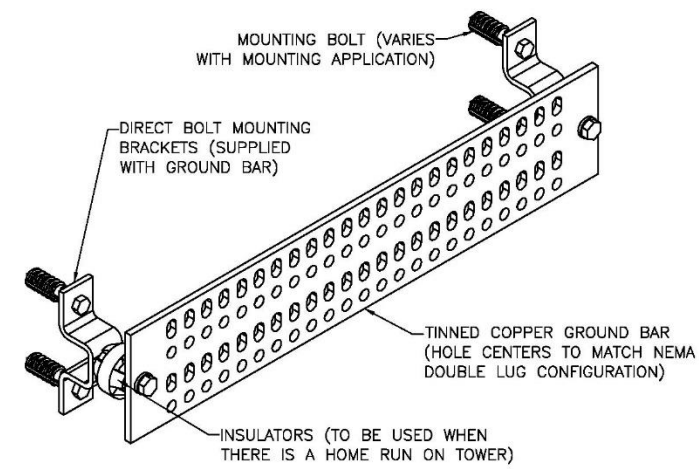
GROUNDING LEGEND	
	COMPRESSION FITTING CONNECTION
	EXOTHERMIC WELD CONNECTION
	PROPOSED GROUND WIRING
	EXISTING GROUND WIRING



**1 GROUNDING RISER DIAGRAM**  
N.T.S.



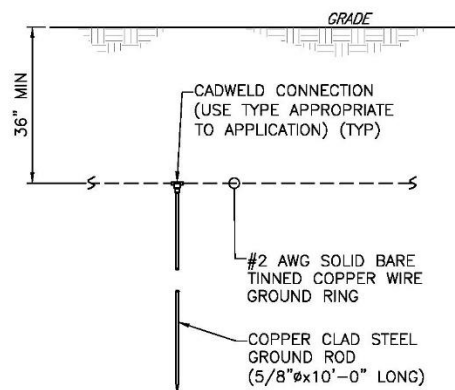
**2 CADWELD GROUNDING CONNECTION DETAILS**  
N.T.S.



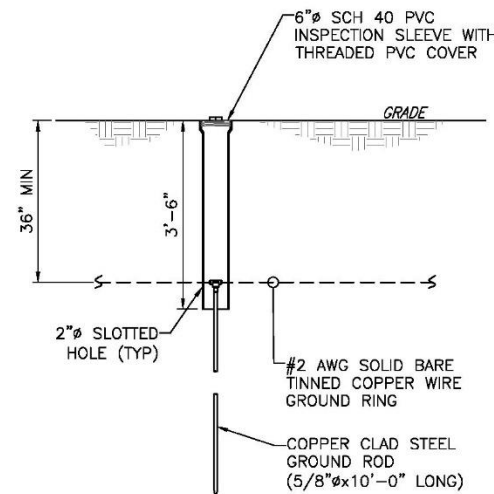
**GROUND BAR SCHEDULE**

TYPE	QTY	MANUFACTURER	PART NO.	REMARKS
MGB	2	COMMSCOPE	UGBKIT-0120-T	OR EQUAL
CBG	1	COMMSCOPE	UGBKIT-0412	OR EQUAL

**3 GROUND BAR DETAIL**  
N.T.S.



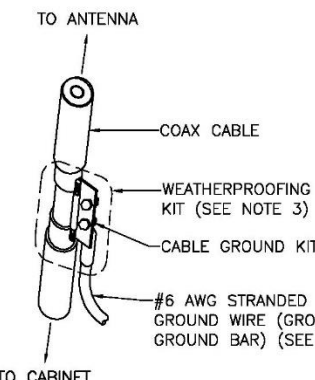
**4 TYPICAL GROUND ROD DETAIL**  
N.T.S.



**5 GROUNDING ROD INSPECTION WELL**  
N.T.S.

**NOTES**

- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
- 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.



**6 COAXIAL CABLE GROUNDING**  
N.T.S.

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REVISIONS

NO.	DESCRIPTION	DATE	BY	REV

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PRELIMINARY	01.28.19	KE	B
	12.3.18	KE	A

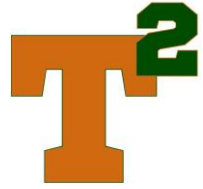
PROFESSIONAL SEAL  
STATE OF CONNECTICUT  
BARRY W. GLOWER  
No. 27934  
LICENSED PROFESSIONAL ENGINEER  
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE INFORMATION  
CT9000  
1069 CONNECTICUT AVE.  
BRIDGEPORT, CT 06607  
FAIRFIELD COUNTY

SHEET TITLE  
**GROUNDING DETAILS**

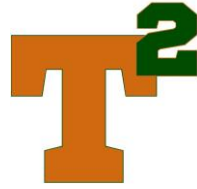
SHEET NUMBER: **G-1**  
SCALE: AS NOTED  
DRAWN BY: KE  
CHECKED BY: KE  
DATE: 12/3/18





**EXHIBIT 2:**

**Structural Modification Report**



**AMERICAN TOWER®**  
CORPORATION

This report was prepared for American Tower Corporation by



**TOWER  
ENGINEERING  
PROFESSIONALS**

---

## Structural Analysis Report

**Structure** : 125.7 ft Monopole  
**ATC Site Name** : Bridgeport CT 2, CT  
**ATC Site Number** : 302469  
**Engineering Number** : OAA743184\_C3\_04  
**Proposed Carrier** : Sigfox S.A.  
**Carrier Site Name** : CT9000\_ATC\_302469  
**Carrier Site Number** : CT9000  
**Site Location** : 1069 Connecticut Avenue  
Bridgeport, CT 06607-1226  
41.183600,-73.158400  
**County** : Fairfield  
**Date** : July 18, 2019  
**Max Usage** : 60%  
**Result** : Pass

Prepared By:  
Ryan N. Morofsky, E.I.  
TEP

Reviewed By:



07/18/2019

COA: PEC.0001553



Eng. Number OAA743184\_C3\_04  
July 18, 2019

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Standard Conditions .....	4
Calculations .....	Attached



Eng. Number OAA743184\_C3\_04

July 18, 2019

Page 1

## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 125.7 ft monopole to reflect the change in loading by Sigfox S.A..

## Supporting Documents

<b>Tower Drawings</b>	EI Project #5543, dated October 14, 1999
<b>Foundation Drawing</b>	EI Project #5543, dated October 14, 1999
<b>Geotechnical Report</b>	Applied Earth Technologies Project #9903A, dated November 23, 1999
<b>Modifications</b>	ATC Job #41045932, dated November 2, 2007

## Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

<b>Basic Wind Speed:</b>	97 mph (3-Second Gust $V_{asd}$ ) / 125 mph (3-Second Gust $V_{ult}$ )
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
<b>Structure Class:</b>	II
<b>Exposure Category:</b>	B
<b>Topographic Category:</b>	1
<b>Spectral Response:</b>	$S_s = 0.21$ , $S_1 = 0.06$
<b>Site Class:</b>	D - Stiff Soil

## Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



**Existing and Reserved Equipment**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
131.0	6	Alcatel-Lucent RRH2x50-08	T-Arms	(3) 1 1/4" Hybriflex Cable (1) 1.7" (43.2mm) Hybrid (3) 1/2" Coax (2) 2" conduit	CLEARWIRE CORPORATION
	3	Alcatel-Lucent 1900 MHz 4X45 RRH			
	3	Nokia 2.5G MAA - AAHC(64T64R)			
	1	DragonWave A-ANT-18G-2-C			
	3	Commscope NNVV-65B-R4			
	2	DragonWave Horizon Compact			
	1	DragonWave A-ANT-23G-1-C			
127.0	1	24" x 24" Junction Box			
116.0	3	Ericsson KRY 112 489/2	Low Profile Platform	(2) 1 1/4" (1.25"-31.8mm) Fiber (1) 1 5/8" (1.63"-41.3mm) Fiber (18) 1 5/8" Coax	T-MOBILE
	3	Ericsson Radio 4449 B12,B71			
	3	Ericsson AIR-32 B2A/B66Aa			
	3	Ericsson Air 3246 B66			
	3	RFS APXVAARR24_43-U-NA20			
	3	Ericsson KRY 112 144/2			
	3	Kathrein Scala Smart Bias Tee			
106.0	3	Powerwave Allgon 7750.00	Platform with Handrails	(2) 2" conduit (2) 0.39" (10mm) Fiber Trunk (4) 0.78" (19.7mm) 8 AWG 6 (12) 1 5/8" Coax	AT&T MOBILITY
	3	Ericsson RRUS 32 B30 (53 lbs)			
	3	Ericsson Radio 8843 - B2 + B66A			
	6	CCI OPA-65R-LCUU-H4			
	2	Raycap DC6-48-60-18-8F ("Squid")			
	3	Kaelus DBC0061F1V51-2			
	6	Kaelus DBC0062F3V52-1			
98.0	6	Powerwave Allgon LGP21401	Flush	(6) 1 5/8" Coax (1) 3/8" Coax	METRO PCS INC
	3	Kathrein Scala 800 10504			
	3	RCU (Remote Control Unit)			

**Equipment to be Removed**

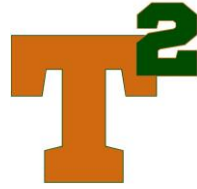
Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
No loading was considered as removed as part of this analysis.					

**Proposed Equipment**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
88.0	1	Procom CXL 900-3LW	Side Arm	(1) 1/2" Coax	SIGFOX S.A.
	1	5" x 3" x 2" Cavity Filter			
	1	Low Noise Amplifier			

<sup>1</sup> Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines outside the pole shaft. Stacking lines is not allowed.



**Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	47%	Pass
Shaft	49%	Pass
Base Plate	32%	Pass

**Foundations**

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	2,049.1	2,766.3	1,594.2	58%
Shear (Kips)	20.7	27.9	16.7	60%

\*The design reactions are factored by 1.35 per ANSI/TIA-222-H, Sec. 15.6.2

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

**Deflection and Sway\***

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
131.0	DragonWave A-ANT-23G-1-C	CLEARWIRE CORPORATION	1.088	0.940
	DragonWave A-ANT-18G-2-C			
88.0	Procom CXL 900-3LW	SIGFOX S.A.	0.519	0.726
	5" x 3" x 2" Cavity Filter			
	Low Noise Amplifier			

\*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G



### **Standard Conditions**

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

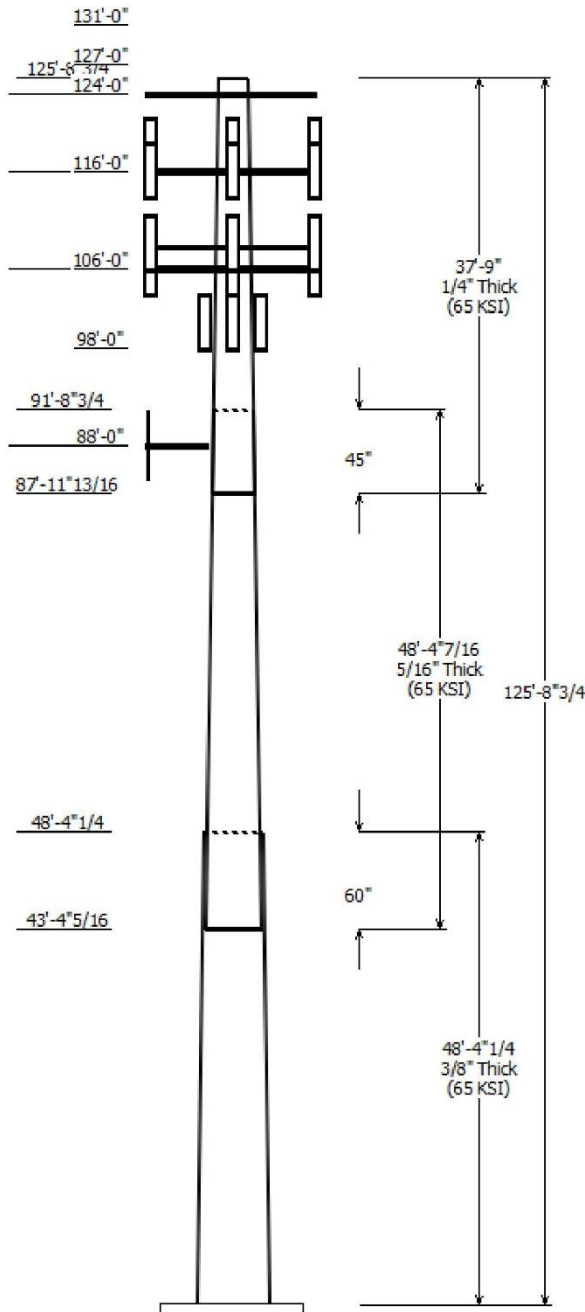
Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.





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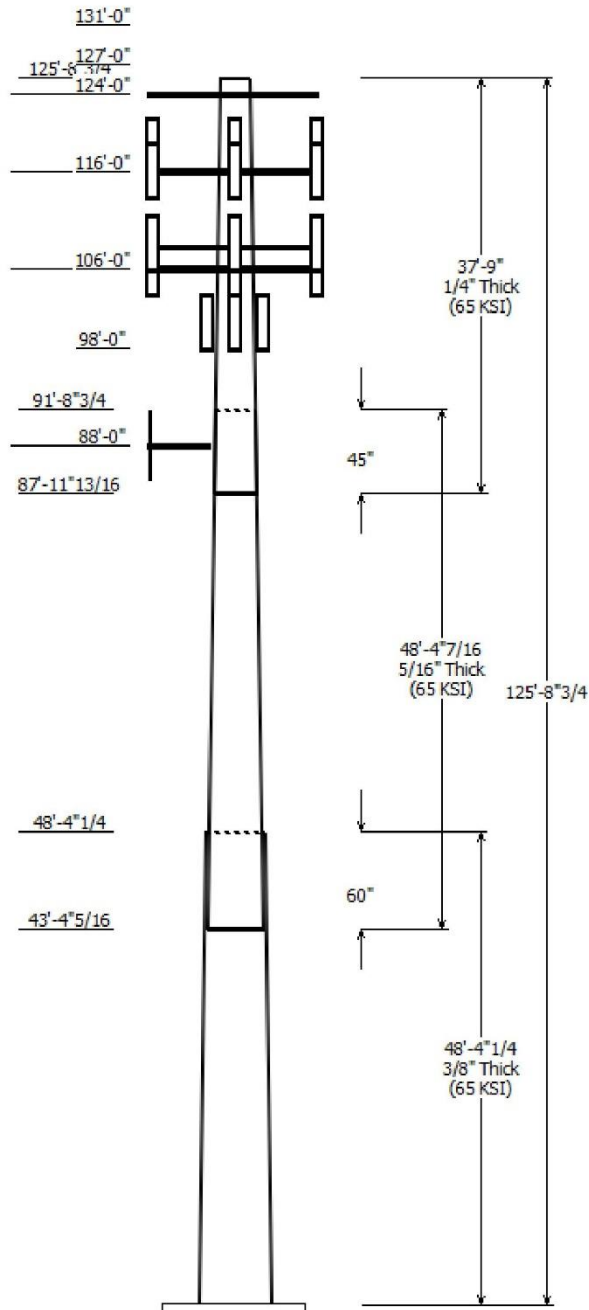
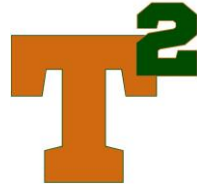
Job Information			
Client : SIGFOX S.A.	Code: ANSI/TIA-222-G		
Pole : 302469	Struct Class : II		
Location : Bridgeport CT 2, CT	Exposure : B		
Description : 126 ft Monopole	Height : 125.73 (ft)		
Shape : 18 Sides	Topo : 1		
Base Elev (ft): 0.00	Taper: 0.23512(in/ft)		

Sections Properties							
Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap Length (in)	Steel Grade
		Top	Bottom				
1	48.352	34.13	45.50	0.375		0.000	18 Sides 65
2	48.370	24.55	35.93	0.313	Slip Joint	59.906	18 Sides 65
3	37.748	17.06	25.93	0.250	Slip Joint	44.969	18 Sides 65

Discrete Appurtenance				
Attach Elev (ft)	Force Elev (ft)	Qty	Description	
131.000	131.000	3	Commscope NNVV-65B-R4	
131.000	127.000	1	DragonWave A-ANT-18G-2-C	
131.000	131.000	3	Nokia 2.5G MAA -	
131.000	131.000	3	Alcatel-Lucent 1900 MHz 4X45	
131.000	131.000	6	Alcatel-Lucent RRH2x50-08	
131.000	127.000	1	DragonWave A-ANT-23G-1-C	
131.000	127.000	2	DragonWave Horizon Compact	
127.000	127.000	1	Generic 24" x 24" Junction Box	
124.000	124.000	3	Round T-Arm	
116.000	116.000	1	Round Low Profile Platform	
116.000	116.000	3	RFS APXVAARR24_43-U-NA20	
116.000	116.000	3	Ericsson Air 3246 B66	
116.000	120.000	3	Ericsson AIR-32 B2A/B66Aa	
116.000	116.000	3	Ericsson Radio 4449 B12,B71	
116.000	116.000	3	Ericsson KRY 112 489/2	
116.000	116.000	3	Ericsson KRY 112 144/2	
116.000	120.000	3	Kathrein Scala Smart Bias Tee	
106.000	106.000	1	Round Platform w/ Handrails	
106.000	110.000	6	CCI OPA-65R-LCUU-H4	
106.000	106.000	3	Powerwave Allgon 7750.00	
106.000	110.000	3	Ericsson RRUS-11 (19.7")	
106.000	106.000	3	Ericsson RRUS 32 B30 (53 lbs)	
106.000	106.000	3	Ericsson Radio 8843 - B2 + B66	
106.000	110.000	2	Raycap DC6-48-60-18-8F	
106.000	106.000	6	Powerwave Allgon LGP21401	
106.000	106.000	6	Kaelus DBC0062F3V52-1	
106.000	106.000	3	Kaelus DBC0061F1V51-2	
98.000	101.000	3	Kathrein Scala 800 10504	
98.000	101.000	3	Generic RCU (Remote Control	
88.000	88.000	1	Flat Side Arm	
88.000	88.000	1	Generic Low Noise Amplifier	
88.000	88.000	1	Generic 5" x 3" x 2" Cavity Fi	
88.000	88.000	1	Procom CXL 900-3LW	

Linear Appurtenance			
Elev (ft) From	To	Description	Exposed To Wind
0.000	88.000	1/2" Coax	Yes
0.000	98.000	1 5/8" Coax	Yes
0.000	98.000	3/8" Coax	Yes
0.000	106.0	0.39" (10mm)	Yes
0.000	106.0	0.78" (19.7mm) 8	Yes





0.000	106.0	1 5/8" Coax	Yes
0.000	110.0	2" conduit	No
0.000	116.0	1 1/4" (1.25")	No
0.000	116.0	1 5/8" (1.63")	No
0.000	116.0	1 5/8" Coax	No
0.000	131.0	1 1/4" Hybriflex	No
0.000	131.0	1.7" (43.2mm)	No
0.000	131.0	1/2" Coax	No
0.000	131.0	2" conduit	No

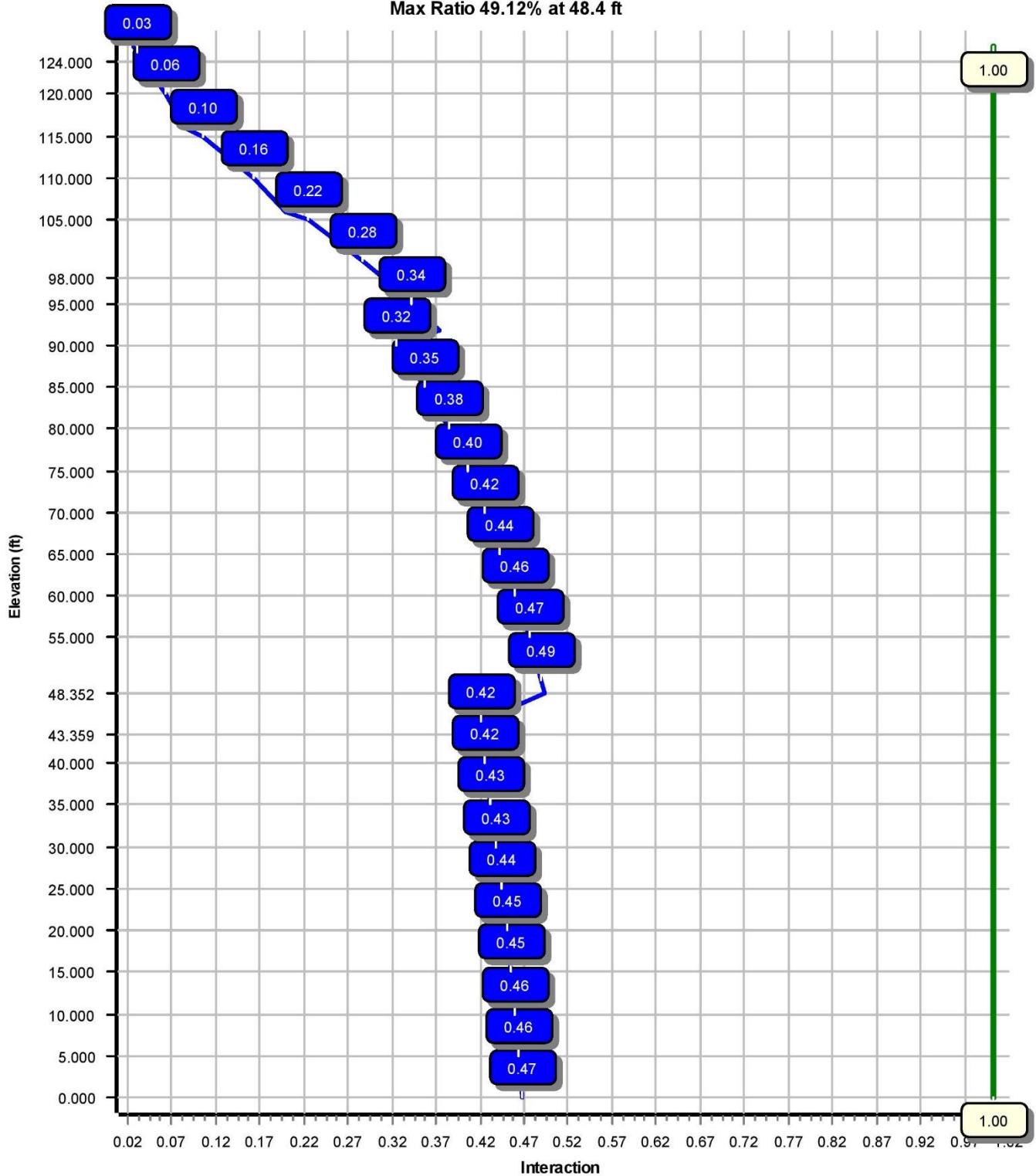
Load Cases	
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	1594.18	16.67	35.75
0.9D + 1.6W	1533.95	16.20	26.81
1.2D + 1.0Di + 1.0Wi	785.80	10.69	65.28
(1.2 + 0.2Sds) * DL + E ELFM	123.93	1.17	35.63
(1.2 + 0.2Sds) * DL + E EMAM	240.51	2.31	35.63
(0.9 - 0.2Sds) * DL + E ELFM	121.96	1.17	24.49
(0.9 - 0.2Sds) * DL + E EMAM	236.45	2.31	24.49
1.0D + 1.0W	329.83	3.47	29.81

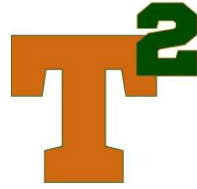
Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	125.73	13.056	0.941
1.0D + 1.0W	125.73	13.056	0.941



Load Case : 1.2D + 1.6W  
Max Ratio 49.12% at 48.4 ft







Site Number: 302469 Code: ANSI/TIA-222-G © 2007 - 2019 by ATC IP LLC. All rights reserved.  
 Site Name: Bridgeport CT 2, CT Engineering Number: OAA743184\_C3\_04 7/18/2019 4:37:43 PM  
 Customer: SIGFOX S.A.

### Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Slip		Weight (lb)	Bottom				Top				Taper (in/ft)				
				Joint Type	Joint Len (in)		Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)		Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio
1-18	48.352	0.3750	65		0.00	7,723	45.50	0.00	53.71	13817.4	19.98	121.33	34.13	48.35	40.18	5784.3	14.64	91.02	0.235121
2-18	48.370	0.3125	65	Slip	59.91	4,886	35.93	43.36	35.33	5662.3	18.86	114.98	24.55	91.73	24.05	1785.9	12.45	78.58	0.235121
3-18	37.748	0.2500	65	Slip	44.97	2,166	25.93	87.98	20.38	1699.4	16.88	103.75	17.06	125.73	13.34	476.5	10.62	68.25	0.235121
						Shaft Weight	14,776												

### Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor	Weight (lb)	Ice EPAa (sf)	Orientation Factor
131.00	DragonWave Horizon Compact	2	0.80	-4.000	10.60	0.720	0.50	32.73	1.279	0.50
131.00	DragonWave A-ANT-23G-1-C	1	0.80	-4.000	15.00	1.610	1.00	49.77	2.355	1.00
131.00	Alcatel-Lucent RRH2x50-08	6	0.80	0.000	52.90	1.700	0.50	111.23	2.549	0.50
131.00	Alcatel-Lucent 1900 MHz 4X45	3	0.80	0.000	60.00	2.320	0.67	139.32	3.383	0.67
131.00	Nokia 2.5G MAA - AAHC(64T64R)	3	0.80	0.000	103.60	4.200	0.64	214.56	5.519	0.64
131.00	DragonWave A-ANT-18G-2-C	1	0.80	-4.000	27.10	4.690	1.00	123.15	5.944	1.00
131.00	Commscope NNVV-65B-R4	3	0.80	0.000	77.40	12.270	0.64	324.71	15.030	0.64
127.00	Generic 24" x 24" Junction Box	1	0.80	0.000	20.00	4.800	1.00	133.00	6.199	1.00
124.00	Round T-Arm	3	0.75	0.000	330.00	9.700	0.67	600.79	17.792	0.67
116.00	Kathrein Scala Smart Bias Tee	3	0.80	4.000	3.30	0.080	0.50	6.51	0.283	0.50
116.00	Ericsson KRY 112 144/2	3	0.80	0.000	9.70	0.480	0.50	23.56	0.943	0.50
116.00	Ericsson KRY 112 489/2	3	0.80	0.000	15.40	0.560	0.50	32.64	1.073	0.50
116.00	Ericsson Radio 4449 B12,B71	3	0.80	0.000	74.00	1.640	0.50	128.65	2.464	0.50
116.00	Ericsson AIR-32 B2A/B66Aa	3	0.80	4.000	132.20	6.510	0.71	288.01	8.648	0.71
116.00	Ericsson Air 3246 B66	3	0.80	0.000	180.00	7.940	0.69	2,819.73	10.154	0.69
116.00	RFS APXVAARR24_43-U-NA20	3	0.80	0.000	127.90	20.240	0.63	511.14	23.860	0.63
116.00	Round Low Profile Platform	1	1.00	0.000	1,500.00	21.700	1.00	2,132.47	40.442	1.00
106.00	Kaelus DBC0061F1V51-2	3	0.75	0.000	25.50	0.430	0.50	43.37	0.862	0.50
106.00	Kaelus DBC0062F3V52-1	6	0.75	0.000	13.20	0.710	0.50	30.19	1.256	0.50
106.00	Powerwave Allgon LGP21401	6	0.75	0.000	14.10	1.100	0.50	38.24	1.788	0.50
106.00	Raycap DC6-48-60-18-8F	2	0.75	4.000	31.80	1.470	1.00	91.49	2.146	1.00
106.00	Ericsson Radio 8843 - B2 + B66A	3	0.75	0.000	71.90	1.650	0.50	131.50	2.470	0.50
106.00	Ericsson RRUS 32 B30 (53 lbs)	3	0.75	0.000	53.00	2.740	0.67	124.15	3.870	0.67
106.00	Ericsson RRUS-11 (19.7")	3	0.75	4.000	51.00	2.790	0.67	124.62	3.849	0.67
106.00	Powerwave Allgon 7750.00	3	0.75	0.000	27.00	5.560	0.65	136.98	7.632	0.65
106.00	CCI OPA-65R-LCUU-H4	6	0.75	4.000	57.00	6.080	0.66	193.10	7.920	0.66
106.00	Round Platform w/ Handrails	1	1.00	0.000	2,000.00	27.200	1.00	3,253.54	50.847	1.00
98.00	Generic RCU (Remote Control	3	1.00	3.000	1.00	0.140	1.00	6.30	0.462	1.00
98.00	Kathrein Scala 800 10504	3	1.00	3.000	17.60	3.340	0.66	77.82	5.076	0.66
88.00	Procom CXL 900-3LW	1	1.00	0.000	1.50	0.130	1.00	6.58	0.804	1.00
88.00	Generic 5" x 3" x 2" Cavity Filter	1	1.00	0.000	1.50	0.140	1.00	6.15	0.399	1.00
88.00	Generic Low Noise Amplifier	1	1.00	0.000	2.00	0.170	1.00	7.36	0.451	1.00
88.00	Flat Side Arm	1	1.00	0.000	150.00	6.300	0.67	219.49	8.635	0.67
Totals	Num Loadings:33		91			8,706.60		25,619.62		

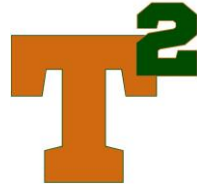
### Linear Appurtenance Properties

Load Case Azimuth (deg) :

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Flat	Dist Coax / Row	Dist Between Rows (in)	Dist Between Cols (in)	Dist Exposed Face (in)	Exposed To Wind Carrier
0.00	131.00	3	1 1/4" Hybriflex Cable	1.54	1.00	N	0	0.00	0.00	0	N CLEARWIRE
0.00	131.00	1	1.7" (43.2mm) Hybrid	1.70	1.78	N	0	0.00	0.00	0	N CLEARWIRE
0.00	131.00	3	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	N CLEARWIRE
0.00	131.00	2	2" conduit	2.38	3.65	N	0	0.00	0.00	0	N CLEARWIRE
0.00	116.00	2	1 1/4" (1.25" - 31.8mm)	1.25	1.05	N	0	0.00	0.00	0	N T-MOBILE







Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA743184\_C3\_04

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Customer: SIGFOX S.A.

**Segment Properties** (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)
0.00		0.3750	45.500	53.708	13,817.4	19.98	121.33	77.9	598.1	0.0	0.0
5.00		0.3750	44.324	52.309	12,765.4	19.43	118.20	78.5	567.2	0.0	901.9
10.00		0.3750	43.149	50.910	11,768.2	18.88	115.06	79.2	537.2	0.0	878.1
15.00		0.3750	41.973	49.510	10,824.3	18.33	111.93	79.8	507.9	0.0	854.3
20.00		0.3750	40.798	48.111	9,932.2	17.77	108.79	80.5	479.5	0.0	830.5
25.00		0.3750	39.622	46.712	9,090.6	17.22	105.66	81.1	451.9	0.0	806.7
30.00		0.3750	38.446	45.313	8,297.9	16.67	102.52	81.8	425.1	0.0	782.9
35.00		0.3750	37.271	43.914	7,552.7	16.11	99.39	82.4	399.1	0.0	759.0
40.00		0.3750	36.095	42.514	6,853.5	15.56	96.25	82.6	374.0	0.0	735.2
43.36	Bot - Section 2	0.3750	35.305	41.574	6,408.9	15.19	94.15	82.6	357.5	0.0	480.6
45.00		0.3750	34.920	41.115	6,198.9	15.01	93.12	82.6	349.6	0.0	427.0
48.35	Top - Section 1	0.3125	34.757	34.163	5,120.8	18.20	111.22	80.0	290.2	0.0	857.6
50.00		0.3125	34.369	33.779	4,949.8	17.98	109.98	80.3	283.7	0.0	190.5
55.00		0.3125	33.193	32.612	4,454.7	17.32	106.22	81.0	264.3	0.0	564.8
60.00		0.3125	32.018	31.446	3,993.8	16.66	102.46	81.8	245.7	0.0	544.9
65.00		0.3125	30.842	30.280	3,565.8	15.99	98.69	82.6	227.7	0.0	525.1
70.00		0.3125	29.667	29.114	3,169.5	15.33	94.93	82.6	210.4	0.0	505.3
75.00		0.3125	28.491	27.948	2,803.8	14.67	91.17	82.6	193.8	0.0	485.4
80.00		0.3125	27.315	26.782	2,467.3	14.00	87.41	82.6	177.9	0.0	465.6
85.00		0.3125	26.140	25.616	2,158.9	13.34	83.65	82.6	162.7	0.0	445.8
87.98	Bot - Section 3	0.3125	25.439	24.921	1,987.8	12.94	81.40	82.6	153.9	0.0	256.4
88.00		0.3125	25.434	24.917	1,986.8	12.94	81.39	82.6	153.9	0.0	2.8
90.00		0.3125	24.964	24.450	1,877.3	12.68	79.89	82.6	148.1	0.0	305.4
91.73	Top - Section 2	0.2500	25.057	19.684	1,530.5	16.26	100.23	82.3	120.3	0.0	259.5
95.00		0.2500	24.288	19.074	1,392.5	15.72	97.15	82.6	112.9	0.0	215.7
98.00		0.2500	23.583	18.514	1,273.5	15.22	94.33	82.6	106.4	0.0	191.9
100.0		0.2500	23.113	18.141	1,198.1	14.89	92.45	82.6	102.1	0.0	124.7
105.0		0.2500	21.937	17.208	1,022.6	14.06	87.75	82.6	91.8	0.0	300.7
106.0		0.2500	21.702	17.022	989.7	13.90	86.81	82.6	89.8	0.0	58.2
110.0		0.2500	20.762	16.275	865.1	13.23	83.05	82.6	82.1	0.0	226.6
115.0		0.2500	19.586	15.343	724.7	12.40	78.34	82.6	72.9	0.0	269.0
116.0		0.2500	19.351	15.156	698.6	12.24	77.40	82.6	71.1	0.0	51.9
120.0		0.2500	18.410	14.410	600.4	11.57	73.64	82.6	64.2	0.0	201.2
124.0		0.2500	17.470	13.664	511.9	10.91	69.88	82.6	57.7	0.0	191.1
125.0		0.2500	17.235	13.477	491.2	10.75	68.94	82.6	56.1	0.0	46.2
125.7		0.2500	17.063	13.341	476.5	10.62	68.25	82.6	55.0	0.0	33.3
14,775.6											



Site Number: 302469 Code: ANSI/TIA-222-G © 2007 - 2019 by ATC IP LLC. All rights reserved.  
 Site Name: Bridgeport CT 2, CT Engineering Number: OAA743184\_C3\_04 7/18/2019 4:37:43 PM  
 Customer: SIGFOX S.A.

**Load Case: 1.2D + 1.6W** 97 mph with No Ice 24 Iterations  
 Gust Response Factor :1.10 Wind Importance Factor :1.00  
 Dead Load Factor :1.20  
 Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces			Sum of Forces			
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		174.1	0.0					0.0	0.0	174.1	0.0	0.0	0.0
5.00		343.6	1,082.3					0.0	334.6	343.6	1,416.9	0.0	0.0
10.00		334.5	1,053.7					0.0	334.6	334.5	1,388.3	0.0	0.0
15.00		325.4	1,025.1					0.0	334.6	325.4	1,359.7	0.0	0.0
20.00		316.3	996.6					0.0	334.6	316.3	1,331.2	0.0	0.0
25.00		307.2	968.0					0.0	334.6	307.2	1,302.6	0.0	0.0
30.00		301.6	939.4					0.0	334.6	301.6	1,274.0	0.0	0.0
35.00		302.0	910.9					0.0	334.6	302.0	1,245.5	0.0	0.0
40.00		253.9	882.3					0.0	334.6	253.9	1,216.9	0.0	0.0
43.36	Bot - Section 2	153.0	576.7					0.0	224.8	153.0	801.6	0.0	0.0
45.00		154.5	512.3					0.0	109.8	154.5	622.1	0.0	0.0
48.35	Top - Section 1	154.6	1,029.2					0.0	224.3	154.6	1,253.5	0.0	0.0
50.00		205.5	228.7					0.0	110.3	205.5	339.0	0.0	0.0
55.00		311.9	677.7					0.0	334.6	311.9	1,012.4	0.0	0.0
60.00		317.2	653.9					0.0	334.6	317.2	988.6	0.0	0.0
65.00		321.8	630.1					0.0	334.6	321.8	964.7	0.0	0.0
70.00		325.8	606.3					0.0	334.6	325.8	940.9	0.0	0.0
75.00		329.4	582.5					0.0	334.6	329.4	917.1	0.0	0.0
80.00		332.4	558.7					0.0	334.6	332.4	893.3	0.0	0.0
85.00		267.0	534.9					0.0	334.6	267.0	869.5	0.0	0.0
87.98	Bot - Section 3	100.7	307.7					0.0	199.6	100.7	507.2	0.0	0.0
88.00	Appurtenance(s)	65.3	3.4	178.9	0.0	0.0	186.0	0.0	1.2	244.1	190.6	0.0	0.0
90.00		120.7	366.5					0.0	133.5	120.7	500.0	0.0	0.0
91.73	Top - Section 2	160.7	311.3					0.0	115.4	160.7	426.8	0.0	0.0
95.00		200.8	258.8					0.0	218.3	200.8	477.1	0.0	0.0
98.00	Appurtenance(s)	160.4	230.2	280.7	0.0	842.1	67.0	0.0	200.2	441.2	497.4	0.0	0.0
100.00		225.1	149.7					0.0	121.5	225.1	271.2	0.0	0.0
105.00		205.7	360.9					0.0	303.7	205.7	664.6	0.0	0.0
106.00	Appurtenance(s)	139.8	69.9	2,857.2	0.0	4,002.9	3,905.5	19.1	60.7	3,016.1	4,036.2	0.0	0.0
110.00		209.2	271.9					0.0	183.8	209.2	455.8	0.0	0.0
115.00		136.4	322.8					0.0	186.0	136.4	508.8	0.0	0.0
116.00	Appurtenance(s)	108.9	62.3	3,320.5	0.0	1,876.5	3,753.0	0.0	37.2	3,429.3	3,852.5	0.0	0.0
120.00		169.8	241.5					0.0	60.1	169.8	301.6	0.0	0.0
124.00	Appurtenance(s)	103.4	229.3	618.9	0.0	0.0	1,188.0	0.0	60.1	722.2	1,477.4	0.0	0.0
125.00		34.8	55.4					0.0	15.0	34.8	70.4	0.0	0.0
125.73		14.6	40.0					0.0	11.0	14.6	50.9	0.0	0.0
<b>Totals:</b>										<b>14,963.3</b>	<b>34,426.2</b>	<b>0.00</b>	<b>0.00</b>



Site Number: 302469 Code: ANSI/TIA-222-G © 2007 - 2019 by ATC IP LLC. All rights reserved.  
 Site Name: Bridgeport CT 2, CT Engineering Number: OAA743184\_C3\_04 7/18/2019 4:37:47 PM  
 Customer: SIGFOX S.A.

<b>Load Case: 1.2D + 1.6W</b>	<b>97 mph with No Ice</b>	<b>24 Iterations</b>
Gust Response Factor :1.10		Wind Importance Factor :1.00
Dead Load Factor :1.20		
Wind Load Factor :1.60		

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-35.75	-16.67	0.00	-1,594.18	0.00	1,594.18	3,765.29	1,882.65	6,978.46	3,494.42	0.00	0.00	0.466
5.00	-34.29	-16.42	0.00	-1,510.86	0.00	1,510.86	3,697.80	1,848.90	6,673.37	3,341.64	0.09	-0.16	0.461
10.00	-32.85	-16.17	0.00	-1,428.77	0.00	1,428.77	3,628.68	1,814.34	6,371.97	3,190.72	0.34	-0.32	0.457
15.00	-31.45	-15.93	0.00	-1,347.92	0.00	1,347.92	3,557.92	1,778.96	6,074.51	3,041.77	0.77	-0.49	0.452
20.00	-30.07	-15.69	0.00	-1,268.27	0.00	1,268.27	3,485.52	1,742.76	5,781.22	2,894.91	1.38	-0.66	0.447
25.00	-28.73	-15.46	0.00	-1,189.81	0.00	1,189.81	3,411.48	1,705.74	5,492.34	2,750.25	2.17	-0.84	0.441
30.00	-27.41	-15.22	0.00	-1,112.53	0.00	1,112.53	3,335.81	1,667.90	5,208.12	2,607.93	3.14	-1.02	0.435
35.00	-26.12	-14.98	0.00	-1,036.42	0.00	1,036.42	3,258.50	1,629.25	4,928.79	2,468.06	4.31	-1.20	0.428
40.00	-24.87	-14.77	0.00	-961.52	0.00	961.52	3,158.60	1,579.30	4,623.93	2,315.40	5.67	-1.39	0.423
43.36	-24.05	-14.64	0.00	-911.91	0.00	911.91	3,088.76	1,544.38	4,420.66	2,213.61	6.70	-1.52	0.420
45.00	-23.41	-14.51	0.00	-887.90	0.00	887.90	3,054.65	1,527.33	4,323.05	2,164.74	7.23	-1.59	0.418
48.35	-22.13	-14.35	0.00	-839.29	0.00	839.29	2,459.53	1,229.76	3,476.81	1,740.99	8.39	-1.72	0.491
50.00	-21.76	-14.19	0.00	-815.63	0.00	815.63	2,439.67	1,219.84	3,409.59	1,707.33	9.00	-1.79	0.487
55.00	-20.71	-13.93	0.00	-744.67	0.00	744.67	2,378.35	1,189.18	3,208.11	1,606.44	10.99	-2.01	0.472
60.00	-19.68	-13.65	0.00	-675.02	0.00	675.02	2,315.40	1,157.70	3,010.48	1,507.48	13.22	-2.24	0.456
65.00	-18.67	-13.37	0.00	-606.75	0.00	606.75	2,249.69	1,124.84	2,815.52	1,409.85	15.69	-2.47	0.439
70.00	-17.70	-13.07	0.00	-539.92	0.00	539.92	2,163.06	1,081.53	2,601.81	1,302.84	18.40	-2.70	0.423
75.00	-16.75	-12.76	0.00	-474.57	0.00	474.57	2,076.43	1,038.21	2,396.52	1,200.04	21.34	-2.92	0.404
80.00	-15.82	-12.44	0.00	-410.76	0.00	410.76	1,989.80	994.90	2,199.68	1,101.47	24.52	-3.15	0.381
85.00	-14.93	-12.17	0.00	-348.53	0.00	348.53	1,903.17	951.59	2,011.27	1,007.13	27.94	-3.37	0.354
87.98	-14.42	-12.06	0.00	-312.24	0.00	312.24	1,851.51	925.75	1,902.92	952.88	30.08	-3.50	0.336
88.00	-14.24	-11.81	0.00	-312.02	0.00	312.02	1,851.19	925.60	1,902.27	952.55	30.09	-3.50	0.335
90.00	-13.73	-11.68	0.00	-288.39	0.00	288.39	1,816.54	908.27	1,831.29	917.01	31.58	-3.58	0.322
91.73	-13.29	-11.52	0.00	-268.19	0.00	268.19	1,457.51	728.76	1,482.45	742.33	32.89	-3.66	0.371
95.00	-12.80	-11.32	0.00	-230.51	0.00	230.51	1,417.09	708.55	1,396.21	699.14	35.44	-3.79	0.339
98.00	-12.32	-10.87	0.00	-195.72	0.00	195.72	1,375.51	687.75	1,315.06	658.51	37.86	-3.92	0.306
100.00	-12.04	-10.65	0.00	-173.99	0.00	173.99	1,347.79	673.89	1,262.31	632.09	39.52	-4.00	0.284
105.00	-11.37	-10.42	0.00	-120.74	0.00	120.74	1,278.48	639.24	1,135.17	568.43	43.80	-4.17	0.222
106.00	-7.56	-7.12	0.00	-106.32	0.00	106.32	1,264.62	632.31	1,110.55	556.10	44.68	-4.21	0.197
110.00	-7.11	-6.89	0.00	-77.82	0.00	77.82	1,209.18	604.59	1,014.77	508.14	48.25	-4.31	0.159
115.00	-6.60	-6.73	0.00	-43.35	0.00	43.35	1,139.88	569.94	901.12	451.23	52.82	-4.41	0.102
116.00	-3.02	-3.01	0.00	-34.75	0.00	34.75	1,126.02	563.01	879.21	440.26	53.74	-4.43	0.082
120.00	-2.73	-2.82	0.00	-22.70	0.00	22.70	1,070.57	535.29	794.23	397.70	57.47	-4.47	0.060
124.00	-1.32	-1.99	0.00	-11.42	0.00	11.42	1,015.13	507.57	713.56	357.31	61.23	-4.51	0.033
125.00	-1.25	-1.95	0.00	-9.43	0.00	9.43	1,001.27	500.64	694.07	347.55	62.18	-4.51	0.028
125.73	0.00	-1.84	0.00	-8.01	0.00	8.01	991.15	495.58	680.02	340.51	62.87	-4.52	0.024



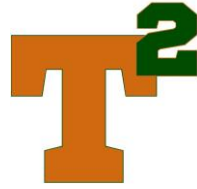


Site Number: 302469 Code: ANSI/TIA-222-G © 2007 - 2019 by ATC IP LLC. All rights reserved.  
 Site Name: Bridgeport CT 2, CT Engineering Number: OAA743184\_C3\_04 7/18/2019 4:37:47 PM  
 Customer: SIGFOX S.A.

<b>Load Case: 0.9D + 1.6W</b>	<b>97 mph with No Ice (Reduced DL)</b>	<b>24 Iterations</b>
Gust Response Factor :1.10		Wind Importance Factor :1.00
Dead Load Factor :0.90		
Wind Load Factor :1.60		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces			Sum of Forces			
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		174.1	0.0					0.0	0.0	174.1	0.0	0.0	0.0
5.00		343.6	811.7					0.0	251.0	343.6	1,062.7	0.0	0.0
10.00		334.5	790.3					0.0	251.0	334.5	1,041.2	0.0	0.0
15.00		325.4	768.8					0.0	251.0	325.4	1,019.8	0.0	0.0
20.00		316.3	747.4					0.0	251.0	316.3	998.4	0.0	0.0
25.00		307.2	726.0					0.0	251.0	307.2	977.0	0.0	0.0
30.00		301.6	704.6					0.0	251.0	301.6	955.5	0.0	0.0
35.00		302.0	683.1					0.0	251.0	302.0	934.1	0.0	0.0
40.00		253.9	661.7					0.0	251.0	253.9	912.7	0.0	0.0
43.36	Bot - Section 2	153.0	432.6					0.0	168.6	153.0	601.2	0.0	0.0
45.00		154.5	384.3					0.0	82.3	154.5	466.6	0.0	0.0
48.35	Top - Section 1	154.6	771.9					0.0	168.2	154.6	940.1	0.0	0.0
50.00		204.7	171.5					0.0	82.7	204.7	254.2	0.0	0.0
55.00		306.1	508.3					0.0	251.0	306.1	759.3	0.0	0.0
60.00		302.7	490.5					0.0	251.0	302.7	741.4	0.0	0.0
65.00		298.4	472.6					0.0	251.0	298.4	723.6	0.0	0.0
70.00		293.2	454.7					0.0	251.0	293.2	705.7	0.0	0.0
75.00		287.1	436.9					0.0	251.0	287.1	687.9	0.0	0.0
80.00		280.4	419.0					0.0	251.0	280.4	670.0	0.0	0.0
85.00		219.2	401.2					0.0	251.0	219.2	652.1	0.0	0.0
87.98	Bot - Section 3	81.2	230.7					0.0	149.7	81.2	380.4	0.0	0.0
88.00	Appurtenance(s)	54.9	2.5	178.9	0.0	0.0	139.5	0.0	0.9	233.8	142.9	0.0	0.0
90.00		100.9	274.9					0.0	100.1	100.9	375.0	0.0	0.0
91.73	Top - Section 2	133.1	233.5					0.0	86.6	133.1	320.1	0.0	0.0
95.00		164.4	194.1					0.0	163.7	164.4	357.8	0.0	0.0
98.00	Appurtenance(s)	128.8	172.7	280.7	0.0	842.1	50.2	0.0	150.2	409.5	373.1	0.0	0.0
100.00		175.1	112.3					0.0	91.1	175.1	203.4	0.0	0.0
105.00		168.9	270.6					0.0	227.8	168.9	498.4	0.0	0.0
106.00	Appurtenance(s)	139.8	52.4	2,857.2	0.0	4,002.9	2,929.1	19.1	45.6	3,016.1	3,027.1	0.0	0.0
110.00		209.2	203.9					0.0	137.9	209.2	341.8	0.0	0.0
115.00		136.4	242.1					0.0	139.5	136.4	381.6	0.0	0.0
116.00	Appurtenance(s)	108.9	46.7	3,320.5	0.0	1,876.5	2,814.7	0.0	27.9	3,429.3	2,889.4	0.0	0.0
120.00		169.8	181.1					0.0	45.1	169.8	226.2	0.0	0.0
124.00	Appurtenance(s)	103.4	171.9	618.9	0.0	0.0	891.0	0.0	45.1	722.2	1,108.1	0.0	0.0
125.00		34.8	41.6					0.0	11.3	34.8	52.8	0.0	0.0
125.73		14.6	30.0					0.0	8.2	14.6	38.2	0.0	0.0
<b>Totals:</b>										<b>14,512.2</b>	<b>25,819.7</b>	<b>0.00</b>	<b>0.00</b>



Site Number: 302469 Code: ANSI/TIA-222-G © 2007 - 2019 by ATC IP LLC. All rights reserved.  
 Site Name: Bridgeport CT 2, CT Engineering Number: OAA743184\_C3\_04 7/18/2019 4:37:51 PM  
 Customer: SIGFOX S.A.

<b>Load Case: 0.9D + 1.6W</b>	<b>97 mph with No Ice (Reduced DL)</b>	<b>24 Iterations</b>
Gust Response Factor :1.10		Wind Importance Factor :1.00
Dead Load Factor :0.90		
Wind Load Factor :1.60		

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-26.81	-16.20	0.00	-1,533.95	0.00	1,533.95	3,765.29	1,882.65	6,978.46	3,494.42	0.00	0.00	0.446
5.00	-25.70	-15.93	0.00	-1,452.95	0.00	1,452.95	3,697.80	1,848.90	6,673.37	3,341.64	0.08	-0.15	0.442
10.00	-24.62	-15.66	0.00	-1,373.33	0.00	1,373.33	3,628.68	1,814.34	6,371.97	3,190.72	0.33	-0.31	0.437
15.00	-23.56	-15.39	0.00	-1,295.05	0.00	1,295.05	3,557.92	1,778.96	6,074.51	3,041.77	0.74	-0.47	0.432
20.00	-22.52	-15.13	0.00	-1,218.11	0.00	1,218.11	3,485.52	1,742.76	5,781.22	2,894.91	1.32	-0.64	0.427
25.00	-21.50	-14.87	0.00	-1,142.46	0.00	1,142.46	3,411.48	1,705.74	5,492.34	2,750.25	2.08	-0.81	0.422
30.00	-20.51	-14.62	0.00	-1,068.09	0.00	1,068.09	3,335.81	1,667.90	5,208.12	2,607.93	3.02	-0.98	0.416
35.00	-19.53	-14.36	0.00	-994.99	0.00	994.99	3,258.50	1,629.25	4,928.79	2,468.06	4.14	-1.16	0.409
40.00	-18.59	-14.14	0.00	-923.18	0.00	923.18	3,158.60	1,579.30	4,623.93	2,315.40	5.45	-1.34	0.405
43.36	-17.97	-14.00	0.00	-875.68	0.00	875.68	3,088.76	1,544.38	4,420.66	2,213.61	6.43	-1.46	0.401
45.00	-17.48	-13.86	0.00	-852.72	0.00	852.72	3,054.65	1,527.33	4,323.05	2,164.74	6.95	-1.53	0.400
48.35	-16.53	-13.71	0.00	-806.25	0.00	806.25	2,459.53	1,229.76	3,476.81	1,740.99	8.07	-1.65	0.470
50.00	-16.24	-13.54	0.00	-783.66	0.00	783.66	2,439.67	1,219.84	3,409.59	1,707.33	8.65	-1.72	0.466
55.00	-15.44	-13.27	0.00	-715.97	0.00	715.97	2,378.35	1,189.18	3,208.11	1,606.44	10.56	-1.93	0.452
60.00	-14.66	-12.99	0.00	-649.64	0.00	649.64	2,315.40	1,157.70	3,010.48	1,507.48	12.70	-2.15	0.437
65.00	-13.90	-12.72	0.00	-584.68	0.00	584.68	2,249.69	1,124.84	2,815.52	1,409.85	15.07	-2.37	0.421
70.00	-13.16	-12.45	0.00	-521.08	0.00	521.08	2,163.06	1,081.53	2,601.81	1,302.84	17.68	-2.59	0.406
75.00	-12.44	-12.18	0.00	-458.85	0.00	458.85	2,076.43	1,038.21	2,396.52	1,200.04	20.51	-2.81	0.388
80.00	-11.75	-11.91	0.00	-397.97	0.00	397.97	1,989.80	994.90	2,199.68	1,101.47	23.57	-3.03	0.367
85.00	-11.07	-11.68	0.00	-338.45	0.00	338.45	1,903.17	951.59	2,011.27	1,007.13	26.85	-3.24	0.342
87.98	-10.68	-11.59	0.00	-303.61	0.00	303.61	1,851.51	925.75	1,902.92	952.88	28.92	-3.37	0.325
88.00	-10.55	-11.36	0.00	-303.40	0.00	303.40	1,851.19	925.60	1,902.27	952.55	28.93	-3.37	0.324
90.00	-10.16	-11.25	0.00	-280.68	0.00	280.68	1,816.54	908.27	1,831.29	917.01	30.36	-3.45	0.312
91.73	-9.83	-11.11	0.00	-261.23	0.00	261.23	1,457.51	728.76	1,482.45	742.33	31.62	-3.52	0.359
95.00	-9.46	-10.95	0.00	-224.88	0.00	224.88	1,417.09	708.55	1,396.21	699.14	34.08	-3.65	0.329
98.00	-9.10	-10.53	0.00	-191.20	0.00	191.20	1,375.51	687.75	1,315.06	658.51	36.41	-3.78	0.297
100.00	-8.88	-10.36	0.00	-170.13	0.00	170.13	1,347.79	673.89	1,262.31	632.09	38.01	-3.86	0.276
105.00	-8.38	-10.18	0.00	-118.31	0.00	118.31	1,278.48	639.24	1,135.17	568.43	42.15	-4.03	0.215
106.00	-5.56	-6.96	0.00	-104.14	0.00	104.14	1,264.62	632.31	1,110.55	556.10	42.99	-4.06	0.192
110.00	-5.23	-6.74	0.00	-76.30	0.00	76.30	1,209.18	604.59	1,014.77	508.14	46.44	-4.16	0.155
115.00	-4.85	-6.58	0.00	-42.62	0.00	42.62	1,139.88	569.94	901.12	451.23	50.85	-4.26	0.099
116.00	-2.22	-2.94	0.00	-34.17	0.00	34.17	1,126.02	563.01	879.21	440.26	51.75	-4.28	0.080
120.00	-2.01	-2.76	0.00	-22.40	0.00	22.40	1,070.57	535.29	794.23	397.70	55.35	-4.32	0.058
124.00	-0.96	-1.95	0.00	-11.37	0.00	11.37	1,015.13	507.57	713.56	357.31	58.98	-4.36	0.033
125.00	-0.91	-1.92	0.00	-9.41	0.00	9.41	1,001.27	500.64	694.07	347.55	59.89	-4.36	0.028
125.73	0.00	-1.84	0.00	-8.01	0.00	8.01	991.15	495.58	680.02	340.51	60.56	-4.36	0.024



Site Number: 302469 Code: ANSI/TIA-222-G © 2007 - 2019 by ATC IP LLC. All rights reserved.  
 Site Name: Bridgeport CT 2, CT Engineering Number: OAA743184\_C3\_04 7/18/2019 4:37:51 PM  
 Customer: SIGFOX S.A.

<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice	24 Iterations
Gust Response Factor :1.10	Ice Dead Load Factor :1.00	Wind Importance Factor :1.00
Dead Load Factor :1.20		Ice Importance Factor :1.00
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		56.1	0.0					0.0	0.0	56.1	0.0	0.0	0.0
5.00		111.1	1,412.4					308.3	633.0	419.4	2,045.4	0.0	0.0
10.00		108.8	1,413.8					305.9	656.5	414.7	2,070.2	0.0	0.0
15.00		106.2	1,394.6					302.3	668.6	408.5	2,063.2	0.0	0.0
20.00		103.6	1,368.7					298.2	677.1	401.9	2,045.8	0.0	0.0
25.00		101.0	1,339.3					294.0	683.6	395.0	2,022.9	0.0	0.0
30.00		99.5	1,307.7					289.6	689.0	389.1	1,996.7	0.0	0.0
35.00		100.0	1,274.5					292.0	693.7	392.0	1,968.2	0.0	0.0
40.00		84.3	1,240.2					299.4	697.7	383.7	1,937.9	0.0	0.0
43.36	Bot - Section 2	50.9	814.8					204.6	470.8	255.5	1,285.6	0.0	0.0
45.00		51.5	630.1					100.7	230.5	152.2	860.5	0.0	0.0
48.35	Top - Section 1	51.6	1,265.9					207.3	471.9	258.9	1,737.8	0.0	0.0
50.00		68.5	344.5					103.6	232.6	172.1	577.1	0.0	0.0
55.00		102.6	1,019.8					316.7	707.5	419.3	1,727.3	0.0	0.0
60.00		101.9	987.6					319.5	710.2	421.4	1,697.8	0.0	0.0
65.00		100.9	954.9					321.5	712.8	422.4	1,667.7	0.0	0.0
70.00		99.5	921.9					322.9	715.1	422.4	1,637.0	0.0	0.0
75.00		97.9	888.5					323.6	717.4	421.6	1,605.9	0.0	0.0
80.00		96.1	854.8					323.8	719.5	420.0	1,574.3	0.0	0.0
85.00		75.5	820.9					260.5	721.4	336.0	1,542.3	0.0	0.0
87.98	Bot - Section 3	28.1	474.7					156.0	431.1	184.1	905.9	0.0	0.0
88.00	Appurtenance(s)	19.0	4.4	47.4	0.0	0.0	185.9	1.0	2.6	67.3	193.0	0.0	0.0
90.00		34.9	479.0					100.7	286.2	135.6	765.2	0.0	0.0
91.73	Top - Section 2	46.2	407.4					87.2	247.7	133.4	655.1	0.0	0.0
95.00		57.2	435.7					166.1	469.1	223.3	904.8	0.0	0.0
98.00	Appurtenance(s)	45.0	388.6	75.8	0.0	227.4	204.7	152.5	430.9	273.3	1,024.2	0.0	0.0
100.00		61.5	253.6					42.2	229.8	103.7	483.4	0.0	0.0
105.00		52.2	609.2					107.0	575.3	159.3	1,184.5	0.0	0.0
106.00	Appurtenance(s)	42.3	119.2	748.2	0.0	884.1	6,282.1	21.7	115.2	812.1	6,516.5	0.0	0.0
110.00		74.5	461.8					0.0	183.8	74.5	645.6	0.0	0.0
115.00		48.8	548.6					0.0	186.0	48.8	734.6	0.0	0.0
116.00	Appurtenance(s)	39.3	107.1	785.6	0.0	419.9	13,170.7	0.0	37.2	824.9	13,314.9	0.0	0.0
120.00		61.6	413.0					0.0	60.1	61.6	473.2	0.0	0.0
124.00	Appurtenance(s)	37.7	393.4	188.5	0.0	0.0	2,048.4	0.0	60.1	226.2	2,501.9	0.0	0.0
125.00		12.8	96.0					0.0	15.0	12.8	111.1	0.0	0.0
125.73		5.4	69.4					0.0	11.0	5.4	80.4	0.0	0.0
<b>Totals:</b>										<b>10,308.3</b>	<b>62,558.0</b>	<b>0.00</b>	<b>0.00</b>





Site Number: 302469 Code: ANSI/TIA-222-G © 2007 - 2019 by ATC IP LLC. All rights reserved.  
 Site Name: Bridgeport CT 2, CT Engineering Number: OAA743184\_C3\_04 7/18/2019 4:37:55 PM  
 Customer: SIGFOX S.A.

<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice	24 Iterations
Gust Response Factor :1.10	Ice Dead Load Factor :1.00	Wind Importance Factor :1.00
Dead Load Factor :1.20		Ice Importance Factor :1.00
Wind Load Factor :1.00		

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-65.28	-10.69	0.00	-785.80	0.00	785.80	3,765.29	1,882.65	6,978.46	3,494.42	0.00	0.00	0.242
5.00	-63.22	-10.36	0.00	-732.33	0.00	732.33	3,697.80	1,848.90	6,673.37	3,341.64	0.04	-0.08	0.236
10.00	-61.14	-10.03	0.00	-680.53	0.00	680.53	3,628.68	1,814.34	6,371.97	3,190.72	0.17	-0.16	0.230
15.00	-59.06	-9.69	0.00	-630.40	0.00	630.40	3,557.92	1,778.96	6,074.51	3,041.77	0.37	-0.24	0.224
20.00	-57.01	-9.36	0.00	-581.94	0.00	581.94	3,485.52	1,742.76	5,781.22	2,894.91	0.66	-0.32	0.217
25.00	-54.97	-9.03	0.00	-535.15	0.00	535.15	3,411.48	1,705.74	5,492.34	2,750.25	1.04	-0.40	0.211
30.00	-52.97	-8.70	0.00	-490.01	0.00	490.01	3,335.81	1,667.90	5,208.12	2,607.93	1.50	-0.48	0.204
35.00	-50.99	-8.36	0.00	-446.51	0.00	446.51	3,258.50	1,629.25	4,928.79	2,468.06	2.04	-0.56	0.197
40.00	-49.05	-8.01	0.00	-404.71	0.00	404.71	3,158.60	1,579.30	4,623.93	2,315.40	2.66	-0.64	0.190
43.36	-47.76	-7.78	0.00	-377.79	0.00	377.79	3,088.76	1,544.38	4,420.66	2,213.61	3.13	-0.69	0.186
45.00	-46.90	-7.65	0.00	-365.03	0.00	365.03	3,054.65	1,527.33	4,323.05	2,164.74	3.37	-0.72	0.184
48.35	-45.16	-7.40	0.00	-339.40	0.00	339.40	2,459.53	1,229.76	3,476.81	1,740.99	3.90	-0.77	0.213
50.00	-44.58	-7.26	0.00	-327.21	0.00	327.21	2,439.67	1,219.84	3,409.59	1,707.33	4.17	-0.80	0.210
55.00	-42.84	-6.89	0.00	-290.89	0.00	290.89	2,378.35	1,189.18	3,208.11	1,606.44	5.05	-0.89	0.199
60.00	-41.14	-6.50	0.00	-256.46	0.00	256.46	2,315.40	1,157.70	3,010.48	1,507.48	6.03	-0.98	0.188
65.00	-39.47	-6.10	0.00	-223.97	0.00	223.97	2,249.69	1,124.84	2,815.52	1,409.85	7.10	-1.06	0.176
70.00	-37.84	-5.70	0.00	-193.45	0.00	193.45	2,163.06	1,081.53	2,601.81	1,302.84	8.26	-1.14	0.166
75.00	-36.23	-5.30	0.00	-164.93	0.00	164.93	2,076.43	1,038.21	2,396.52	1,200.04	9.50	-1.22	0.155
80.00	-34.66	-4.89	0.00	-138.43	0.00	138.43	1,989.80	994.90	2,199.68	1,101.47	10.82	-1.30	0.143
85.00	-33.12	-4.55	0.00	-113.98	0.00	113.98	1,903.17	951.59	2,011.27	1,007.13	12.23	-1.37	0.131
87.98	-32.22	-4.36	0.00	-100.41	0.00	100.41	1,851.51	925.75	1,902.92	952.88	13.10	-1.42	0.123
88.00	-32.03	-4.29	0.00	-100.33	0.00	100.33	1,851.19	925.60	1,902.27	952.55	13.10	-1.42	0.123
90.00	-31.27	-4.15	0.00	-91.75	0.00	91.75	1,816.54	908.27	1,831.29	917.01	13.70	-1.44	0.117
91.73	-30.61	-4.02	0.00	-84.57	0.00	84.57	1,457.51	728.76	1,482.45	742.33	14.23	-1.47	0.135
95.00	-29.71	-3.79	0.00	-71.42	0.00	71.42	1,417.09	708.55	1,396.21	699.14	15.25	-1.51	0.123
98.00	-28.69	-3.51	0.00	-59.82	0.00	59.82	1,375.51	687.75	1,315.06	658.51	16.21	-1.55	0.112
100.00	-28.21	-3.41	0.00	-52.80	0.00	52.80	1,347.79	673.89	1,262.31	632.09	16.86	-1.57	0.104
105.00	-27.03	-3.23	0.00	-35.74	0.00	35.74	1,278.48	639.24	1,135.17	568.43	18.54	-1.63	0.084
106.00	-20.54	-2.24	0.00	-31.62	0.00	31.62	1,264.62	632.31	1,110.55	556.10	18.88	-1.64	0.073
110.00	-19.89	-2.16	0.00	-22.64	0.00	22.64	1,209.18	604.59	1,014.77	508.14	20.27	-1.67	0.061
115.00	-19.16	-2.10	0.00	-11.84	0.00	11.84	1,139.88	569.94	901.12	451.23	22.03	-1.70	0.043
116.00	-5.87	-0.88	0.00	-9.32	0.00	9.32	1,126.02	563.01	879.21	440.26	22.39	-1.70	0.026
120.00	-5.40	-0.80	0.00	-5.81	0.00	5.81	1,070.57	535.29	794.23	397.70	23.81	-1.71	0.020
124.00	-2.91	-0.50	0.00	-2.59	0.00	2.59	1,015.13	507.57	713.56	357.31	25.25	-1.72	0.010
125.00	-2.80	-0.49	0.00	-2.09	0.00	2.09	1,001.27	500.64	694.07	347.55	25.61	-1.72	0.009
125.73	0.00	-0.40	0.00	-1.74	0.00	1.74	991.15	495.58	680.02	340.51	25.88	-1.72	0.005



Site Number: 302469 Code: ANSI/TIA-222-G © 2007 - 2019 by ATC IP LLC. All rights reserved.  
 Site Name: Bridgeport CT 2, CT Engineering Number: OAA743184\_C3\_04 7/18/2019 4:37:55 PM  
 Customer: SIGFOX S.A.

<b>Load Case: 1.0D + 1.0W</b>	<b>Serviceability 60 mph</b>	<b>23 Iterations</b>
Gust Response Factor :1.10		Wind Importance Factor :1.00
Dead Load Factor :1.00		
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces			Sum of Forces			
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		37.3	0.0					0.0	0.0	37.3	0.0	0.0	0.0
5.00		73.5	901.9					0.0	278.9	73.5	1,180.7	0.0	0.0
10.00		71.6	878.1					0.0	278.9	71.6	1,156.9	0.0	0.0
15.00		69.6	854.3					0.0	278.9	69.6	1,133.1	0.0	0.0
20.00		67.7	830.5					0.0	278.9	67.7	1,109.3	0.0	0.0
25.00		65.7	806.7					0.0	278.9	65.7	1,085.5	0.0	0.0
30.00		64.5	782.9					0.0	278.9	64.5	1,061.7	0.0	0.0
35.00		64.6	759.0					0.0	278.9	64.6	1,037.9	0.0	0.0
40.00		54.3	735.2					0.0	278.9	54.3	1,014.1	0.0	0.0
43.36	Bot - Section 2	32.7	480.6					0.0	187.4	32.7	668.0	0.0	0.0
45.00		33.1	427.0					0.0	91.5	33.1	518.5	0.0	0.0
48.35	Top - Section 1	33.1	857.6					0.0	186.9	33.1	1,044.6	0.0	0.0
50.00		43.8	190.5					0.0	91.9	43.8	282.5	0.0	0.0
55.00		65.5	564.8					0.0	278.9	65.5	843.6	0.0	0.0
60.00		64.8	544.9					0.0	278.9	64.8	823.8	0.0	0.0
65.00		63.8	525.1					0.0	278.9	63.8	804.0	0.0	0.0
70.00		62.7	505.3					0.0	278.9	62.7	784.1	0.0	0.0
75.00		61.4	485.4					0.0	278.9	61.4	764.3	0.0	0.0
80.00		60.0	465.6					0.0	278.9	60.0	744.4	0.0	0.0
85.00		46.9	445.8					0.0	278.9	46.9	724.6	0.0	0.0
87.98	Bot - Section 3	17.4	256.4					0.0	166.3	17.4	422.7	0.0	0.0
88.00	Appurtenance(s)	11.7	2.8	38.3	0.0	0.0	155.0	0.0	1.0	50.0	158.8	0.0	0.0
90.00		21.6	305.4					0.0	111.2	21.6	416.7	0.0	0.0
91.73	Top - Section 2	28.5	259.5					0.0	96.2	28.5	355.6	0.0	0.0
95.00		35.2	215.7					0.0	181.9	35.2	397.6	0.0	0.0
98.00	Appurtenance(s)	27.6	191.9	60.1	0.0	180.2	55.8	0.0	166.9	87.6	414.5	0.0	0.0
100.00		37.5	124.7					0.0	101.2	37.5	226.0	0.0	0.0
105.00		36.1	300.7					0.0	253.1	36.1	553.8	0.0	0.0
106.00	Appurtenance(s)	29.9	58.2	611.3	0.0	856.5	3,254.6	4.1	50.6	645.3	3,363.5	0.0	0.0
110.00		44.8	226.6					0.0	153.2	44.8	379.8	0.0	0.0
115.00		29.2	269.0					0.0	155.0	29.2	424.0	0.0	0.0
116.00	Appurtenance(s)	23.3	51.9	710.4	0.0	401.5	3,127.5	0.0	31.0	733.7	3,210.4	0.0	0.0
120.00		36.3	201.2					0.0	50.1	36.3	251.3	0.0	0.0
124.00	Appurtenance(s)	22.1	191.1	132.4	0.0	0.0	990.0	0.0	50.1	154.5	1,231.2	0.0	0.0
125.00		7.5	46.2					0.0	12.5	7.5	58.7	0.0	0.0
125.73		3.1	33.3					0.0	9.1	3.1	42.5	0.0	0.0
<b>Totals:</b>										<b>3,105.04</b>	<b>28,688.5</b>	<b>0.00</b>	<b>0.00</b>



Site Number: 302469 Code: ANSI/TIA-222-G © 2007 - 2019 by ATC IP LLC. All rights reserved.  
 Site Name: Bridgeport CT 2, CT Engineering Number: OAA743184\_C3\_04 7/18/2019 4:37:59 PM  
 Customer: SIGFOX S.A.

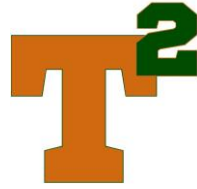
**Load Case: 1.0D + 1.0W** Serviceability 60 mph 23 Iterations  
 Gust Response Factor :1.10 Wind Importance Factor :1.00  
 Dead Load Factor :1.00  
 Wind Load Factor :1.00

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-29.81	-3.47	0.00	-329.83	0.00	329.83	3,765.29	1,882.65	6,978.46	3,494.42	0.00	0.00	0.102
5.00	-28.63	-3.41	0.00	-312.49	0.00	312.49	3,697.80	1,848.90	6,673.37	3,341.64	0.02	-0.03	0.101
10.00	-27.47	-3.35	0.00	-295.45	0.00	295.45	3,628.68	1,814.34	6,371.97	3,190.72	0.07	-0.07	0.100
15.00	-26.33	-3.30	0.00	-278.68	0.00	278.68	3,557.92	1,778.96	6,074.51	3,041.77	0.16	-0.10	0.099
20.00	-25.22	-3.24	0.00	-262.19	0.00	262.19	3,485.52	1,742.76	5,781.22	2,894.91	0.28	-0.14	0.098
25.00	-24.14	-3.19	0.00	-245.97	0.00	245.97	3,411.48	1,705.74	5,492.34	2,750.25	0.45	-0.17	0.097
30.00	-23.07	-3.14	0.00	-230.01	0.00	230.01	3,335.81	1,667.90	5,208.12	2,607.93	0.65	-0.21	0.095
35.00	-22.03	-3.08	0.00	-214.32	0.00	214.32	3,258.50	1,629.25	4,928.79	2,468.06	0.89	-0.25	0.094
40.00	-21.02	-3.04	0.00	-198.90	0.00	198.90	3,158.60	1,579.30	4,623.93	2,315.40	1.17	-0.29	0.093
43.36	-20.35	-3.01	0.00	-188.70	0.00	188.70	3,088.76	1,544.38	4,420.66	2,213.61	1.38	-0.31	0.092
45.00	-19.83	-2.98	0.00	-183.77	0.00	183.77	3,054.65	1,527.33	4,323.05	2,164.74	1.50	-0.33	0.091
48.35	-18.78	-2.95	0.00	-173.78	0.00	173.78	2,459.53	1,229.76	3,476.81	1,740.99	1.74	-0.36	0.107
50.00	-18.50	-2.91	0.00	-168.92	0.00	168.92	2,439.67	1,219.84	3,409.59	1,707.33	1.86	-0.37	0.107
55.00	-17.65	-2.85	0.00	-154.37	0.00	154.37	2,378.35	1,189.18	3,208.11	1,606.44	2.27	-0.42	0.104
60.00	-16.83	-2.80	0.00	-140.10	0.00	140.10	2,315.40	1,157.70	3,010.48	1,507.48	2.73	-0.46	0.100
65.00	-16.02	-2.74	0.00	-126.12	0.00	126.12	2,249.69	1,124.84	2,815.52	1,409.85	3.25	-0.51	0.097
70.00	-15.24	-2.68	0.00	-112.42	0.00	112.42	2,163.06	1,081.53	2,601.81	1,302.84	3.81	-0.56	0.093
75.00	-14.47	-2.62	0.00	-99.01	0.00	99.01	2,076.43	1,038.21	2,396.52	1,200.04	4.42	-0.61	0.089
80.00	-13.73	-2.57	0.00	-85.89	0.00	85.89	1,989.80	994.90	2,199.68	1,101.47	5.08	-0.65	0.085
85.00	-13.00	-2.52	0.00	-73.05	0.00	73.05	1,903.17	951.59	2,011.27	1,007.13	5.78	-0.70	0.079
87.98	-12.58	-2.50	0.00	-65.53	0.00	65.53	1,851.51	925.75	1,902.92	952.88	6.23	-0.73	0.076
88.00	-12.42	-2.45	0.00	-65.49	0.00	65.49	1,851.19	925.60	1,902.27	952.55	6.23	-0.73	0.075
90.00	-12.00	-2.43	0.00	-60.59	0.00	60.59	1,816.54	908.27	1,831.29	917.01	6.54	-0.74	0.073
91.73	-11.65	-2.40	0.00	-56.39	0.00	56.39	1,457.51	728.76	1,482.45	742.33	6.81	-0.76	0.084
95.00	-11.25	-2.36	0.00	-48.54	0.00	48.54	1,417.09	708.55	1,396.21	699.14	7.34	-0.79	0.077
98.00	-10.83	-2.27	0.00	-41.27	0.00	41.27	1,375.51	687.75	1,315.06	658.51	7.85	-0.81	0.071
100.00	-10.61	-2.24	0.00	-36.73	0.00	36.73	1,347.79	673.89	1,262.31	632.09	8.19	-0.83	0.066
105.00	-10.05	-2.20	0.00	-25.53	0.00	25.53	1,278.48	639.24	1,135.17	568.43	9.08	-0.87	0.053
106.00	-6.70	-1.50	0.00	-22.48	0.00	22.48	1,264.62	632.31	1,110.55	556.10	9.27	-0.88	0.046
110.00	-6.32	-1.46	0.00	-16.46	0.00	16.46	1,209.18	604.59	1,014.77	508.14	10.01	-0.90	0.038
115.00	-5.90	-1.42	0.00	-9.19	0.00	9.19	1,139.88	569.94	901.12	451.23	10.96	-0.92	0.026
116.00	-2.70	-0.64	0.00	-7.36	0.00	7.36	1,126.02	563.01	879.21	440.26	11.15	-0.92	0.019
120.00	-2.45	-0.60	0.00	-4.82	0.00	4.82	1,070.57	535.29	794.23	397.70	11.93	-0.93	0.014
124.00	-1.22	-0.42	0.00	-2.44	0.00	2.44	1,015.13	507.57	713.56	357.31	12.72	-0.94	0.008
125.00	-1.16	-0.41	0.00	-2.02	0.00	2.02	1,001.27	500.64	694.07	347.55	12.91	-0.94	0.007
125.73	0.00	-0.39	0.00	-1.71	0.00	1.71	991.15	495.58	680.02	340.51	13.06	-0.94	0.005







Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA743184\_C3\_04

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Customer: SIGFOX S.A.

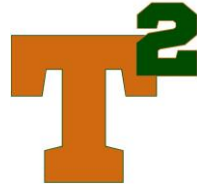
12	49.18	282	432	0.004	4	352
11	46.68	1,045	1,449	0.013	15	1,300
10	44.18	518	648	0.006	7	645
9	41.68	668	749	0.007	8	831
8	37.50	1,014	932	0.008	10	1,262
7	32.50	1,038	728	0.006	8	1,292
6	27.50	1,062	544	0.005	6	1,321
5	22.50	1,086	381	0.003	4	1,351
4	17.50	1,109	243	0.002	3	1,381
3	12.50	1,133	132	0.001	1	1,410
2	7.50	1,157	51	0.000	1	1,440
1	2.50	1,181	7	0.000	0	1,470
DragonWave Horizon C	125.73	21	190	0.002	2	26
DragonWave A-ANT-23G	125.73	15	134	0.001	1	19
Alcatel-Lucent RRH2x	125.73	317	2,843	0.025	29	395
Alcatel-Lucent 1900	125.73	180	1,613	0.014	17	224
Nokia 2.5G MAA - AAH	125.73	311	2,784	0.025	29	387
DragonWave A-ANT-18G	125.73	27	243	0.002	3	34
Commscope NNVV-65B-R	125.73	232	2,080	0.018	22	289
Generic 24" x 24" Ju	125.73	20	179	0.002	2	25
Round T-Arm	124.00	990	8,641	0.077	90	1,232
Kathrein Scala Smart	116.00	10	76	0.001	1	12
Ericsson KRY 112 144	116.00	29	224	0.002	2	36
Ericsson KRY 112 489	116.00	46	356	0.003	4	57
Ericsson Radio 4449	116.00	222	1,709	0.015	18	276
Ericsson AIR-32 B2A/	116.00	397	3,053	0.027	32	494
Ericsson Air 3246 B6	116.00	540	4,157	0.037	43	672
RFS APXVAARR24_43-U-	116.00	384	2,954	0.026	31	478
Round Low Profile PI	116.00	1,500	11,547	0.102	120	1,867
Kaelus DBC0061F1V51-	106.00	76	497	0.004	5	95
Kaelus DBC0062F3V52-	106.00	79	515	0.005	5	99
Powerwave Allgon LGP	106.00	85	550	0.005	6	105
Raycap DC6-48-60-18-	106.00	64	413	0.004	4	79
Ericsson Radio 8843	106.00	216	1,401	0.012	15	268
Ericsson RRUS 32 B30	106.00	159	1,033	0.009	11	198
Ericsson RRUS-11 (19	106.00	153	994	0.009	10	190
Powerwave Allgon 775	106.00	81	526	0.005	5	101
CCI OPA-65R-LCUU-H4	106.00	342	2,222	0.020	23	426
Round Platform w/ Ha	106.00	2,000	12,993	0.115	135	2,489
Generic RCU (Remote	98.00	3	17	0.000	0	4
Kathrein Scala 800 1	98.00	53	296	0.003	3	66
Procom CXL 900-3LW	88.00	2	7	0.000	0	2
Generic 5" x 3" x 2"	88.00	2	7	0.000	0	2
Generic Low Noise Am	88.00	2	9	0.000	0	2
Flat Side Arm	88.00	150	686	0.006	7	187
		29,812	112,682	1.000	1,168	37,104

**Load Case (0.9 - 0.2Sds) \* DL + E E LFM**

**Seismic (Reduced DL) Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
35	125.37	42	378	0.003	4	36
34	124.50	59	516	0.005	5	50
33	122.00	241	2,042	0.018	21	206
32	118.00	251	1,998	0.018	21	215
31	115.50	83	633	0.006	7	71
30	112.50	424	3,081	0.027	32	363
29	108.00	380	2,556	0.023	26	325
28	105.50	109	701	0.006	7	93
27	102.50	554	3,378	0.030	35	474





Site Number: 302469

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA743184\_C3\_04

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Customer: SIGFOX S.A.

26	99.00	226	1,291	0.011	13	193
25	96.50	359	1,953	0.017	20	307
24	93.36	398	2,034	0.018	21	340
23	90.86	356	1,729	0.015	18	304
22	89.00	417	1,948	0.017	20	356
21	87.99	4	17	0.000	0	3
20	86.49	423	1,872	0.017	19	362
19	82.50	725	2,937	0.026	30	620
18	77.50	744	2,682	0.024	28	637
17	72.50	764	2,429	0.022	25	654
16	67.50	784	2,178	0.019	23	671
15	62.50	804	1,932	0.017	20	688
14	57.50	824	1,692	0.015	18	705
13	52.50	844	1,460	0.013	15	722
12	49.18	282	432	0.004	4	242
11	46.68	1,045	1,449	0.013	15	894
10	44.18	518	648	0.006	7	443
9	41.68	668	749	0.007	8	571
8	37.50	1,014	932	0.008	10	867
7	32.50	1,038	728	0.006	8	888
6	27.50	1,062	544	0.005	6	908
5	22.50	1,086	381	0.003	4	929
4	17.50	1,109	243	0.002	3	949
3	12.50	1,133	132	0.001	1	969
2	7.50	1,157	51	0.000	1	990
1	2.50	1,181	7	0.000	0	1,010
DragonWave Horizon C	125.73	21	190	0.002	2	18
DragonWave A-ANT-23G	125.73	15	134	0.001	1	13
Alcatel-Lucent RRH2x	125.73	317	2,843	0.025	29	272
Alcatel-Lucent 1900	125.73	180	1,613	0.014	17	154
Nokia 2.5G MAA - AAH	125.73	311	2,784	0.025	29	266
DragonWave A-ANT-18G	125.73	27	243	0.002	3	23
Commscope NNVV-65B-R	125.73	232	2,080	0.018	22	199
Generic 24" x 24" Ju	125.73	20	179	0.002	2	17
Round T-Arm	124.00	990	8,641	0.077	90	847
Kathrein Scala Smart	116.00	10	76	0.001	1	8
Ericsson KRY 112 144	116.00	29	224	0.002	2	25
Ericsson KRY 112 489	116.00	46	356	0.003	4	40
Ericsson Radio 4449	116.00	222	1,709	0.015	18	190
Ericsson AIR-32 B2A/	116.00	397	3,053	0.027	32	339
Ericsson Air 3246 B6	116.00	540	4,157	0.037	43	462
RFS APXVAARR24_43-U-	116.00	384	2,954	0.026	31	328
Round Low Profile Pl	116.00	1,500	11,547	0.102	120	1,283
Kaelus DBC0061F1V51-	106.00	76	497	0.004	5	65
Kaelus DBC0062F3V52-	106.00	79	515	0.005	5	68
Powerwave Allgon LGP	106.00	85	550	0.005	6	72
Raycap DC6-48-60-18-	106.00	64	413	0.004	4	54
Ericsson Radio 8843	106.00	216	1,401	0.012	15	185
Ericsson RRUS 32 B30	106.00	159	1,033	0.009	11	136
Ericsson RRUS-11 (19	106.00	153	994	0.009	10	131
Powerwave Allgon 775	106.00	81	526	0.005	5	69
CCI OPA-65R-LCUU-H4	106.00	342	2,222	0.020	23	293
Round Platform w/ Ha	106.00	2,000	12,993	0.115	135	1,711
Generic RCU (Remote	98.00	3	17	0.000	0	3
Kathrein Scala 800 1	98.00	53	296	0.003	3	45
Procom CXL 900-3LW	88.00	2	7	0.000	0	1
Generic 5" x 3" x 2"	88.00	2	7	0.000	0	1
Generic Low Noise Am	88.00	2	9	0.000	0	2
Flat Side Arm	88.00	150	686	0.006	7	128
		29,812	112,682	1.000	1,168	25,502



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Site Number: 302469

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA743184\_C3\_04

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Customer: SIGFOX S.A.

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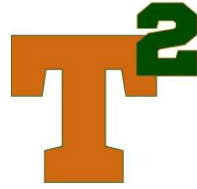


Site Number: 302469 Code: ANSI/TIA-222-G © 2007 - 2019 by ATC IP LLC. All rights reserved.  
 Site Name: Bridgeport CT 2, CT Engineering Number: OAA743184\_C3\_04 7/18/2019 4:37:59 PM  
 Customer: SIGFOX S.A.

**Load Case (1.2 + 0.2Sds) \* DL + E ELFM Seismic Equivalent Lateral Forces Method**

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-35.63	-1.17	0.00	-123.93	0.00	123.93	3,765.29	1,882.65	6,978.46	3,494.42	0.00	0.00	0.045
5.00	-34.19	-1.18	0.00	-118.07	0.00	118.07	3,697.80	1,848.90	6,673.37	3,341.64	0.01	-0.01	0.045
10.00	-32.78	-1.18	0.00	-112.18	0.00	112.18	3,628.68	1,814.34	6,371.97	3,190.72	0.03	-0.03	0.044
15.00	-31.40	-1.19	0.00	-106.26	0.00	106.26	3,557.92	1,778.96	6,074.51	3,041.77	0.06	-0.04	0.044
20.00	-30.05	-1.19	0.00	-100.32	0.00	100.32	3,485.52	1,742.76	5,781.22	2,894.91	0.11	-0.05	0.043
25.00	-28.73	-1.19	0.00	-94.37	0.00	94.37	3,411.48	1,705.74	5,492.34	2,750.25	0.17	-0.07	0.043
30.00	-27.44	-1.19	0.00	-88.42	0.00	88.42	3,335.81	1,667.90	5,208.12	2,607.93	0.25	-0.08	0.042
35.00	-26.18	-1.18	0.00	-82.49	0.00	82.49	3,258.50	1,629.25	4,928.79	2,468.06	0.34	-0.09	0.041
40.00	-25.34	-1.18	0.00	-76.57	0.00	76.57	3,158.60	1,579.30	4,623.93	2,315.40	0.45	-0.11	0.041
43.36	-24.70	-1.17	0.00	-72.61	0.00	72.61	3,088.76	1,544.38	4,420.66	2,213.61	0.53	-0.12	0.041
45.00	-23.40	-1.16	0.00	-70.68	0.00	70.68	3,054.65	1,527.33	4,323.05	2,164.74	0.57	-0.13	0.040
48.35	-23.05	-1.16	0.00	-66.80	0.00	66.80	2,459.53	1,229.76	3,476.81	1,740.99	0.66	-0.14	0.048
50.00	-22.00	-1.14	0.00	-64.89	0.00	64.89	2,439.67	1,219.84	3,409.59	1,707.33	0.71	-0.14	0.047
55.00	-20.97	-1.13	0.00	-59.16	0.00	59.16	2,378.35	1,189.18	3,208.11	1,606.44	0.87	-0.16	0.046
60.00	-19.97	-1.11	0.00	-53.51	0.00	53.51	2,315.40	1,157.70	3,010.48	1,507.48	1.04	-0.18	0.044
65.00	-18.99	-1.09	0.00	-47.94	0.00	47.94	2,249.69	1,124.84	2,815.52	1,409.85	1.24	-0.20	0.042
70.00	-18.04	-1.07	0.00	-42.46	0.00	42.46	2,163.06	1,081.53	2,601.81	1,302.84	1.45	-0.21	0.041
75.00	-17.12	-1.05	0.00	-37.10	0.00	37.10	2,076.43	1,038.21	2,396.52	1,200.04	1.69	-0.23	0.039
80.00	-16.21	-1.02	0.00	-31.88	0.00	31.88	1,989.80	994.90	2,199.68	1,101.47	1.94	-0.25	0.037
85.00	-15.69	-1.00	0.00	-26.80	0.00	26.80	1,903.17	951.59	2,011.27	1,007.13	2.21	-0.27	0.035
87.98	-15.68	-1.00	0.00	-23.82	0.00	23.82	1,851.51	925.75	1,902.92	952.88	2.38	-0.28	0.033
88.00	-14.97	-0.97	0.00	-23.80	0.00	23.80	1,851.19	925.60	1,902.27	952.55	2.38	-0.28	0.033
90.00	-14.53	-0.95	0.00	-21.86	0.00	21.86	1,816.54	908.27	1,831.29	917.01	2.50	-0.28	0.032
91.73	-14.03	-0.93	0.00	-20.22	0.00	20.22	1,457.51	728.76	1,482.45	742.33	2.60	-0.29	0.037
95.00	-13.59	-0.91	0.00	-17.18	0.00	17.18	1,417.09	708.55	1,396.21	699.14	2.80	-0.30	0.034
98.00	-13.24	-0.89	0.00	-14.45	0.00	14.45	1,375.51	687.75	1,315.06	658.51	2.99	-0.31	0.032
100.00	-12.55	-0.86	0.00	-12.67	0.00	12.67	1,347.79	673.89	1,262.31	632.09	3.12	-0.31	0.029
105.00	-12.41	-0.85	0.00	-8.39	0.00	8.39	1,278.48	639.24	1,135.17	568.43	3.45	-0.33	0.024
106.00	-7.89	-0.58	0.00	-7.54	0.00	7.54	1,264.62	632.31	1,110.55	556.10	3.52	-0.33	0.020
110.00	-7.36	-0.54	0.00	-5.23	0.00	5.23	1,209.18	604.59	1,014.77	508.14	3.80	-0.34	0.016
115.00	-7.26	-0.54	0.00	-2.50	0.00	2.50	1,139.88	569.94	901.12	451.23	4.16	-0.34	0.012
116.00	-3.06	-0.24	0.00	-1.97	0.00	1.97	1,126.02	563.01	879.21	440.26	4.23	-0.34	0.007
120.00	-2.76	-0.22	0.00	-1.00	0.00	1.00	1,070.57	535.29	794.23	397.70	4.52	-0.34	0.005
124.00	-1.45	-0.12	0.00	-0.12	0.00	0.12	1,015.13	507.57	713.56	357.31	4.81	-0.35	0.002
125.00	0.00	0.00	0.00	0.00	0.00	0.00	1,001.27	500.64	694.07	347.55	4.88	-0.35	0.000
125.73	0.00	0.00	0.00	0.00	0.00	0.00	991.15	495.58	680.02	340.51	4.93	-0.35	0.000



Site Number: 302469

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Site Name: Bridgeport CT 2, CT

Engineering Number: OAA743184\_C3\_04

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Customer: SIGFOX S.A.

**Load Case (0.9 - 0.2Sds) \* DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method**

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-24.49	-1.17	0.00	-121.96	0.00	121.96	3,765.29	1,882.65	6,978.46	3,494.42	0.00	0.00	0.041
5.00	-23.50	-1.17	0.00	-116.11	0.00	116.11	3,697.80	1,848.90	6,673.37	3,341.64	0.01	-0.01	0.041
10.00	-22.53	-1.18	0.00	-110.24	0.00	110.24	3,628.68	1,814.34	6,371.97	3,190.72	0.03	-0.02	0.041
15.00	-21.58	-1.18	0.00	-104.35	0.00	104.35	3,557.92	1,778.96	6,074.51	3,041.77	0.06	-0.04	0.040
20.00	-20.65	-1.18	0.00	-98.45	0.00	98.45	3,485.52	1,742.76	5,781.22	2,894.91	0.11	-0.05	0.040
25.00	-19.75	-1.18	0.00	-92.55	0.00	92.55	3,411.48	1,705.74	5,492.34	2,750.25	0.17	-0.06	0.039
30.00	-18.86	-1.17	0.00	-86.66	0.00	86.66	3,335.81	1,667.90	5,208.12	2,607.93	0.24	-0.08	0.039
35.00	-17.99	-1.17	0.00	-80.79	0.00	80.79	3,258.50	1,629.25	4,928.79	2,468.06	0.33	-0.09	0.038
40.00	-17.42	-1.16	0.00	-74.95	0.00	74.95	3,158.60	1,579.30	4,623.93	2,315.40	0.44	-0.11	0.038
43.36	-16.97	-1.16	0.00	-71.05	0.00	71.05	3,088.76	1,544.38	4,420.66	2,213.61	0.52	-0.12	0.038
45.00	-16.08	-1.14	0.00	-69.15	0.00	69.15	3,054.65	1,527.33	4,323.05	2,164.74	0.56	-0.12	0.037
48.35	-15.84	-1.14	0.00	-65.32	0.00	65.32	2,459.53	1,229.76	3,476.81	1,740.99	0.65	-0.13	0.044
50.00	-15.12	-1.13	0.00	-63.44	0.00	63.44	2,439.67	1,219.84	3,409.59	1,707.33	0.70	-0.14	0.043
55.00	-14.41	-1.11	0.00	-57.81	0.00	57.81	2,378.35	1,189.18	3,208.11	1,606.44	0.85	-0.16	0.042
60.00	-13.72	-1.09	0.00	-52.25	0.00	52.25	2,315.40	1,157.70	3,010.48	1,507.48	1.02	-0.17	0.041
65.00	-13.05	-1.07	0.00	-46.79	0.00	46.79	2,249.69	1,124.84	2,815.52	1,409.85	1.22	-0.19	0.039
70.00	-12.40	-1.05	0.00	-41.43	0.00	41.43	2,163.06	1,081.53	2,601.81	1,302.84	1.43	-0.21	0.038
75.00	-11.76	-1.02	0.00	-36.18	0.00	36.18	2,076.43	1,038.21	2,396.52	1,200.04	1.65	-0.23	0.036
80.00	-11.14	-0.99	0.00	-31.07	0.00	31.07	1,989.80	994.90	2,199.68	1,101.47	1.90	-0.24	0.034
85.00	-10.78	-0.97	0.00	-26.11	0.00	26.11	1,903.17	951.59	2,011.27	1,007.13	2.16	-0.26	0.032
87.98	-10.78	-0.97	0.00	-23.20	0.00	23.20	1,851.51	925.75	1,902.92	952.88	2.33	-0.27	0.030
88.00	-10.29	-0.95	0.00	-23.19	0.00	23.19	1,851.19	925.60	1,902.27	952.55	2.33	-0.27	0.030
90.00	-9.98	-0.93	0.00	-21.29	0.00	21.29	1,816.54	908.27	1,831.29	917.01	2.44	-0.28	0.029
91.73	-9.64	-0.91	0.00	-19.69	0.00	19.69	1,457.51	728.76	1,482.45	742.33	2.55	-0.28	0.033
95.00	-9.34	-0.89	0.00	-16.73	0.00	16.73	1,417.09	708.55	1,396.21	699.14	2.74	-0.29	0.031
98.00	-9.10	-0.87	0.00	-14.07	0.00	14.07	1,375.51	687.75	1,315.06	658.51	2.93	-0.30	0.028
100.00	-8.62	-0.83	0.00	-12.34	0.00	12.34	1,347.79	673.89	1,262.31	632.09	3.06	-0.31	0.026
105.00	-8.53	-0.83	0.00	-8.17	0.00	8.17	1,278.48	639.24	1,135.17	568.43	3.38	-0.32	0.021
106.00	-5.42	-0.56	0.00	-7.35	0.00	7.35	1,264.62	632.31	1,110.55	556.10	3.45	-0.32	0.017
110.00	-5.06	-0.53	0.00	-5.09	0.00	5.09	1,209.18	604.59	1,014.77	508.14	3.72	-0.33	0.014
115.00	-4.99	-0.52	0.00	-2.44	0.00	2.44	1,139.88	569.94	901.12	451.23	4.07	-0.33	0.010
116.00	-2.10	-0.24	0.00	-1.92	0.00	1.92	1,126.02	563.01	879.21	440.26	4.14	-0.33	0.006
120.00	-1.89	-0.21	0.00	-0.97	0.00	0.97	1,070.57	535.29	794.23	397.70	4.42	-0.34	0.004
124.00	-1.00	-0.11	0.00	-0.11	0.00	0.11	1,015.13	507.57	713.56	357.31	4.70	-0.34	0.001
125.00	0.00	0.00	0.00	0.00	0.00	0.00	1,001.27	500.64	694.07	347.55	4.77	-0.34	0.000
125.73	0.00	0.00	0.00	0.00	0.00	0.00	991.15	495.58	680.02	340.51	4.83	-0.34	0.000





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 Site Name: Bridgeport CT 2, CT Engineering Number: OAA743184\_C3\_04 7/18/2019 4:37:59 PM  
 Customer: SIGFOX S.A.

### Equivalent Modal Analysis Method

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.21
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.06
Importance Factor ( $I_E$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.22
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Period Based on Rayleigh Method (sec):	2.27
Redundancy Factor (p):	1.30

### Load Case (1.2 + 0.2S<sub>d</sub>s) \* DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
35	125.37	42	1.879	1.923	1.119	0.414	15	53
34	124.50	59	1.853	1.792	1.072	0.395	20	73
33	122.00	241	1.780	1.447	0.942	0.342	71	300
32	118.00	251	1.665	0.993	0.762	0.264	58	313
31	115.50	83	1.595	0.763	0.663	0.220	16	103
30	112.50	424	1.513	0.534	0.559	0.172	63	528
29	108.00	380	1.395	0.274	0.426	0.108	36	473
28	105.50	109	1.331	0.165	0.364	0.077	7	135
27	102.50	554	1.256	0.064	0.299	0.044	21	689
26	99.00	226	1.172	-0.020	0.234	0.012	2	281
25	96.50	359	1.113	-0.062	0.195	-0.007	-2	446
24	93.36	398	1.042	-0.097	0.153	-0.027	-9	495
23	90.86	356	0.987	-0.113	0.125	-0.040	-12	443
22	89.00	417	0.947	-0.119	0.107	-0.047	-17	519
21	87.99	4	0.926	-0.121	0.098	-0.050	0	5
20	86.49	423	0.894	-0.122	0.085	-0.053	-20	526
19	82.50	725	0.814	-0.114	0.058	-0.057	-36	902
18	77.50	744	0.718	-0.092	0.034	-0.051	-33	927
17	72.50	764	0.628	-0.063	0.018	-0.034	-23	951
16	67.50	784	0.545	-0.033	0.009	-0.010	-7	976
15	62.50	804	0.467	-0.004	0.006	0.015	11	1,001
14	57.50	824	0.395	0.020	0.007	0.037	26	1,025
13	52.50	844	0.330	0.038	0.010	0.051	37	1,050
12	49.18	282	0.289	0.048	0.013	0.057	14	352
11	46.68	1,045	0.260	0.053	0.016	0.060	54	1,300
10	44.18	518	0.233	0.058	0.019	0.062	28	645
9	41.68	668	0.208	0.062	0.022	0.062	36	831
8	37.50	1,014	0.168	0.066	0.028	0.062	55	1,262
7	32.50	1,038	0.126	0.070	0.034	0.061	55	1,292
6	27.50	1,062	0.090	0.071	0.038	0.059	55	1,321
5	22.50	1,086	0.061	0.072	0.041	0.058	54	1,351
4	17.50	1,109	0.037	0.070	0.041	0.055	53	1,381
3	12.50	1,133	0.019	0.063	0.037	0.051	50	1,410
2	7.50	1,157	0.007	0.049	0.028	0.042	42	1,440



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Customer: SIGFOX S.A.

1	2.50	1,181	0.001	0.021	0.011	0.021	21	1,470
DragonWave Horizon C	125.73	21	1.890	1.980	1.140	0.422	8	26
DragonWave A-ANT-23G	125.73	15	1.890	1.980	1.140	0.422	5	19
Alcatel-Lucent RRH2x	125.73	317	1.890	1.980	1.140	0.422	116	395
Alcatel-Lucent 1900	125.73	180	1.890	1.980	1.140	0.422	66	224
Nokia 2.5G MAA - AAH	125.73	311	1.890	1.980	1.140	0.422	114	387
DragonWave A-ANT-18G	125.73	27	1.890	1.980	1.140	0.422	10	34
Commscope NNVV-	125.73	232	1.890	1.980	1.140	0.422	85	289
Generic 24" x 24" Ju	125.73	20	1.890	1.980	1.140	0.422	7	25
Round T-Arm	124.00	990	1.838	1.719	1.045	0.384	329	1,232
Kathrein Scala Smart	116.00	10	1.609	0.806	0.682	0.229	2	12
Ericsson KRY 112 144	116.00	29	1.609	0.806	0.682	0.229	6	36
Ericsson KRY 112 489	116.00	46	1.609	0.806	0.682	0.229	9	57
Ericsson Radio 4449	116.00	222	1.609	0.806	0.682	0.229	44	276
Ericsson AIR-32 B2A/	116.00	397	1.609	0.806	0.682	0.229	79	494
Ericsson Air 3246 B6	116.00	540	1.609	0.806	0.682	0.229	107	672
RFS APXVAARR24_43-U-	116.00	384	1.609	0.806	0.682	0.229	76	478
Round Low Profile PI	116.00	1,500	1.609	0.806	0.682	0.229	297	1,867
Kaelus DBC0061F1V51-	106.00	76	1.343	0.185	0.376	0.083	6	95
Kaelus DBC0062F3V52-	106.00	79	1.343	0.185	0.376	0.083	6	99
Powerwave Allgon LGP	106.00	85	1.343	0.185	0.376	0.083	6	105
Raycap DC6-48-60-18-	106.00	64	1.343	0.185	0.376	0.083	5	79
Ericsson Radio 8843	106.00	216	1.343	0.185	0.376	0.083	16	268
Ericsson RRUS 32 B30	106.00	159	1.343	0.185	0.376	0.083	11	198
Ericsson RRUS-11 (19	106.00	153	1.343	0.185	0.376	0.083	11	190
Powerwave Allgon 775	106.00	81	1.343	0.185	0.376	0.083	6	101
CCI OPA-65R-LCUU-H4	106.00	342	1.343	0.185	0.376	0.083	25	426
Round Platform w/ Ha	106.00	2,000	1.343	0.185	0.376	0.083	144	2,489
Generic RCU (Remote	98.00	3	1.148	-0.039	0.218	0.004	0	4
Kathrein Scala 800 1	98.00	53	1.148	-0.039	0.218	0.004	0	66
Procom CXL 900-3LW	88.00	2	0.926	-0.121	0.098	-0.050	0	2
Generic 5" x 3" x 2"	88.00	2	0.926	-0.121	0.098	-0.050	0	2
Generic Low Noise Am	88.00	2	0.926	-0.121	0.098	-0.050	0	2
Flat Side Arm	88.00	150	0.926	-0.121	0.098	-0.050	-6	187
		29,812	76.006	33.051	27.879	8.652	2,329	37,104

Load Case (0.9 - 0.2Sds) \* DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
35	125.37	42	1.879	1.923	1.119	0.414	15	36
34	124.50	59	1.853	1.792	1.072	0.395	20	50
33	122.00	241	1.780	1.447	0.942	0.342	71	206
32	118.00	251	1.665	0.993	0.762	0.264	58	215
31	115.50	83	1.595	0.763	0.663	0.220	16	71
30	112.50	424	1.513	0.534	0.559	0.172	63	363
29	108.00	380	1.395	0.274	0.426	0.108	36	325
28	105.50	109	1.331	0.165	0.364	0.077	7	93
27	102.50	554	1.256	0.064	0.299	0.044	21	474
26	99.00	226	1.172	-0.020	0.234	0.012	2	193
25	96.50	359	1.113	-0.062	0.195	-0.007	-2	307
24	93.36	398	1.042	-0.097	0.153	-0.027	-9	340
23	90.86	356	0.987	-0.113	0.125	-0.040	-12	304
22	89.00	417	0.947	-0.119	0.107	-0.047	-17	356
21	87.99	4	0.926	-0.121	0.098	-0.050	0	3
20	86.49	423	0.894	-0.122	0.085	-0.053	-20	362
19	82.50	725	0.814	-0.114	0.058	-0.057	-36	620
18	77.50	744	0.718	-0.092	0.034	-0.051	-33	637
17	72.50	764	0.628	-0.063	0.018	-0.034	-23	654



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Site Name: Bridgeport CT 2, CT

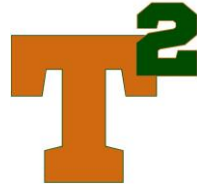
Engineering Number: OAA743184\_C3\_04

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Customer: SIGFOX S.A.

16	67.50	784	0.545	-0.033	0.009	-0.010	-7	671
15	62.50	804	0.467	-0.004	0.006	0.015	11	688
14	57.50	824	0.395	0.020	0.007	0.037	26	705
13	52.50	844	0.330	0.038	0.010	0.051	37	722
12	49.18	282	0.289	0.048	0.013	0.057	14	242
11	46.68	1,045	0.260	0.053	0.016	0.060	54	894
10	44.18	518	0.233	0.058	0.019	0.062	28	443
9	41.68	668	0.208	0.062	0.022	0.062	36	571
8	37.50	1,014	0.168	0.066	0.028	0.062	55	867
7	32.50	1,038	0.126	0.070	0.034	0.061	55	888
6	27.50	1,062	0.090	0.071	0.038	0.059	55	908
5	22.50	1,086	0.061	0.072	0.041	0.058	54	929
4	17.50	1,109	0.037	0.070	0.041	0.055	53	949
3	12.50	1,133	0.019	0.063	0.037	0.051	50	969
2	7.50	1,157	0.007	0.049	0.028	0.042	42	990
1	2.50	1,181	0.001	0.021	0.011	0.021	21	1,010
DragonWave Horizon C	125.73	21	1.890	1.980	1.140	0.422	8	18
DragonWave A-ANT-23G	125.73	15	1.890	1.980	1.140	0.422	5	13
Alcatel-Lucent RRH2x	125.73	317	1.890	1.980	1.140	0.422	116	272
Alcatel-Lucent 1900	125.73	180	1.890	1.980	1.140	0.422	66	154
Nokia 2.5G MAA - AAH	125.73	311	1.890	1.980	1.140	0.422	114	266
DragonWave A-ANT-18G	125.73	27	1.890	1.980	1.140	0.422	10	23
Commscope NNVV-	125.73	232	1.890	1.980	1.140	0.422	85	199
Generic 24" x 24" Ju	125.73	20	1.890	1.980	1.140	0.422	7	17
Round T-Arm	124.00	990	1.838	1.719	1.045	0.384	329	847
Kathrein Scala Smart	116.00	10	1.609	0.806	0.682	0.229	2	8
Ericsson KRY 112 144	116.00	29	1.609	0.806	0.682	0.229	6	25
Ericsson KRY 112 489	116.00	46	1.609	0.806	0.682	0.229	9	40
Ericsson Radio 4449	116.00	222	1.609	0.806	0.682	0.229	44	190
Ericsson AIR-32 B2A/	116.00	397	1.609	0.806	0.682	0.229	79	339
Ericsson Air 3246 B6	116.00	540	1.609	0.806	0.682	0.229	107	462
RFS APXVAARR24_43-U-	116.00	384	1.609	0.806	0.682	0.229	76	328
Round Low Profile PI	116.00	1,500	1.609	0.806	0.682	0.229	297	1,283
Kaelus DBC0061F1V51-	106.00	76	1.343	0.185	0.376	0.083	6	65
Kaelus DBC0062F3V52-	106.00	79	1.343	0.185	0.376	0.083	6	68
Powerwave Allgon LGP	106.00	85	1.343	0.185	0.376	0.083	6	72
Raycap DC6-48-60-18-	106.00	64	1.343	0.185	0.376	0.083	5	54
Ericsson Radio 8843	106.00	216	1.343	0.185	0.376	0.083	16	185
Ericsson RRUS 32 B30	106.00	159	1.343	0.185	0.376	0.083	11	136
Ericsson RRUS-11 (19	106.00	153	1.343	0.185	0.376	0.083	11	131
Powerwave Allgon 775	106.00	81	1.343	0.185	0.376	0.083	6	69
CCI OPA-65R-LCUU-H4	106.00	342	1.343	0.185	0.376	0.083	25	293
Round Platform w/ Ha	106.00	2,000	1.343	0.185	0.376	0.083	144	1,711
Generic RCU (Remote	98.00	3	1.148	-0.039	0.218	0.004	0	3
Kathrein Scala 800 1	98.00	53	1.148	-0.039	0.218	0.004	0	45
Procom CXL 900-3LW	88.00	2	0.926	-0.121	0.098	-0.050	0	1
Generic 5" x 3" x 2"	88.00	2	0.926	-0.121	0.098	-0.050	0	1
Generic Low Noise Am	88.00	2	0.926	-0.121	0.098	-0.050	0	2
Flat Side Arm	88.00	150	0.926	-0.121	0.098	-0.050	-6	128
		29,812	76,006	33,051	27,879	8,652	2,329	25,502



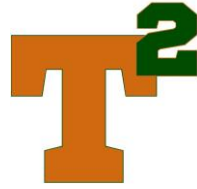


Site Number: 302469 Code: ANSI/TIA-222-G © 2007 - 2019 by ATC IP LLC. All rights reserved.  
 Site Name: Bridgeport CT 2, CT Engineering Number: OAA743184\_C3\_04 7/18/2019 4:37:59 PM  
 Customer: SIGFOX S.A.

**Load Case (1.2 + 0.2Sds) \* DL + E EMAM Seismic Equivalent Modal Analysis Method**

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-35.63	-2.31	0.00	-240.51	0.00	240.51	3,765.29	1,882.65	6,978.46	3,494.42	0.00	0.00	0.078
5.00	-34.19	-2.29	0.00	-228.94	0.00	228.94	3,697.80	1,848.90	6,673.37	3,341.64	0.01	-0.02	0.078
10.00	-32.78	-2.25	0.00	-217.50	0.00	217.50	3,628.68	1,814.34	6,371.97	3,190.72	0.05	-0.05	0.077
15.00	-31.40	-2.21	0.00	-206.25	0.00	206.25	3,557.92	1,778.96	6,074.51	3,041.77	0.12	-0.07	0.077
20.00	-30.05	-2.17	0.00	-195.20	0.00	195.20	3,485.52	1,742.76	5,781.22	2,894.91	0.21	-0.10	0.076
25.00	-28.73	-2.12	0.00	-184.36	0.00	184.36	3,411.48	1,705.74	5,492.34	2,750.25	0.33	-0.13	0.075
30.00	-27.43	-2.08	0.00	-173.73	0.00	173.73	3,335.81	1,667.90	5,208.12	2,607.93	0.48	-0.16	0.075
35.00	-26.17	-2.04	0.00	-163.33	0.00	163.33	3,258.50	1,629.25	4,928.79	2,468.06	0.66	-0.19	0.074
40.00	-25.34	-2.01	0.00	-153.16	0.00	153.16	3,158.60	1,579.30	4,623.93	2,315.40	0.87	-0.21	0.074
43.36	-24.69	-1.98	0.00	-146.41	0.00	146.41	3,088.76	1,544.38	4,420.66	2,213.61	1.03	-0.24	0.074
45.00	-23.39	-1.93	0.00	-143.16	0.00	143.16	3,054.65	1,527.33	4,323.05	2,164.74	1.11	-0.25	0.074
48.35	-23.04	-1.92	0.00	-136.69	0.00	136.69	2,459.53	1,229.76	3,476.81	1,740.99	1.29	-0.27	0.088
50.00	-21.99	-1.89	0.00	-133.52	0.00	133.52	2,439.67	1,219.84	3,409.59	1,707.33	1.38	-0.28	0.087
55.00	-20.96	-1.87	0.00	-124.07	0.00	124.07	2,378.35	1,189.18	3,208.11	1,606.44	1.70	-0.32	0.086
60.00	-19.96	-1.87	0.00	-114.72	0.00	114.72	2,315.40	1,157.70	3,010.48	1,507.48	2.05	-0.35	0.085
65.00	-18.98	-1.88	0.00	-105.38	0.00	105.38	2,249.69	1,124.84	2,815.52	1,409.85	2.44	-0.39	0.083
70.00	-18.03	-1.91	0.00	-95.97	0.00	95.97	2,163.06	1,081.53	2,601.81	1,302.84	2.87	-0.43	0.082
75.00	-17.10	-1.95	0.00	-86.42	0.00	86.42	2,076.43	1,038.21	2,396.52	1,200.04	3.35	-0.47	0.080
80.00	-16.20	-1.99	0.00	-76.67	0.00	76.67	1,989.80	994.90	2,199.68	1,101.47	3.87	-0.52	0.078
85.00	-15.67	-2.01	0.00	-66.73	0.00	66.73	1,903.17	951.59	2,011.27	1,007.13	4.43	-0.56	0.074
87.98	-15.67	-2.02	0.00	-60.73	0.00	60.73	1,851.51	925.75	1,902.92	952.88	4.79	-0.58	0.072
88.00	-14.96	-2.03	0.00	-60.70	0.00	60.70	1,851.19	925.60	1,902.27	952.55	4.79	-0.58	0.072
90.00	-14.51	-2.05	0.00	-56.63	0.00	56.63	1,816.54	908.27	1,831.29	917.01	5.04	-0.60	0.070
91.73	-14.02	-2.05	0.00	-53.09	0.00	53.09	1,457.51	728.76	1,482.45	742.33	5.25	-0.61	0.081
95.00	-13.57	-2.06	0.00	-46.37	0.00	46.37	1,417.09	708.55	1,396.21	699.14	5.68	-0.64	0.076
98.00	-13.22	-2.06	0.00	-40.20	0.00	40.20	1,375.51	687.75	1,315.06	658.51	6.09	-0.67	0.071
100.00	-12.53	-2.03	0.00	-36.08	0.00	36.08	1,347.79	673.89	1,262.31	632.09	6.38	-0.68	0.066
105.00	-12.39	-2.03	0.00	-25.91	0.00	25.91	1,278.48	639.24	1,135.17	568.43	7.11	-0.72	0.055
106.00	-7.87	-1.70	0.00	-23.88	0.00	23.88	1,264.62	632.31	1,110.55	556.10	7.26	-0.73	0.049
110.00	-7.34	-1.64	0.00	-17.06	0.00	17.06	1,209.18	604.59	1,014.77	508.14	7.88	-0.75	0.040
115.00	-7.24	-1.62	0.00	-8.88	0.00	8.88	1,139.88	569.94	901.12	451.23	8.68	-0.77	0.026
116.00	-3.04	-0.89	0.00	-7.25	0.00	7.25	1,126.02	563.01	879.21	440.26	8.84	-0.77	0.019
120.00	-2.75	-0.81	0.00	-3.70	0.00	3.70	1,070.57	535.29	794.23	397.70	9.50	-0.78	0.012
124.00	-1.45	-0.45	0.00	-0.45	0.00	0.45	1,015.13	507.57	713.56	357.31	10.16	-0.79	0.003
125.00	0.00	0.00	0.00	0.00	0.00	0.00	1,001.27	500.64	694.07	347.55	10.32	-0.79	0.000
125.73	0.00	0.00	0.00	0.00	0.00	0.00	991.15	495.58	680.02	340.51	10.44	-0.79	0.000



Site Number: 302469 Code: ANSI/TIA-222-G © 2007 - 2019 by ATC IP LLC. All rights reserved.  
 Site Name: Bridgeport CT 2, CT Engineering Number: OAA743184\_C3\_04 7/18/2019 4:37:59 PM  
 Customer: SIGFOX S.A.

**Load Case (0.9 - 0.2Sds) \* DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method**

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-24.49	-2.31	0.00	-236.45	0.00	236.45	3,765.29	1,882.65	6,978.46	3,494.42	0.00	0.00	0.074
5.00	-23.50	-2.28	0.00	-224.88	0.00	224.88	3,697.80	1,848.90	6,673.37	3,341.64	0.01	-0.02	0.074
10.00	-22.53	-2.24	0.00	-213.48	0.00	213.48	3,628.68	1,814.34	6,371.97	3,190.72	0.05	-0.05	0.073
15.00	-21.58	-2.19	0.00	-202.29	0.00	202.29	3,557.92	1,778.96	6,074.51	3,041.77	0.11	-0.07	0.073
20.00	-20.65	-2.15	0.00	-191.32	0.00	191.32	3,485.52	1,742.76	5,781.22	2,894.91	0.21	-0.10	0.072
25.00	-19.74	-2.10	0.00	-180.57	0.00	180.57	3,411.48	1,705.74	5,492.34	2,750.25	0.32	-0.13	0.071
30.00	-18.85	-2.05	0.00	-170.07	0.00	170.07	3,335.81	1,667.90	5,208.12	2,607.93	0.47	-0.15	0.071
35.00	-17.99	-2.01	0.00	-159.80	0.00	159.80	3,258.50	1,629.25	4,928.79	2,468.06	0.65	-0.18	0.070
40.00	-17.41	-1.97	0.00	-149.77	0.00	149.77	3,158.60	1,579.30	4,623.93	2,315.40	0.85	-0.21	0.070
43.36	-16.97	-1.95	0.00	-143.14	0.00	143.14	3,088.76	1,544.38	4,420.66	2,213.61	1.01	-0.23	0.070
45.00	-16.08	-1.90	0.00	-139.94	0.00	139.94	3,054.65	1,527.33	4,323.05	2,164.74	1.09	-0.24	0.070
48.35	-15.83	-1.89	0.00	-133.58	0.00	133.58	2,459.53	1,229.76	3,476.81	1,740.99	1.26	-0.26	0.083
50.00	-15.11	-1.85	0.00	-130.47	0.00	130.47	2,439.67	1,219.84	3,409.59	1,707.33	1.36	-0.27	0.083
55.00	-14.41	-1.83	0.00	-121.21	0.00	121.21	2,378.35	1,189.18	3,208.11	1,606.44	1.66	-0.31	0.082
60.00	-13.72	-1.83	0.00	-112.06	0.00	112.06	2,315.40	1,157.70	3,010.48	1,507.48	2.01	-0.35	0.080
65.00	-13.04	-1.84	0.00	-102.93	0.00	102.93	2,249.69	1,124.84	2,815.52	1,409.85	2.39	-0.38	0.079
70.00	-12.39	-1.86	0.00	-93.74	0.00	93.74	2,163.06	1,081.53	2,601.81	1,302.84	2.81	-0.42	0.078
75.00	-11.75	-1.90	0.00	-84.43	0.00	84.43	2,076.43	1,038.21	2,396.52	1,200.04	3.28	-0.46	0.076
80.00	-11.13	-1.94	0.00	-74.93	0.00	74.93	1,989.80	994.90	2,199.68	1,101.47	3.79	-0.50	0.074
85.00	-10.77	-1.96	0.00	-65.23	0.00	65.23	1,903.17	951.59	2,011.27	1,007.13	4.34	-0.54	0.070
87.98	-10.76	-1.96	0.00	-59.39	0.00	59.39	1,851.51	925.75	1,902.92	952.88	4.69	-0.57	0.068
88.00	-10.27	-1.98	0.00	-59.35	0.00	59.35	1,851.19	925.60	1,902.27	952.55	4.69	-0.57	0.068
90.00	-9.97	-2.00	0.00	-55.38	0.00	55.38	1,816.54	908.27	1,831.29	917.01	4.93	-0.59	0.066
91.73	-9.63	-2.00	0.00	-51.93	0.00	51.93	1,457.51	728.76	1,482.45	742.33	5.15	-0.60	0.077
95.00	-9.32	-2.01	0.00	-45.38	0.00	45.38	1,417.09	708.55	1,396.21	699.14	5.57	-0.63	0.071
98.00	-9.08	-2.01	0.00	-39.35	0.00	39.35	1,375.51	687.75	1,315.06	658.51	5.97	-0.65	0.066
100.00	-8.60	-1.98	0.00	-35.34	0.00	35.34	1,347.79	673.89	1,262.31	632.09	6.24	-0.67	0.062
105.00	-8.51	-1.98	0.00	-25.43	0.00	25.43	1,278.48	639.24	1,135.17	568.43	6.96	-0.70	0.051
106.00	-5.40	-1.67	0.00	-23.45	0.00	23.45	1,264.62	632.31	1,110.55	556.10	7.11	-0.71	0.046
110.00	-5.04	-1.61	0.00	-16.76	0.00	16.76	1,209.18	604.59	1,014.77	508.14	7.72	-0.73	0.037
115.00	-4.97	-1.59	0.00	-8.73	0.00	8.73	1,139.88	569.94	901.12	451.23	8.50	-0.75	0.024
116.00	-2.09	-0.87	0.00	-7.14	0.00	7.14	1,126.02	563.01	879.21	440.26	8.66	-0.76	0.018
120.00	-1.88	-0.80	0.00	-3.64	0.00	3.64	1,070.57	535.29	794.23	397.70	9.30	-0.77	0.011
124.00	-0.99	-0.44	0.00	-0.44	0.00	0.44	1,015.13	507.57	713.56	357.31	9.94	-0.77	0.002
125.00	0.00	0.00	0.00	0.00	0.00	0.00	1,001.27	500.64	694.07	347.55	10.10	-0.77	0.000
125.73	0.00	0.00	0.00	0.00	0.00	0.00	991.15	495.58	680.02	340.51	10.22	-0.77	0.000



Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

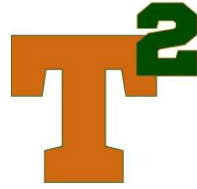
Engineering Number: OAA743184\_C3\_04

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Customer: SIGFOX S.A.

Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	16.67	0.00	35.75	0.00	0.00	1594.18	48.35	0.49
0.9D + 1.6W	16.20	0.00	26.81	0.00	0.00	1533.95	48.35	0.47
1.2D + 1.0Di + 1.0Wi	10.69	0.00	65.28	0.00	0.00	785.80	0.00	0.24
(1.2 + 0.2Sds) * DL + E ELFM	1.17	0.00	35.63	0.00	0.00	123.93	48.35	0.05
(1.2 + 0.2Sds) * DL + E EMAM	2.31	0.00	35.63	0.00	0.00	240.51	48.35	0.09
(0.9 - 0.2Sds) * DL + E ELFM	1.17	0.00	24.49	0.00	0.00	121.96	48.35	0.04
(0.9 - 0.2Sds) * DL + E EMAM	2.31	0.00	24.49	0.00	0.00	236.45	48.35	0.08
1.0D + 1.0W	3.47	0.00	29.81	0.00	0.00	329.83	48.35	0.11



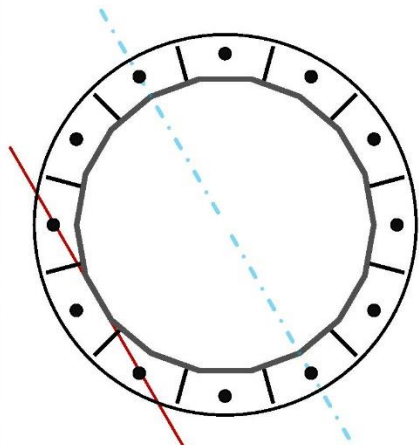
**Base Plate & Anchor Rod Analysis**

Pole Dimensions		
Number of Sides	18	-
Diameter	45.5	in
Thickness	0.375	in
Orientation Offset	0	°

Base Reactions			
Moment, Mu	1594.2	k-ft	
Axial, Pu	35.8	k	
Shear, Vu	16.7	k	
Neutral Axis	120	°	

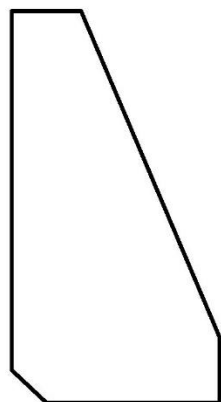
Report Capacities		
Component	Capacity	Result
Base Plate	32%	Pass
Anchor Rods	47%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, $\phi$	60	in
Thickness	1 3/4	in
Grade	A572-60	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	N/A	in
Orientation Offset	0	°
Anchor Rod Detail	d	$\eta=0.5$
Clear Distance	3	in
Applied Moment, Mu	564.4	k
Bending Stress, $\phi Mn$	1753.9	k



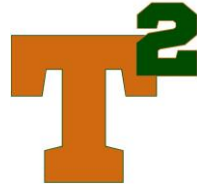
Original Anchor Rods		
Arrangement	Radial	-
Quantity	12	-
Diameter, $\phi$	2 1/4	in
Bolt Circle	54	in
Grade	A615-75	-
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	14.1	in
Orientation Offset	0	°
Applied Force, Pu	121.0	k
Anchor Rods, $\phi Pn$	259.8	k

Stiffeners		
Arrangement	Radial	-
Quantity	12	-
Height	12	in
Width	6	in
Effective Width	6.000	in
Thickness	1/2	in
Effective Thickness	0.500	in
Notch	1	in
Flat Edge	2	in
Grade	A572-50	-
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Horizontal Weld	Bevel+Fillet	-
Horizontal Fillet Size	1/2	in
Bevel Depth	1/2	in
Vertical Weld	Fillet	-
Vertical Fillet Size	3/8	in
Weld Strength	70	ksi
Electrode Coefficient	1	-
Orientation Offset	°	-
Vertical Weld, $\phi Rn$	198.2	k
Horz. Weld, $\phi Rn$	222.5	k
Ten. Capacity, $\phi Tn$	109.7	k
Comp. Capacity, $\phi Pn$	227.0	k



Individual Capacity Summary		
Component	Capacity	Result
Base Plate	32%	Pass
Anchor Rods	47%	Pass
Dwyidag	-	-
Bolt Group 1	-	-
Bolt Group 2	-	-
Stiffener Weld (V)	25%	Pass
Stiffener Weld (H)	23%	Pass
Stiffener Tension	22%	Pass
Stiffener Comp.	11%	Pass





## Calculations for Monopole Base Plate & Anchor Rod Analysis

### Reaction Distribution

Reaction	Shear Vu k	Moment Mu k-ft	Factor
-	-	-	-
Base Forces	16.7	1594.2	1.00
Anchor Rod Forces	16.7	1594.2	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	6.7	638.9	0.40

### Geometric Properties

Section	Gross Area in <sup>2</sup>	Net Area in <sup>2</sup>	Individual Inertia in <sup>4</sup>	Threads per Inch #	Moment of Inertia in <sup>4</sup>
-	-	-	-	-	-
Pole	52.8921	2.9385	0.1383		13465.30
Bolt	3.9761	3.2477	0.8393	4.5	14215.47
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	2.5000	2.2500	36.0000		9005.72

Base Plate		
Shape	Round	-
Diameter, D	60	in
Thickness, t	1.75	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	39.112	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	12	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	54	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	121.0	k
Applied Shear, Vu	1.1	k
Compressive Capacity, φPn	259.8	k
Tensile Capacity, φRnt	0.466	OK
Interaction Capacity	0.474	OK

Base Plate Stiffeners		
Applied Axial Force, Pu	48.8	k
Applied Horizontal Force, Vu	0.28	k
Vertical Weld		
Vert.-to-Stiffener a=e <sub>v</sub> /l	0.167	-
Spacing Ratio, k	0.042	-
Weld Coefficient, C	3.670	-
Compressive Capacity, φPn	198.2	k
Vert.-to-Plate a=e <sub>v</sub> /l	0.333	-
Spacing Ratio, k	0.042	-
Weld Coefficient, C	2.940	-
Shear Capacity, φVn	158.8	k
P <sub>u</sub> /φ <sub>p</sub> P <sub>n</sub> + V <sub>u</sub> /φ <sub>v</sub> V <sub>n</sub>	0.248	OK

External Base Plate		
Chord Length AA	32.806	in
Additional AA	9.616	in
Section Modulus, Z	32.479	in <sup>3</sup>
Applied Moment, Mu	564.4	k-ft
Bending Capacity, φMn	1753.9	k-ft
Capacity, Mu/φMn	0.322	OK
Chord Length AB	31.788	in
Additional AB	8.646	in
Section Modulus, Z	30.957	in <sup>3</sup>
Applied Moment, Mu	446.9	k-ft
Bending Capacity, φMn	1671.7	k-ft
Capacity, Mu/φMn	0.267	OK
Bend Line Length	33.727	in
Additional Bend Line	55.175	in
Section Modulus, Z	68.066	in <sup>3</sup>
Applied Moment, Mu	483.9	k-ft
Bending Capacity, φMn	3675.5	k-ft
Capacity, Mu/φMn	0.132	OK

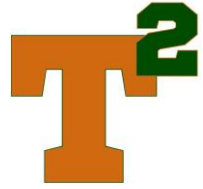
Horizontal Weld		
Horz.-to-Stiffener a=e <sub>h</sub> /l	0.167	-
Spacing Ratio, k	0.083	-
Weld Coefficient, C	2.940	-
Effective Fillet	1.000	in
Compressive Capacity, φPn	211.7	k
Horz.-to-Pole a=e <sub>h</sub> /l	0.333	-
Spacing Ratio, k	0.083	-
Weld Coefficient, C	3.090	-
Shear Capacity, φVn	222.5	k
P <sub>u</sub> /φ <sub>p</sub> P <sub>n</sub> + V <sub>u</sub> /φ <sub>v</sub> V <sub>n</sub>	0.232	OK

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in <sup>3</sup>
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, φMn	0.0	k-ft
Capacity, Mu/φMn		

Plate Tension		
Gross Cross Section	2.500	in <sup>2</sup>
Net Cross Section	2.250	in <sup>2</sup>
Tensile Capacity, φTn	109.7	k
Capacity, Tu/φTn	0.223	OK

Plate Compression		
Radius of Gyration	0.144	in <sup>3</sup>
kl/r	49.88	-
4.71 √(E/Fy)	113.43	-
Buckling Stress(F <sub>e</sub> )	115.0	-
Crit. Buckling Stress(F <sub>cr</sub> )	100.9	ksi
Compressive Capacity, φPn	227.0	k
Capacity, Pu/φPn	0.108	OK





**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**

8618 Westwood Center Drive,  
Suite 315

Vienna, VA 22182

Voice 703-276-1100  
Fax 703-276-1169



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**

<b>Carrier</b>	<b>Area Maximum Percentage MPE</b>
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 %
<b>Composite Site MPE:</b>	<b>4.243 %</b>

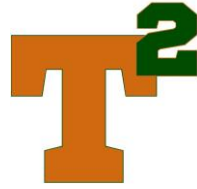




**AT&T Mobility, LLC  
Bridgeport CT 2  
Carrier Summary**

**Frequency:** 2300 MHz  
**Maximum Permissible Exposure (MPE):** 1000  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 4.65458  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.46546 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	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



**AT&T Mobility, LLC  
Bridgeport CT 2  
Carrier Summary**

Frequency: 2100 MHz  
 Maximum Permissible Exposure (MPE): 1000  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 7.25541  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.72554 %

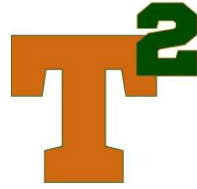
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
CCI Antennas	OPA-65R-LCUU-H4	110	0	4257	5.179932	0.517993	7.181985	0.718198
CCI Antennas	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



**AT&T Mobility, LLC  
Bridgeport CT 2  
Carrier Summary**

**Frequency:** 1900 MHz  
**Maximum Permissible Exposure (MPE):** 1000  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 6.68201  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.6682 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	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

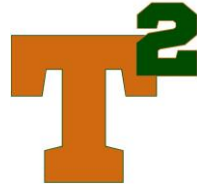


**AT&T Mobility, LLC  
Bridgeport CT 2  
Carrier Summary**

Frequency: 737 MHz  
 Maximum Permissible Exposure (MPE): 491.33  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 2.02708  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.41257 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	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

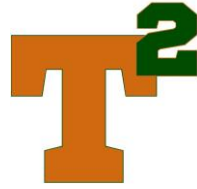




**AT&T Mobility, LLC**  
**Bridgeport CT 2**  
**Carrier Summary**

**Frequency:** 850 MHz  
**Maximum Permissible Exposure (MPE):** 566.67  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 1.65839  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.29266 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	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**

**Frequency:** 1900 MHz  
**Maximum Permissible Exposure (MPE):** 1000  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 0  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0 %

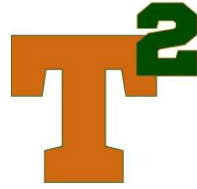
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
Kathrein-Scala	80010504	101	0	0	0	0	0	0
Kathrein-Scala	80010504	101	120	0	0	0	0	0
Kathrein-Scala	80010504	101	240	0	0	0	0	0



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

**Frequency:** 905.2 MHz  
**Maximum Permissible Exposure (MPE):** 603.47  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 0.00766  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.00127 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
Procom	CXL 900-3LW	88	0	1.22	0.007655	0.001269	0.007655	0.001269

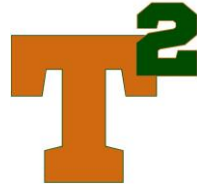


**Sprint  
Bridgeport CT 2  
Carrier Summary**

Frequency: 2500 MHz  
 Maximum Permissible Exposure (MPE): 1000  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 1.668  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.1668 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	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

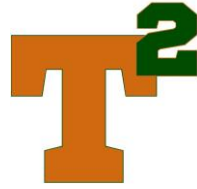




**Sprint  
Bridgeport CT 2  
Carrier Summary**

**Frequency:** 1990 MHz  
**Maximum Permissible Exposure (MPE):** 1000  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 1.7701  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.17701 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	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



**Sprint  
Bridgeport CT 2  
Carrier Summary**

**Frequency:** 1900 MHz  
**Maximum Permissible Exposure (MPE):** 1000  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 1.7701  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.17701 %

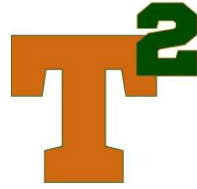
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
Commscope	NNVV-65B-R4	131	0	2781	1.33049	0.133049	1.756174	0.175617
Commscope	NNVV-65B-R4	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



**Sprint  
Bridgeport CT 2  
Carrier Summary**

Frequency: 869 MHz  
 Maximum Permissible Exposure (MPE): 579.33  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 0.59275  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.10232 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	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



**Sprint  
Bridgeport CT 2  
Carrier Summary**

Frequency: 862 MHz  
 Maximum Permissible Exposure (MPE): 574.67  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 0.59275  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.10315 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	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

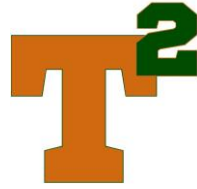




**T-Mobile  
Bridgeport CT 2  
Carrier Summary**

**Frequency:** 700 MHz  
**Maximum Permissible Exposure (MPE):** 466.67  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 0.72681  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.15575 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	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



**T-Mobile  
Bridgeport CT 2  
Carrier Summary**

**Frequency:** 600 MHz  
**Maximum Permissible Exposure (MPE):** 400  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 0.67718  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.16929 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
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



**T-Mobile  
Bridgeport CT 2  
Carrier Summary**

**Frequency:** 2100 MHz  
**Maximum Permissible Exposure (MPE):** 1000  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 4.93395  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.49339 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	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



**T-Mobile  
Bridgeport CT 2  
Carrier Summary**

**Frequency:** 1900 MHz  
**Maximum Permissible Exposure (MPE):** 1000  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 1.32912  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.13291 %

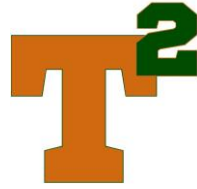
Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
Ericsson	AIR 32 B2A-B66AA	120	0	2313	0.788069	0.078807	0.907317	0.090732
Ericsson	AIR 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



**AMERICAN TOWER<sup>®</sup>**  
CORPORATION

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

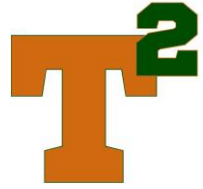
This instrument was acknowledged before me by Margaret Robinson, Senior Counsel of American Tower (Tower Facility owner), personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she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

WITNESS my hand and official seal, this 18<sup>th</sup> day of June, 2019.



Notary Public   
My Commission Expires: March 14, 2025

\* 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**



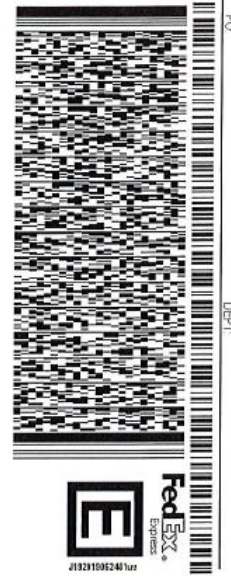


ORIGIN ID: YNGA (724) 308-7855  
T-SQUARED SITE SERVICES, LLC  
2500 HIGHLAND RD  
SUITE 201  
HERMITAGE PA 16148  
UNITED STATES US

SHIP DATE: 29 JUL 19  
ACTWG#  
CAD: 108861039MET4160  
BILL SENDER

TO THE HONORABLE JOSEPH P. GANIM  
CITY OF BRIDGEPORT, CT  
MARGARET E. MORTON GOVERNMENT CTR.  
999 BROAD STREET  
BRIDGEPORT CT 06804  
REF# (203) 536-4695  
DEPT  
PO NY

567\_0F55105A2



TRK# 7758 5451 3036  
THU - 01 AUG 4:30P  
EXPRESS SAVER

SEBCCA 06604  
CT-US BDL

**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 Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

**T-SQUARED SITE SERVICES**  
 2500 Highland Road | Suite 201  
 Hermitage, PA 16148 | 724.308.7855  
[www.t-sqrd.com](http://www.t-sqrd.com)



**FedEx** Shipment Receipt

**Address Information**

<b>Ship to:</b> The Honorable Joseph P. Ganim City of Bridgeport, CT Margaret E. Morton Government Ctr. 999 Broad Street BRIDGEPORT, CT 06604 US (203) 536-4695	<b>Ship from:</b> T-Squared Site Services, LLC 2500 Highland Rd Suite 201 Hermitage, PA 16148 US 7243087855
---	--

**Shipment Information:**

Tracking no.: 775854513036  
Ship date: 07/29/2019  
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: Drop off package at FedEx location

**Billing Information:**

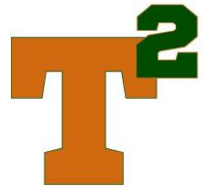
Bill transportation to: My Account - 350-350  
Your reference:  
P.O. no.:  
Invoice no.:  
Department no.:

Thank you for shipping online with FedEx ShipManager at [fedex.com](http://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. 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.

**T-SQUARED SITE SERVICES**  
2500 Highland Road | Suite 201  
Hermitage, PA 16148 | 724.308.7855  
[www.t-sqrd.com](http://www.t-sqrd.com)



**EXHIBIT 6:**

**Proof of Mailing to Tower Owner**



ORIGIN ID: YNGA (724) 308-7855  
T-SQUARED SITE SERVICES, LLC

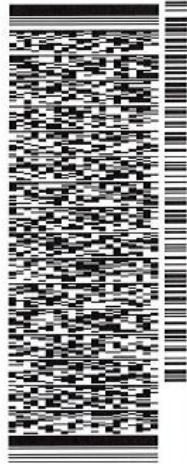
2500 HIGHLAND RD  
SUITE 201  
HERMITAGE, PA 16148  
UNITED STATES US

SHIP DATE: 29JUL19  
ACTWGT:  
CAD: 108861036MMET4160  
BILL SENDER

TO MR. JASON HASTIE  
AMERICAN TOWER CORP.  
10 PRESIDENTIAL WAY

WOBURN MA 01801  
(781) 926-7485  
REF:

PO DEPT



567.2F551.05A2

TRK# 7758 5455 3670  
0201

THU - 01 AUG 4:30P  
EXPRESS SAVER

SE BEDA

01801  
MAUS BOS



**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.

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Shipment Receipt

**Address Information**

**Ship to:**

Mr. Jason Hastie  
American Tower Corp.  
10 Presidential Way

WOBURN, MA  
01801  
US  
7819267485

**Ship from:**

T-Squared Site Services, LLC

2500 Highland Rd  
Suite 201  
Hermitage, PA  
16148  
US  
7243087855

**Shipment Information:**

Tracking no.: 775854553670  
Ship date: 07/29/2019  
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: Drop off package at FedEx location

**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](http://fedex.com).

**Please Note**

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**EXHIBIT 7:**

**Proof of Mailing to Property Owner**



7/31/2019

FedEx Ship Manager - Print Your Label(s)

TRK# 7758 8158 5911  
 0201

**SECTXA**

MON - 05 AUG 4:30P  
 EXPRESS SAVER

10528  
 NY-US SWF



TO

ORIGIN ID: NYGA (724) 308-7855  
 T-SQUARED SITE SERVICES, LLC  
 2500 HIGHLAND RD  
 SUITE 201  
 HERMITAGE, PA 16148  
 UNITED STATES US

SHIP DATE: 31 JUL 19  
 ACTWGT  
 CMT: 108891039#NET14180  
 BILL SENDER

WR CT AVENUE LLC  
 440 MAMARONECK AVENUE  
 SUITE N-503  
 HARRISON NY 10528

(724) 555-1515 REF  
 NY  
 PD DEPT

567.3.E9E7.05A2



**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.

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**T-squared site services**  
 2500 Highland Road | Suite 201  
 Hermitage, PA 16148 | 724.308.7855  
[www.t-sqrd.com](http://www.t-sqrd.com)



7/31/2019

FedEx Ship Manager - Print Your Label(s)



## Shipment Receipt

### Address Information

#### Ship to:

Select or enter  
WR CT Avenue LLC  
440 Mamaroneck Avenue  
Suite N-503  
HARRISON, NY  
10528  
US  
7245551515

#### Ship from:

T-Squared Site Services, LLC  
2500 Highland Rd  
Suite 201  
Hermitage, PA  
16148  
US  
7243087855

### Shipment Information:

Tracking no.: 775881585911  
Ship date: 07/31/2019  
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: Drop off package at FedEx location

### 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](https://www.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. 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.

<https://www.fedex.com/shipping/shipAction.handle?method=doContinue>

2/2

**T-SQUARED SITE SERVICES**  
2500 Highland Road | Suite 201  
Hermitage, PA 16148 | 724.308.7855  
[www.t-sqrd.com](http://www.t-sqrd.com)