



CRAIG CODY

16 Chestnut Street, Suite 420
Foxboro, MA 02035
Tel (781) 831-1281
Fax (774) 215-5423

Melanie Bachman
Executive Director
Connecticut Siting Counsel
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – 1069 Connecticut Ave, Bridgeport, CT**

Dear Ms. Bachman:

Please accept this letter as notification pursuant to R.C.S.A Section 16-50j-73, for construction that constitutes modification pursuant to R.C.S.A Section 16-50j-72(b) and 16-50j-73. In accordance with R.C.S.A Section 16-50j-73, a copy of this submission is being sent to the City of Bridgeport. A copy of this submission is also being sent to WR CT Avenue, LLC, the property owner on which the tower is located.

T-Mobile Northeast LLC's Proposed Wireless Modifications

T-Mobile as successor in interest to Omnipoint Communications achieved an initial approval from the Siting Council to install antennas as well as related ground equipment and currently maintains this equipment. The facility consists of a One-Hundred and Twenty-Eight foot high communications tower within a fenced in compound. T-Mobile now intends to modify the facility as shown on the enclosed plans prepared by Infinigy Engineering and annexed hereto in Exhibit 1. The modifications will consist of adding three (3) new antennas at the existing AGL of One-Hundred and Nineteen feet. A structural analysis has been completed for the site and attached as Exhibit 3,

T-Mobile's Proposed Wireless Modifications Constitutes An "Exempt Modification"

The proposed modification to the above mentioned Facility constitutes an exempt modification of an existing facility provided for in R.C.S.A Section 16-50j-72(b)(2) and Council regulations promulgated pursuant thereto.

- 1) The proposed modification will not result in an increase in the height of the existing tower.
- 2) The modifications will remain entirely within the limits of the leased area. The modifications therefor, will not require the extension of the boundary.

- 3) The proposed modification does not increase the noise levels at the boundary by six(6) decibels or more under normal conditions.
- 4) T-Mobile's proposed facility will not increase the cumulative radio frequency electromagnetic radiation power density at the Tower sites' boundary to or above the standard adopted by the Connecticut Department of Environmental Protection as set forth in Section 22a-162 of the Connecticut General Statutes and MPE limits established by the Federal Communications Commission. A cumulative General Power Density table for T-Mobile's proposed modified facility is included as Exhibit 2.
- 5) The facility has received all municipal zoning approvals and building permits. (Regs., Conn. State Agencies Section 16-50j-72))

For all the foregoing reasons, T-Mobile Northeast LLC respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A Section 16-50j-72(b)(2)

Respectfully submitted,


Craig Cody 781.831.1281

On behalf of American Tower Corporation
c/o Tower Resource Management, Inc.
16 Chestnut Street, Suite 420
Foxboro, MA 02035

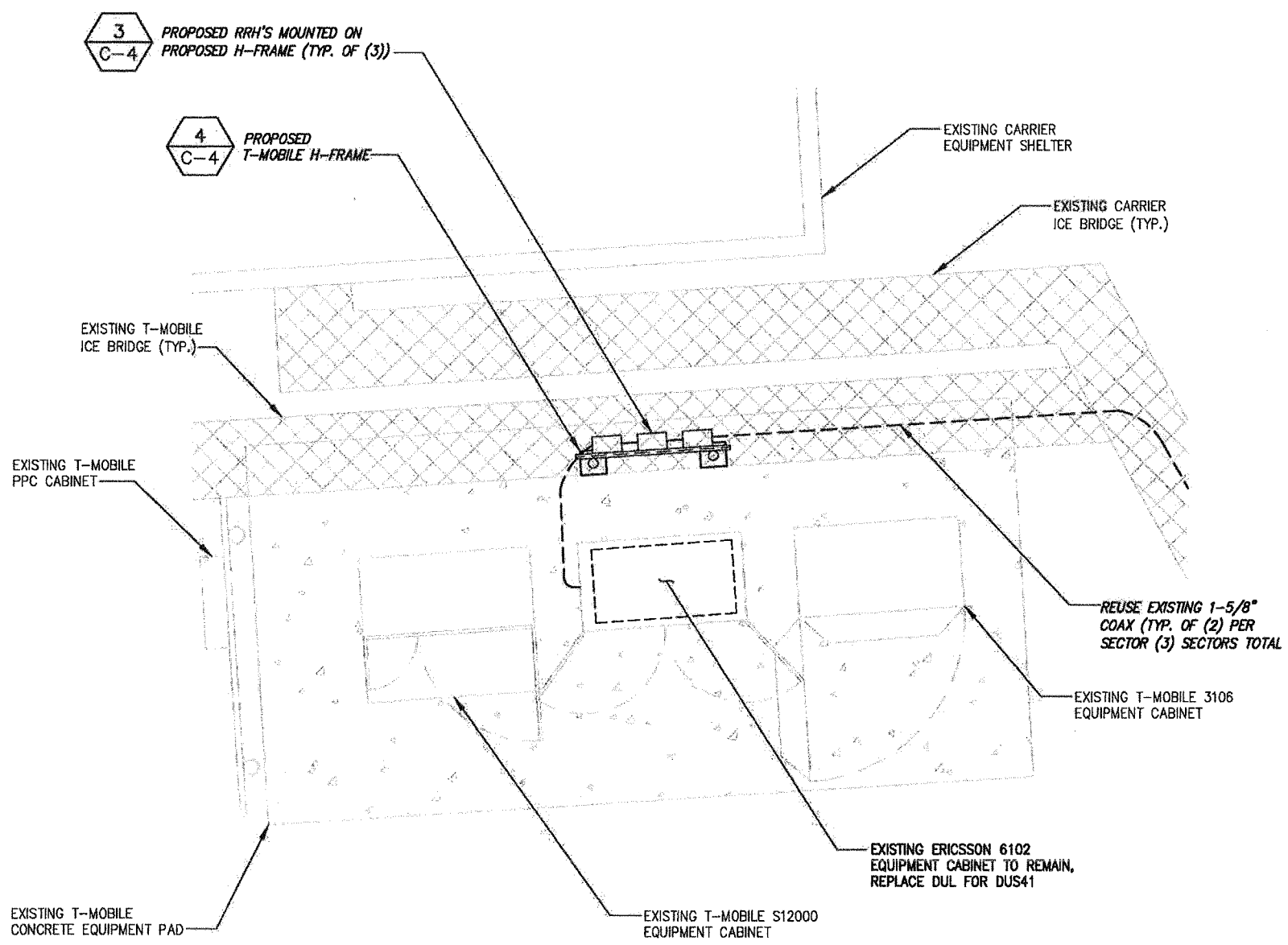
cc: **City of Bridgeport**
WR CT Avenue, LLC.

Exhibit 1

Site Plan

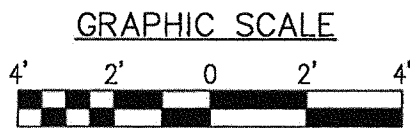


Exhibit 2
Power Density Report

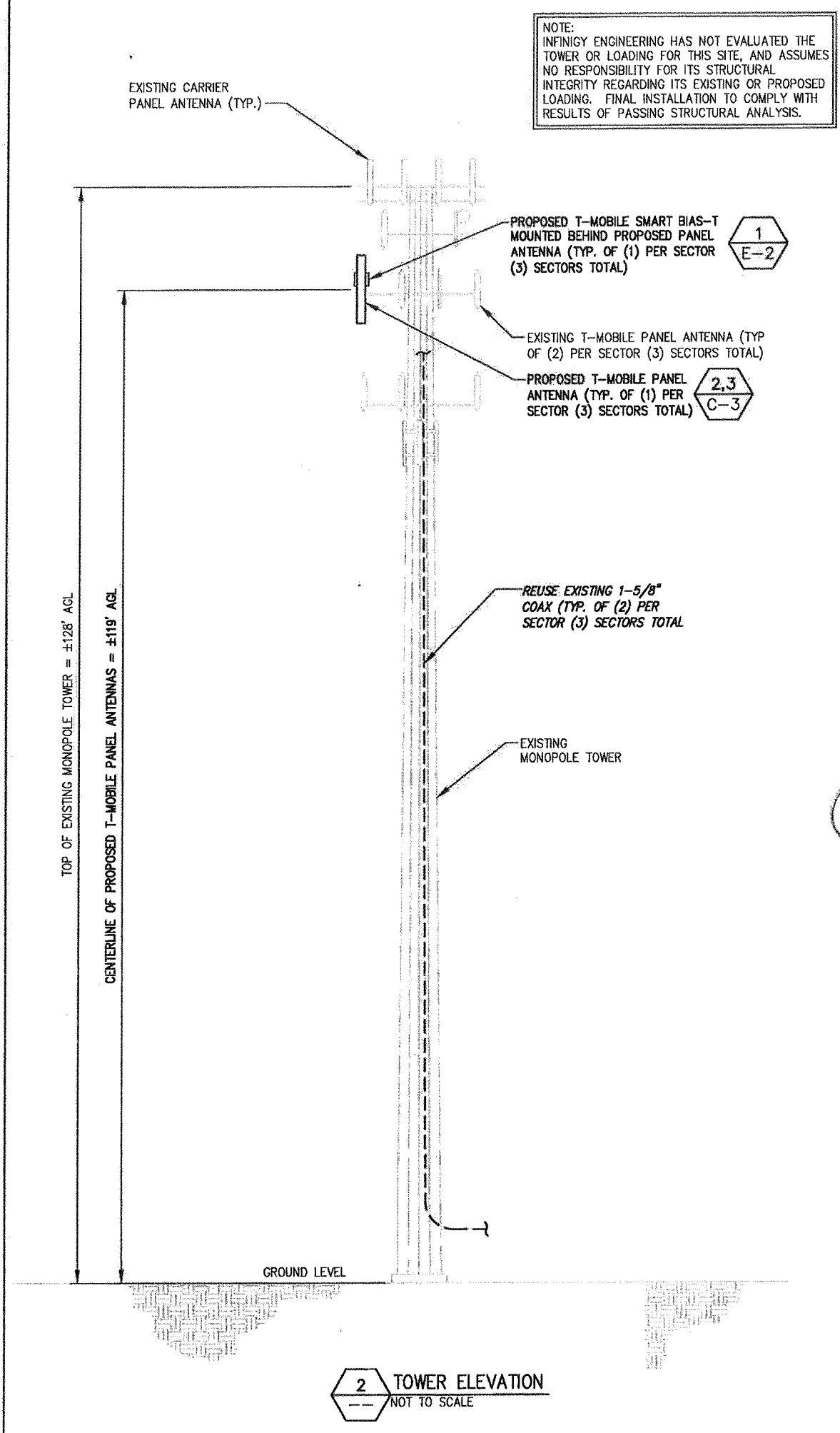


CALLLED NORTH

1 COMPOUND PLAN
SCALE: AS NOTED



GRAPHIC SCALE
SCALE (11x17): 1" = 4'-0"
SCALE (22x34): 1" = 2'-0"



NOTE:
INFINIGY ENGINEERING HAS NOT EVALUATED THE TOWER OR LOADING FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY REGARDING ITS EXISTING OR PROPOSED LOADING. FINAL INSTALLATION TO COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSIS.

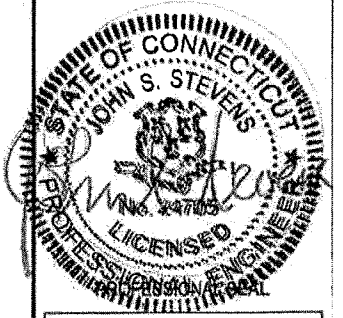
T-Mobile
T-MOBILE NORTHEAST LLC
103 MONARCH DR
LIVERPOOL, NY 13086

INFINIGY
1033 Waterlark Shaker Rd
Albany, NY 12205
Office: (518) 866-0750
Fax: (518) 866-0755

SUBMITTALS		
DATE	DESCRIPTION	REVISION
8/14/19	FOR PERMIT	0

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO: 317-000
DRAWN BY: MAP
CHECKED BY: ASW



THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED.

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CT11452A
SITE NAME:
BRIDGEPORT/CONNECTICUT AVE
1089 CONNECTICUT AVE
BRIDGEPORT, CT 06605

SHEET TITLE
COMPOUND PLAN & ELEVATION

SHEET NUMBER
C-2
SHEET 3 OF 8 SHEETS

2 TOWER ELEVATION
NOT TO SCALE

STRUCTURAL NOTES:

- SPECIFICATIONS / CODES:**
 - CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE ACI CODE.
 - STEEL WORK SHALL BE PERFORMED IN ACCORDANCE WITH AISC STEEL CONSTRUCTION MANUAL, 9TH EDITION.
 - WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) D1.1-92 "STRUCTURAL WELDING" CODE-STEEL.
 - REINFORCING STEEL SHALL BE PLACED IN ACCORDANCE WITH THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI), "MANUAL OF STANDARD PRACTICE."
- MATERIALS:**
 - CONCRETE: $f_c' = 3000$ psi. (MIN. U.N.O.)
 - REINFORCING STEEL: ASTM A615, GRADE 60.
 - WIRE MESH: ASTM A185.
 - STRUCTURAL STEEL: ASTM A36.
 - ELECTRODES FOR WELDING: E 70xx.
 - GALVANIZING: ASTM A153 (BOLTS) OR ASTM A123 (SHAPES, PLATES).
 - EXPANSION BOLTS: HILTI KWIK BOLT II, STAINLESS STEEL, 3/4"x43/4" EMBEDMENT OR AN APPROVED EQUAL.

SUBMITTALS		
DATE	DESCRIPTION	REVISION
8/14/18	FOR PERMIT	0

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO: 317-000
DRAWN BY: MAP
CHECKED BY: ASW



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SITE NUMBER:
CT11452A

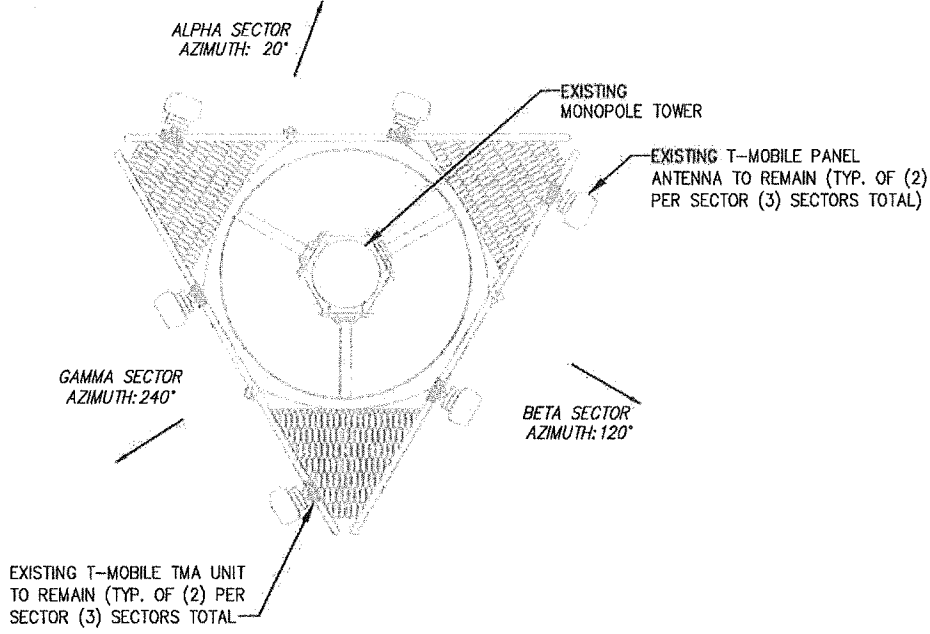
SITE NAME:
BRIDGEPORT/CONNECTICUT AVE

1069 CONNECTICUT AVE
BRIDGEPORT, CT 06605

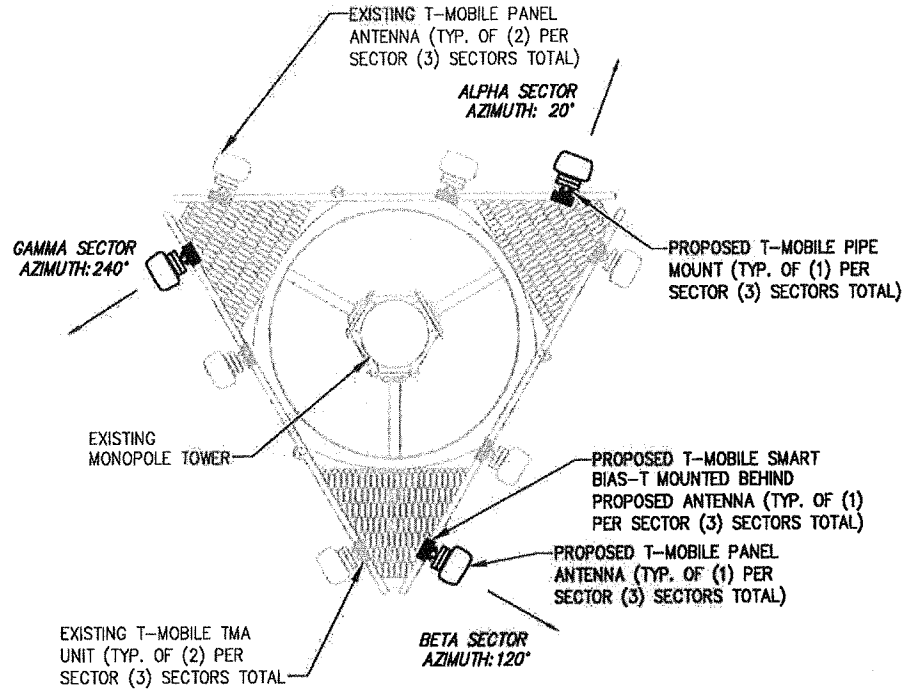
SHEET TITLE
EQUIPMENT SPECIFICATIONS

SHEET NUMBER
C-4

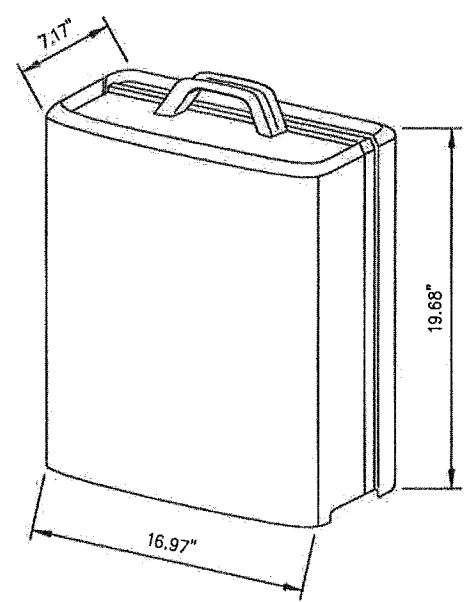
SHEET 5 OF 8 SHEETS



1 EXISTING ANTENNA ORIENTATION PLAN
NOT TO SCALE
CALLED NORTH

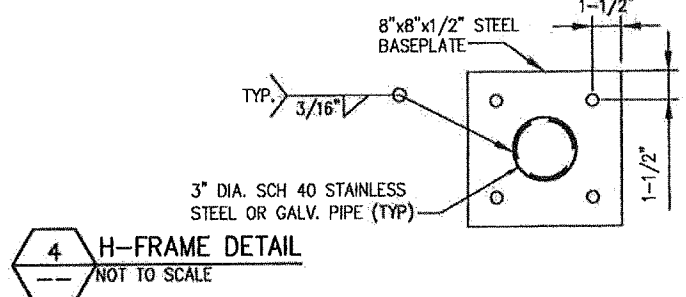
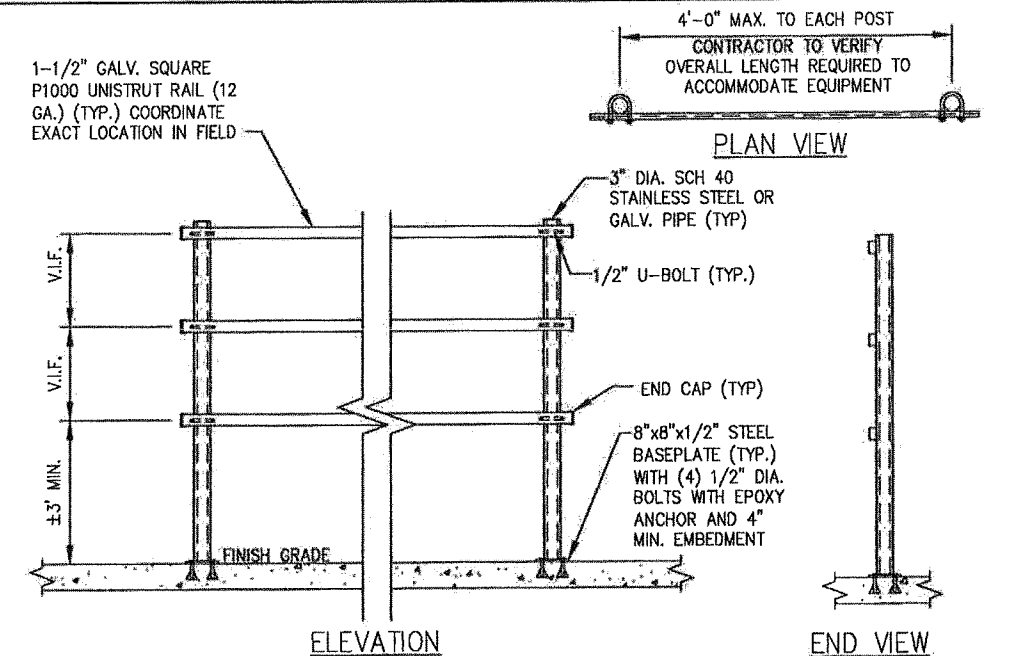


2 PROPOSED ANTENNA ORIENTATION PLAN
NOT TO SCALE
CALLED NORTH



3 RRUS 11 DETAIL
NOT TO SCALE

ERICSSON MODEL NO.:	RRUS11
COLOR:	GRAY
DIMENSIONS, HxWxD:	19.68"x16.97"x7.17" (500 x 431 x 182 mm)
WEIGHT:	50.71 LBS (23 kg)



4 H-FRAME DETAIL
NOT TO SCALE

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

T-Mobile Existing Facility

Site ID: CT11452A

Bridgeport Connecticut Ave
1069 Connecticut Avenue
Bridgeport, CT 06605

September 14, 2015

EBI Project Number: 6215004723

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	10.86 %

September 14, 2015

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11452A – Bridgeport Connecticut Ave**

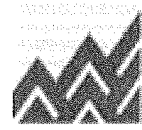
EBI Consulting was directed to analyze the proposed T-Mobile facility located at **1069 Connecticut Avenue, Bridgeport, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the 700 MHz Band is approximately 467 $\mu\text{W}/\text{cm}^2$, and the general population exposure limit for the PCS and AWS bands is 1000 $\mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

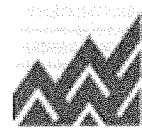
Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **1069 Connecticut Avenue, Bridgeport, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

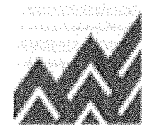
For all calculations, all equipment was calculated using the following assumptions:

- 1) 2 GSM / UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel
- 2) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.
- 5) Since the radios are ground mounted there are additional cabling losses accounted for. For each RF path the following losses were calculated. 1.92 dB of additional cable loss for all 1900 MHz and 2100 MHz channels and 1.21 dB of additional cable loss at 700 MHz. This is based on manufacturers Specifications for 115 feet of 1-5/8” coax cable on each path.



- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the **RFS APX16DWV-16DWVS** and **RFS APX16PV-16PVL** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APX16DWV-16DWVS** and **RFS APX16PV-16PVL** have a maximum gain of **16.3 dBd** at its main lobe at 1900 MHz and 2100 MHz. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerline of the proposed antennas is **119 feet** above ground level (AGL).
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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



EBI Consulting

environmental | engineering | due diligence

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APX16PV-16PVL	Make / Model:	RFS APX16PV-16PVL	Make / Model:	RFS APX16PV-16PVL
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	119	Height (AGL):	119	Height (AGL):	119
Frequency Bands	1900 MHz(PCS)	Frequency Bands	1900 MHz(PCS)	Frequency Bands	1900 MHz(PCS)
Channel Count	2	Channel Count	2	# PCS Channels:	2
Total TX Power:	60	Total TX Power:	120	# AWS Channels:	120
ERP (W):	1,644.94	ERP (W):	3,289.89	ERP (W):	3,289.89
Antenna A1 MPE%	0.46	Antenna B1 MPE%	0.93	Antenna C1 MPE%	0.93
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APX16DWV-16DWVS	Make / Model:	RFS APX16DWV-16DWVS	Make / Model:	RFS APX16DWV-16DWVS
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	119	Height (AGL):	119	Height (AGL):	119
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	180	Total TX Power:	120	Total TX Power:	120
ERP (W):	4,934.83	ERP (W):	3,289.89	ERP (W):	3,289.89
Antenna A2 MPE%	1.39	Antenna B2 MPE%	0.93	Antenna C2 MPE%	0.93
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	119	Height (AGL):	119	Height (AGL):	119
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	654.82	ERP (W):	654.82	ERP (W):	654.82
Antenna A3 MPE%	0.39	Antenna B3 MPE%	0.39	Antenna C3 MPE%	0.39

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	2.25 %
Clearwire	0.07 %
Clearwire MW	0.10 %
Sprint	0.88 %
AT&T	5.64 %
MetroPCS	1.92 %
Site Total MPE %:	10.86 %

T-Mobile Sector 1 Total:	2.25 %
T-Mobile Sector 2 Total:	2.25 %
T-Mobile Sector 3 Total:	2.25 %
Site Total:	10.86 %

T-Mobile_per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	2	1644.95	119	9.26	2100	1000	0.93 %
T-Mobile 700 MHz LTE	1	654.82	119	1.84	700	467	0.39 %
T-Mobile 1900 MHz (PCS) UMTS	2	822.47	119	4.63	2100	1000	0.46 %
T-Mobile 2100 MHz (AWS) UMTS	2	822.47	119	4.63	2100	1000	0.46 %
						Total:	2.25%

Summary

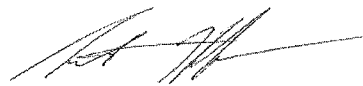
All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector 1:	2.25 %
Sector 2:	2.25 %
Sector 3 :	2.25 %
T-Mobile Per Sector Maximum:	2.25 %
Site Total:	10.86 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **10.86%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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



Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

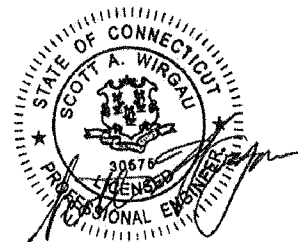


AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 126 ft Monopole
ATC Site Name : Bridgeport CT 2, CT
ATC Site Number : 302469
Engineering Number : 63532322
Proposed Carrier : T-Mobile
Carrier Site Name : Bridgeport/Connecticut Av
Carrier Site Number : CT11452A
Site Location : 1069 Connecticut Avenue
Bridgeport, CT 06607-1226
41.183617,-73.158383
County : Fairfield
Date : September 3, 2015
Max Usage : 93%
Result : Pass

Reviewed by:
Scott Wirgau, PE
Structural Team Leader



Sep 4 2015 5:05 PM

COA: PEC.0001553

Prepared By:
Vivian Chung



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Standard Conditions	4
Calculations	Attached



Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 126 ft monopole to reflect the change in loading by T-Mobile.

Supporting Documents

Tower Drawings	EEl Project #5543, dated October 14, 1999
Foundation Drawing	EEl Project #5543, dated October 14, 1999
Geotechnical Report	Applied Earth Technologies Project #9903A, dated November 23, 1999
Modifications	ATC Project #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.

Basic Wind Speed:	110 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendment
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	$S_s = 0.20, S_1 = 0.06$
Site Class:	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. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 126 ft Monopole
ATC Site Name : Bridgeport CT 2, CT
ATC Site Number : 302469
Engineering Number : 63532322
Proposed Carrier : T-Mobile
Carrier Site Name : Bridgeport/Connecticut Av
Carrier Site Number : CT11452A
Site Location : 1069 Connecticut Avenue
Bridgeport, CT 06607-1226
41.183617,-73.158383
County : Fairfield
Date : September 3, 2015
Max Usage : 93%
Result : Pass

Reviewed by:
Scott Wirgau, PE
Structural Team Leader



Prepared By:
Vivian Chung

Sep 4 2015 5:05 PM

COA: PEC.0001553



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Existing and Reserved Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
126.0	131.0	9	48" x 12" Panel	Platform w/ Handrails	(12) 1 5/8" Coax	Sprint Nextel
		3	72" x 12" Panel			
123.0	123.0	2	DragonWave Horizon Compact	Side Arms	(6) 5/16" Coax (3) 1/2" Coax (2) 2" Conduit	Clearwire
		1	Dragonwave A-ANT-23G-1-C			
		3	NextNet BTS-2500			
		3	Argus LLPX310R			
		1	Dragonwave A-ANT-18G-2-C			
116.0	116.0	3	Andrew ETW200VS12UB	Low Profile Platform	(18) 1 5/8" Coax	T-Mobile
		6	Ericsson KRY 112 71			
		3	RFS APX16PV-16PVL-A			
		3	RFS APX16DWV-16DWVS-E-A20			
104.0	106.0	6	Powerwave LGP21901	Low Profile Platform	(4) 1.24" 4 AWG 6 (12) 1 5/8" Coax (3) 0.51" Hybrid	AT&T Mobility
		12	Powerwave LGP2140X			
		2	Raycap DC6-48-60-18-8F			
		3	Ericsson RRUS A2 B2			
		3	Ericsson RRUS-11			
		3	Ericsson RRUS 12			
		3	Ericsson RRUS E2 B29			
		3	Ericsson RRUS-32			
		3	Powerwave 7770.00			
		6	CCI OPA-65R-LCUU-H4			
98.0	98.0	3	RCU	Flush	(6) 1 5/8" Coax (1) 3/8" Coax	Metro PCS
		3	Kathrein 800 10504			
80.0	85.5	1	Antel BCD-87010__	Side Arm	(1) 7/8" Coax	Spok Holdings

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
No loading considered as to be removed						

Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
116.0	116.0	3	Kathrein Smart Bias Tee	Low Profile Platform	-	T-Mobile
		3	Andrew LNX-6515DS-VTM			

¹Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).



Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	76%	Pass
Shaft	79%	Pass
Base Plate	42%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	2,617.5	75%
Axial (Kips)	35.1	7%
Shear (Kips)	27.3	93%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

The foundation and anchorages for this tower have factors of safety exceeding 2.0 with respect to wind.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
123.0	Dragonwave A-ANT-18G-2-C	Clearwire Corporation	1.500	1.353
	Dragonwave A-ANT-23G-1-C			
116.0	Kathrein Smart Bias Tee	T-Mobile	1.336	1.325
	Andrew LNX-6515DS-VTM			

*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 are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

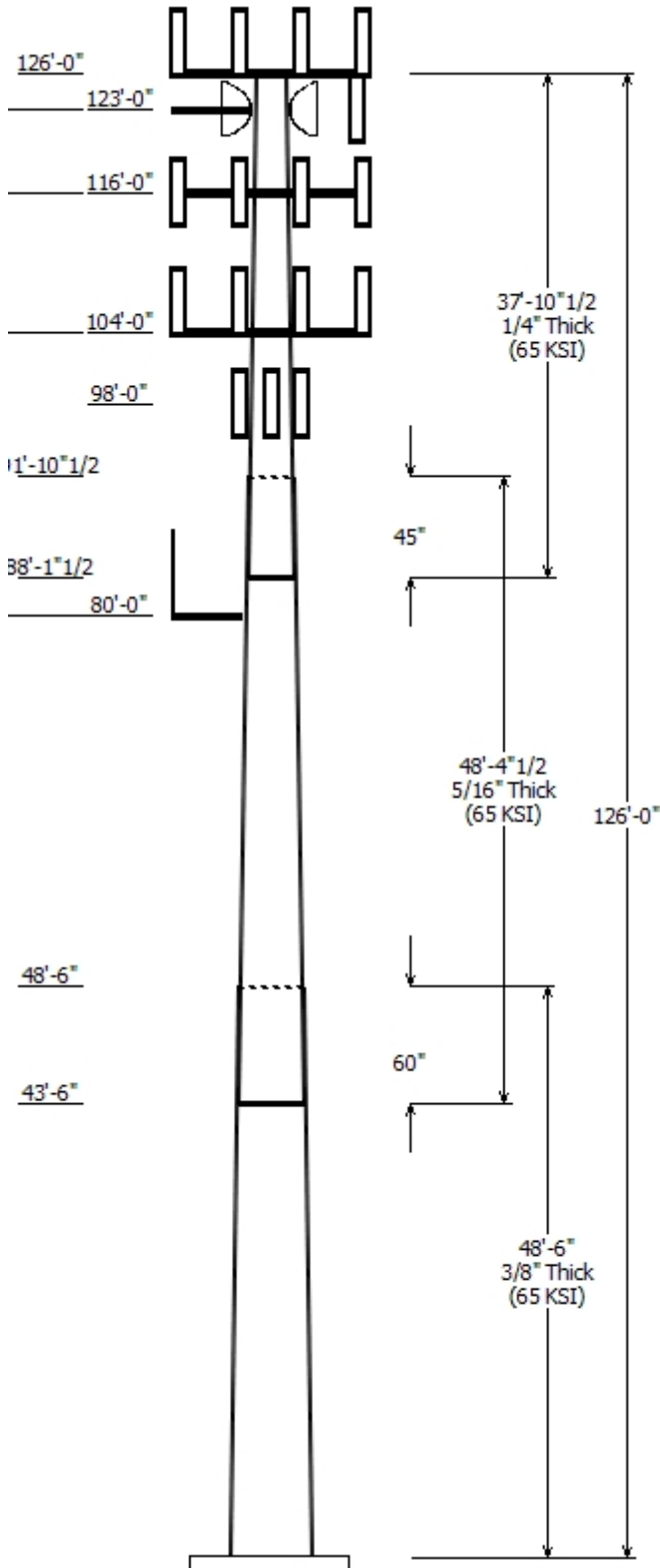
- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

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. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

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 we supply.

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Job Information	
Pole :	302469
Code :	ANSI/TIA-222-G
Description :	Monopole
Client :	T-MOBILE
Struct Class :	II
Location :	Bridgeport CT 2, CT
Shape :	18 Sides
Exposure :	B
Height :	126.00 (ft)
Topo :	1
Base Elev (ft):	0.00
Taper:	0.23512(in/ft)

Sections Properties							
Shaft Section	Length (ft)	Diameter (in)		Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
		Across Flats Top	Across Flats Bottom				
1	48.500	34.09	45.50	0.375	0.000	0.235121	65
2	48.375	24.52	35.89	Slip Joint	60.000	0.235121	65
3	37.875	17.00	25.90	Slip Joint	45.000	0.235121	65

Discrete Appurtenance				
Attach Elev (ft)	Force Elev (ft)	Qty	Description	
126.000	131.000	3	72" x 12" Panel	
126.000	131.000	9	48" x 12" Panel	
126.000	126.000	1	Flat Platform w/ Handrails	
123.000	123.000	1	Dragonwave A-ANT-23G-1-C	
123.000	123.000	1	Side Arms	
123.000	123.000	2	DragonWave Horizon Compact	
123.000	123.000	3	Argus LLPX310R	
123.000	123.000	1	Dragonwave A-ANT-18G-2-C	
123.000	123.000	3	NextNet BTS-2500	
116.000	116.000	3	Andrew LNX-6515DS-VTM	
116.000	116.000	3	Kathrein Smart Bias Tee	
116.000	116.000	3	RFS APX16DWV-16DWVS-E-A20	
116.000	116.000	6	Ericsson KRY 112 71	
116.000	116.000	3	Andrew ETW200VS12UB	
116.000	116.000	3	RFS APX16PV-16PVL-A	
116.000	116.000	1	Round Low Profile Platform	
104.000	106.000	12	Powerwave LGP2140X	
104.000	106.000	3	Ericsson RRUS-11	
104.000	104.000	1	Round Low Profile Platform	
104.000	106.000	6	CCI OPA-65R-LCUU-H4	
104.000	106.000	3	Powerwave 7770.00	
104.000	106.000	3	Ericsson RRUS E2 B29	
104.000	106.000	3	Ericsson RRUS A2 B2	
104.000	106.000	3	Ericsson RRUS-32	
104.000	106.000	3	Ericsson RRUS 12	
104.000	106.000	6	Powerwave LGP21901	
104.000	106.000	2	Raycap DC6-48-60-18-8F	
98.000	98.000	3	RCU	
98.000	98.000	3	Kathrein 800 10504	
80.000	85.500	1	Antel BCD-87010__	
80.000	80.000	1	Flat Side Arm	

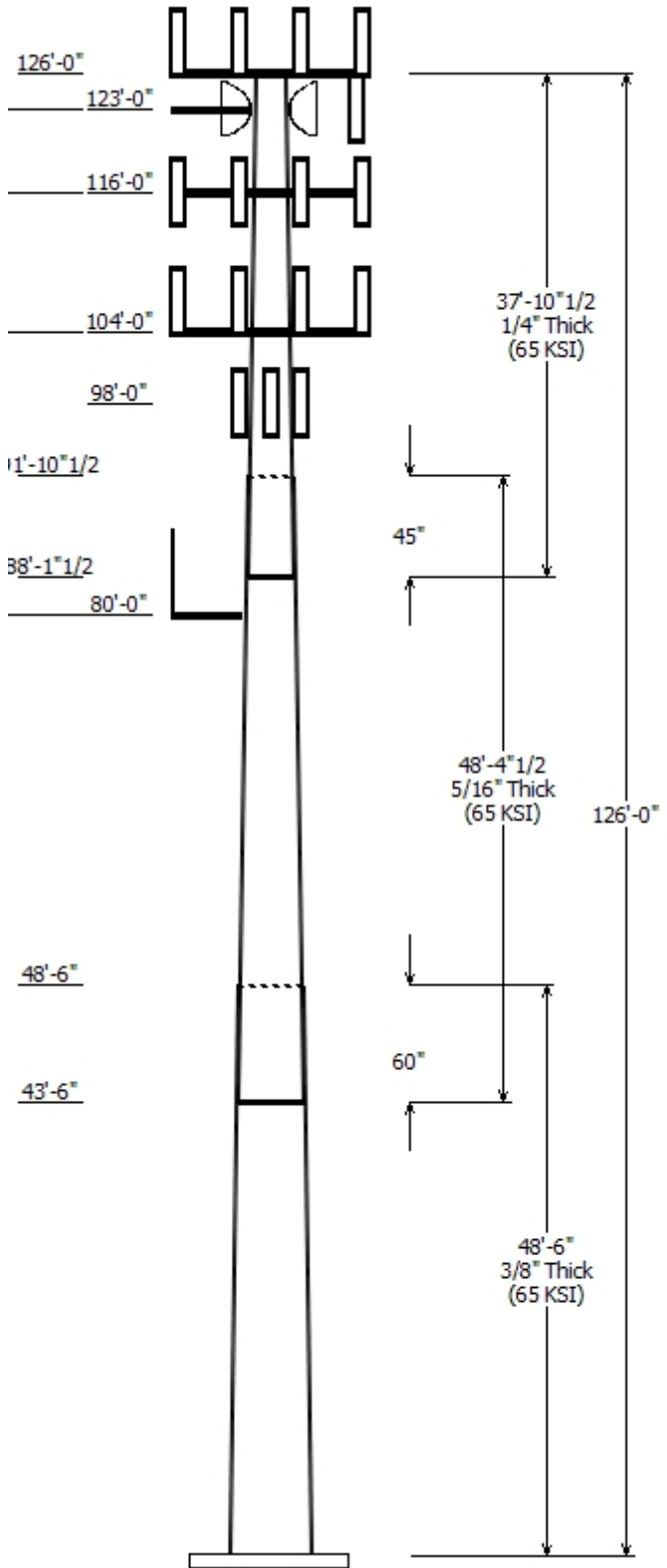
Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
0.000	80.000	7/8" Coax	No
0.000	98.000	1 5/8" Coax	Yes
0.000	98.000	3/8" Coax	Yes
0.000	104.0	0.51" Hybrid	Yes
0.000	104.0	1 5/8" Coax	Yes
0.000	104.0	1.24" (31.6mm) 4	No
0.000	116.0	1 5/8" Coax	No

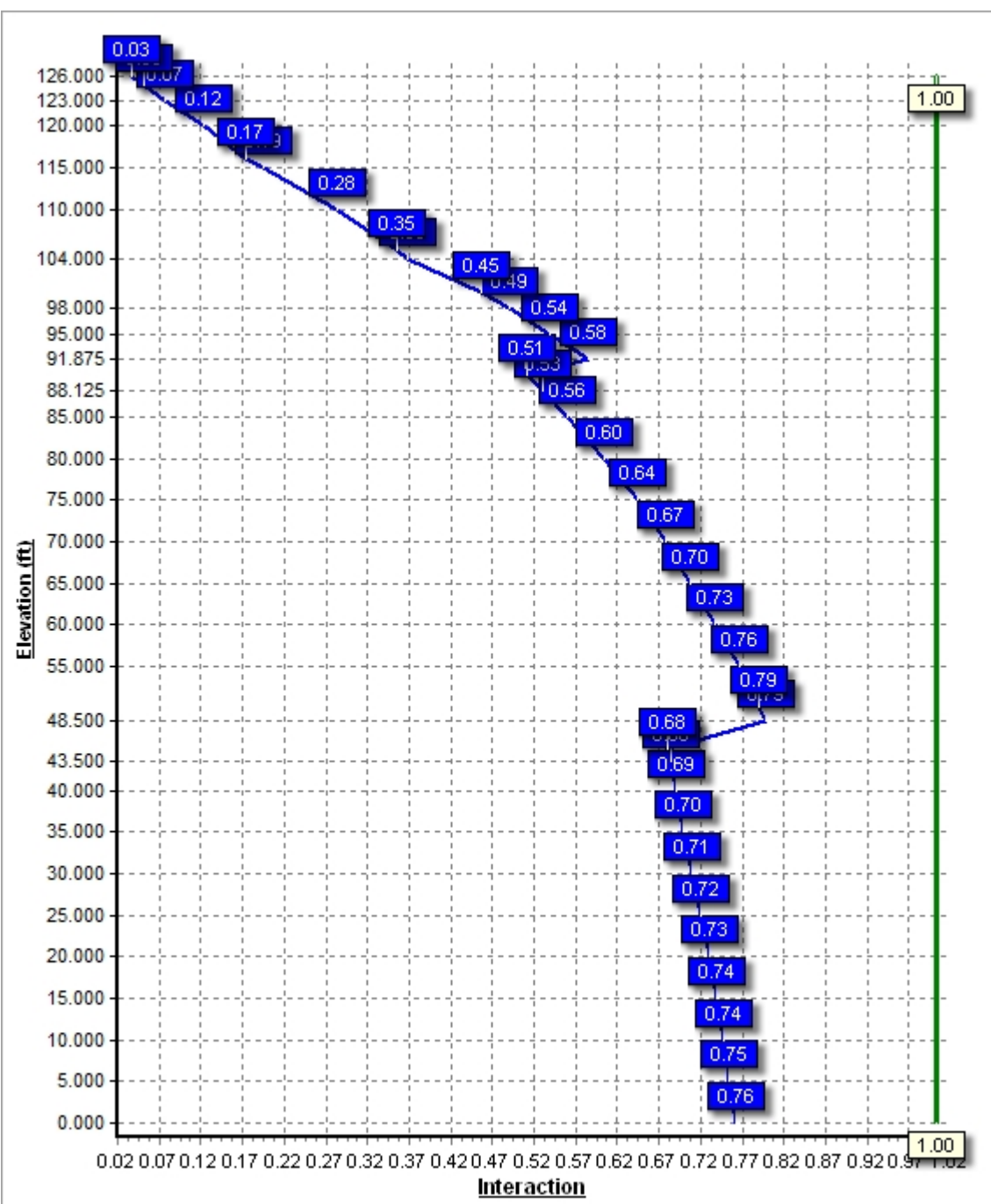
0.000	116.0	1 5/8" Coax	No
0.000	123.0	1/2" Coax	No
0.000	123.0	2" Conduit	No
0.000	123.0	5/16" Coax	No
0.000	126.0	1 5/8" Coax	No

Load Cases	
1.2D + 1.6W	110 mph with No Ice
0.9D + 1.6W	110 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	2617.46	27.28	35.12
0.9D + 1.6W	2535.64	26.22	26.33
1.2D + 1.0Di + 1.0Wi	514.18	5.27	58.81
(1.2 + 0.2Sds) * DL + E ELFM	122.69	1.15	35.01
(1.2 + 0.2Sds) * DL + E EMAM	250.91	2.34	35.01
(0.9 - 0.2Sds) * DL + E ELFM	120.75	1.15	24.11
(0.9 - 0.2Sds) * DL + E EMAM	246.65	2.34	24.11
1.0D + 1.0W	475.30	4.89	29.32

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	123.00	17.998	1.353
1.0D + 1.0W	123.00	17.998	1.353





Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

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Customer: T-MOBILE

Analysis Parameters

Location:	Fairfield County, CT	Height (ft):	126
Code:	ANSI/TIA-222-G	Base Diameter (in):	45.50
Shape:	18 Sides	Top Diameter (in):	17.00
Pole Type:	Taper	Taper (in/ft) :	0.235
Pole Manufacturer:	EE		

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	110 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0.0 ft	Design Ice Thickness:	0.50 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	2.27		
T _L (sec):	6	p:	1.3
S _s :	0.204	S ₁ :	0.064
F _a :	1.600	F _v :	2.400
S _{ds} :	0.218	S _{d1} :	0.102
		C _s :	0.030
		C _s Max:	0.030
		C _s Min:	0.030

Load Cases

1.2D + 1.6W	110 mph with No Ice
0.9D + 1.6W	110 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 ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

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Customer: T-MOBILE

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	48.500	0.3750	65		0.00	7,744	45.50	0.00	53.71	13817.4	19.98	121.33	34.09	48.50	40.14	5766.3	14.62	90.92	0.235121
2-18	48.375	0.3125	65	Slip	60.00	4,881	35.89	43.50	35.29	5646.6	18.84	114.87	24.52	91.88	24.01	1778.4	12.43	78.47	0.235121
3-18	37.875	0.2500	65	Slip	45.00	2,168	25.90	88.13	20.36	1692.8	16.86	103.62	17.00	126.00	13.29	471.1	10.58	68.00	0.235121
Shaft Weight						14,793													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice			Ice			Distance From Face (ft)	Vert Ecc (ft)
			Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor		
126.00	48" x 12" Panel	9	30.00	5.070	0.78	160.46	6.033	0.78	0.000	5.000
126.00	72" x 12" Panel	3	45.00	8.130	0.79	232.60	9.405	0.79	0.000	5.000
126.00	Flat Platform w/ Handrails	1	2000.00	42.400	1.00	3,398.91	63.044	1.00	0.000	0.000
123.00	Argus LLPX310R	3	28.60	4.290	0.73	133.67	5.169	0.73	0.000	0.000
123.00	Dragonwave A-ANT-18G-2-C	1	27.10	4.690	1.00	110.86	5.940	1.00	0.000	0.000
123.00	Dragonwave A-ANT-23G-1-C	1	15.00	1.610	1.00	52.15	2.353	1.00	0.000	0.000
123.00	DragonWave Horizon	2	10.60	0.430	0.50	39.98	0.654	0.50	0.000	0.000
123.00	NextNet BTS-2500	3	35.00	1.820	0.50	90.59	2.349	0.50	0.000	0.000
123.00	Side Arms	1	560.00	8.500	1.00	1,019.33	15.472	1.00	0.000	0.000
116.00	Andrew ETW200VS12UB	3	11.00	0.470	0.50	28.62	0.692	0.50	0.000	0.000
116.00	Andrew LNX-6515DS-VTM	3	51.30	11.430	0.84	306.72	13.050	0.84	0.000	0.000
116.00	Ericsson KRY 112 71	6	13.20	0.680	0.50	37.20	0.942	0.50	0.000	0.000
116.00	Kathrein Smart Bias Tee	3	3.31	0.090	0.50	9.79	0.240	0.50	0.000	0.000
116.00	RFS APX16DWV-16DWVS-E-	3	40.70	6.590	0.66	174.68	7.680	0.66	0.000	0.000
116.00	RFS APX16PV-16PVL-A	3	39.60	6.040	0.66	164.59	7.081	0.66	0.000	0.000
116.00	Round Low Profile Platform	1	1500.00	21.700	1.00	2,132.47	40.442	1.00	0.000	0.000
104.00	CCI OPA-65R-LCUU-H4	6	57.00	6.080	0.78	211.78	7.083	0.78	0.000	2.000
104.00	Ericsson RRUS 12	3	50.00	3.150	0.67	117.23	4.269	0.67	0.000	2.000
104.00	Ericsson RRUS A2 B2	3	22.00	2.060	0.67	74.69	2.638	0.67	0.000	2.000
104.00	Ericsson RRUS E2 B29	3	60.00	3.150	0.67	151.02	3.835	0.67	0.000	2.000
104.00	Ericsson RRUS-11	3	51.00	2.790	0.67	136.91	3.442	0.67	0.000	2.000
104.00	Ericsson RRUS-32	3	77.00	3.310	0.67	170.77	4.546	0.67	0.000	2.000
104.00	Powerwave 7770.00	3	35.00	5.510	0.77	163.94	6.522	0.77	0.000	2.000
104.00	Powerwave LGP2140X	12	19.00	1.080	0.50	50.75	1.517	0.50	0.000	2.000
104.00	Powerwave LGP21901	6	5.50	0.230	0.50	17.36	0.418	0.50	0.000	2.000
104.00	Raycap DC6-48-60-18-8F	2	31.80	1.280	1.00	120.48	2.826	1.00	0.000	2.000
104.00	Round Low Profile Platform	1	1500.00	21.700	1.00	2,124.66	40.210	1.00	0.000	0.000
98.00	Kathrein 800 10504	3	17.60	3.340	0.78	94.72	4.255	0.78	0.000	0.000
98.00	RCU	3	1.00	0.160	0.50	10.44	0.350	0.50	0.000	0.000
80.00	Antel BCD-87010	1	26.50	2.900	1.00	150.22	6.507	1.00	0.000	5.500
80.00	Flat Side Arm	1	150.00	6.300	1.00	218.62	8.606	1.00	0.000	0.000
Totals		99	8519.93			19,362.18			Number of Loadings : 31	

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Projected Width (in)	Exposed To Wind	Carrier
0.00	126.00	12	1 5/8" Coax	1.98	0.82	N	0.00	Sprint Nextel
0.00	123.00	3	1/2" Coax	0.63	0.15	N	0.00	Clearwire Corporation
0.00	123.00	2	2" Conduit	2.38	3.65	N	0.00	Clearwire Corporation
0.00	123.00	6	5/16" Coax	0.31	0.05	N	0.00	Clearwire Corporation
0.00	116.00	12	1 5/8" Coax	1.98	0.82	N	0.00	T-Mobile
0.00	116.00	6	1 5/8" Coax	1.98	0.82	N	0.00	T-Mobile

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

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Customer: T-MOBILE

0.00	104.00	3	0.51" Hybrid	0.51	0.14	N	0.00	Y	AT&T Mobility
0.00	104.00	12	1 5/8" Coax	1.98	0.82	N	3.96	Y	AT&T Mobility
0.00	104.00	4	1.24" (31.6mm) 4	1.24	1.17	N	0.00	N	AT&T Mobility
0.00	98.00	6	1 5/8" Coax	1.98	0.82	N	1.98	Y	Metro PCS
0.00	98.00	1	3/8" Coax	0.44	0.08	N	0.00	Y	Metro PCS
0.00	80.00	1	7/8" Coax	1.09	0.33	N	0.00	N	Spok Holdings, Inc.

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

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Customer: T-MOBILE

Segment Properties (Max Len : 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Fy (ksi)	S (in ³)	Z (in ³)	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
43.50	Bot - Section 2	0.3750	35.272	41.535	6,390.7	15.17	94.06	82.6	356.9	0.0	500.5
45.00		0.3750	34.920	41.115	6,198.9	15.01	93.12	82.6	349.6	0.0	390.2
48.50	Top - Section 1	0.3125	34.722	34.128	5,105.2	18.18	111.11	80.0	289.6	0.0	895.2
50.00		0.3125	34.369	33.779	4,949.8	17.98	109.98	80.3	283.7	0.0	173.3
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
88.13	Bot - Section 3	0.3125	25.405	24.888	1,979.8	12.92	81.30	82.6	153.5	0.0	268.5
90.00		0.3125	24.964	24.450	1,877.3	12.68	79.89	82.6	148.1	0.0	286.2
91.88	Top - Section 2	0.2500	25.023	19.657	1,524.2	16.24	100.09	82.3	120.0	0.0	281.1
95.00		0.2500	24.288	19.074	1,392.5	15.72	97.15	82.6	112.9	0.0	205.9
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
104.0		0.2500	22.172	17.395	1,056.2	14.23	88.69	82.6	93.8	0.0	241.8
105.0		0.2500	21.937	17.208	1,022.6	14.06	87.75	82.6	91.8	0.0	58.9
110.0		0.2500	20.762	16.275	865.1	13.23	83.05	82.6	82.1	0.0	284.8
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
123.0		0.2500	17.705	13.850	533.1	11.08	70.82	82.6	59.3	0.0	144.2
125.0		0.2500	17.235	13.477	491.2	10.75	68.94	82.6	56.1	0.0	93.0
126.0		0.2500	17.000	13.290	471.1	10.58	68.00	82.6	54.6	0.0	45.5
14,793.2											

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

9/3/2015 7:44:14 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.6W	110 mph with No Ice	25 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		244.2	0.0					0.0	0.0	244.2	0.0	0.0	0.0
5.00		484.3	1,082.3					0.0	317.3	484.3	1,399.6	0.0	0.0
10.00		476.1	1,053.7					0.0	317.3	476.1	1,371.0	0.0	0.0
15.00		467.9	1,025.1					0.0	317.3	467.9	1,342.5	0.0	0.0
20.00		459.7	996.6					0.0	317.3	459.7	1,313.9	0.0	0.0
25.00		451.5	968.0					0.0	317.3	451.5	1,285.3	0.0	0.0
30.00		448.6	939.4					0.0	317.3	448.6	1,256.8	0.0	0.0
35.00		454.7	910.9					0.0	317.3	454.7	1,228.2	0.0	0.0
40.00		393.1	882.3					0.0	317.3	393.1	1,199.6	0.0	0.0
43.50	Bot - Section 2	234.9	600.6					0.0	222.1	234.9	822.7	0.0	0.0
45.00		240.0	468.2					0.0	95.2	240.0	563.4	0.0	0.0
48.50	Top - Section 1	240.3	1,074.2					0.0	222.1	240.3	1,296.3	0.0	0.0
50.00		313.1	208.0					0.0	95.2	313.1	303.2	0.0	0.0
55.00		483.8	677.7					0.0	317.3	483.8	995.1	0.0	0.0
60.00		486.0	653.9					0.0	317.3	486.0	971.3	0.0	0.0
65.00		487.0	630.1					0.0	317.3	487.0	947.5	0.0	0.0
70.00		588.3	606.3					0.0	317.3	588.3	923.7	0.0	0.0
75.00		681.7	582.5					132.1	317.3	813.8	899.9	0.0	0.0
80.00	Appertunance(s)	665.8	558.7	444.5	0.0	780.6	211.8	133.8	317.3	1,244.0	1,087.9	0.0	0.0
85.00		529.5	534.9					135.4	315.4	664.9	850.3	0.0	0.0
88.13	Bot - Section 3	321.9	322.2					85.4	197.1	407.3	519.3	0.0	0.0
90.00		240.8	343.4					51.5	118.3	292.3	461.6	0.0	0.0
91.88	Top - Section 2	316.1	337.4					51.7	118.3	367.8	455.6	0.0	0.0
95.00		381.1	247.1					86.7	197.1	467.8	444.2	0.0	0.0
98.00	Appertunance(s)	263.4	230.2	327.9	0.0	0.0	67.0	83.7	189.2	675.1	486.4	0.0	0.0
100.00		234.7	149.7					0.0	114.1	234.7	263.8	0.0	0.0
104.00	Appertunance(s)	187.4	290.2	4,452.9	0.0	6,659.4	3,661.9	0.0	228.3	4,640.3	4,180.4	0.0	0.0
105.00		184.8	70.6					0.0	39.1	184.8	109.8	0.0	0.0
110.00		300.2	341.8					0.0	195.7	300.2	537.5	0.0	0.0
115.00		175.4	322.8					0.0	195.7	175.4	518.5	0.0	0.0
116.00	Appertunance(s)	140.0	62.3	3,580.6	0.0	0.0	2,420.3	0.0	39.1	3,720.6	2,521.7	0.0	0.0
120.00		192.1	241.5					0.0	85.7	192.1	327.2	0.0	0.0
123.00	Appertunance(s)	132.9	173.1	1,280.6	0.0	0.0	976.9	0.0	64.3	1,413.6	1,214.3	0.0	0.0
125.00		78.0	111.6					0.0	23.6	78.0	135.2	0.0	0.0
126.00	Appertunance(s)	25.7	54.7	4,593.0	0.0	11,373.9	2,886.0	0.0	11.8	4,618.7	2,952.5	0.0	0.0
Totals:										27,445.0	35,186.1	0.00	0.00

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

9/3/2015 7:44:15 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.6W

110 mph with No Ice

25 Iterations

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	-35.12	-27.28	0.00	-2,617.46	0.00	2,617.46	3,765.29	1,882.65	6,978.46	3,494.42	0.00	0.00	0.759
5.00	-33.60	-26.95	0.00	-2,481.05	0.00	2,481.05	3,697.80	1,848.90	6,673.37	3,341.64	0.14	-0.26	0.752
10.00	-32.11	-26.62	0.00	-2,346.29	0.00	2,346.29	3,628.68	1,814.34	6,371.97	3,190.72	0.56	-0.53	0.744
15.00	-30.64	-26.28	0.00	-2,213.20	0.00	2,213.20	3,557.92	1,778.96	6,074.51	3,041.77	1.26	-0.81	0.736
20.00	-29.21	-25.95	0.00	-2,081.78	0.00	2,081.78	3,485.52	1,742.76	5,781.22	2,894.91	2.26	-1.09	0.728
25.00	-27.80	-25.61	0.00	-1,952.04	0.00	1,952.04	3,411.48	1,705.74	5,492.34	2,750.25	3.56	-1.38	0.718
30.00	-26.42	-25.27	0.00	-1,823.98	0.00	1,823.98	3,335.81	1,667.90	5,208.12	2,607.93	5.16	-1.67	0.708
35.00	-25.08	-24.91	0.00	-1,697.64	0.00	1,697.64	3,258.50	1,629.25	4,928.79	2,468.06	7.07	-1.98	0.696
40.00	-23.78	-24.58	0.00	-1,573.10	0.00	1,573.10	3,158.60	1,579.30	4,623.93	2,315.40	9.31	-2.28	0.687
43.50	-22.90	-24.38	0.00	-1,487.07	0.00	1,487.07	3,085.84	1,542.92	4,412.25	2,209.40	11.06	-2.51	0.681
45.00	-22.28	-24.17	0.00	-1,450.51	0.00	1,450.51	3,054.65	1,527.33	4,323.05	2,164.74	11.87	-2.60	0.678
48.50	-20.93	-23.93	0.00	-1,365.90	0.00	1,365.90	2,457.75	1,228.87	3,470.74	1,737.95	13.86	-2.83	0.795
50.00	-20.55	-23.69	0.00	-1,330.00	0.00	1,330.00	2,439.67	1,219.84	3,409.59	1,707.33	14.76	-2.93	0.788
55.00	-19.43	-23.28	0.00	-1,211.56	0.00	1,211.56	2,378.35	1,189.18	3,208.11	1,606.44	18.03	-3.29	0.763
60.00	-18.34	-22.85	0.00	-1,095.18	0.00	1,095.18	2,315.40	1,157.70	3,010.48	1,507.48	21.68	-3.66	0.735
65.00	-17.29	-22.41	0.00	-980.93	0.00	980.93	2,249.69	1,124.84	2,815.52	1,409.85	25.71	-4.03	0.704
70.00	-16.27	-21.86	0.00	-868.86	0.00	868.86	2,163.06	1,081.53	2,601.80	1,302.84	30.13	-4.40	0.675
75.00	-15.30	-21.08	0.00	-759.55	0.00	759.55	2,076.43	1,038.21	2,396.52	1,200.04	34.93	-4.77	0.641
80.00	-14.20	-19.83	0.00	-653.38	0.00	653.38	1,989.80	994.90	2,199.68	1,101.47	40.11	-5.13	0.601
85.00	-13.33	-19.16	0.00	-554.22	0.00	554.22	1,903.17	951.59	2,011.27	1,007.13	45.66	-5.47	0.558
88.13	-12.79	-18.74	0.00	-494.36	0.00	494.36	1,849.03	924.51	1,897.79	950.31	49.31	-5.69	0.528
90.00	-12.32	-18.43	0.00	-459.22	0.00	459.22	1,816.54	908.27	1,831.29	917.01	51.57	-5.82	0.508
91.88	-11.86	-18.05	0.00	-424.67	0.00	424.67	1,456.00	728.00	1,478.84	740.52	53.88	-5.94	0.582
95.00	-11.40	-17.58	0.00	-368.26	0.00	368.26	1,417.09	708.55	1,396.21	699.14	57.83	-6.14	0.535
98.00	-10.94	-16.89	0.00	-315.52	0.00	315.52	1,375.51	687.75	1,315.06	658.51	61.75	-6.35	0.488
100.00	-10.65	-16.66	0.00	-281.74	0.00	281.74	1,347.79	673.89	1,262.31	632.09	64.44	-6.49	0.454
104.00	-7.00	-11.59	0.00	-208.44	0.00	208.44	1,292.34	646.17	1,160.06	580.89	69.96	-6.72	0.365
105.00	-6.89	-11.41	0.00	-196.86	0.00	196.86	1,278.48	639.24	1,135.17	568.43	71.37	-6.78	0.352
110.00	-6.35	-11.07	0.00	-139.81	0.00	139.81	1,209.18	604.59	1,014.77	508.14	78.58	-7.01	0.281
115.00	-5.84	-10.84	0.00	-84.47	0.00	84.47	1,139.88	569.94	901.12	451.23	86.01	-7.19	0.193
116.00	-3.79	-6.84	0.00	-73.63	0.00	73.63	1,126.02	563.01	879.21	440.26	87.52	-7.23	0.171
120.00	-3.48	-6.61	0.00	-46.28	0.00	46.28	1,070.57	535.29	794.22	397.70	93.60	-7.32	0.120
123.00	-2.46	-5.05	0.00	-26.44	0.00	26.44	1,028.99	514.50	733.32	367.21	98.21	-7.37	0.074
125.00	-2.33	-4.96	0.00	-16.33	0.00	16.33	1,001.27	500.64	694.07	347.55	101.29	-7.40	0.049
126.00	0.00	-4.62	0.00	-11.37	0.00	11.37	987.41	493.71	674.85	337.93	102.84	-7.41	0.034

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

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Customer: T-MOBILE

Load Case: 0.9D + 1.6W

110 mph with No Ice (Reduced DL)

24 Iterations

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		223.9	0.0					0.0	0.0	223.9	0.0	0.0	0.0
5.00		441.9	811.7					0.0	238.0	441.9	1,049.7	0.0	0.0
10.00		430.2	790.3					0.0	238.0	430.2	1,028.3	0.0	0.0
15.00		418.5	768.8					0.0	238.0	418.5	1,006.8	0.0	0.0
20.00		406.8	747.4					0.0	238.0	406.8	985.4	0.0	0.0
25.00		395.0	726.0					0.0	238.0	395.0	964.0	0.0	0.0
30.00		387.9	704.6					0.0	238.0	387.9	942.6	0.0	0.0
35.00		388.3	683.1					0.0	238.0	388.3	921.1	0.0	0.0
40.00		332.0	661.7					0.0	238.0	332.0	899.7	0.0	0.0
43.50	Bot - Section 2	196.7	450.5					0.0	166.6	196.7	617.1	0.0	0.0
45.00		199.0	351.2					0.0	71.4	199.0	422.6	0.0	0.0
48.50	Top - Section 1	198.9	805.6					0.0	166.6	198.9	972.2	0.0	0.0
50.00		257.3	156.0					0.0	71.4	257.3	227.4	0.0	0.0
55.00		393.7	508.3					0.0	238.0	393.7	746.3	0.0	0.0
60.00		389.3	490.5					0.0	238.0	389.3	728.5	0.0	0.0
65.00		383.7	472.6					0.0	238.0	383.7	710.6	0.0	0.0
70.00		535.0	454.7					0.0	238.0	535.0	692.7	0.0	0.0
75.00		681.7	436.9					132.1	238.0	813.8	674.9	0.0	0.0
80.00	Appertunance(s)	665.8	419.0	444.5	0.0	780.6	158.8	133.8	238.0	1,244.0	815.9	0.0	0.0
85.00		529.5	401.2					135.4	236.5	664.9	637.7	0.0	0.0
88.13	Bot - Section 3	321.9	241.7					85.4	147.8	407.3	389.5	0.0	0.0
90.00		240.8	257.5					51.5	88.7	292.3	346.2	0.0	0.0
91.88	Top - Section 2	316.1	253.0					51.7	88.7	367.8	341.7	0.0	0.0
95.00		381.1	185.3					86.7	147.8	467.8	333.2	0.0	0.0
98.00	Appertunance(s)	250.2	172.7	327.9	0.0	0.0	50.2	83.7	141.9	661.9	364.8	0.0	0.0
100.00		193.7	112.3					0.0	85.6	193.7	197.9	0.0	0.0
104.00	Appertunance(s)	159.6	217.7	4,452.9	0.0	6,659.4	2,746.4	0.0	171.2	4,612.5	3,135.3	0.0	0.0
105.00		184.8	53.0					0.0	29.4	184.8	82.3	0.0	0.0
110.00		300.2	256.4					0.0	146.8	300.2	403.1	0.0	0.0
115.00		175.4	242.1					0.0	146.8	175.4	388.9	0.0	0.0
116.00	Appertunance(s)	140.0	46.7	3,580.6	0.0	0.0	1,815.2	0.0	29.4	3,720.6	1,891.3	0.0	0.0
120.00		192.1	181.1					0.0	64.3	192.1	245.4	0.0	0.0
123.00	Appertunance(s)	132.9	129.8	1,280.6	0.0	0.0	732.7	0.0	48.2	1,413.6	910.7	0.0	0.0
125.00		78.0	83.7					0.0	17.7	78.0	101.4	0.0	0.0
126.00	Appertunance(s)	25.7	41.0	4,593.0	0.0	11,373.9	2,164.5	0.0	8.9	4,618.7	2,214.3	0.0	0.0
Totals:										26,387.7	26,389.6	0.00	0.00

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

9/3/2015 7:44:17 PM

Customer: T-MOBILE

Load Case: 0.9D + 1.6W

110 mph with No Ice (Reduced DL)

24 Iterations

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	-26.33	-26.22	0.00	-2,535.64	0.00	2,535.64	3,765.29	1,882.65	6,978.46	3,494.42	0.00	0.00	0.733
5.00	-25.17	-25.89	0.00	-2,404.53	0.00	2,404.53	3,697.80	1,848.90	6,673.37	3,341.64	0.14	-0.25	0.727
10.00	-24.02	-25.57	0.00	-2,275.07	0.00	2,275.07	3,628.68	1,814.34	6,371.97	3,190.72	0.54	-0.52	0.720
15.00	-22.90	-25.24	0.00	-2,147.25	0.00	2,147.25	3,557.92	1,778.96	6,074.51	3,041.77	1.23	-0.78	0.713
20.00	-21.80	-24.93	0.00	-2,021.03	0.00	2,021.03	3,485.52	1,742.76	5,781.22	2,894.91	2.19	-1.06	0.705
25.00	-20.72	-24.62	0.00	-1,896.39	0.00	1,896.39	3,411.48	1,705.74	5,492.34	2,750.25	3.45	-1.34	0.696
30.00	-19.67	-24.30	0.00	-1,773.32	0.00	1,773.32	3,335.81	1,667.90	5,208.12	2,607.93	5.00	-1.62	0.686
35.00	-18.64	-23.98	0.00	-1,651.81	0.00	1,651.81	3,258.50	1,629.25	4,928.79	2,468.06	6.86	-1.92	0.675
40.00	-17.64	-23.70	0.00	-1,531.89	0.00	1,531.89	3,158.60	1,579.30	4,623.93	2,315.40	9.03	-2.22	0.667
43.50	-16.97	-23.52	0.00	-1,448.95	0.00	1,448.95	3,085.84	1,542.92	4,412.25	2,209.40	10.73	-2.43	0.662
45.00	-16.49	-23.35	0.00	-1,413.67	0.00	1,413.67	3,054.65	1,527.33	4,323.05	2,164.74	11.51	-2.53	0.659
48.50	-15.47	-23.15	0.00	-1,331.94	0.00	1,331.94	2,457.75	1,228.87	3,470.74	1,737.95	13.45	-2.75	0.773
50.00	-15.16	-22.94	0.00	-1,297.21	0.00	1,297.21	2,439.67	1,219.84	3,409.59	1,707.33	14.33	-2.85	0.766
55.00	-14.30	-22.60	0.00	-1,182.49	0.00	1,182.49	2,378.35	1,189.18	3,208.11	1,606.44	17.50	-3.20	0.742
60.00	-13.45	-22.25	0.00	-1,069.49	0.00	1,069.49	2,315.40	1,157.70	3,010.48	1,507.48	21.05	-3.56	0.716
65.00	-12.63	-21.91	0.00	-958.22	0.00	958.22	2,249.69	1,124.84	2,815.52	1,409.85	24.97	-3.92	0.686
70.00	-11.84	-21.40	0.00	-848.70	0.00	848.70	2,163.06	1,081.53	2,601.80	1,302.84	29.28	-4.28	0.657
75.00	-11.11	-20.60	0.00	-741.72	0.00	741.72	2,076.43	1,038.21	2,396.52	1,200.04	33.95	-4.64	0.624
80.00	-10.28	-19.36	0.00	-637.93	0.00	637.93	1,989.80	994.90	2,199.68	1,101.47	39.00	-4.99	0.585
85.00	-9.62	-18.68	0.00	-541.15	0.00	541.15	1,903.17	951.59	2,011.27	1,007.13	44.40	-5.33	0.543
88.13	-9.22	-18.27	0.00	-482.77	0.00	482.77	1,849.03	924.51	1,897.79	950.31	47.96	-5.54	0.513
90.00	-8.86	-17.96	0.00	-448.52	0.00	448.52	1,816.54	908.27	1,831.29	917.01	50.16	-5.67	0.494
91.88	-8.51	-17.58	0.00	-414.84	0.00	414.84	1,456.00	728.00	1,478.84	740.52	52.41	-5.79	0.567
95.00	-8.17	-17.11	0.00	-359.89	0.00	359.89	1,417.09	708.55	1,396.21	699.14	56.26	-5.98	0.521
98.00	-7.83	-16.44	0.00	-308.55	0.00	308.55	1,375.51	687.75	1,315.06	658.51	60.08	-6.19	0.475
100.00	-7.60	-16.25	0.00	-275.67	0.00	275.67	1,347.79	673.89	1,262.31	632.09	62.69	-6.32	0.442
104.00	-4.97	-11.33	0.00	-204.01	0.00	204.01	1,292.34	646.17	1,160.06	580.89	68.08	-6.55	0.355
105.00	-4.88	-11.15	0.00	-192.68	0.00	192.68	1,278.48	639.24	1,135.17	568.43	69.45	-6.60	0.343
110.00	-4.48	-10.82	0.00	-136.95	0.00	136.95	1,209.18	604.59	1,014.77	508.14	76.48	-6.83	0.274
115.00	-4.10	-10.60	0.00	-82.86	0.00	82.86	1,139.88	569.94	901.12	451.23	83.73	-7.01	0.188
116.00	-2.67	-6.68	0.00	-72.26	0.00	72.26	1,126.02	563.01	879.21	440.26	85.20	-7.04	0.167
120.00	-2.44	-6.46	0.00	-45.53	0.00	45.53	1,070.57	535.29	794.22	397.70	91.13	-7.14	0.117
123.00	-1.71	-4.95	0.00	-26.13	0.00	26.13	1,028.99	514.50	733.32	367.21	95.62	-7.19	0.073
125.00	-1.62	-4.86	0.00	-16.23	0.00	16.23	1,001.27	500.64	694.07	347.55	98.63	-7.21	0.048
126.00	0.00	-4.62	0.00	-11.37	0.00	11.37	987.41	493.71	674.85	337.93	100.14	-7.22	0.034

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

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Customer: T-MOBILE

Load Case: 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					0.0	549.5	111.1	1,961.9	0.0	0.0
10.00		108.8	1,413.8					0.0	577.3	108.8	1,991.0	0.0	0.0
15.00		106.2	1,394.6					0.0	591.6	106.2	1,986.2	0.0	0.0
20.00		103.6	1,368.7					0.0	601.5	103.6	1,970.2	0.0	0.0
25.00		101.0	1,339.3					0.0	609.3	101.0	1,948.6	0.0	0.0
30.00		99.5	1,307.7					0.0	615.6	99.5	1,923.3	0.0	0.0
35.00		100.0	1,274.5					0.0	621.1	100.0	1,895.6	0.0	0.0
40.00		85.7	1,240.2					0.0	625.8	85.7	1,866.0	0.0	0.0
43.50	Bot - Section 2	50.9	848.4					0.0	440.6	50.9	1,289.0	0.0	0.0
45.00		51.6	575.9					0.0	189.4	51.6	765.3	0.0	0.0
48.50	Top - Section 1	51.6	1,321.2					0.0	443.3	51.6	1,764.5	0.0	0.0
50.00		66.9	313.4					0.0	190.5	66.9	503.9	0.0	0.0
55.00		102.6	1,019.8					0.0	637.3	102.6	1,657.2	0.0	0.0
60.00		101.9	987.6					0.0	640.5	101.9	1,628.1	0.0	0.0
65.00		100.9	954.9					0.0	643.5	100.9	1,598.5	0.0	0.0
70.00		99.5	921.9					0.0	646.3	99.5	1,568.2	0.0	0.0
75.00		97.9	888.5					37.5	648.9	135.4	1,537.4	0.0	0.0
80.00	Appertunance(s)	96.1	854.8	94.5	0.0	226.2	366.6	38.3	651.4	228.9	1,872.8	0.0	0.0
85.00		76.8	820.9					39.1	651.7	115.9	1,472.6	0.0	0.0
88.13	Bot - Section 3	46.8	497.1					24.9	408.4	71.7	905.5	0.0	0.0
90.00		35.1	448.9					15.1	245.5	50.1	694.3	0.0	0.0
91.88	Top - Section 2	46.2	441.4					15.2	245.8	61.4	687.1	0.0	0.0
95.00		55.9	416.1					25.5	410.2	81.4	826.4	0.0	0.0
98.00	Appertunance(s)	45.0	388.6	55.1	0.0	0.0	326.7	24.8	394.6	124.8	1,109.8	0.0	0.0
100.00		52.9	253.6					0.0	201.7	52.9	455.3	0.0	0.0
104.00	Appertunance(s)	43.7	490.8	816.4	0.0	1,095.4	7,108.2	0.0	403.9	860.1	8,002.9	0.0	0.0
105.00		50.9	120.4					0.0	39.1	50.9	159.6	0.0	0.0
110.00		83.1	579.0					0.0	195.7	83.1	774.7	0.0	0.0
115.00		48.8	548.6					0.0	195.7	48.8	744.4	0.0	0.0
116.00	Appertunance(s)	39.3	107.1	644.8	0.0	0.0	4,437.2	0.0	39.1	684.1	4,583.5	0.0	0.0
120.00		54.1	413.0					0.0	85.7	54.1	498.8	0.0	0.0
123.00	Appertunance(s)	37.7	297.7	242.0	0.0	0.0	1,967.4	0.0	64.3	279.6	2,329.3	0.0	0.0
125.00		22.2	192.8					0.0	23.6	22.2	216.4	0.0	0.0
126.00	Appertunance(s)	7.3	94.8	791.2	0.0	1,730.7	5,521.8	0.0	11.8	798.6	5,628.4	0.0	0.0
Totals:										5,301.92	58,816.6	0.00	0.00

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

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Customer: T-MOBILE

Load Case: 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	-58.81	-5.27	0.00	-514.18	0.00	514.18	3,765.29	1,882.65	6,978.46	3,494.42	0.00	0.00	0.163
5.00	-56.85	-5.21	0.00	-487.81	0.00	487.81	3,697.80	1,848.90	6,673.37	3,341.64	0.03	-0.05	0.161
10.00	-54.85	-5.15	0.00	-461.75	0.00	461.75	3,628.68	1,814.34	6,371.97	3,190.72	0.11	-0.10	0.160
15.00	-52.86	-5.09	0.00	-435.99	0.00	435.99	3,557.92	1,778.96	6,074.51	3,041.77	0.25	-0.16	0.158
20.00	-50.89	-5.03	0.00	-410.53	0.00	410.53	3,485.52	1,742.76	5,781.22	2,894.91	0.44	-0.21	0.156
25.00	-48.93	-4.97	0.00	-385.37	0.00	385.37	3,411.48	1,705.74	5,492.34	2,750.25	0.70	-0.27	0.154
30.00	-47.01	-4.91	0.00	-360.51	0.00	360.51	3,335.81	1,667.90	5,208.12	2,607.93	1.02	-0.33	0.152
35.00	-45.11	-4.85	0.00	-335.96	0.00	335.96	3,258.50	1,629.25	4,928.79	2,468.06	1.39	-0.39	0.150
40.00	-43.24	-4.79	0.00	-311.73	0.00	311.73	3,158.60	1,579.30	4,623.93	2,315.40	1.83	-0.45	0.148
43.50	-41.94	-4.75	0.00	-294.98	0.00	294.98	3,085.84	1,542.92	4,412.25	2,209.40	2.18	-0.49	0.147
45.00	-41.18	-4.71	0.00	-287.85	0.00	287.85	3,054.65	1,527.33	4,323.05	2,164.74	2.34	-0.51	0.146
48.50	-39.41	-4.67	0.00	-271.36	0.00	271.36	2,457.75	1,228.87	3,470.74	1,737.95	2.73	-0.56	0.172
50.00	-38.90	-4.63	0.00	-264.36	0.00	264.36	2,439.67	1,219.84	3,409.59	1,707.33	2.91	-0.58	0.171
55.00	-37.24	-4.55	0.00	-241.22	0.00	241.22	2,378.35	1,189.18	3,208.11	1,606.44	3.56	-0.65	0.166
60.00	-35.61	-4.48	0.00	-218.45	0.00	218.45	2,315.40	1,157.70	3,010.48	1,507.48	4.28	-0.72	0.160
65.00	-34.01	-4.40	0.00	-196.06	0.00	196.06	2,249.69	1,124.84	2,815.52	1,409.85	5.08	-0.80	0.154
70.00	-32.43	-4.32	0.00	-174.06	0.00	174.06	2,163.06	1,081.53	2,601.80	1,302.84	5.95	-0.87	0.149
75.00	-30.89	-4.20	0.00	-152.46	0.00	152.46	2,076.43	1,038.21	2,396.52	1,200.04	6.91	-0.95	0.142
80.00	-29.02	-3.97	0.00	-131.24	0.00	131.24	1,989.80	994.90	2,199.68	1,101.47	7.94	-1.02	0.134
85.00	-27.55	-3.86	0.00	-111.37	0.00	111.37	1,903.17	951.59	2,011.27	1,007.13	9.04	-1.09	0.125
88.13	-26.64	-3.78	0.00	-99.32	0.00	99.32	1,849.03	924.51	1,897.79	950.31	9.77	-1.13	0.119
90.00	-25.95	-3.73	0.00	-92.22	0.00	92.22	1,816.54	908.27	1,831.29	917.01	10.22	-1.16	0.115
91.88	-25.26	-3.67	0.00	-85.22	0.00	85.22	1,456.00	728.00	1,478.84	740.52	10.67	-1.18	0.132
95.00	-24.43	-3.59	0.00	-73.75	0.00	73.75	1,417.09	708.55	1,396.21	699.14	11.46	-1.22	0.123
98.00	-23.32	-3.46	0.00	-62.98	0.00	62.98	1,375.51	687.75	1,315.06	658.51	12.24	-1.26	0.113
100.00	-22.87	-3.41	0.00	-56.07	0.00	56.07	1,347.79	673.89	1,262.31	632.09	12.78	-1.29	0.106
104.00	-14.88	-2.37	0.00	-41.35	0.00	41.35	1,292.34	646.17	1,160.06	580.89	13.88	-1.34	0.083
105.00	-14.72	-2.32	0.00	-38.98	0.00	38.98	1,278.48	639.24	1,135.17	568.43	14.16	-1.35	0.080
110.00	-13.95	-2.23	0.00	-27.36	0.00	27.36	1,209.18	604.59	1,014.77	508.14	15.60	-1.39	0.065
115.00	-13.21	-2.17	0.00	-16.20	0.00	16.20	1,139.88	569.94	901.12	451.23	17.08	-1.43	0.047
116.00	-8.64	-1.37	0.00	-14.03	0.00	14.03	1,126.02	563.01	879.21	440.26	17.38	-1.44	0.040
120.00	-8.14	-1.31	0.00	-8.54	0.00	8.54	1,070.57	535.29	794.22	397.70	18.59	-1.45	0.029
123.00	-5.82	-0.97	0.00	-4.61	0.00	4.61	1,028.99	514.50	733.32	367.21	19.51	-1.46	0.018
125.00	-5.61	-0.94	0.00	-2.67	0.00	2.67	1,001.27	500.64	694.07	347.55	20.12	-1.47	0.013
126.00	0.00	-0.80	0.00	-1.73	0.00	1.73	987.41	493.71	674.85	337.93	20.43	-1.47	0.005

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

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Customer: T-MOBILE

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

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		41.6	0.0					0.0	0.0	41.6	0.0	0.0	0.0
5.00		82.2	901.9					0.0	264.5	82.2	1,166.3	0.0	0.0
10.00		80.0	878.1					0.0	264.5	80.0	1,142.5	0.0	0.0
15.00		77.8	854.3					0.0	264.5	77.8	1,118.7	0.0	0.0
20.00		75.6	830.5					0.0	264.5	75.6	1,094.9	0.0	0.0
25.00		73.5	806.7					0.0	264.5	73.5	1,071.1	0.0	0.0
30.00		72.1	782.9					0.0	264.5	72.1	1,047.3	0.0	0.0
35.00		72.2	759.0					0.0	264.5	72.2	1,023.5	0.0	0.0
40.00		61.7	735.2					0.0	264.5	61.7	999.7	0.0	0.0
43.50	Bot - Section 2	36.6	500.5					0.0	185.1	36.6	685.6	0.0	0.0
45.00		37.0	390.2					0.0	79.3	37.0	469.5	0.0	0.0
48.50	Top - Section 1	37.0	895.2					0.0	185.1	37.0	1,080.3	0.0	0.0
50.00		47.9	173.3					0.0	79.3	47.9	252.6	0.0	0.0
55.00		73.2	564.8					0.0	264.5	73.2	829.2	0.0	0.0
60.00		72.4	544.9					0.0	264.5	72.4	809.4	0.0	0.0
65.00		71.4	525.1					0.0	264.5	71.4	789.6	0.0	0.0
70.00		99.5	505.3					0.0	264.5	99.5	769.7	0.0	0.0
75.00		126.8	485.4					25.8	264.5	152.6	749.9	0.0	0.0
80.00	Appertunance(s)	123.8	465.6	82.6	0.0	145.2	176.5	26.3	264.5	232.7	906.5	0.0	0.0
85.00		98.5	445.8					26.8	262.8	125.2	708.6	0.0	0.0
88.13	Bot - Section 3	59.9	268.5					17.0	164.2	76.8	432.8	0.0	0.0
90.00		44.8	286.2					10.3	98.6	55.0	384.7	0.0	0.0
91.88	Top - Section 2	58.8	281.1					10.3	98.6	69.1	379.7	0.0	0.0
95.00		70.9	205.9					17.3	164.2	88.2	370.2	0.0	0.0
98.00	Appertunance(s)	46.5	191.9	61.0	0.0	0.0	55.8	16.8	157.7	124.3	405.3	0.0	0.0
100.00		36.0	124.7					0.0	95.1	36.0	219.8	0.0	0.0
104.00	Appertunance(s)	29.7	241.8	828.0	0.0	1,238.3	3,051.6	0.0	190.2	857.7	3,483.7	0.0	0.0
105.00		34.4	58.9					0.0	32.6	34.4	91.5	0.0	0.0
110.00		55.8	284.8					0.0	163.1	55.8	447.9	0.0	0.0
115.00		32.6	269.0					0.0	163.1	32.6	432.1	0.0	0.0
116.00	Appertunance(s)	26.0	51.9	665.8	0.0	0.0	2,016.9	0.0	32.6	691.8	2,101.4	0.0	0.0
120.00		35.7	201.2					0.0	71.4	35.7	272.7	0.0	0.0
123.00	Appertunance(s)	24.7	144.2	238.1	0.0	0.0	814.1	0.0	53.6	262.9	1,011.9	0.0	0.0
125.00		14.5	93.0					0.0	19.7	14.5	112.7	0.0	0.0
126.00	Appertunance(s)	4.8	45.5	854.1	0.0	2,115.0	2,405.0	0.0	9.8	858.9	2,460.4	0.0	0.0
Totals:										4,915.89	29,321.7	0.00	0.00

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

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Customer: T-MOBILE

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	-29.32	-4.89	0.00	-475.30	0.00	475.30	3,765.29	1,882.65	6,978.46	3,494.42	0.00	0.00	0.144
5.00	-28.15	-4.83	0.00	-450.87	0.00	450.87	3,697.80	1,848.90	6,673.37	3,341.64	0.03	-0.05	0.143
10.00	-27.00	-4.77	0.00	-426.74	0.00	426.74	3,628.68	1,814.34	6,371.97	3,190.72	0.10	-0.10	0.141
15.00	-25.88	-4.71	0.00	-402.89	0.00	402.89	3,557.92	1,778.96	6,074.51	3,041.77	0.23	-0.15	0.140
20.00	-24.78	-4.66	0.00	-379.33	0.00	379.33	3,485.52	1,742.76	5,781.22	2,894.91	0.41	-0.20	0.138
25.00	-23.71	-4.60	0.00	-356.06	0.00	356.06	3,411.48	1,705.74	5,492.34	2,750.25	0.65	-0.25	0.136
30.00	-22.65	-4.54	0.00	-333.06	0.00	333.06	3,335.81	1,667.90	5,208.12	2,607.93	0.94	-0.30	0.135
35.00	-21.63	-4.49	0.00	-310.34	0.00	310.34	3,258.50	1,629.25	4,928.79	2,468.06	1.29	-0.36	0.132
40.00	-20.62	-4.44	0.00	-287.91	0.00	287.91	3,158.60	1,579.30	4,623.93	2,315.40	1.69	-0.42	0.131
43.50	-19.94	-4.40	0.00	-272.38	0.00	272.38	3,085.84	1,542.92	4,412.25	2,209.40	2.01	-0.46	0.130
45.00	-19.47	-4.37	0.00	-265.78	0.00	265.78	3,054.65	1,527.33	4,323.05	2,164.74	2.16	-0.47	0.129
48.50	-18.38	-4.34	0.00	-250.47	0.00	250.47	2,457.75	1,228.87	3,470.74	1,737.95	2.52	-0.52	0.152
50.00	-18.13	-4.30	0.00	-243.96	0.00	243.96	2,439.67	1,219.84	3,409.59	1,707.33	2.69	-0.53	0.150
55.00	-17.29	-4.24	0.00	-222.46	0.00	222.46	2,378.35	1,189.18	3,208.11	1,606.44	3.29	-0.60	0.146
60.00	-16.48	-4.18	0.00	-201.27	0.00	201.27	2,315.40	1,157.70	3,010.48	1,507.48	3.95	-0.67	0.141
65.00	-15.69	-4.11	0.00	-180.38	0.00	180.38	2,249.69	1,124.84	2,815.52	1,409.85	4.69	-0.74	0.135
70.00	-14.91	-4.02	0.00	-159.81	0.00	159.81	2,163.06	1,081.53	2,601.80	1,302.84	5.50	-0.81	0.130
75.00	-14.16	-3.88	0.00	-139.69	0.00	139.69	2,076.43	1,038.21	2,396.52	1,200.04	6.38	-0.87	0.123
80.00	-13.26	-3.64	0.00	-120.17	0.00	120.17	1,989.80	994.90	2,199.68	1,101.47	7.33	-0.94	0.116
85.00	-12.55	-3.52	0.00	-101.95	0.00	101.95	1,903.17	951.59	2,011.27	1,007.13	8.35	-1.00	0.108
88.13	-12.11	-3.44	0.00	-90.96	0.00	90.96	1,849.03	924.51	1,897.79	950.31	9.01	-1.04	0.102
90.00	-11.73	-3.38	0.00	-84.51	0.00	84.51	1,816.54	908.27	1,831.29	917.01	9.43	-1.07	0.099
91.88	-11.35	-3.31	0.00	-78.17	0.00	78.17	1,456.00	728.00	1,478.84	740.52	9.85	-1.09	0.113
95.00	-10.98	-3.22	0.00	-67.82	0.00	67.82	1,417.09	708.55	1,396.21	699.14	10.58	-1.13	0.105
98.00	-10.57	-3.10	0.00	-58.15	0.00	58.15	1,375.51	687.75	1,315.06	658.51	11.30	-1.16	0.096
100.00	-10.35	-3.06	0.00	-51.95	0.00	51.95	1,347.79	673.89	1,262.31	632.09	11.79	-1.19	0.090
104.00	-6.89	-2.14	0.00	-38.46	0.00	38.46	1,292.34	646.17	1,160.06	580.89	12.81	-1.23	0.072
105.00	-6.79	-2.10	0.00	-36.32	0.00	36.32	1,278.48	639.24	1,135.17	568.43	13.06	-1.24	0.069
110.00	-6.35	-2.04	0.00	-25.81	0.00	25.81	1,209.18	604.59	1,014.77	508.14	14.39	-1.29	0.056
115.00	-5.91	-2.00	0.00	-15.61	0.00	15.61	1,139.88	569.94	901.12	451.23	15.76	-1.32	0.040
116.00	-3.83	-1.26	0.00	-13.61	0.00	13.61	1,126.02	563.01	879.21	440.26	16.03	-1.33	0.034
120.00	-3.56	-1.22	0.00	-8.56	0.00	8.56	1,070.57	535.29	794.22	397.70	17.15	-1.34	0.025
123.00	-2.55	-0.93	0.00	-4.90	0.00	4.90	1,028.99	514.50	733.32	367.21	18.00	-1.35	0.016
125.00	-2.44	-0.92	0.00	-3.03	0.00	3.03	1,001.27	500.64	694.07	347.55	18.57	-1.36	0.011
126.00	0.00	-0.86	0.00	-2.11	0.00	2.11	987.41	493.71	674.85	337.93	18.85	-1.36	0.006

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

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Customer: T-MOBILE

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.20
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Long-Period Transition Period (T_L):	6
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
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	2.27
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.89
Total Unfactored Dead Load:	29.32 k
Seismic Base Shear (E):	1.15 k

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

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Customer: T-MOBILE

Equivalent Modal Forces Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.20
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 (ρ):	1.30

Load Case (1.2 + 0.2Sds) * DL + E ELFM

Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
34	125.50	55	1.875	1.902	1.112	0.401	19	47
33	124.00	113	1.830	1.681	1.031	0.369	36	96
32	121.50	198	1.757	1.352	0.906	0.319	55	169
31	118.00	273	1.658	0.968	0.751	0.254	60	234
30	115.50	85	1.588	0.742	0.654	0.211	15	72
29	112.50	432	1.507	0.518	0.551	0.164	62	370
28	107.50	448	1.376	0.240	0.407	0.097	38	384
27	104.50	91	1.300	0.121	0.336	0.062	5	78
26	102.00	432	1.239	0.044	0.285	0.037	14	370
25	99.00	220	1.167	-0.024	0.231	0.011	2	188
24	96.50	350	1.109	-0.065	0.192	-0.008	-2	299
23	93.44	370	1.039	-0.098	0.152	-0.026	-8	317
22	90.94	380	0.984	-0.113	0.124	-0.038	-12	325
21	89.06	385	0.944	-0.120	0.105	-0.045	-15	329
20	86.56	433	0.892	-0.122	0.084	-0.051	-19	371
19	82.50	709	0.810	-0.114	0.057	-0.054	-33	607
18	77.50	730	0.715	-0.091	0.033	-0.048	-30	625
17	72.50	750	0.626	-0.062	0.018	-0.031	-20	642
16	67.50	770	0.542	-0.032	0.009	-0.008	-5	659
15	62.50	790	0.465	-0.004	0.006	0.016	11	676
14	57.50	809	0.394	0.020	0.007	0.036	25	693
13	52.50	829	0.328	0.039	0.010	0.050	36	710
12	49.25	253	0.289	0.048	0.013	0.055	12	216
11	46.75	1,080	0.260	0.053	0.016	0.058	54	925
10	44.25	470	0.233	0.058	0.019	0.060	24	402
9	41.75	686	0.208	0.062	0.022	0.060	36	587
8	37.50	1,000	0.167	0.066	0.028	0.060	52	856
7	32.50	1,023	0.126	0.070	0.034	0.059	52	877
6	27.50	1,047	0.090	0.071	0.038	0.057	52	897
5	22.50	1,071	0.060	0.072	0.041	0.056	52	917
4	17.50	1,095	0.036	0.070	0.041	0.053	51	938
3	12.50	1,119	0.019	0.063	0.037	0.049	48	958
2	7.50	1,143	0.007	0.049	0.028	0.040	40	979
1	2.50	1,166	0.001	0.021	0.011	0.020	20	999

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

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Customer: T-MOBILE

Flat Platform w/ Han	126.00	2,000	1.890	1.980	1.140	0.412	715	1,713
48" x 12" Panel	126.00	270	1.890	1.980	1.140	0.412	96	231
72" x 12" Panel	126.00	135	1.890	1.980	1.140	0.412	48	116
NextNet BTS-2500	123.00	105	1.801	1.543	0.979	0.349	32	90
Dragonwave A-ANT-18G	123.00	27	1.801	1.543	0.979	0.349	8	23
Argus LLPX310R	123.00	86	1.801	1.543	0.979	0.349	26	73
DragonWave Horizon C	123.00	21	1.801	1.543	0.979	0.349	6	18
Side Arms	123.00	560	1.801	1.543	0.979	0.349	169	480
Dragonwave A-ANT-23G	123.00	15	1.801	1.543	0.979	0.349	5	13
Round Low Profile PI	116.00	1,500	1.602	0.784	0.673	0.219	285	1,285
RFS APX16PV-16PVL-A	116.00	119	1.602	0.784	0.673	0.219	23	102
Andrew ETW200VS12UB	116.00	33	1.602	0.784	0.673	0.219	6	28
Ericsson KRY 112 71	116.00	79	1.602	0.784	0.673	0.219	15	68
RFS APX16DWV-	116.00	122	1.602	0.784	0.673	0.219	23	105
Kathrein Smart Bias	116.00	10	1.602	0.784	0.673	0.219	2	9
Andrew LNX-6515DS-VT	116.00	154	1.602	0.784	0.673	0.219	29	132
Raycap DC6-48-60-18-	104.00	64	1.288	0.104	0.325	0.057	3	54
Powerwave LGP21901	104.00	33	1.288	0.104	0.325	0.057	2	28
Ericsson RRUS 12	104.00	150	1.288	0.104	0.325	0.057	7	128
Ericsson RRUS-32	104.00	231	1.288	0.104	0.325	0.057	11	198
Ericsson RRUS A2 B2	104.00	66	1.288	0.104	0.325	0.057	3	57
Ericsson RRUS E2 B29	104.00	180	1.288	0.104	0.325	0.057	9	154
Powerwave 7770.00	104.00	105	1.288	0.104	0.325	0.057	5	90
CCI OPA-65R-LCUU-H4	104.00	342	1.288	0.104	0.325	0.057	17	293
Round Low Profile PI	104.00	1,500	1.288	0.104	0.325	0.057	74	1,285
Ericsson RRUS-11	104.00	153	1.288	0.104	0.325	0.057	8	131
Powerwave LGP2140X	104.00	228	1.288	0.104	0.325	0.057	11	195
Kathrein 800 10504	98.00	53	1.143	-0.042	0.215	0.003	0	45
RCU	98.00	3	1.143	-0.042	0.215	0.003	0	3
Flat Side Arm	80.00	150	0.762	-0.104	0.044	-0.053	-7	128
Antel BCD-87010__	80.00	26	0.762	-0.104	0.044	-0.053	-1	23
		29,322	71.305	29.024	25.487	7.742	2,356	25,114

Load Case (1.2 + 0.2Sds) * 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)
34	125.50	55	1.875	1.902	1.112	0.401	19	47
33	124.00	113	1.830	1.681	1.031	0.369	36	96
32	121.50	198	1.757	1.352	0.906	0.319	55	169
31	118.00	273	1.658	0.968	0.751	0.254	60	234
30	115.50	85	1.588	0.742	0.654	0.211	15	72
29	112.50	432	1.507	0.518	0.551	0.164	62	370
28	107.50	448	1.376	0.240	0.407	0.097	38	384
27	104.50	91	1.300	0.121	0.336	0.062	5	78
26	102.00	432	1.239	0.044	0.285	0.037	14	370
25	99.00	220	1.167	-0.024	0.231	0.011	2	188
24	96.50	350	1.109	-0.065	0.192	-0.008	-2	299
23	93.44	370	1.039	-0.098	0.152	-0.026	-8	317
22	90.94	380	0.984	-0.113	0.124	-0.038	-12	325
21	89.06	385	0.944	-0.120	0.105	-0.045	-15	329
20	86.56	433	0.892	-0.122	0.084	-0.051	-19	371
19	82.50	709	0.810	-0.114	0.057	-0.054	-33	607
18	77.50	730	0.715	-0.091	0.033	-0.048	-30	625
17	72.50	750	0.626	-0.062	0.018	-0.031	-20	642
16	67.50	770	0.542	-0.032	0.009	-0.008	-5	659
15	62.50	790	0.465	-0.004	0.006	0.016	11	676
14	57.50	809	0.394	0.020	0.007	0.036	25	693
13	52.50	829	0.328	0.039	0.010	0.050	36	710
12	49.25	253	0.289	0.048	0.013	0.055	12	216

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

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Customer: T-MOBILE

11	46.75	1,080	0.260	0.053	0.016	0.058	54	925
10	44.25	470	0.233	0.058	0.019	0.060	24	402
9	41.75	686	0.208	0.062	0.022	0.060	36	587
8	37.50	1,000	0.167	0.066	0.028	0.060	52	856
7	32.50	1,023	0.126	0.070	0.034	0.059	52	877
6	27.50	1,047	0.090	0.071	0.038	0.057	52	897
5	22.50	1,071	0.060	0.072	0.041	0.056	52	917
4	17.50	1,095	0.036	0.070	0.041	0.053	51	938
3	12.50	1,119	0.019	0.063	0.037	0.049	48	958
2	7.50	1,143	0.007	0.049	0.028	0.040	40	979
1	2.50	1,166	0.001	0.021	0.011	0.020	20	999
Flat Platform w/ Han	126.00	2,000	1.890	1.980	1.140	0.412	715	1,713
48" x 12" Panel	126.00	270	1.890	1.980	1.140	0.412	96	231
72" x 12" Panel	126.00	135	1.890	1.980	1.140	0.412	48	116
NextNet BTS-2500	123.00	105	1.801	1.543	0.979	0.349	32	90
Dragonwave A-ANT-18G	123.00	27	1.801	1.543	0.979	0.349	8	23
Argus LLPX310R	123.00	86	1.801	1.543	0.979	0.349	26	73
DragonWave Horizon C	123.00	21	1.801	1.543	0.979	0.349	6	18
Side Arms	123.00	560	1.801	1.543	0.979	0.349	169	480
Dragonwave A-ANT-23G	123.00	15	1.801	1.543	0.979	0.349	5	13
Round Low Profile PI	116.00	1,500	1.602	0.784	0.673	0.219	285	1,285
RFS APX16PV-16PVL-A	116.00	119	1.602	0.784	0.673	0.219	23	102
Andrew ETW200VS12UB	116.00	33	1.602	0.784	0.673	0.219	6	28
Ericsson KRY 112 71	116.00	79	1.602	0.784	0.673	0.219	15	68
RFS APX16DWV-	116.00	122	1.602	0.784	0.673	0.219	23	105
Kathrein Smart Bias	116.00	10	1.602	0.784	0.673	0.219	2	9
Andrew LNX-6515DS-VT	116.00	154	1.602	0.784	0.673	0.219	29	132
Raycap DC6-48-60-18-	104.00	64	1.288	0.104	0.325	0.057	3	54
Powerwave LGP21901	104.00	33	1.288	0.104	0.325	0.057	2	28
Ericsson RRUS 12	104.00	150	1.288	0.104	0.325	0.057	7	128
Ericsson RRUS-32	104.00	231	1.288	0.104	0.325	0.057	11	198
Ericsson RRUS A2 B2	104.00	66	1.288	0.104	0.325	0.057	3	57
Ericsson RRUS E2 B29	104.00	180	1.288	0.104	0.325	0.057	9	154
Powerwave 7770.00	104.00	105	1.288	0.104	0.325	0.057	5	90
CCI OPA-65R-LCUU-H4	104.00	342	1.288	0.104	0.325	0.057	17	293
Round Low Profile PI	104.00	1,500	1.288	0.104	0.325	0.057	74	1,285
Ericsson RRUS-11	104.00	153	1.288	0.104	0.325	0.057	8	131
Powerwave LGP2140X	104.00	228	1.288	0.104	0.325	0.057	11	195
Kathrein 800 10504	98.00	53	1.143	-0.042	0.215	0.003	0	45
RCU	98.00	3	1.143	-0.042	0.215	0.003	0	3
Flat Side Arm	80.00	150	0.762	-0.104	0.044	-0.053	-7	128
Antel BCD-87010__	80.00	26	0.762	-0.104	0.044	-0.053	-1	23
		29,322	71.305	29.024	25.487	7.742	2,356	25,114

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

Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
34	125.50	55	1.875	1.902	1.112	0.401	19	47
33	124.00	113	1.830	1.681	1.031	0.369	36	96
32	121.50	198	1.757	1.352	0.906	0.319	55	169
31	118.00	273	1.658	0.968	0.751	0.254	60	234
30	115.50	85	1.588	0.742	0.654	0.211	15	72
29	112.50	432	1.507	0.518	0.551	0.164	62	370
28	107.50	448	1.376	0.240	0.407	0.097	38	384
27	104.50	91	1.300	0.121	0.336	0.062	5	78
26	102.00	432	1.239	0.044	0.285	0.037	14	370
25	99.00	220	1.167	-0.024	0.231	0.011	2	188
24	96.50	350	1.109	-0.065	0.192	-0.008	-2	299
23	93.44	370	1.039	-0.098	0.152	-0.026	-8	317

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

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Customer: T-MOBILE

22	90.94	380	0.984	-0.113	0.124	-0.038	-12	325
21	89.06	385	0.944	-0.120	0.105	-0.045	-15	329
20	86.56	433	0.892	-0.122	0.084	-0.051	-19	371
19	82.50	709	0.810	-0.114	0.057	-0.054	-33	607
18	77.50	730	0.715	-0.091	0.033	-0.048	-30	625
17	72.50	750	0.626	-0.062	0.018	-0.031	-20	642
16	67.50	770	0.542	-0.032	0.009	-0.008	-5	659
15	62.50	790	0.465	-0.004	0.006	0.016	11	676
14	57.50	809	0.394	0.020	0.007	0.036	25	693
13	52.50	829	0.328	0.039	0.010	0.050	36	710
12	49.25	253	0.289	0.048	0.013	0.055	12	216
11	46.75	1,080	0.260	0.053	0.016	0.058	54	925
10	44.25	470	0.233	0.058	0.019	0.060	24	402
9	41.75	686	0.208	0.062	0.022	0.060	36	587
8	37.50	1,000	0.167	0.066	0.028	0.060	52	856
7	32.50	1,023	0.126	0.070	0.034	0.059	52	877
6	27.50	1,047	0.090	0.071	0.038	0.057	52	897
5	22.50	1,071	0.060	0.072	0.041	0.056	52	917
4	17.50	1,095	0.036	0.070	0.041	0.053	51	938
3	12.50	1,119	0.019	0.063	0.037	0.049	48	958
2	7.50	1,143	0.007	0.049	0.028	0.040	40	979
1	2.50	1,166	0.001	0.021	0.011	0.020	20	999
Flat Platform w/ Han	126.00	2,000	1.890	1.980	1.140	0.412	715	1,713
48" x 12" Panel	126.00	270	1.890	1.980	1.140	0.412	96	231
72" x 12" Panel	126.00	135	1.890	1.980	1.140	0.412	48	116
NextNet BTS-2500	123.00	105	1.801	1.543	0.979	0.349	32	90
Dragonwave A-ANT-18G	123.00	27	1.801	1.543	0.979	0.349	8	23
Argus LLPX310R	123.00	86	1.801	1.543	0.979	0.349	26	73
DragonWave Horizon C	123.00	21	1.801	1.543	0.979	0.349	6	18
Side Arms	123.00	560	1.801	1.543	0.979	0.349	169	480
Dragonwave A-ANT-23G	123.00	15	1.801	1.543	0.979	0.349	5	13
Round Low Profile PI	116.00	1,500	1.602	0.784	0.673	0.219	285	1,285
RFS APX16PV-16PVL-A	116.00	119	1.602	0.784	0.673	0.219	23	102
Andrew ETW200VS12UB	116.00	33	1.602	0.784	0.673	0.219	6	28
Ericsson KRY 112 71	116.00	79	1.602	0.784	0.673	0.219	15	68
RFS APX16DWV-	116.00	122	1.602	0.784	0.673	0.219	23	105
Kathrein Smart Bias	116.00	10	1.602	0.784	0.673	0.219	2	9
Andrew LNX-6515DS-VT	116.00	154	1.602	0.784	0.673	0.219	29	132
Raycap DC6-48-60-18-	104.00	64	1.288	0.104	0.325	0.057	3	54
Powerwave LGP21901	104.00	33	1.288	0.104	0.325	0.057	2	28
Ericsson RRUS 12	104.00	150	1.288	0.104	0.325	0.057	7	128
Ericsson RRUS-32	104.00	231	1.288	0.104	0.325	0.057	11	198
Ericsson RRUS A2 B2	104.00	66	1.288	0.104	0.325	0.057	3	57
Ericsson RRUS E2 B29	104.00	180	1.288	0.104	0.325	0.057	9	154
Powerwave 7770.00	104.00	105	1.288	0.104	0.325	0.057	5	90
CCI OPA-65R-LCUU-H4	104.00	342	1.288	0.104	0.325	0.057	17	293
Round Low Profile PI	104.00	1,500	1.288	0.104	0.325	0.057	74	1,285
Ericsson RRUS-11	104.00	153	1.288	0.104	0.325	0.057	8	131
Powerwave LGP2140X	104.00	228	1.288	0.104	0.325	0.057	11	195
Kathrein 800 10504	98.00	53	1.143	-0.042	0.215	0.003	0	45
RCU	98.00	3	1.143	-0.042	0.215	0.003	0	3
Flat Side Arm	80.00	150	0.762	-0.104	0.044	-0.053	-7	128
Antel BCD-87010__	80.00	26	0.762	-0.104	0.044	-0.053	-1	23
		29,322	71.305	29.024	25.487	7.742	2,356	25,114

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)
34	125.50	55	1.875	1.902	1.112	0.401	19	47

Site Number: 302469

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

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Customer: T-MOBILE

33	124.00	113	1.830	1.681	1.031	0.369	36	96
32	121.50	198	1.757	1.352	0.906	0.319	55	169
31	118.00	273	1.658	0.968	0.751	0.254	60	234
30	115.50	85	1.588	0.742	0.654	0.211	15	72
29	112.50	432	1.507	0.518	0.551	0.164	62	370
28	107.50	448	1.376	0.240	0.407	0.097	38	384
27	104.50	91	1.300	0.121	0.336	0.062	5	78
26	102.00	432	1.239	0.044	0.285	0.037	14	370
25	99.00	220	1.167	-0.024	0.231	0.011	2	188
24	96.50	350	1.109	-0.065	0.192	-0.008	-2	299
23	93.44	370	1.039	-0.098	0.152	-0.026	-8	317
22	90.94	380	0.984	-0.113	0.124	-0.038	-12	325
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13	52.50	829	0.328	0.039	0.010	0.050	36	710
12	49.25	253	0.289	0.048	0.013	0.055	12	216
11	46.75	1,080	0.260	0.053	0.016	0.058	54	925
10	44.25	470	0.233	0.058	0.019	0.060	24	402
9	41.75	686	0.208	0.062	0.022	0.060	36	587
8	37.50	1,000	0.167	0.066	0.028	0.060	52	856
7	32.50	1,023	0.126	0.070	0.034	0.059	52	877
6	27.50	1,047	0.090	0.071	0.038	0.057	52	897
5	22.50	1,071	0.060	0.072	0.041	0.056	52	917
4	17.50	1,095	0.036	0.070	0.041	0.053	51	938
3	12.50	1,119	0.019	0.063	0.037	0.049	48	958
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Ericsson RRUS 12	104.00	150	1.288	0.104	0.325	0.057	7	128
Ericsson RRUS-32	104.00	231	1.288	0.104	0.325	0.057	11	198
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Powerwave 7770.00	104.00	105	1.288	0.104	0.325	0.057	5	90
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Round Low Profile PI	104.00	1,500	1.288	0.104	0.325	0.057	74	1,285
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Powerwave LGP2140X	104.00	228	1.288	0.104	0.325	0.057	11	195
Kathrein 800 10504	98.00	53	1.143	-0.042	0.215	0.003	0	45
RCU	98.00	3	1.143	-0.042	0.215	0.003	0	3
Flat Side Arm	80.00	150	0.762	-0.104	0.044	-0.053	-7	128
Antel BCD-87010__	80.00	26	0.762	-0.104	0.044	-0.053	-1	23

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

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Customer: T-MOBILE

29,322

71.305

29.024

25.487

7.742

2,356

25,114

Site Number: 302469

Code: ANSI/TIA-222-G

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Site Name: Bridgeport CT 2, CT

Engineering Number: 63532322

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Customer: T-MOBILE

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	27.28	0.00	35.12	0.00	0.00	2617.46	48.50	0.79
0.9D + 1.6W	26.22	0.00	26.33	0.00	0.00	2535.64	48.50	0.77
1.2D + 1.0Di + 1.0Wi	5.27	0.00	58.81	0.00	0.00	514.18	48.50	0.17
(1.2 + 0.2Sds) * DL + E ELFM	1.15	0.00	35.01	0.00	0.00	122.69	48.50	0.05
(1.2 + 0.2Sds) * DL + E EMAM	2.34	0.00	35.01	0.00	0.00	250.91	48.50	0.09
(0.9 - 0.2Sds) * DL + E ELFM	1.15	0.00	24.11	0.00	0.00	120.75	48.50	0.04
(0.9 - 0.2Sds) * DL + E EMAM	2.34	0.00	24.11	0.00	0.00	246.65	48.50	0.09
1.0D + 1.0W	4.89	0.00	29.32	0.00	0.00	475.30	48.50	0.15

Base/Flange Plate	Plate Type	Baseplate
	Pole Diameter	45.5 in
	Pole Thickness	0.375 in
	Plate Diameter	60 in
	Plate Thickness	1.75 in
	Plate Fy	60 ksi
	Weld Length	0.3125 in
	ϕ_s Resistance	1212.48 k-in
Applied	503.98 k-in	
Stiffeners	#	12 <i>Show</i>
	Thickness	0.5 in
	Length	6 in
	Height	12 in
	Chamfer	2 in
	Offset Angle	0°
	Fy	50 ksi
Bolts	#	12
	Bolt Circle (R)adial / (S)quare	54 in R
	Diameter	2.25 in
	Hole Diameter	2.75 in
	Type	A615-75
	Fy	75 ksi
	Fu	100 ksi
	ϕ_s Resistance	259.82 k
Applied	196.68 k	
Reinforcement	#	0
Extra Bolts	#	0

Code Rev. **G**

Date **9/3/2015**
 Engineer **VC**
 Site # **302469**
 Carrier **T-Mobile**

Moment **2617.5 k-ft**
 Axial **35.1 k**

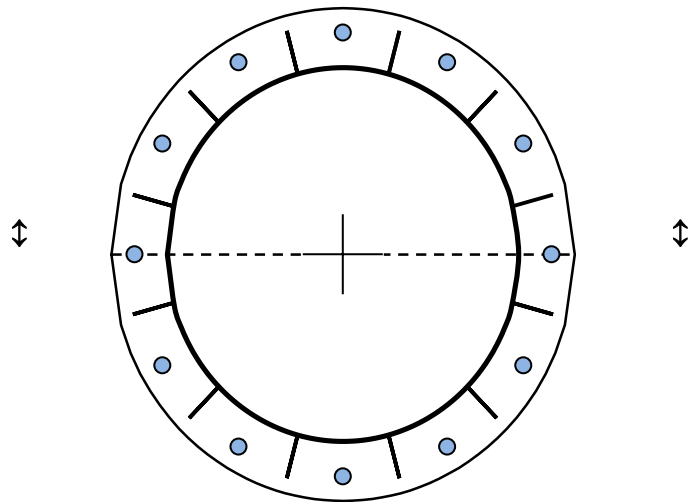


Plate Stress Ratio:
0.42 (Pass)

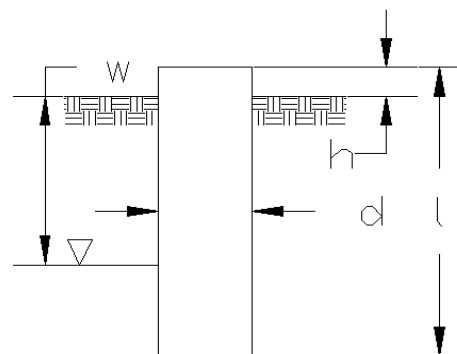
Bolt Stress Ratio:
0.76 (Pass)

Site Name: Bridgeport CT 2, CT
 Site Number: 302469
 Engineer: V. Chung
 Engineering Number: 63532322
 Date: 09/03/15

Program Last Updated: 5/13/2014
 American Tower Corporation

Design Base Loads (Factored) - Analysis per TIA-222-G Standards

Analyze or Design a Foundation? Analyze
 Foundation Mapped: N
 Moment (M): 2617.5 k-ft
 Shear/Leg (V): 27.3 k
 Axial Load (P): 35.1 k
 Uplift/Leg (U): 0.0 k
 Tower Type (GT / SST / MP): MP



Diameter of Caisson (d): 6.0 ft
 Caisson Embedment (L-h): 18.0 ft
 Caisson Height Above Ground (h): 1.0 ft
 Depth Below Ground Surface to Water Table (w): 99.0 ft
 Unit Weight of Concrete: 150.0 pcf
 Unit Weight of Water: 62.4 pcf
 Tension Skin Friction/Compression Skin Friction: 1.00
 Pullout Angle: 30.0 degrees

Engineer Notes
 All foundations and anchorages have a factor of safety greater than or equal to 2.0

Soil Mechanical Properties

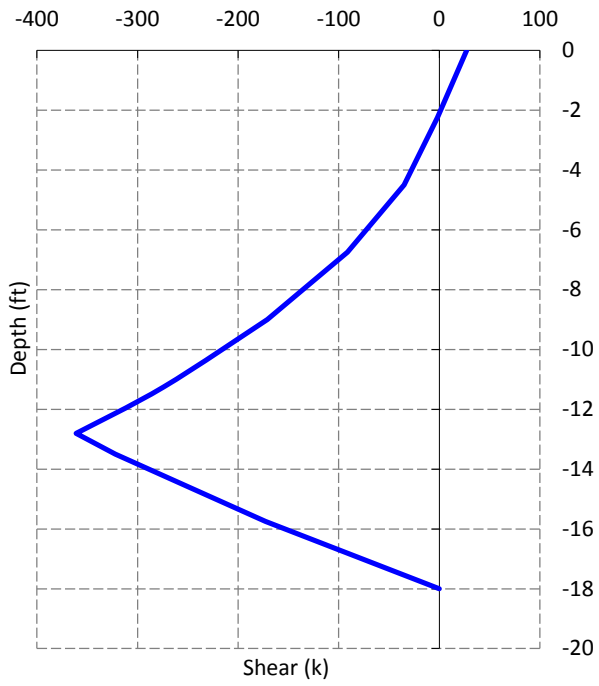
Depth (ft)		γ_{Soil}	Cohesion	ϕ	Ultimate Skin	Ultimate Bearing
Top	Bottom	(pcf)	(psf)	(degree)	Friction (psf)	Pressure (psf)
0.0	2.0	120	0	0	0	0
2.0	19.0	130	0	45	942	22000

Required Embedment: 16.6 ft - OK, Caisson Embedment Satisfactory
 Volume of Concrete: 537.2 ft³ = 19.9 yd³
 Weight of Concrete (Buoyancy Effect Considered): 80.6 k
 Average Soil Unit Weight: 128.9 pcf
 Skin Friction Resistance: 284.1 k
 Compressive Bearing Resistance: 622.0 k
 Pullout Weight (Minus Concrete Weight): 489.6 k
 Nominal Uplift Capacity per Leg ($\phi_s T_n$): 273.5 k
 Nominal Compressive Capacity per Leg ($\phi_s P_n$): 679.6 k
 P_u : 48.0 k
 $T_u / \phi_s T_n$: 0.00 Result: OK
 $P_u / \phi_s P_n$: 0.07 Result: OK
 Total Lateral Resistance: 1828.8 k
 Inflection Point (Below Ground Surface): 12.8 ft
 Design Overturning Moment At Inflection Point (M_D): 2994.1 k-ft
 Nominal Moment Capacity ($\phi_s M_n$): 4678.3 k-ft
 $M_D / \phi_s M_n$: 0.64 Result: OK
 ϕ_s : 0.75

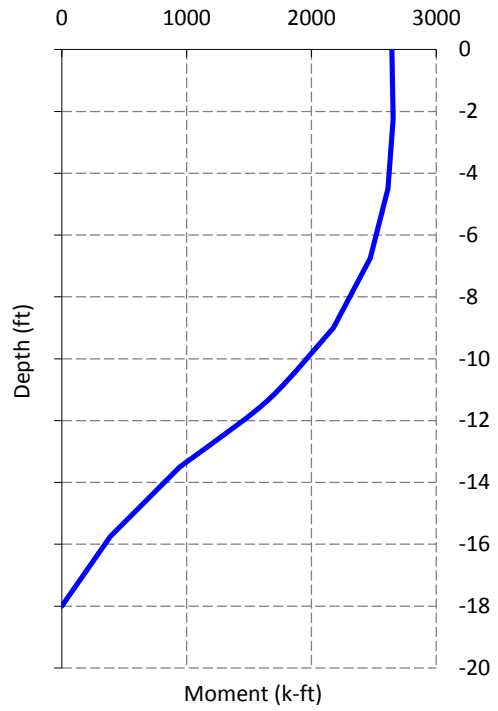
Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	4000 psi
Vertical Steel Rebar Size #:	11
Vertical Steel Rebar Area:	1.56 in ²
# of Vertical Steel Rebars:	16
Vertical Steel Rebar Yield Strength (F_y):	60 ksi
Horizontal Tie / Stirrup Size #:	5
Horizontal Tie / Stirrup Area:	0.31 in ²
Design Horizontal Tie / Stirrup Spacing:	12.0 in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	60 ksi
Rebar Cage Diameter:	64.0 in
Strength Bending/Tension Reduction Factor (ϕ_B):	0.90 ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor (ϕ_V):	0.75 ACI318-05 - 9.3.2.3
Strength Compression Reduction Factor (ϕ_P):	0.65 ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000 ksi
Design Moment (M_u):	2654.8 k-ft
Nominal Moment Capacity ($\phi_B M_n$):	3528.7 k-ft - ACI318-005 - 10.2
$M_u/\phi_B M_n$:	0.75 Result: OK
Design Shear (V_u):	361.0 k
Nominal Shear Capacity ($\phi_V V_n$):	387.9 k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u/\phi_V V_n$:	0.93 Result: OK
Design Tension (T_u):	0.0 k
Nominal Tension Capacity ($\phi_T T_n$):	1347.8 k - ACI318-05 - 10.2
$T_u/\phi_T T_n$:	0.00 Result: OK
Design Compression (P_u):	48.0 k
Nominal Compression Capacity ($\phi_P P_n$):	7154.3 k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$:	0.01 Result: OK
Bending Reinforcement Ratio:	0.006 ACI318-05 - 10.8.4 & 10.9.1
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.75 Result: OK

Design Factored Shear / Depth



Design Factored Moment / Depth



Nominal and Factored Moment Capacity and Factored Design Loads

