T-Mobile Northeast LLC, a subsidiary of T-Mobile USA, Inc.

Connecticut Market

July 11, 2019

Honorable Robert Stein, Chairman,
and members of the Council
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: T-MOBILE Northeast LLC notice of intent to install a temporary cellular telephone facility located at 281 Route 169 South Woodstock, Connecticut

Dear Chairman Stein and Members of the Council:

TRM is pleased to submit this Notice of Exempt Modification on behalf of T-MOBILE Northeast LLC

T-MOBILE Northeast LLC hereby notifies the Connecticut Siting Council of its intent for the temporary use of telecommunications equipment by placing a Cell On Wheels (COW) on the grounds of the Woodstock Fair located at 281 Route 169 South Woodstock, Connecticut. Please accept this Notice to the Connecticut Siting Council, Pursuant to RCSA Section 16-50j-73, of construction that constitutes an exempt modification under RSCA Section 16-50j-72 (d). In compliance with RCSA Section 16-50j-73, copies of this Notice of Exempt Modification are being sent to the First Selectman and Zoning and Enforcement officer of Woodstock and the Woodstock Fair.

The proposed temporary cell site meets the criteria set forth in RCSA 16-50j-72(d) for temporary cellular service for events of statewide significance. The site is necessary to provide additional system capacity to accommodate the increased communication needs during the Woodstock Fair.

The Woodstock Fair is August 30 to September 2 but T-Mobile will need to do testing beforehand to make sure the site is up and running before the Fair.

Proposed Temporary Facility

The temporary site will be located at 281 Route 169 South Woodstock, Connecticut on the property known as the Woodstock Fair owned by the Woodstock Agricultural Society. (See attached location map) Coordinates for the location are N 41 56 15.44, W -71 57 15.26. A 15 kw diesel generator will be used for power and the proposed temporary cell site will not increase the noise level by six decibels or more. There will be three APX16DWV-16DWVS-E-A20 antennas with a 60 ft rad center.

Equipment installation will start on August 23, 2019 and the site will be on-air until September 3, 2019. The COLT will be removed on September 3,2019, the morning after the Fair.

T-Mobile's temporary cell site will consist of a "Cell On Wheels" ("COW") (See attached photo) which needs a 30' x 30' footprint and will be located behind a 6' fence.

Power Density Calculations

T-Mobile's temporary cell site will not result in a total radio frequency electromagnetic radiation power density, measured at ground level at the COW location, at or above State or Federal standards. The following table shows the power density at the site from the proposed temporary cellular transmissions form the COW:

T-Mobile Sector	Power Density Value (%)
Sector A:	8.79 %
Sector B:	8.79 %
Sector C:	8.79 %
T-Mobile Per Sector Maximum:	8.79 %
Site Total:	8.79 %
Site Compliance Status:	**COMPLIANT**

See attached full report

Conclusion

For the reasons above, we respectfully request the Council acknowledge T-Mobile's Notice of Exempt Modification for the temporary cell site to be operated during the Woodstock Fair game pursuant to RCSA Section 16-50j-72(d).

Please call me with any questions concerning this Notice at 203-417-4446. Thank you.

Respectfully,

Thomas White
Agent of T-Mobile

Cc: Woodstock First Selectman
Michael D'Amato Zoning and Enforcement Officer
Woodstock Fair

COW LOCATION

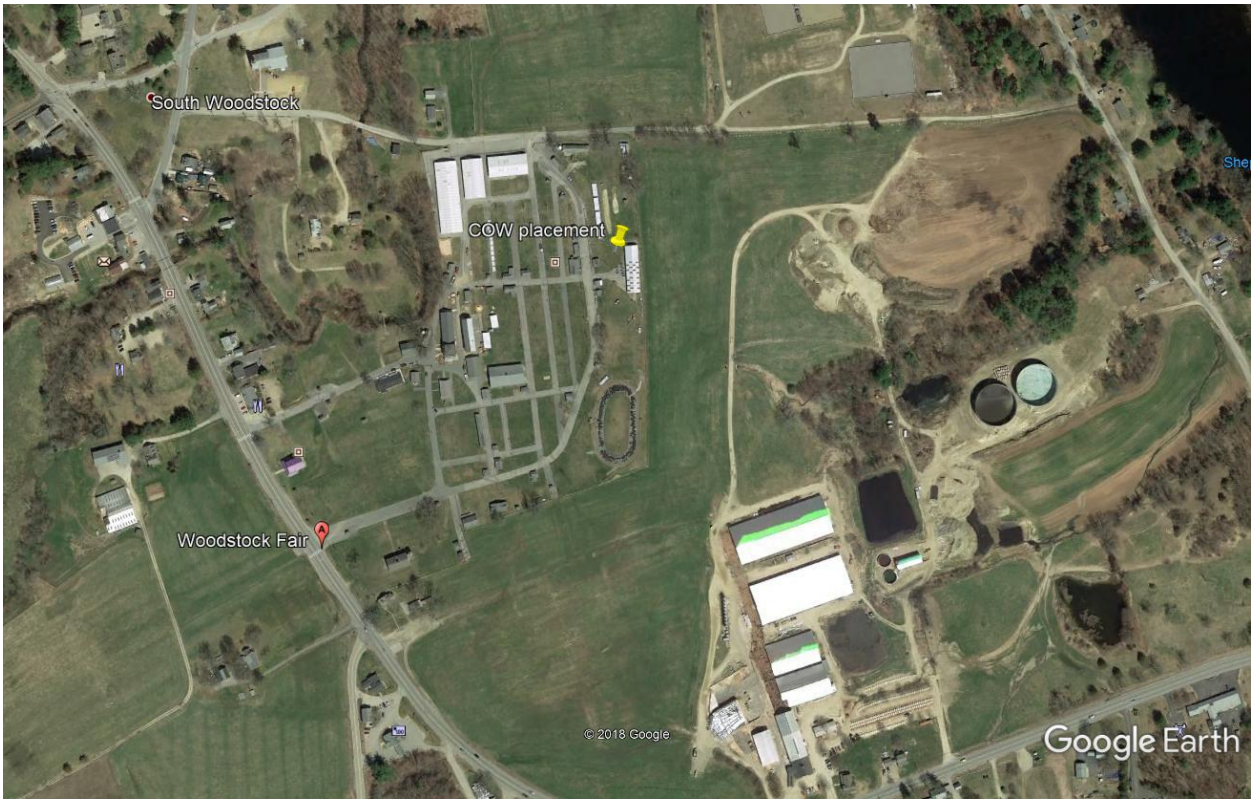


PHOTO OF COW

T-Mobile Northeast LLC, a subsidiary of T-Mobile USA, Inc.

New England Market

May 21, 2019

Re: This Letter Agreement ("**Agreement**") by and between the Woodstock Agricultural Society Inc. ("**Landlord**"), and T-Mobile Northeast LLC, as successor-in interest to Omnipoint Communications, Inc. ("**Tenant**") (collectively, the "**Parties**") regarding the Installation of Temporary Cell-On-Wheels ("**COW**"), which is non-transferable

Site Number: CTCOW01A

Site Address: 281 Route169 South, Woodstock, CT 06281 ("**Property**")

To Whom It May Concern,

This Letter Agreement between the Parties is to document that Landlord hereby grants Tenant the right to install a temporary COW on the Property for the period of August 23, 2019 to September 5, 2019 (the "**COW Term**"). The site will be 30' x 30'. Tenant shall coordinate the temporary installation of the COW and utilities (as necessary) on the Property (as further described on Exhibit A, attached hereto), at Tenants' sole cost and expense. Tenant will have 24-hour-a-day, 7-days-a-week access to the Property and the COW during the COW Term.

Tenant shall, at its sole cost and expense, repair and restore any damage to the Property and remove any improvements thereon caused by the installation, operation and/or removal of the COW (reasonable wear and tear excepted) by or within five (5) days of the expiration of the COW Term or earlier termination of this Letter Agreement. In return the Tenant agrees to pay Landlord a one-time fee of One Thousand Five Hundred and 00/100 Dollars ($1,500.00) within fifteen (15) days of full execution of this Letter Agreement.

Tenant will provide Landlord, within 30 days prior to installation, a Certificate of Liability Insurance naming the Woodstock Agricultural Society, Inc. as additional insured, in the minimum amount of One Million Dollars ($1,000,000.00) coverage single limit.

Tenant agrees to indemnify and hold harmless Landlord, including Landlord's employees, agents, directors, and officers from claims arising from the installation, use, maintenance, repair or removal of the COW, excepting claims arising from the negligence or intentional acts made by the Landlord, Landlord's employees, agents directors, or officers.

This Agreement contains the complete agreement between the Parties and cannot be varied except by the written agreement of the Parties. The Parties agree that there are no oral agreements, understandings, representations or warranties that are not expressly set forth herein. This Agreement may be executed in counterparts and signatures exchanged by facsimile, PDF or other electronic means are effective for all purposes to the same extent as original signatures.

Please signify your approval by signing and dating one (1) original of this Agreement in the space provided below. Kindly return the Agreement to Thomas White via email to twhite@clinellc.com.

Should you have any questions, please contact Thomas White at 203-417-4446. Thank you in advance for your cooperation in this matter.

Very truly yours,

Landlord Acknowledged, Accepted and Agreed:

Thomas White
Agent for T-Mobile

By: Pam O'Kelly / Susan B.L

NORTH

1 / LE-1

COLT LOCATION MAP

SCALE: 1" = 400'

NOTES:
1. ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY T-MOBILE NORTHEAST, LLC STRUCTURAL & RF ENGINEERS. LOCATIONS OF POWER & TELEPHONE FACILITIES ARE SUBJECT TO APPROVAL BY UTILITY COMPANIES.

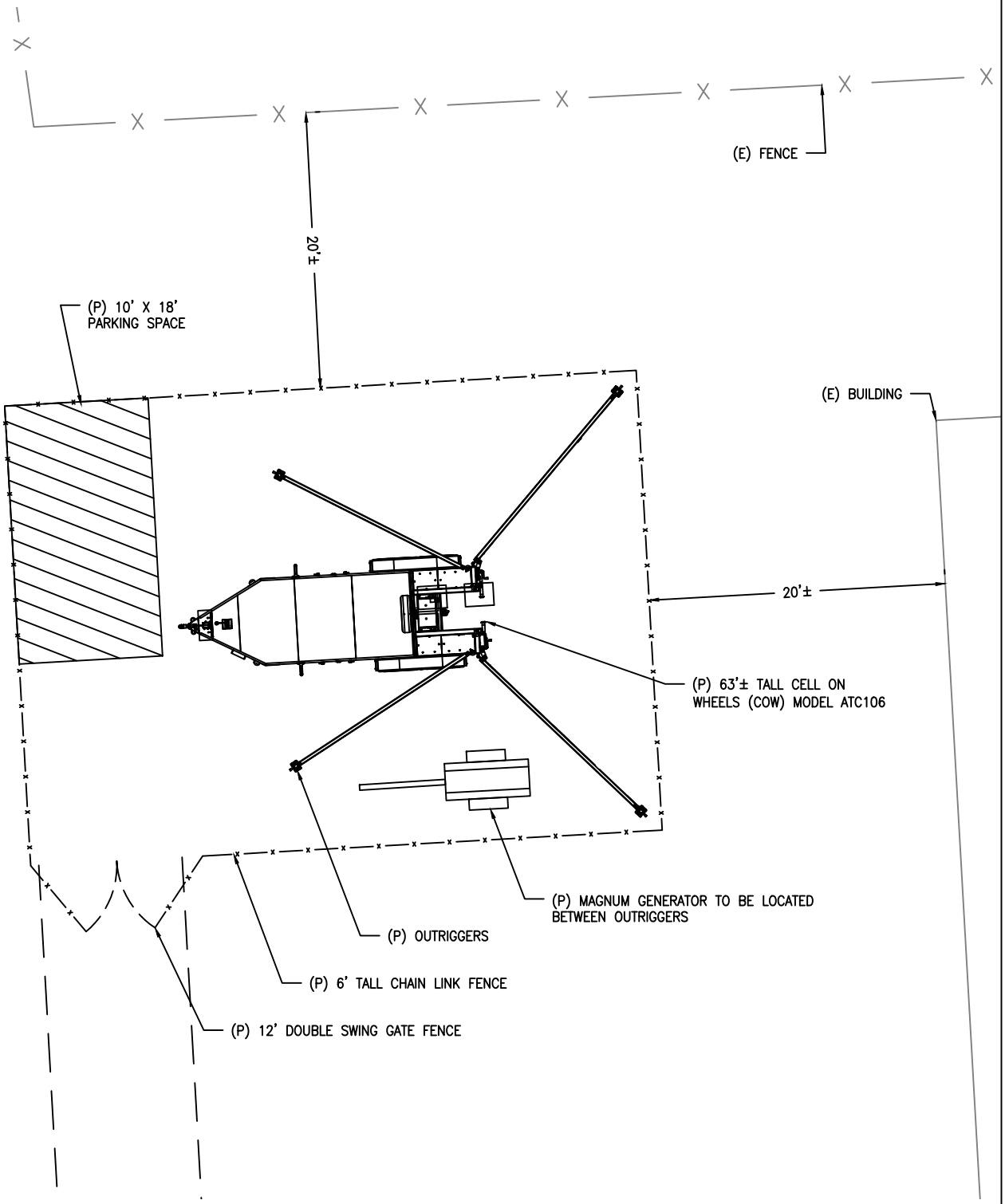
ADVANCED ENGINEERING GROUP, P.C.
Civil Engineering - Site Development - Surveying - Telecommunications
500 NORTH BROADWAY
EAST PROVIDENCE, RI 02914
TEL: (401) 354-2403
FAX: (401) 633-6354

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD CT 06002

TITLE: LEASE EXHIBIT
SITE NO: CTCOW01A
SITE NAME: WOODSTOCK FAIR COW
ADDRESS: 281 ROUTE 169
WOODSTOCK, CT 06281

DATE: 07/11/2019
DRAWN BY: JWH
REVISION: 2
SCALE: NOTED
SHEET: LE-1

NOTE:
ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY T-MOBILE NORTHEAST, LLC STRUCTURAL & RF ENGINEERS.



NORTH

1 / LE-2 COMPOUND PLAN VIEW

SCALE: 3/32"= 1'-0"

ADVANCED ENGINEERING GROUP, P.C.
Civil Engineering - Site Development - Surveying - Telecommunications
500 NORTH BROADWAY
EAST PROVIDENCE, RI 02914
TEL: (401) 354-2403
FAX: (401) 633-6354

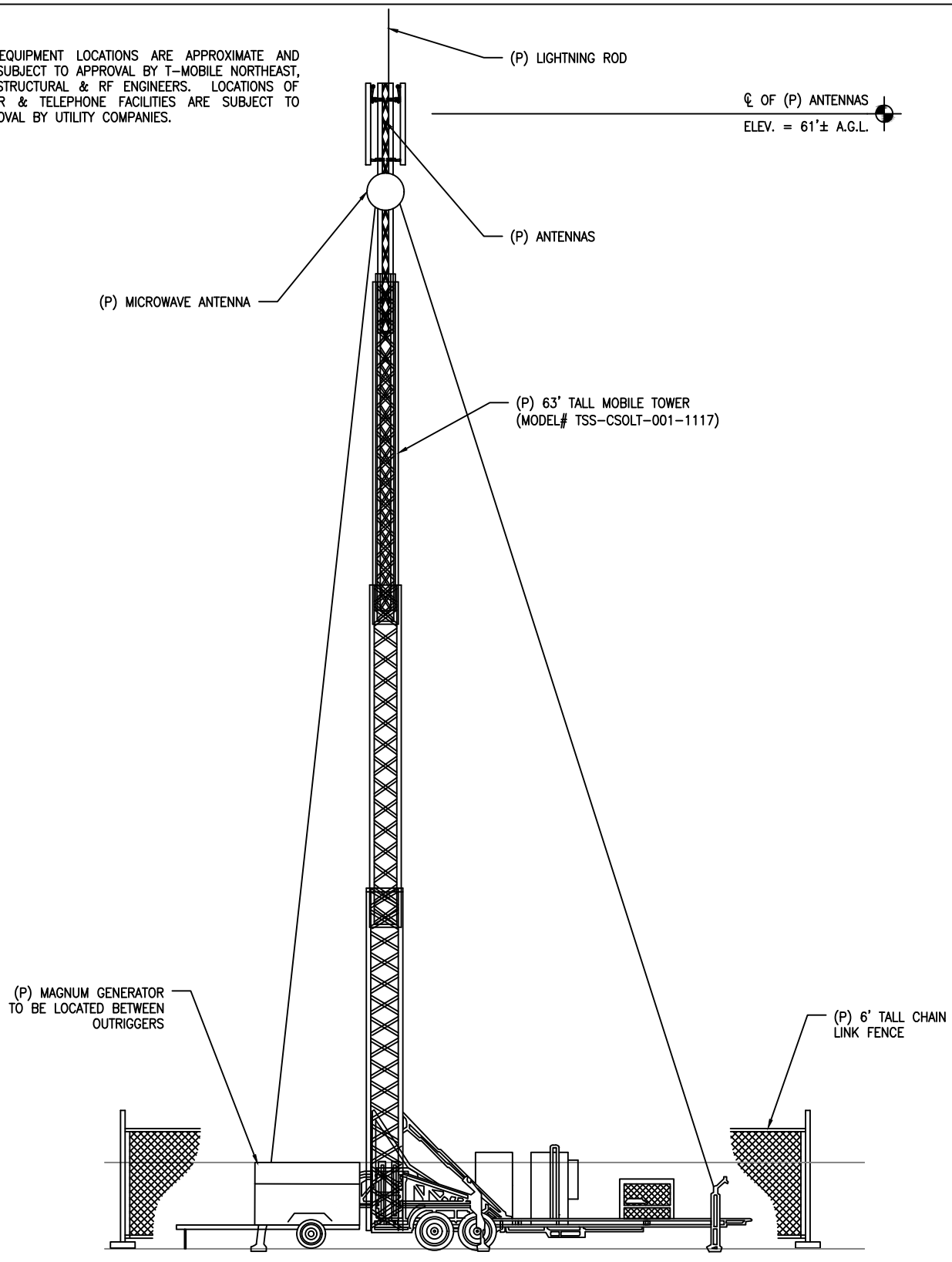
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD CT 06002

TITLE:	LEASE EXHIBIT
SITE NO:	CTCOW01A
SITE NAME:	WOODSTOCK FAIR COW
ADDRESS:	281 ROUTE 169 WOODSTOCK, CT 06281

DATE:	07/11/2019
DRAWN BY:	JWH
REVISION:	2
SCALE:	NOTED
SHEET:	LE-2

NOTE:

ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY T-MOBILE NORTHEAST, LLC STRUCTURAL & RF ENGINEERS. LOCATIONS OF POWER & TELEPHONE FACILITIES ARE SUBJECT TO APPROVAL BY UTILITY COMPANIES.



1 / LE-3 ELEVATION

SCALE: 1/8"=1'-0"

ADVANCED ENGINEERING GROUP, P.C.
Civil Engineering - Site Development - Surveying - Telecommunications
500 NORTH BROADWAY
EAST PROVIDENCE, RI 02914
TEL: (401) 354-2403
FAX: (401) 633-6354

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD CT 06002

TITLE: LEASE EXHIBIT
SITE NO: CTCOW01A
SITE NAME: WOODSTOCK FAIR COW
ADDRESS: 281 ROUTE 169
WOODSTOCK, CT 06281

DATE: 07/11/2019
DRAWN BY: JWH
REVISION: 2
SCALE: NOTED
SHEET: LE-3

281 RT 169

Location	281 RT 169	**Mblu**	5779/ 63/ 08A/ /
Acct#	W0435600	**Owner**	WOODSTOCK AGRICULTURAL SOCIETY
Assessment	$491,400	**Appraisal**	$701,900
PID	4503	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$499,200	$202,700	$701,900
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$349,500	$141,900	$491,400

Owner of Record

Owner	WOODSTOCK AGRICULTURAL SOCIETY	**Sale Price**	$0
Co-Owner		**Certificate**	1
Address	PO BOX 1 SO WOODSTOCK , CT 06267	**Book & Page**	62/ 343
		Sale Date	

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
WOODSTOCK AGRICULTURAL SOCIETY	$0	1	62/ 343	

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:
Replacement Cost Less Depreciation: $0

Building Attributes	
Field	**Description**

Style	Commercial
Model	
Grade:	
Stories:	
Living Units	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Whirlpool Tubs	
Bsmt. Garages	

Building Photo

(http://images.vgsi.com/photos/WoodstockCTPhotos//\00\00\29/

Building Layout


Building Layout

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:
Replacement Cost Less Depreciation: $0

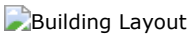
Building Attributes	
Field	**Description**
Style	Outbuildings
Model	
Grade:	
Stories:	
Living Units	
Exterior Wall 1	

Building Photo

(http://images.vgsi.com/photos/WoodstockCTPhotos//default.jpg

Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Whirlpool Tubs	
Bsmt. Garages	

Building Layout



Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 980
Description Non-Profit Lnd
Zone
Neighborhood 400
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 5.12
Frontage
Depth
Assessed Value $141,900
Appraised Value $202,700

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN1	Fence 4'			2500 L.F.	$16,600	1
FN3	Fence 6'			7400 L.F.	$67,700	1
PAV1	Paving Asph.			220000 S.F.	$319,000	1

LT1	Light 1			19 UNITS	$18,100	1
LT2	Light 2			19 UNITS	$52,200	1
LT3	Light 3			4 UNITS	$11,900	1
LT4	Light 4			2 UNITS	$6,400	1
SHD1	Shed	FR	Frame	20 S.F.	$100	1
SHD1	Shed	FR	Frame	470 S.F.	$2,900	1
SHD1	Shed	FR	Frame	80 S.F.	$800	1
PMPR	Pump Hse Res	FR	Frame	140 S.F.	$3,500	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$499,200	$202,700	$701,900
2015	$98,800	$202,700	$301,500
2014	$98,800	$202,700	$301,500

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$349,500	$141,900	$491,400
2015	$69,100	$141,900	$211,000
2014	$69,100	$141,900	$211,000

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CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

120-ft Portable Tower (extended at 61-ft)

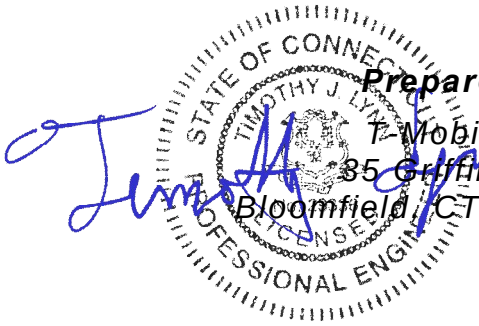
Proposed Temporary
Antenna Installation

Site Ref: CTCOW01A

281 Route 169 Woodstock, CT

Centek Project No. 18097.00

Date: June 20, 2018



Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 www.CentekEng.com

Table of Contents

Introduction

The purpose of this report is to summarize the results of the non-linear, P-Δ structural analysis of the temporary antenna/tower installation located in Woodstock, CT.

The host tower is a 120-ft tall, six section, telescoping lattice tower. Original design documents were unavailable for use in this report. The tower geometry was obtained from field verification conducted by Centek personnel on June 6, 2018.

Antenna and appurtenance information were obtained from an RF data sheet provided by T-Mobile.

The tower consists of six (6) telescoping vertical sections consisting of steel pipe legs and steel solid round diagonal and horizontal bracing. The width of the tower face is 0.8125-ft at the top and 2.5-ft at the base.

Antenna and Appurtenance Summary

- **T-MOBILE (Proposed):**
  Antennas: Three (3) RFS APX16DWV-16DWVS panel antennas leg mounted with a RAD center elevation of 60-ft above grade level.
  Coax Cables: Twelve (12) 1/2" ∅ coax cables running on a leg/face of the tower as specified in Section 3 of this report.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.

Analysis

The existing tower was analyzed using a comprehensive computer program entitled tnxTower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower, and the model assumes that the tower members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for the controlling basic wind speed (3-second gust) with no ice and the applicable wind and ice combination to determine stresses in members as per guidelines of TIA-222-G-2005 entitled "Structural Standard for Antenna Support Structures and Antennas", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Load and Resistance Factor Design (LRFD).

The controlling wind speed is determined by evaluating the local available wind speed data as provided in Appendix N of the CSBC[1] and the wind speed data available in the TIA-222-G-2005 Standard.

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA-222-G-2005, gravity loads of the tower structure and its components, and the application of 0.75" radial ice on the tower structure and its components.

Basic Wind Speed:	Woodstock; v = 101 mph (3 second gust)	*[Appendix N of the 2016 CT Building Code]*
Load Cases:	Load Case 1; 101 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation.	*[Appendix N of the 2016 CT Building Code]*
	Load Case 2; 50 mph wind speed w/ 0.75" radial ice plus gravity load – used in calculation of tower stresses.	*[Annex B of TIA-222-G-2005]*

[1] The 2012 International Building Code as amended by the 2016 Connecticut State Building Code (CSBC).

Tower Capacity

- Calculated stresses **were found** to be within allowable limits. This tower was found to be at **87.6%** of its total capacity.

Tower Section	Elevation	Stress Ratio (percentage of capacity)	Result
Leg (T2)	23'-0"-43'-0"	63.6%	**PASS**
Diagonal (T3)	2'-0"-23'-0"	68.6%	**PASS**
Guy C (T1)	61'	87.6%	**PASS**

- **Guy wires shall be 5/16" diameter EHS at 25' radius from the tower. Provide 8,000lbs of ballast block at each guy point.**

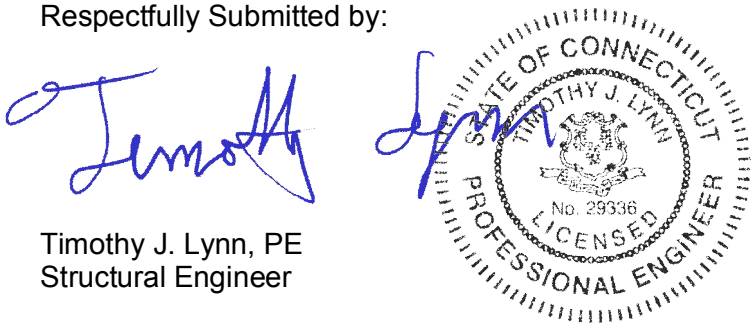
Conclusion

This analysis shows that the subject tower **is adequate** to support the proposed antenna configuration.

The analysis is based, in part, on the information provided to this office by T-Mobile. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

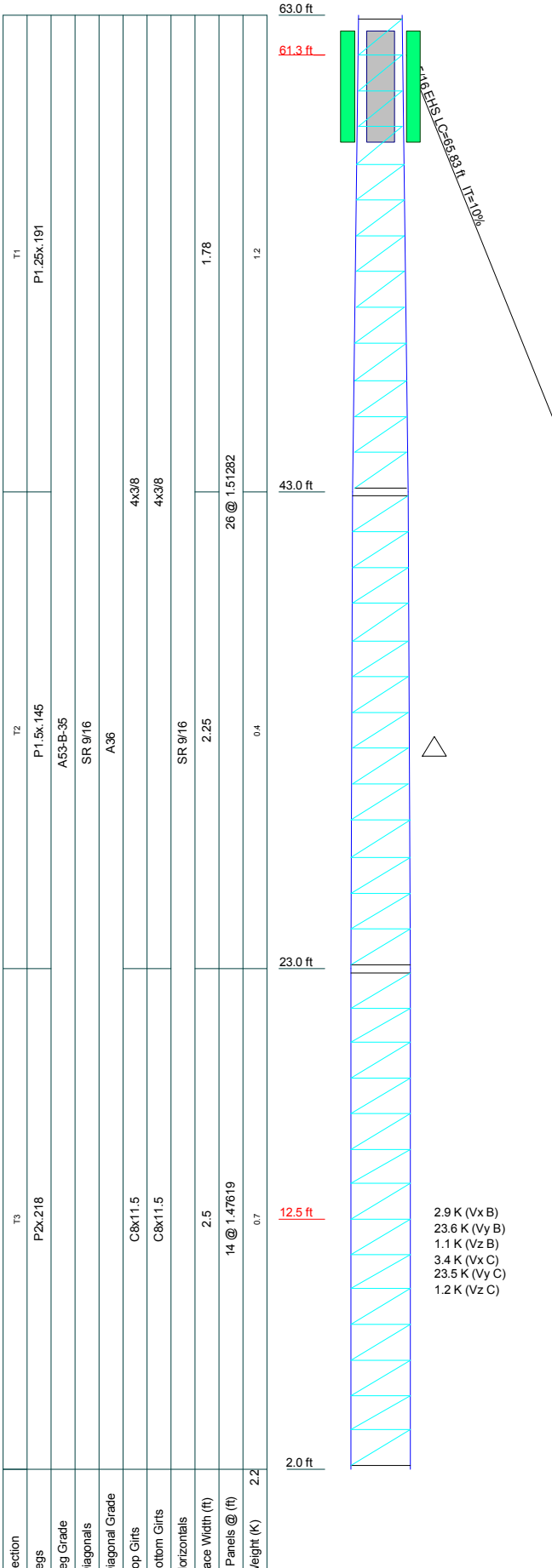
- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of CENTEK engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provide to CENTEK engineering, Inc. 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 are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the "as new" condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. 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. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. CENTEK engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

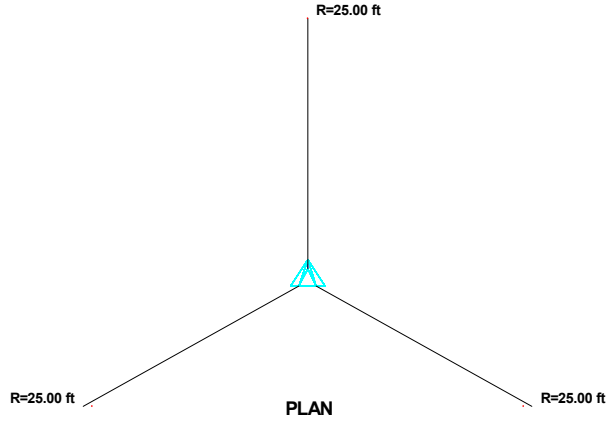
General Description of Structural Analysis Program

tnxTower, is an integrated structural analysis and design software package for Designed specifically for the telecommunications industry, tnxTower, formerly ERITower, automates much of the tower analysis and design required by the TIA/EIA 222 Standard.

tnxTower Features:

- tnxTower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-G (2005) standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD 9th Edition or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- tnxTower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
APX16DWV-16DWVS-E-A20 (T-Mobile - Proposed)	60	APX16DWV-16DWVS-E-A20 (T-Mobile - Proposed)	60
APX16DWV-16DWVS-E-A20 (T-Mobile - Proposed)	60		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	63 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-G Standard.
2. Tower designed for a 101 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 87.6%

Centek Engineering Inc.
63-2 North Branford Rd.
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job: ***18097.00 - CTCOW01A***			
Project: ***281 Route 169 Wooodstock, CT***			
Client: T-Mobile	Drawn by: TJL	App'd:	
Code: TIA-222-G	Date: 06/20/18	Scale: NTS	
Path: J:\Jobs\1809700.WI\04_Structural\Backup Documentation\tnxTower\Woodstock Fairgrounds Cow.eri		Dwg No. E-1	

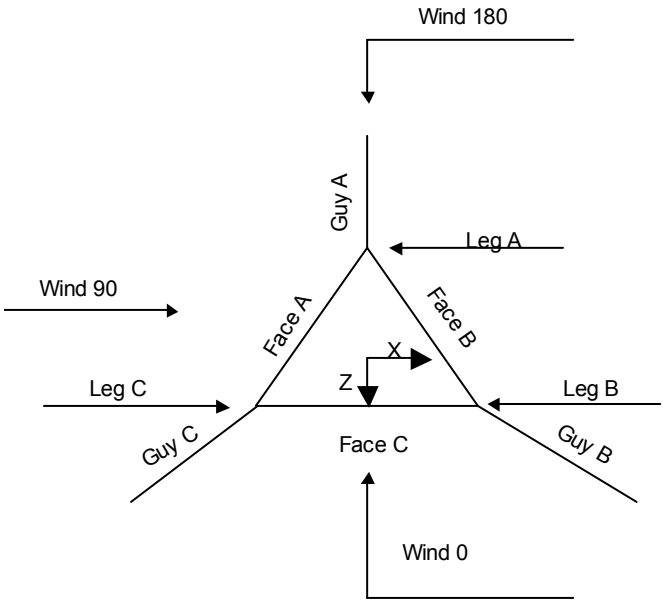
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 63.00 ft above the ground line.
The base of the tower is set at an elevation of 2.00 ft above the ground line.
The face width of the tower is 1.78 ft at the top and 2.50 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Basic wind speed of 101 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Pressures are calculated at each section.
Safety factor used in guy design is 1.
Stress ratio used in tower member design is 1.
Special horizontal and vertical support at 10.50 on leg B,C.
The support at the base was eliminated.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	√ All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	Use Azimuth Dish Coefficients	Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-G Bracing Resist. Exemption
√ Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Use TIA-222-G Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	√ Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric		



Corner & Starmount Guyed Tower

Tower Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
T1	63.00-43.00			1.78	1	20.00
T2	43.00-23.00			2.25	1	20.00
T3	23.00-2.00			2.50	1	21.00

Tower Section Geometry *(cont'd)*

Tower Section	*Tower Elevation*	*Diagonal Spacing*	*Bracing Type*	*Has K Brace End Panels*	*Has Horizontals*	*Top Girt Offset*	*Bottom Girt Offset*
	ft	*ft*				*in*	*in*
T1	63.00-43.00	1.51	Z Brace	No	Yes	2.0000	2.0000
T2	43.00-23.00	1.51	Z Brace	No	Yes	2.0000	2.0000
T3	23.00-2.00	1.48	Z Brace	No	Yes	2.0000	2.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 63.00-43.00	Pipe	P1.25x.191	A53-B-35 (35 ksi)	Solid Round	9/16	A36 (36 ksi)
T2 43.00-23.00	Pipe	P1.5x.145	A53-B-35 (35 ksi)	Solid Round	9/16	A36 (36 ksi)
T3 23.00-2.00	Pipe	P2x.218	A53-B-35 (35 ksi)	Solid Round	9/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 63.00-43.00	Flat Bar	4x3/8	A36 (36 ksi)	Flat Bar	4x3/8	A36 (36 ksi)
T2 43.00-23.00	Flat Bar	4x3/8	A36 (36 ksi)	Flat Bar	4x3/8	A36 (36 ksi)
T3 23.00-2.00	Channel	C8x11.5	A36 (36 ksi)	Channel	C8x11.5	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 63.00-43.00	None	Flat Bar		A36 (36 ksi)	Solid Round	9/16	A36 (36 ksi)
T2 43.00-23.00	None	Flat Bar		A36 (36 ksi)	Solid Round	9/16	A36 (36 ksi)
T3 23.00-2.00	None	Flat Bar		A36 (36 ksi)	Solid Round	9/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 63.00-43.00	0.00	0.0000	A36 (36 ksi)	1	1	3	36.0000	36.0000	36.0000
T2 43.00-23.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 23.00-2.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
			(36 ksi)						

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	Yes	1	1	1	1	1	1	1	1
63.00-43.00				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
43.00-23.00				1	1	1	1	1	1	1
T3 23.00-2.00	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	U	Diagonal Net Width Deduct in	U	Top Girt Net Width Deduct in	U	Bottom Girt Net Width Deduct in	U	Mid Girt Net Width Deduct in	U	Long Horizontal Net Width Deduct in	U	Short Horizontal Net Width Deduct in	U
T1 63.00-43.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 43.00-23.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 23.00-2.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
61.3205	EHS	A	5/16	1.12	10%	21000	0.205	65.77	25.00	0.0000	0.00	100%
		B	5/16	1.12	10%	21000	0.205	65.77	25.00	0.0000	0.00	100%
		C	5/16	1.12	10%	21000	0.205	65.77	25.00	0.0000	0.00	100%

Guy Data*(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
61.3205	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
61.32	A572-50 (50 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
61.3205	0.01	0.01	0.01		0.39 1.1 sec/pulse	0.39 1.1 sec/pulse	0.39 1.1 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
61.3205	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
61.3205	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
61.3205	A	30.66	22	5	1.4890
	B	30.66	22	5	1.4890
	C	30.66	22	5	1.4890

Guy-Tensioning Information

				Temperature At Time Of Tensioning													
				0 F		20 F		40 F		60 F		80 F		100 F		120 F	
Guy Elevation ft		H ft	V ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft
61.3205	A	23.95	61.32	1.184	0.37	1.163	0.38	1.141	0.39	1.120	0.39	1.099	0.40	1.077	0.41	1.056	0.42
	B	23.95	61.32	1.184	0.37	1.163	0.38	1.141	0.39	1.120	0.39	1.099	0.40	1.077	0.41	1.056	0.42
	C	23.95	61.32	1.184	0.37	1.163	0.38	1.141	0.39	1.120	0.39	1.099	0.40	1.077	0.41	1.056	0.42

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1/2	A	Yes	Ar (CaAa)	57.00 - 10.00	12	6	0.5800	0.5800		0.25

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	63.00-43.00	A	0.000	0.000	9.744	0.000	0.04
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T2	43.00-23.00	A	0.000	0.000	13.920	0.000	0.06
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T3	23.00-2.00	A	0.000	0.000	9.048	0.000	0.04
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	63.00-43.00	A	1.573	0.000	0.000	18.734	0.000	0.26
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T2	43.00-23.00	A	1.500	0.000	0.000	26.274	0.000	0.36
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T3	23.00-2.00	A	1.361	0.000	0.000	16.473	0.000	0.22

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	63.00-43.00	A	0.269	5.149	0.135	0.370
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T2	43.00-23.00	A	0.373	6.754	0.193	0.521
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T3	23.00-2.00	A	0.246	3.974	0.239	0.626
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	63.00-43.00	-0.9862	-0.5694	-0.2042	-0.1179
T2	43.00-23.00	-1.2080	-0.6974	-0.2981	-0.1721
T3	23.00-2.00	-0.8909	-0.5144	-0.2344	-0.1353

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	1/2	43.00 - 57.00	1.0000	1.0000
T2	1	1/2	23.00 - 43.00	1.0000	1.0000
T3	1	1/2	10.00 - 23.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APX16DWV-16DWVS-E-A	A	From Leg	0.50	0.0000	60.00	No Ice	6.46	2.15	0.04
20			0.00			1/2" Ice	6.83	2.49	0.07
(T-Mobile - Proposed)			0.00			1" Ice	7.21	2.84	0.11
APX16DWV-16DWVS-E-A	B	From Leg	0.50	0.0000	60.00	No Ice	6.46	2.15	0.04
20			0.00			1/2" Ice	6.83	2.49	0.07
(T-Mobile - Proposed)			0.00			1" Ice	7.21	2.84	0.11
APX16DWV-16DWVS-E-A	C	From Leg	0.50	0.0000	60.00	No Ice	6.46	2.15	0.04
20			0.00			1/2" Ice	6.83	2.49	0.07
(T-Mobile - Proposed)			0.00			1" Ice	7.21	2.84	0.11

Tower Pressures - No Ice

G_H = 0.850

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
T1 63.00-43.00	53.00	1.107	31	43.067	A	1.116	7.751	5.534	62.41	9.744	0.000
					B	1.251	8.020		59.69	0.000	0.000
					C	1.251	8.020		59.69	0.000	0.000
T2 43.00-23.00	33.00	1.002	22	50.667	A	1.284	8.809	6.333	62.75	13.920	0.000
					B	1.478	9.182		59.41	0.000	0.000
					C	1.478	9.182		59.41	0.000	0.000
T3 23.00-2.00	12.50	0.85	19	56.656	A	2.830	11.224	8.313	59.15	9.048	0.000
					B	3.069	11.470		57.17	0.000	0.000
					C	3.069	11.470		57.17	0.000	0.000

Tower Pressure - With Ice

G_H = 0.850

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
T1 63.00-43.00	53.00	1.107	8	1.5728	48.310	A	0.881	28.245	16.020	55.00	18.734	0.000
						B	1.251	33.393		46.24	0.000	0.000
						C	1.251	33.393		46.24	0.000	0.000
T2 43.00-23.00	33.00	1.002	5	1.5000	55.667	A	0.957	28.729	16.334	55.02	26.274	0.000
						B	1.478	35.483		44.19	0.000	0.000
						C	1.478	35.483		44.19	0.000	0.000
T3 23.00-2.00	12.50	0.85	5	1.3612	61.421	A	2.443	33.350	17.841	49.84	16.473	0.000
						B	3.069	37.324		44.17	0.000	0.000
						C	3.069	37.324		44.17	0.000	0.000

Tower Pressure - Service

G_H = 0.850

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 63.00-43.00	53.00	1.107	11	43.067	A	1.116	7.751	5.534	62.41	9.744	0.000
					B	1.251	8.020		59.69	0.000	0.000
					C	1.251	8.020		59.69	0.000	0.000
T2 43.00-23.00	33.00	1.002	8	50.667	A	1.284	8.809	6.333	62.75	13.920	0.000
					B	1.478	9.182		59.41	0.000	0.000
					C	1.478	9.182		59.41	0.000	0.000
T3 23.00-2.00	12.50	0.85	7	56.656	A	2.830	11.224	8.313	59.15	9.048	0.000
					B	3.069	11.470		57.17	0.000	0.000
					C	3.069	11.470		57.17	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.04	1.16	A	0.206	2.576	31	1	1	5.732	0.65	32.27	C
63.00-43.00			B	0.215	2.546		1	1	5.881			
			C	0.215	2.546		1	1	5.881			
T2	0.06	0.40	A	0.199	2.599	22	1	1	6.558	0.59	29.56	C
43.00-23.00			B	0.21	2.562		1	1	6.770			
			C	0.21	2.562		1	1	6.770			
T3 23.00-2.00	0.04	0.67	A	0.248	2.443	19	1	1	9.534	0.53	25.00	C
			B	0.257	2.418		1	1	9.798			
			C	0.257	2.418		1	1	9.798			
Sum Weight:	0.14	2.23								1.76		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.04	1.16	A	0.206	2.576	31	0.8	1	5.508	0.63	31.44	C
63.00-43.00			B	0.215	2.546		0.8	1	5.631			
			C	0.215	2.546		0.8	1	5.631			
T2	0.06	0.40	A	0.199	2.599	22	0.8	1	6.301	0.58	28.84	C
43.00-23.00			B	0.21	2.562		0.8	1	6.475			
			C	0.21	2.562		0.8	1	6.475			
T3 23.00-2.00	0.04	0.67	A	0.248	2.443	19	0.8	1	8.968	0.50	23.87	C
			B	0.257	2.418		0.8	1	9.184			
			C	0.257	2.418		0.8	1	9.184			
Sum Weight:	0.14	2.23								1.71		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.04	1.16	A	0.206	2.576	31	0.85	1	5.564	0.63	31.65	C
63.00-43.00			B	0.215	2.546		0.85	1	5.694			
			C	0.215	2.546		0.85	1	5.694			
T2	0.06	0.40	A	0.199	2.599	22	0.85	1	6.365	0.58	29.02	C
43.00-23.00			B	0.21	2.562		0.85	1	6.548			
			C	0.21	2.562		0.85	1	6.548			
T3 23.00-2.00	0.04	0.67	A	0.248	2.443	19	0.85	1	9.110	0.51	24.15	C
			B	0.257	2.418		0.85	1	9.338			
			C	0.257	2.418		0.85	1	9.338			
Sum Weight:	0.14	2.23								1.72		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.26	2.36	A	0.603	1.802	8	1	1	25.778	0.45	22.35	C
63.00-43.00			B	0.717	1.778		1	1	28.746			
			C	0.717	1.778		1	1	28.746			
T2	0.36	1.66	A	0.533	1.861	5	1	1	25.919	0.36	18.19	C
43.00-23.00			B	0.664	1.778		1	1	29.365			
			C	0.664	1.778		1	1	29.365			
T3 23.00-2.00	0.22	2.01	A	0.583	1.816	5	1	1	29.801	0.29	13.82	C
			B	0.658	1.78		1	1	32.243			
			C	0.658	1.78		1	1	32.243			
Sum Weight:	0.84	6.03								1.10		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.26	2.36	A	0.603	1.802	8	0.8	1	25.602	0.44	22.21	C
63.00-43.00			B	0.717	1.778		0.8	1	28.496			
			C	0.717	1.778		0.8	1	28.496			
T2	0.36	1.66	A	0.533	1.861	5	0.8	1	25.728	0.36	18.06	C
43.00-23.00			B	0.664	1.778		0.8	1	29.069			
			C	0.664	1.778		0.8	1	29.069			
T3 23.00-2.00	0.22	2.01	A	0.583	1.816	5	0.8	1	29.312	0.29	13.62	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
			B	0.658	1.78		0.8	1	31.629			
			C	0.658	1.78		0.8	1	31.629			
Sum Weight:	0.84	6.03								1.09		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.26	2.36	A	0.603	1.802	8	0.85	1	25.646	0.44	22.24	C
63.00-43.00			B	0.717	1.778		0.85	1	28.558			
			C	0.717	1.778		0.85	1	28.558			
T2	0.36	1.66	A	0.533	1.861	5	0.85	1	25.776	0.36	18.10	C
43.00-23.00			B	0.664	1.778		0.85	1	29.143			
			C	0.664	1.778		0.85	1	29.143			
T3 23.00-2.00	0.22	2.01	A	0.583	1.816	5	0.85	1	29.434	0.29	13.67	C
			B	0.658	1.78		0.85	1	31.782			
			C	0.658	1.78		0.85	1	31.782			
Sum Weight:	0.84	6.03								1.09		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.04	1.16	A	0.206	2.576	11	1	1	5.732	0.23	11.39	C
63.00-43.00			B	0.215	2.546		1	1	5.881			
			C	0.215	2.546		1	1	5.881			
T2	0.06	0.40	A	0.199	2.599	8	1	1	6.558	0.21	10.43	C
43.00-23.00			B	0.21	2.562		1	1	6.770			
			C	0.21	2.562		1	1	6.770			
T3 23.00-2.00	0.04	0.67	A	0.248	2.443	7	1	1	9.534	0.19	8.82	C
			B	0.257	2.418		1	1	9.798			
			C	0.257	2.418		1	1	9.798			
Sum Weight:	0.14	2.23								0.62		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.04	1.16	A	0.206	2.576	11	0.8	1	5.508	0.22	11.10	C
63.00-43.00			B	0.215	2.546		0.8	1	5.631			
			C	0.215	2.546		0.8	1	5.631			
T2	0.06	0.40	A	0.199	2.599	8	0.8	1	6.301	0.20	10.18	C
43.00-23.00			B	0.21	2.562		0.8	1	6.475			
			C	0.21	2.562		0.8	1	6.475			
T3 23.00-2.00	0.04	0.67	A	0.248	2.443	7	0.8	1	8.968	0.18	8.42	C
			B	0.257	2.418		0.8	1	9.184			
			C	0.257	2.418		0.8	1	9.184			
Sum Weight:	0.14	2.23								0.60		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.04	1.16	A	0.206	2.576	11	0.85	1	5.564	0.22	11.17	C
63.00-43.00			B	0.215	2.546		0.85	1	5.694			
			C	0.215	2.546		0.85	1	5.694			
T2	0.06	0.40	A	0.199	2.599	8	0.85	1	6.365	0.20	10.24	C
43.00-23.00			B	0.21	2.562		0.85	1	6.548			
			C	0.21	2.562		0.85	1	6.548			
T3 23.00-2.00	0.04	0.67	A	0.248	2.443	7	0.85	1	9.110	0.18	8.52	C
			B	0.257	2.418		0.85	1	9.338			
			C	0.257	2.418		0.85	1	9.338			
Sum Weight:	0.14	2.23								0.61		

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Leg Weight	1.02			
Bracing Weight	1.21			
Total Member Self-Weight	2.23			
Guy Weight	0.04			
Total Weight	2.54			
Wind 0 deg - No Ice		0.00	-2.11	-0.15
Wind 30 deg - No Ice		1.03	-1.78	-0.17
Wind 60 deg - No Ice		1.78	-1.03	-0.15
Wind 90 deg - No Ice		2.07	0.00	-0.09
Wind 120 deg - No Ice		1.81	1.05	0.00
Wind 150 deg - No Ice		1.03	1.79	0.09
Wind 180 deg - No Ice		0.00	2.04	0.15
Wind 210 deg - No Ice		-1.03	1.78	0.17
Wind 240 deg - No Ice		-1.83	1.05	0.15
Wind 270 deg - No Ice		-2.07	0.00	0.09

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Wind 300 deg - No Ice		-1.78	-1.03	0.00
Wind 330 deg - No Ice		-1.03	-1.79	-0.09
Member Ice	3.79			
Guy Ice	0.65			
Total Weight Ice	8.05			
Wind 0 deg - Ice		0.00	-1.21	-0.02
Wind 30 deg - Ice		0.57	-0.99	-0.02
Wind 60 deg - Ice		1.04	-0.60	-0.02
Wind 90 deg - Ice		1.20	0.00	-0.01
Wind 120 deg - Ice		0.99	0.57	0.00
Wind 150 deg - Ice		0.60	1.04	0.01
Wind 180 deg - Ice		0.00	1.14	0.02
Wind 210 deg - Ice		-0.57	0.99	0.02
Wind 240 deg - Ice		-1.05	0.60	0.02
Wind 270 deg - Ice		-1.20	0.00	0.01
Wind 300 deg - Ice		-1.04	-0.60	0.00
Wind 330 deg - Ice		-0.60	-1.04	-0.01
Total Weight	2.54			
Wind 0 deg - Service		0.00	-0.74	-0.05
Wind 30 deg - Service		0.36	-0.63	-0.06
Wind 60 deg - Service		0.63	-0.36	-0.05
Wind 90 deg - Service		0.73	0.00	-0.03
Wind 120 deg - Service		0.64	0.37	0.00
Wind 150 deg - Service		0.36	0.63	0.03
Wind 180 deg - Service		0.00	0.72	0.05
Wind 210 deg - Service		-0.36	0.63	0.06
Wind 240 deg - Service		-0.64	0.37	0.05
Wind 270 deg - Service		-0.73	0.00	0.03
Wind 300 deg - Service		-0.63	-0.36	0.00
Wind 330 deg - Service		-0.36	-0.63	-0.03

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy

Comb. No.	Description
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	63 - 43	Leg	Max Tension	2	7.07	-0.02	0.00
			Max. Compression	2	-9.90	0.01	-0.00
			Max. Mx	6	-3.22	-0.04	0.01
			Max. My	10	-5.36	0.02	0.06
			Max. Vy	6	-0.27	0.00	-0.00
			Max. Vx	10	0.26	-0.00	0.02
		Diagonal	Max Tension	2	1.22	0.00	0.00
			Max. Compression	2	-1.27	0.00	0.00
			Max. Mx	15	-0.13	0.01	0.00
			Max. My	2	-0.05	0.00	-0.00
			Max. Vy	15	0.01	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
		Horizontal	Max Tension	2	1.25	0.00	0.00
			Max. Compression	2	-0.82	0.00	0.00
			Max. Mx	19	0.00	0.00	0.00
			Max. My	2	0.77	0.00	0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Top Girt	Max Tension	6	0.01	0.00	0.00
			Max. Compression	10	-0.01	0.00	0.00
			Max. Mx	19	0.00	0.01	0.00
			Max. My	15	-0.00	0.00	-0.00
			Max. Vy	19	-0.03	0.00	0.00
			Max. Vx	15	0.00	0.00	0.00
		Bottom Girt	Max Tension	5	0.31	0.00	0.00
			Max. Compression	6	-0.27	0.00	0.00
			Max. Mx	18	0.14	0.02	0.00
			Max. My	15	-0.06	0.00	-0.00
			Max. Vy	18	-0.03	0.00	0.00
			Max. Vx	15	0.00	0.00	0.00
		Guy A	Bottom Tension	8	4.98		
			Top Tension	8	4.99		
			Top Cable Vert	8	4.64		
			Top Cable Norm	8	1.82		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Top Cable Tan	8	0.00		
			Bot Cable Vert	8	-4.61		
			Bot Cable Norm	8	1.87		
			Bot Cable Tan	8	0.00		
		Guy B	Bottom Tension	2	5.84		
			Top Tension	2	5.85		
			Top Cable Vert	2	5.43		
			Top Cable Norm	2	2.17		
			Top Cable Tan	2	0.09		
			Bot Cable Vert	2	-5.41		
			Bot Cable Norm	2	2.20		
			Bot Cable Tan	2	0.14		
		Guy C	Bottom Tension	2	5.88		
			Top Tension	2	5.89		
			Top Cable Vert	2	5.47		
			Top Cable Norm	2	2.19		
			Top Cable Tan	2	0.09		
			Bot Cable Vert	2	-5.44		
			Bot Cable Norm	2	2.21		
			Bot Cable Tan	2	0.14		
T2	43 - 23	Leg	Max Tension	6	9.90	0.02	0.04
			Max. Compression	11	-15.18	0.06	0.02
			Max. Mx	5	8.85	-0.07	-0.01
			Max. My	4	1.84	-0.01	-0.06
			Max. Vy	5	0.63	-0.07	-0.01
			Max. Vx	11	0.46	-0.04	-0.02
		Diagonal	Max Tension	5	1.31	0.00	0.00
			Max. Compression	11	-1.33	0.00	0.00
			Max. Mx	15	0.14	0.00	0.00
			Max. My	15	-0.01	0.00	-0.00
			Max. Vy	15	-0.01	0.00	0.00
			Max. Vx	15	0.00	0.00	0.00
		Horizontal	Max Tension	11	1.01	0.00	0.00
			Max. Compression	5	-1.01	0.00	0.00
			Max. Mx	15	0.01	0.00	0.00
			Max. My	26	0.04	0.00	0.00
			Max. Vy	15	-0.01	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Top Girt	Max Tension	11	0.31	0.00	0.00
			Max. Compression	6	-0.35	0.00	0.00
			Max. Mx	18	0.09	0.01	0.00
			Max. My	15	-0.04	0.00	-0.00
			Max. Vy	18	-0.02	0.00	0.00
			Max. Vx	15	0.00	0.00	0.00
		Bottom Girt	Max Tension	6	0.54	0.00	0.00
			Max. Compression	5	-0.46	0.00	0.00
			Max. Mx	15	-0.02	0.01	0.00
			Max. My	26	0.06	0.00	-0.00
			Max. Vy	15	0.02	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
T3	23 - 2	Leg	Max Tension	11	16.21	0.10	-0.04
			Max. Compression	6	-23.71	-0.12	-0.08
			Max. Mx	18	0.60	-0.21	-0.05
			Max. My	9	-17.01	0.11	-0.14
			Max. Vy	11	-0.74	0.18	-0.02
			Max. Vx	9	0.44	0.06	-0.12
		Diagonal	Max Tension	5	1.54	0.00	0.00
			Max. Compression	11	-1.51	0.00	0.00
			Max. Mx	15	0.23	0.00	0.00
			Max. My	15	0.00	0.00	-0.00
			Max. Vy	15	-0.01	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	15	0.00	0.00	0.00
		Horizontal	Max Tension	14	2.34	0.00	0.00
			Max. Compression	5	-1.33	0.00	0.00
			Max. Mx	19	0.43	0.00	0.00
			Max. Vy	19	-0.01	0.00	0.00
		Top Girt	Max Tension	11	0.78	0.00	0.00
			Max. Compression	6	-0.88	0.00	0.00
			Max. Mx	15	0.09	0.02	0.00
			Max. My	9	-0.68	0.00	0.00
			Max. Vy	15	-0.04	0.00	0.00
			Max. Vx	9	-0.00	0.00	0.00
		Bottom Girt	Max Tension	8	0.02	0.00	0.00
			Max. Compression	2	-0.02	0.00	0.00
			Max. Mx	15	0.00	0.02	0.00
			Max. My	2	-0.02	0.00	0.00
			Max. Vy	15	-0.04	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg B Elev 12.5 ft	Max. Vert	6	23.65	-0.72	-1.01
	Max. H_x	25	0.34	2.95	0.31
	Max. H_z	12	-10.33	0.64	1.12
	Min. Vert	11	-15.76	0.57	0.74
	Min. H_x	6	23.65	-0.72	-1.01
	Min. H_z	6	23.65	-0.72	-1.01
Leg C Elev 12.5 ft	Max. Vert	10	23.54	2.02	-1.10
	Max. H_x	10	23.54	2.02	-1.10
	Max. H_z	4	-10.04	-1.73	1.21
	Min. Vert	5	-15.70	-1.94	0.75
	Min. H_x	18	-0.27	-3.42	0.20
	Min. H_z	9	16.87	1.42	-1.10
Guy C @ 25 ft Elev 0 ft Azimuth 240 deg Elev 0.0 ft	Max. Vert	10	-0.22	-0.05	0.03
	Max. H_x	10	-0.22	-0.05	0.03
	Max. H_z	2	-5.44	-1.85	1.23
	Min. Vert	2	-5.44	-1.85	1.23
	Min. H_x	3	-5.37	-1.85	1.18
	Min. H_z	9	-0.24	-0.07	0.02
Guy B @ 25 ft Elev 0 ft Azimuth 120 deg Elev 0.0 ft	Max. Vert	6	-0.22	0.05	0.03
	Max. H_x	13	-5.35	1.84	1.18
	Max. H_z	2	-5.41	1.83	1.22
	Min. Vert	2	-5.41	1.83	1.22
	Min. H_x	6	-0.22	0.05	0.03
	Min. H_z	7	-0.24	0.07	0.02
Guy A @ 25 ft Elev 0 ft Azimuth 0 deg Elev 0.0 ft	Max. Vert	15	-0.00	0.00	0.00

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. H_x	24	-0.97	0.05	-0.42
	Max. H_z	15	-0.00	0.00	0.00
	Min. Vert	8	-4.61	0.00	-1.87
	Min. H_x	18	-0.97	-0.05	-0.42
	Min. H_z	8	-4.61	0.00	-1.87

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.0 Ice+1.0 Temp+Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	0.00	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.0 Wind 270	0.00	0.00	0.00	0.00	0.00	0.00

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
deg+1.0 Ice+1.0 Temp+1.0 Guy 1.2 Dead+1.0 Wind 300	0.00	0.00	0.00	0.00	0.00	0.00
deg+1.0 Ice+1.0 Temp+1.0 Guy 1.2 Dead+1.0 Wind 330	0.00	0.00	0.00	0.00	0.00	0.00
deg+1.0 Ice+1.0 Temp+1.0 Guy Dead+Wind 0 deg - Service+Guy	0.00	0.00	0.00	0.00	0.00	0.00
Dead+Wind 30 deg - Service+Guy	0.00	0.00	0.00	0.00	0.00	0.00
Dead+Wind 60 deg - Service+Guy	0.00	0.00	0.00	0.00	0.00	0.00
Dead+Wind 90 deg - Service+Guy	0.00	0.00	0.00	0.00	0.00	0.00
Dead+Wind 120 deg - Service+Guy	0.00	0.00	0.00	0.00	0.00	0.00
Dead+Wind 150 deg - Service+Guy	0.00	0.00	0.00	0.00	0.00	0.00
Dead+Wind 180 deg - Service+Guy	0.00	0.00	0.00	0.00	0.00	0.00
Dead+Wind 210 deg - Service+Guy	0.00	0.00	0.00	0.00	0.00	0.00
Dead+Wind 240 deg - Service+Guy	0.00	0.00	0.00	0.00	0.00	0.00
Dead+Wind 270 deg - Service+Guy	0.00	0.00	0.00	0.00	0.00	0.00
Dead+Wind 300 deg - Service+Guy	0.00	0.00	0.00	0.00	0.00	0.00
Dead+Wind 330 deg - Service+Guy	0.00	0.00	0.00	0.00	0.00	0.00

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-2.54	0.00	0.00	2.54	-0.00	0.004%
2	0.00	-3.04	-3.54	0.00	3.04	3.54	0.016%
3	1.74	-3.03	-3.01	-1.74	3.03	3.01	0.008%
4	2.99	-3.03	-1.73	-2.99	3.03	1.73	0.006%
5	3.47	-3.03	0.00	-3.47	3.03	0.00	0.003%
6	3.06	-3.04	1.77	-3.06	3.04	-1.77	0.003%
7	1.74	-3.03	3.01	-1.74	3.03	-3.01	0.003%
8	0.00	-3.03	3.45	-0.00	3.03	-3.45	0.005%
9	-1.74	-3.03	3.01	1.74	3.03	-3.01	0.001%
10	-3.06	-3.04	1.77	3.06	3.04	-1.77	0.002%
11	-3.47	-3.03	0.00	3.47	3.03	0.00	0.003%
12	-2.99	-3.03	-1.73	2.99	3.03	1.73	0.008%
13	-1.74	-3.03	-3.01	1.74	3.03	3.01	0.011%
14	0.00	-8.55	0.00	0.00	8.55	-0.00	0.003%
15	0.00	-8.55	-1.48	0.00	8.55	1.48	0.006%
16	0.73	-8.55	-1.27	-0.73	8.55	1.27	0.005%
17	1.27	-8.55	-0.73	-1.27	8.55	0.73	0.003%
18	1.47	-8.55	0.00	-1.47	8.55	-0.00	0.002%
19	1.28	-8.55	0.74	-1.28	8.55	-0.74	0.002%
20	0.73	-8.55	1.27	-0.73	8.55	-1.27	0.001%
21	0.00	-8.55	1.47	-0.00	8.55	-1.47	0.002%
22	-0.73	-8.55	1.27	0.73	8.55	-1.27	0.001%
23	-1.28	-8.55	0.74	1.28	8.55	-0.74	0.002%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
24	-1.47	-8.55	0.00	1.47	8.55	-0.00	0.002%
25	-1.27	-8.55	-0.73	1.27	8.55	0.73	0.005%
26	-0.73	-8.55	-1.27	0.73	8.55	1.27	0.007%
27	0.00	-2.54	-0.78	0.00	2.54	0.78	0.005%
28	0.38	-2.54	-0.66	-0.38	2.54	0.66	0.005%
29	0.66	-2.54	-0.38	-0.66	2.54	0.38	0.004%
30	0.77	-2.54	0.00	-0.77	2.54	-0.00	0.003%
31	0.68	-2.54	0.39	-0.68	2.54	-0.39	0.004%
32	0.38	-2.54	0.66	-0.38	2.54	-0.66	0.004%
33	0.00	-2.54	0.76	-0.00	2.54	-0.76	0.003%
34	-0.38	-2.54	0.66	0.38	2.54	-0.66	0.004%
35	-0.68	-2.54	0.39	0.68	2.54	-0.39	0.004%
36	-0.77	-2.54	0.00	0.77	2.54	-0.00	0.005%
37	-0.66	-2.54	-0.38	0.66	2.54	0.38	0.004%
38	-0.38	-2.54	-0.66	0.38	2.54	0.66	0.005%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	13	0.00000001	0.00011977
2	Yes	35	0.00009460	0.00013739
3	Yes	36	0.00000001	0.00012856
4	Yes	32	0.00000001	0.00013250
5	Yes	20	0.00000001	0.00010129
6	Yes	20	0.00000001	0.00010663
7	Yes	20	0.00000001	0.00009401
8	Yes	18	0.00000001	0.00014664
9	Yes	21	0.00000001	0.00011022
10	Yes	21	0.00000001	0.00010062
11	Yes	20	0.00000001	0.00013991
12	Yes	31	0.00000001	0.00013510
13	Yes	35	0.00000001	0.00012222
14	Yes	17	0.00000001	0.00012850
15	Yes	33	0.00000001	0.00011070
16	Yes	30	0.00000001	0.00012852
17	Yes	25	0.00000001	0.00012761
18	Yes	19	0.00000001	0.00012870
19	Yes	11	0.00000001	0.00013607
20	Yes	17	0.00000001	0.00008547
21	Yes	17	0.00000001	0.00010778
22	Yes	17	0.00000001	0.00009416
23	Yes	12	0.00000001	0.00008790
24	Yes	19	0.00000001	0.00010630
25	Yes	24	0.00000001	0.00013955
26	Yes	29	0.00000001	0.00013469
27	Yes	16	0.00000001	0.00011039
28	Yes	15	0.00000001	0.00013711
29	Yes	14	0.00000001	0.00011806
30	Yes	12	0.00000001	0.00009325
31	Yes	12	0.00000001	0.00010065
32	Yes	13	0.00000001	0.00013566
33	Yes	14	0.00000001	0.00009351
34	Yes	13	0.00000001	0.00014653
35	Yes	12	0.00000001	0.00011699
36	Yes	11	0.00000001	0.00013461

37	Yes	14	0.00000001	0.00009980
38	Yes	15	0.00000001	0.00011860

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	63 - 43	1.549	27	0.0675	0.1860
T2	43 - 23	1.237	27	0.1203	0.1193
T3	23 - 2	0.514	27	0.2196	0.0322

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
61.32	Guy	27	1.534	0.0688	0.1812	25791
60.00	APX16DWV-16DWVS-E-A20	27	1.521	0.0698	0.1773	25791

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	63 - 43	18.350	2	1.3385	0.4071
T2	43 - 23	12.290	2	1.6379	0.2788
T3	23 - 2	4.553	2	2.0190	0.0916

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
61.32	Guy	2	17.897	1.3493	0.3982	4799
60.00	APX16DWV-16DWVS-E-A20	2	17.539	1.3583	0.3911	4799

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T1	61.32 (A) (261)	5/16 EHS	1.12	11.20	4.99	6.72	1.000	1.347 ✔
	61.32 (B) (260)	5/16 EHS	1.12	11.20	5.85	6.72	1.000	1.148 ✔
	61.32 (C) (259)	5/16 EHS	1.12	11.20	5.89	6.72	1.000	1.141 ✔

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	63 - 43	P1.25x.191	20.00	1.51	34.7 K=1.00	0.8815	0.99	-9.90	25.89	0.382 [1] ✔
T2	43 - 23	P1.5x.145	20.00	1.51	29.2 K=1.00	0.7995	0.99	-15.18	23.86	0.636 [1] ✔
T3	23 - 2	P2x.218	21.00	1.48	23.1 K=1.00	1.4773	0.99	-23.71	44.84	0.529 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	63 - 43	9/16	2.38	2.21	132.2 K=0.70	0.2485	-1.27	3.21	0.396 [1] ✔
T2	43 - 23	9/16	2.91	2.73	162.9 K=0.70	0.2485	-1.33	2.12	0.630 [1] ✔
T3	23 - 2	9/16	2.90	2.67	159.7 K=0.70	0.2485	-1.51	2.20	0.686 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	63 - 43	9/16	1.86	1.72	102.5	0.2485	-0.82	4.63	0.177 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	43 - 23	9/16	2.48	2.32	138.6 K=0.70	0.2485	-1.01	2.92	0.347 [1] ✔
T3	23 - 2	9/16	2.50	2.30	137.5 K=0.70	0.2485	-1.33	2.97	0.447 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	63 - 43	4x3/8	1.78	1.65	182.4 K=1.00	1.5000	-0.01	10.18	0.001 [1] ✔
T2	43 - 23	4x3/8	2.25	2.09	232.1 K=1.00	1.5000	-0.35	6.29	0.055 [1] ✔
T3	23 - 2	KL/R > 200 (C) - 88 C8x11.5	2.50	2.30	44.2 K=1.00	3.3800	-0.88	98.81	0.009 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	63 - 43	4x3/8	2.25	2.11	233.6 K=1.00	1.5000	-0.27	6.21	0.044 [1] ✔
T2	43 - 23	KL/R > 200 (C) - 7 4x3/8	2.50	2.34	259.3 K=1.00	1.5000	-0.46	5.04	0.091 [1] ✔
T3	23 - 2	KL/R > 200 (C) - 91 C8x11.5	2.50	2.30	44.2 K=1.00	3.3800	-0.02	98.81	0.000 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	63 - 43	P1.25x.191	20.00	1.51	34.7	0.8815	7.07	27.77	0.255 [1] ✔
T2	43 - 23	P1.5x.145	20.00	1.51	29.2	0.7995	9.90	25.18	0.393 [1] ✔
T3	23 - 2	P2x.218	21.00	1.48	23.1	1.4773	16.21	46.53	0.348 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	63 - 43	9/16	2.38	2.21	188.8	0.2485	1.22	8.05	0.152 [1] ✔
T2	43 - 23	9/16	2.91	2.73	232.7	0.2485	1.31	8.05	0.162 [1] ✔
T3	23 - 2	9/16	2.90	2.67	228.1	0.2485	1.54	8.05	0.191 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	63 - 43	9/16	1.82	1.68	143.5	0.2485	1.25	8.05	0.155 [1] ✔
T2	43 - 23	9/16	2.48	2.32	198.0	0.2485	1.01	8.05	0.126 [1] ✔
T3	23 - 2	9/16	2.50	2.30	196.4	0.2485	2.34	8.05	0.291 [*1] ✔

[*] DL controls
[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	63 - 43	4x3/8	1.78	1.65	182.4	1.5000	0.01	48.60	0.000 [1] ✔
T2	43 - 23	4x3/8	2.25	2.09	232.1	1.5000	0.31	48.60	0.006 [1] ✔
T3	23 - 2	C8x11.5	2.50	2.30	44.2	3.3800	0.78	109.51	0.007 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	63 - 43	4x3/8	2.25	2.11	233.6	1.5000	0.31	48.60	0.006 [1] ✔
T2	43 - 23	4x3/8	2.50	2.34	259.3	1.5000	0.54	48.60	0.011 [1] ✔
T3	23 - 2	C8x11.5	2.50	2.30	44.2	3.3800	0.02	109.51	0.000 [1] ✔

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	63 - 43	Leg	P1.25x.191	1	-9.90	25.89	38.2	Pass
		Diagonal	9/16	77	-1.27	3.21	39.6	Pass
		Horizontal	9/16	75	-0.82	4.63	17.7	Pass
		Top Girt	4x3/8	6	-0.01	10.18	0.1	Pass
		Bottom Girt	4x3/8	7	-0.27	6.21	4.4	Pass
		Guy A@61.3205	5/16	261	4.99	6.72	74.2	Pass
		Guy B@61.3205	5/16	260	5.85	6.72	87.1	Pass
		Guy C@61.3205	5/16	259	5.89	6.72	87.6	Pass
T2	43 - 23	Leg	P1.5x.145	85	-15.18	23.86	63.6	Pass
		Diagonal	9/16	94	-1.33	2.12	63.0	Pass
		Horizontal	9/16	97	-1.01	2.92	34.7	Pass
		Top Girt	4x3/8	88	-0.35	6.29	5.5	Pass
		Bottom Girt	4x3/8	91	-0.46	5.04	9.1	Pass
T3	23 - 2	Leg	P2x.218	170	-23.71	44.84	52.9	Pass
		Diagonal	9/16	220	-1.51	2.20	68.6	Pass
		Horizontal	9/16	229	-1.33	2.97	44.7	Pass
		Top Girt	C8x11.5	172	-0.88	98.81	0.9	Pass
		Bottom Girt	C8x11.5	175	-0.01	98.81	0.1	Pass
							Summary	
						Leg (T2)	63.6	Pass
						Diagonal (T3)	68.6	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
						Horizontal (T3)	44.7	Pass
						Top Girt (T2)	5.5	Pass
						Bottom Girt (T2)	9.1	Pass
						Guy A (T1)	74.2	Pass
						Guy B (T1)	87.1	Pass
						Guy C (T1)	87.6	Pass
						RATING =	**87.6**	**Pass**

RAN Template:	A&L Template:	Power System Template:
4E-U19	4E-U19_2DP	Custom

CTCOW01A_Modernization_0.1_draft

Section 1 - Site Information

Site ID: CTCOW01A
Status: Draft
Version: R0.1
Project Type: Modernization
Approved: Not Approved
Approved By: Not Approved
Last Modified: 3/15/2018 3:35:08 PM
Last Modified By: GSM1900\MLow1

Site Name: CTCOW01A
Site Class: <undefined>
Site Type: <undefined>
Solution Type:
Plan Year:
Market: CONNECTICUT
Vendor: Ericsson
Landlord: Not Specified

Latitude: 41.9377390000
Longitude: -71.9542410000
Address: 39 N Gate Rd
City, State: Woodstock, CT
Region: NORTHEAST

RAN Template: 4E-U19			AL Template: 4E-U19_2DP	
Sector Count: 3	**Antenna Count:** 3	**Coax Line Count:** 12	**TMA Count:** 0	**RRU Count:** 0

DRAFT

Section 2 - Existing Template Images

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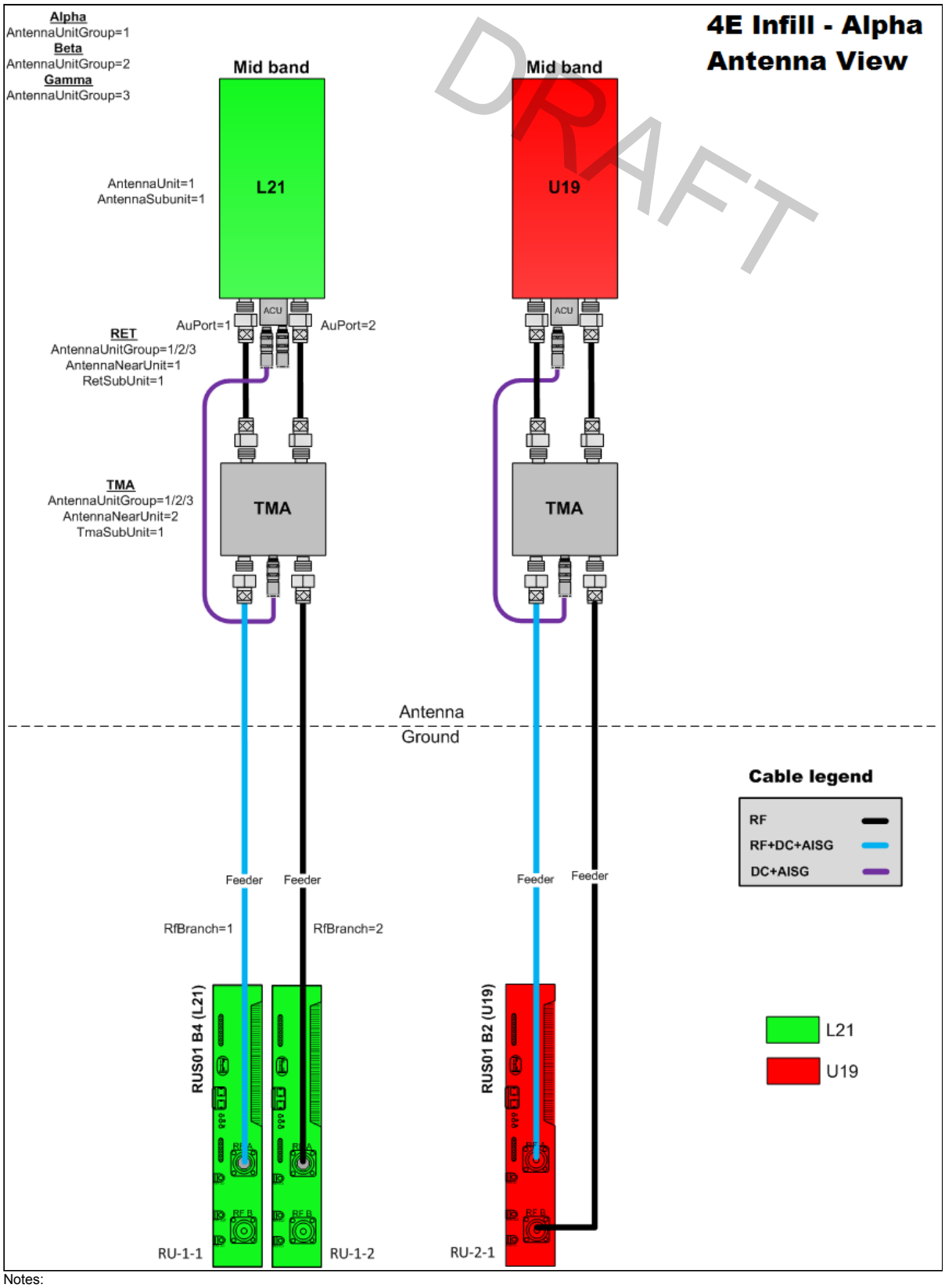
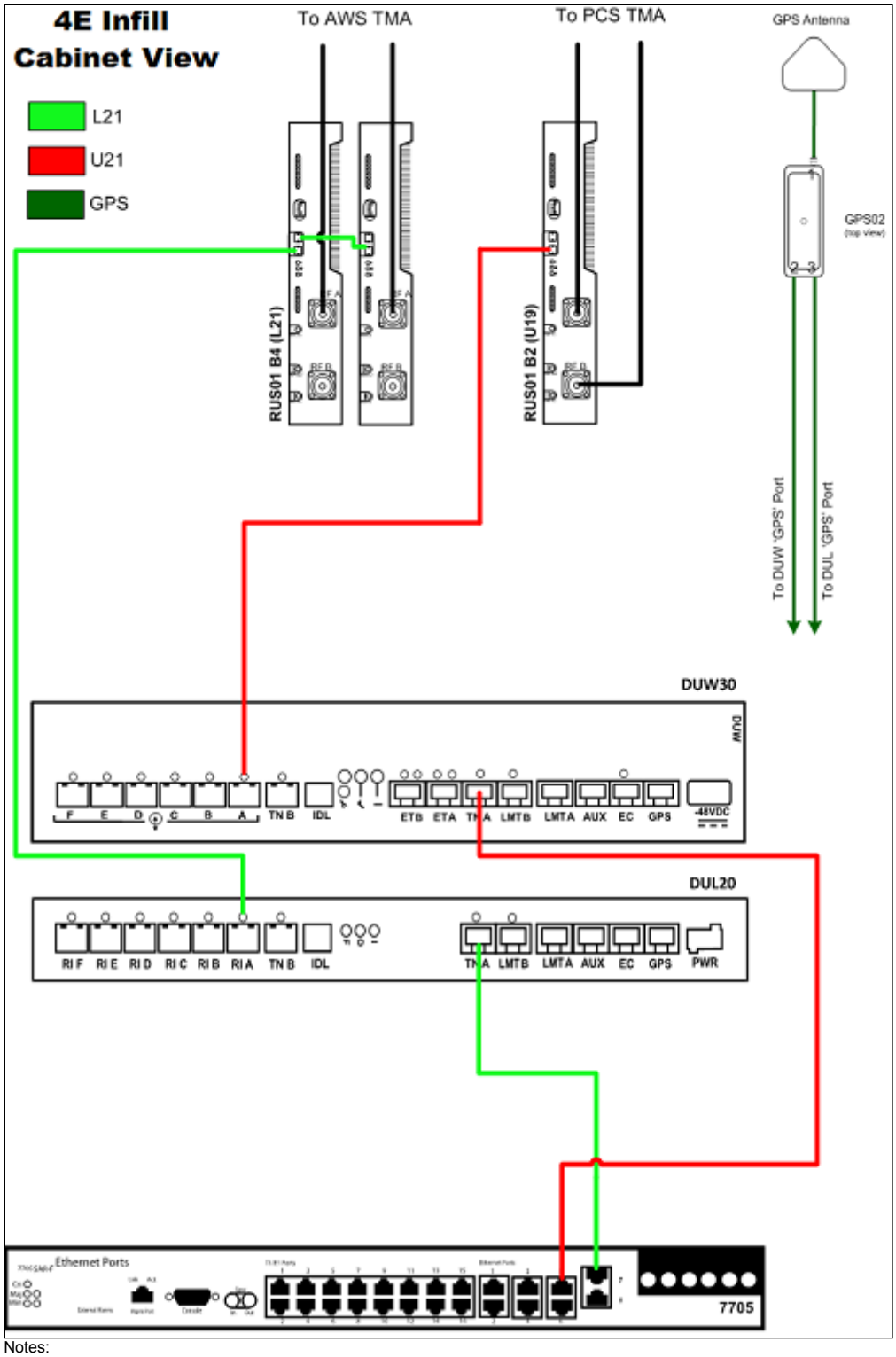
Section 3 - Proposed Template Images

AL_4E-U19.png



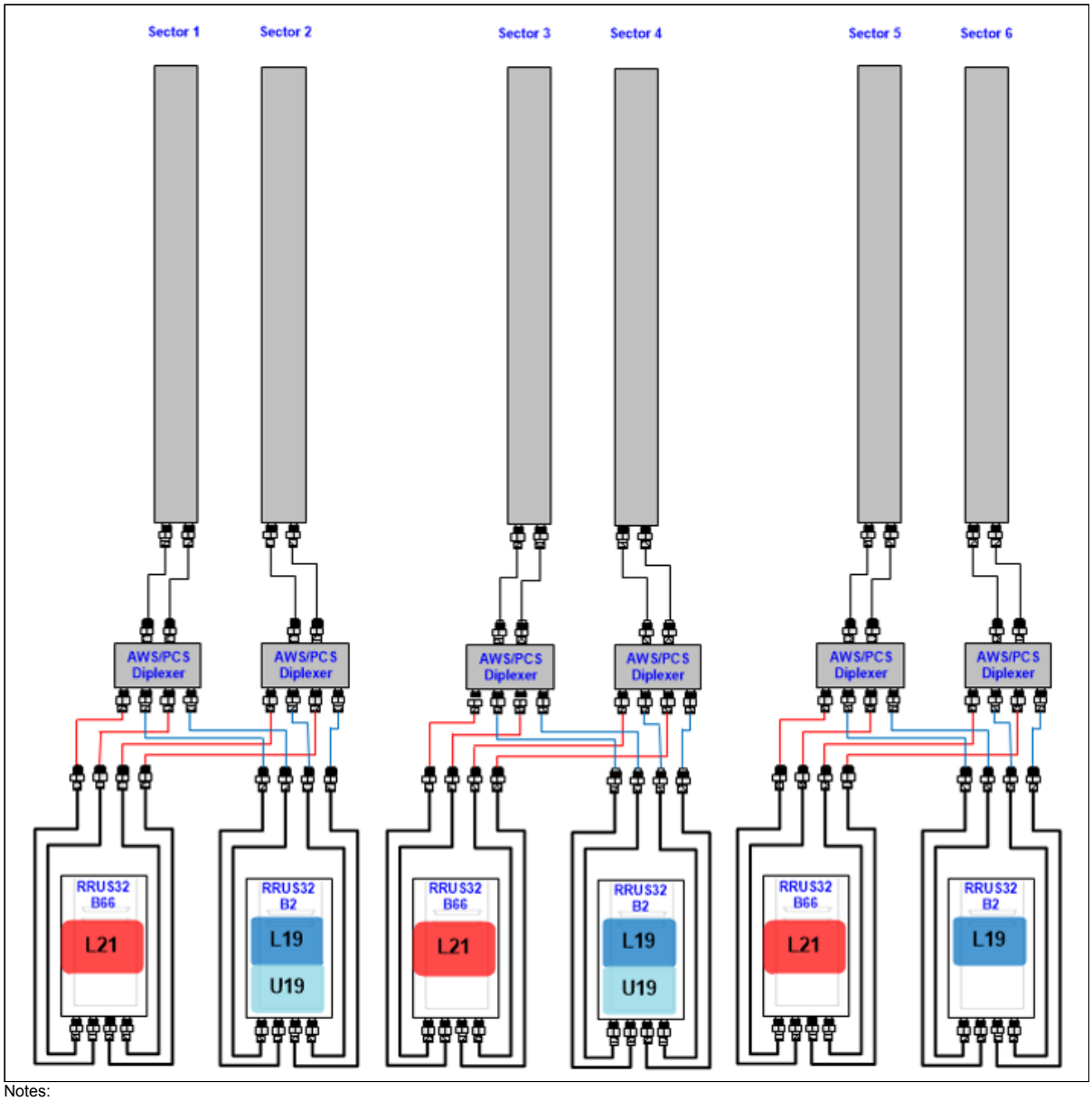
Notes:

RAN_4E-U19.png



Notes:

HC2 U19.png


Sector 1
Sector 2
Sector 3
Sector 4
Sector 5
Sector 6
AWS/PCS Diplexer
AWS/PCS Diplexer
AWS/PCS Diplexer
AWS/PCS Diplexer
AWS/PCS Diplexer
AWS/PCS Diplexer
RRUS32 B66
L21
RRUS32 B2
L19
U19
RRUS32 B66
L21
RRUS32 B2
L19
U19
RRUS32 B66
L21
RRUS32 B2
L19

Notes:

Section 4 - Siteplan Images

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RAN Template:	A&L Template:	Power System Template:
4E-U19	4E-U19_2DP	Custom

CTCOW01A_Modernization_0.1_draft

Section 5 - RAN Equipment

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Existing RAN Equipment
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Proposed RAN Equipment	
Template: 4E-U19	
Enclosure	1
Enclosure Type	RBS 6201
Baseband	DUW30 (U1900), DUS41 (L2100)
Radio	RUS01 B2 (x3) (U1900), RUS01 B4 (x6) (L2100)

RAN Scope of Work:

RAN Template:	A&L Template:	Power System Template:
4E-U19	4E-U19_2DP	Custom

CTCOW01A_Modernization_0.1_draft

Section 6 - A&L Equipment

DRAFT

Existing Template: Custom
Proposed Template: 4E-U19_2DP

Sector 1 (Proposed) view from behind		
Coverage Type	A - Outdoor Macro	
Antenna	1	
Antenna Model	RFS - APX16DWV-16DWV-S-E-A20 (Quad)	
Azimuth	40	
M. Tilt	0	
Height	35	
Ports	**P1**	**P2**
Active Tech.	L2100	U1900
Dark Tech.		
Restricted Tech.		
Decomm. Tech.		
E. Tilt	2	2
Cables	1/2" Coax - 40 ft. **(x2)**	1/2" Coax - 40 ft. **(x2)**
TMAs		
Diplexers / Combiners		
Radio		
Sector Equipment		

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:	Power System Template:
4E-U19	4E-U19_2DP	Custom

CTCOW01A_Modernization_0.1_draft

Sector 2 (Proposed) view from behind		
Coverage Type	A - Outdoor Macro	
Antenna	1	
Antenna Model	RFS - APX16DWV-16DWV-S-E-A20 (Quad)	
Azimuth	180	
M. Tilt	0	
Height	35	
Ports	P1	P2
Active Tech.	L2100	U1900
Dark Tech.		
Restricted Tech.		
Decomm. Tech.		
E. Tilt	2	2
Cables	1/2" Coax - 40 ft. **(x2)**	1/2" Coax - 40 ft. **(x2)**
TMAs		
Diplexers / Combiners		
Radio		
Sector Equipment		

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:	Power System Template:
4E-U19	4E-U19_2DP	Custom

CTCOW01A_Modernization_0.1_draft

Sector 3 (Proposed) view from behind		
Coverage Type	A - Outdoor Macro	
Antenna	1	
Antenna Model	RFS - APX16DWV-16DWV-S-E-A20 (Quad)	
Azimuth	280	
M. Tilt	0	
Height	35	
Ports	P1	P2
Active Tech.	L2100	U1900
Dark Tech.		
Restricted Tech.		
Decomm. Tech.		
E. Tilt	1	1
Cables	1/2" Coax - 40 ft. **(x2)**	1/2" Coax - 40 ft. **(x2)**
TMAs		
Diplexers / Combiners		
Radio		
Sector Equipment		

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:	Power System Template:
4E-U19	4E-U19_2DP	Custom

CTCOW01A_Modernization_0.1_draft

Section 7 - Power Systems Equipment

Existing Power Systems Equipment

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Proposed Power Systems Equipment

DRAFT

Product Data Sheet **APX16DWV-16DWVS-E-A20**

Optimizer® Side-by-Side Dual Polarized Antenna, 1710-2200, 65deg, 18.4dBi, 1.4m, VET, 0-10deg RET

Product Description

A combination of two X-Polarized antennas in a single radome, this pair of variable tilt antennas provides exceptional suppression of all upper sidelobes at all downtilt angles. It also features a wide downtilt range. This antenna is optimized for performance across the entire frequency band (1710-2200 MHz). The antenna comes pre-connected with two antenna control units (ACU).

Features/Benefits

- **Variable electrical downtilt - provides enhanced precision in controlling intercell interference. The tilt is infield adjustable 0-10 deg.**
- **High Suppression of all Upper Sidelobes (Typically <-20dB).**
- **Gain tracking – difference between AWS UL (1710-1755 MHz) and DL (2110-2155 MHz) <1dB.**
- **Two X-Polarised panels in a single radome.**
- **Azimuth horizontal beamwidth difference <4deg between AWS UL (1710-1755 MHz) and DL (2110-2155 MHz).**
- **Low profile for low visual impact.**
- **Dual polarization; Broadband design.**
- **Includes (2) AISG 2.0 Compatible ACU-A20-N antenna control units.**

Technical Specifications

Electrical Specifications

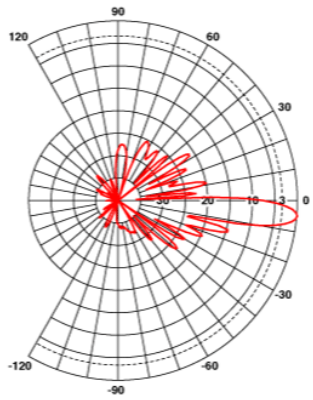
Frequency Range, MHz	1710-2200
Horizontal Beamwidth, deg	65
Vertical Beamwidth, deg	5.9 to 7.7
Electrical Downtilt, deg	0-10
Gain, dBi (dBd)	18.4 (16.3)
1st Upper Sidelobe Suppression, dB	> 18 (typically > 20)
Upper Sidelobe Suppression, dB	> 18 all (typically > 20)
Front-To-Back Ratio, dB	>26 (typically 28)
Polarization	Dual pol +/-45°
VSWR	< 1.5:1
Isolation between Ports, dB	> 30
3rd Order IMP @ 2 x 43 dBm, dBc	> 150 (155 Typical)
Impedance, Ohms	50
Maximum Power Input, W	300
Lightning Protection	Direct Ground
Connector Type	(4) 7-16 Long Neck Female

Mechanical Specifications

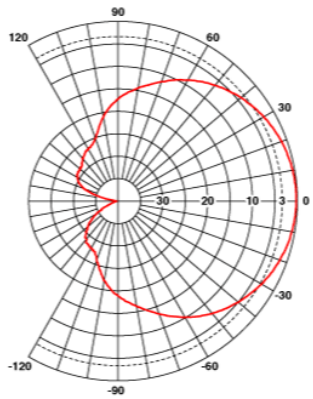
Dimensions - HxWxD, mm (in)	1420 x 331 x 80 (55.9 x 13 x 3.15)
Weight w/o Mtg Hardware, kg (lb)	18.5 (40.7)
Survival Wind Speed, km/h (mph)	200 (125)
Rated Wind Speed, km/h (mph)	160 (100)
Max Wind Loading Area, m² (ft²)	0.47 (5.03)
Front Thrust @ Rated Wind, N (lbf)	756 (170)
Maximum Thrust @ Rated Wind, N (lbf)	756 (170)
Wind Load - Side @ Rated Wind, N (lbf)	231 (52)
Wind Load - Rear @ Rated Wind, N (lbf)	408 (92)
Radome Material	Fiberglass
Radome Color	Light Grey RAL7035
Mounting Hardware Material	Diecasted Aluminum
Shipping Weight, kg (lb)	24.5 (53.9)
Packing Dimensions, HxWxD, mm (in)	1520 x 408 x 198 (59.8 x 16 x 7.8)

Ordering Information

Mounting Hardware	APM40-2 + APM40-E2



Vertical Pattern



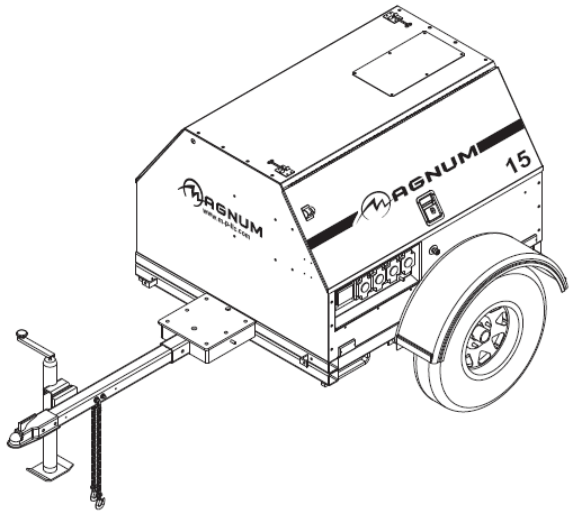
Horizontal Pattern

All information contained in the present datasheet is subject to confirmation at time of ordering

Magnum Mobile Lite Generator – MLG15 Specifications

ENGINE

- Mitsubishi® S4L2-Y461ML - naturally aspirated, diesel engine
  - Prime - 22.3 hp @ 1800 rpm
  - 4 cylinder
  - 1.8 L displacement
  - Interim Tier IV approved
- Polyethylene fuel tank
  - 56 gal. capacity
  - 43 hr. run time – full load
  - 3 ½" fill port
- Fuel consumption at prime:
  - 100% - 1.30 gph (4.92 Lph)
  - 75% - 0.98 gph (3.71 Lph)
  - 50% - 0.65 gph (2.46 Lph)
- Cooling system capable of operating at 120°F ambient
- Rubber vibration dampers isolate engine/generator from frame
- Full flow oil filter, spin on type
- Fuel filter with replaceable element
- Dry type cartridge air filter
- 60 Hz engine/generator



ENGINE CONTROLS

- Engraved aluminum punched and anodized control panel
- Four position keyed switch – glow plugs (preheat, off, run, start)
- Hour meter
- Automatic low oil/high temperature shutdown system

GENERATOR

- Marathon Electric®
  - Brushless
  - 4 pole
  - Class H insulation
- Single phase output
  - Prime - 13 kW / 13 kVA (54A @ 240V)
  - Standby - 14 kW / 14 kVA (58A @ 240V)
- Voltage regulation +/- 1% with Marathon SE350 Voltage Regulator

ELECTRICAL SYSTEM AND CONTROLS

- 70A start limit breaker (assures no load condition exists before starting)
- Convenience receptacles with individual breakers
  - (2) 120V 20 Amp GFCI duplex outlets (Nema 5-20R type)
  - (2) 240V 30 Amp twistlock outlets (Nema L6-30R type)
  - (2) 240V 50 Amp twistlock outlets (Non-Nema 6369)
- 440 CCA wet cell battery

ENCLOSURE

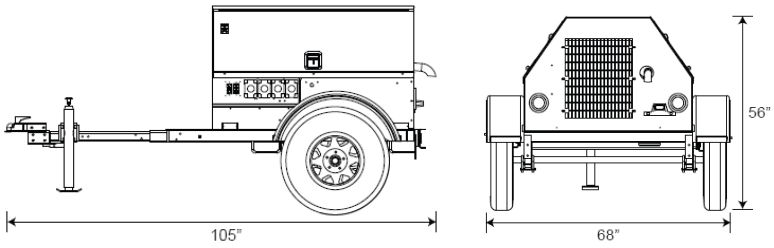
- Steel, 14-gauge, sound attenuated enclosure
  - UV & fade resistant, high temperature cured, white polyester powder paint
  - Insulated and baffled
  - 70 dB(A) at 23 feet – prime power
- Fully lockable enclosure
- Stainless steel hinges, door latches and exterior hardware
- Emergency stop switch located on front panel
- License plate holder with light
- Multi-lingual operating/safety decals
- Document holder with operating/parts manuals including AC/DC wiring diagrams

TRAILER

- DOT approved tail, side, brake, and directional lights
  - Recessed rear lights
- Transportation tie downs
- Safety chains with spring loaded safety hooks
- Single wall polyethylene fenders
- 2” ball hitch
- 2200 lb. leaf spring axle
- 2000 lb. tongue jack with footplate
- ST205/75R15 tubeless tires – 6 ply
- 48” track width

WEIGHTS & DIMENSIONS

- Dry weight: 1425 lbs (646 kg)
- Operating weight: 1823 lbs (827 kg)
- 105 x 68 x 56 in
  (2.67 x 1.73 x 1.42 m)



WARRANTY

- Engine and generator covered under OEM warranty – consult factory for details

CERTIFICATIONS

- CSA certified

MLG15 Options

ENGINE OPTIONS

- Heated fuel filter
- Lower radiator hose – engine heater
- Oil drain valve kit

ELECTRICAL CONTROLS OPTIONS

- 720 CCA gel cell battery
- 720 CCA wet cell battery
- 685 CCA gel cell battery
- Battery disconnect
- Battery charger – 2A trickle

VOLTAGE OUTPUT OPTIONS

- Alternative receptacle panel – consult factory for configurations

COOLANT OPTIONS

- 60/40 Coolant – cold weather applications

ENCLOSURE OPTIONS

- Interior cabinet light
- Level indicator
- Tamper pack
- Liquid containment / Quiet pack
- Lift structure

FUEL TANK OPTIONS

- 56 gal. fuel tank
- Tethered fuel tank cap

TRAILER OPTIONS

- 6 pin or 7 spade electrical connectors
- Outrigger package
- Tube and sleeve jack
- Spare tire/wheel kit

HITCH OPTIONS

- 2.5” lunette ring
- 3” lunette ring
- 3” HD lunette ring
- 2 5/16” ball
- Combination hitch – 2.5” lunette ring / 2” ball

EBI Consulting
environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTCOW01A

Woodstock Fair
281 Route 169
Woodstock, CT 06281

July 9, 2019

EBI Project Number: 6218004968

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	8.79 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

July 9, 2019

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

Emissions Analysis for Site: **CTCOW01A – Woodstock Fair**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **281 Route 169, Woodstock, 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (µW/cm2). The number of µW/cm^2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (µW/cm^2). The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) bands is 1000 µW/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 **281 Route 169, Woodstock, 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 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 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

3) Since all radios are ground mounted there are additional cabling losses accounted for. For each ground mounted RF path, the following losses were calculated. 1.24 dB of additional cable loss for all ground mounted 1900 MHz radios and 1.32 dB of additional cable loss for all ground mounted 2100 MHz channels were factored into the calculations used for this analysis. This is based on manufacturers Specifications for 40 feet of 1/2” coax cable on each path.

4) 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.

5) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

6) The antennas used in this modeling are the **RFS APX16DWV-16DWVS-E-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APX16DWV-16DWVS-E-A20** has a maximum gain of **16.3 dBd** at its main lobe at 1900 MHz and 2100 MHz. 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.

7) The antenna mounting height centerline of the proposed antennas is **60 feet** above ground level (AGL).

8) 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.

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	60	Height (AGL):	60	Height (AGL):	60
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	7,127.55	ERP (W):	7,127.55	ERP (W):	7,127.55
Antenna A1 MPE%	**8.79**	Antenna B1 MPE%	**8.79**	Antenna C1 MPE%	**8.79**

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**8.79 %**
No Additional Carriers Located at This Site	NA
Site Total MPE %:	**8.79 %**

T-Mobile Sector A Total:	8.79 %
T-Mobile Sector B Total:	8.79 %
T-Mobile Sector C Total:	8.79 %
Site Total:	8.79 %

T-Mobile _Max Power Values (per sector)	**# Channels**	**Watts ERP (Per Channel)**	**Height (feet)**	**Total Power Density ($\mu W/cm^2$)**	**Frequency (MHz)**	**Allowable MPE ($\mu W/cm^2$)**	**Calculated % MPE**
T-Mobile AWS - 2100 MHz LTE	2	2,372.20	60	58.49	AWS - 2100 MHz	1000	5.85%
T-Mobile PCS - 1900 MHz UMTS	2	1,191.57	60	29.38	PCS - 1900 MHz	1000	2.94%
						Total:	**8.79%**

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	8.79 %
Sector B:	8.79 %
Sector C:	8.79 %
T-Mobile Per Sector Maximum:	8.79 %
Site Total:	8.79 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **8.79%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

PAWTUCKET
40 MONTGOMERY ST
PAWTUCKET, RI
02860-9998
4367200860

07/12/2019 (800)275-8777 4:24 PM

Product Description	Sale Qty	Final Price
PM 2-Day Padded FR Env (Domestic) (WOODSTOCK, CT 06281) (Flat Rate) (Expected Delivery Day) (Monday 07/15/2019) (USPS Tracking #) (9505 5124 4841 9193 1906 84)	1	$8.00
Insurance (Up to $50.00 included)	1	$0.00
PM 2-Day Padded FR Env (Domestic) (WOODSTOCK, CT 06281) (Flat Rate) (Expected Delivery Day) (Monday 07/15/2019) (USPS Tracking #) (9505 5124 4841 9193 1906 91)	1	$8.00
Insurance (Up to $50.00 included)	1	$0.00
PM 2-Day Padded FR Env (Domestic) (NEW BRITAIN, CT 06051) (Flat Rate) (Expected Delivery Day) (Monday 07/15/2019) (USPS Tracking #) (9505 5124 4841 9193 1907 14)	1	$8.00
Insurance (Up to $50.00 included)	1	$0.00
PM 2-Day Padded FR Env (Domestic) (SOUTH WOODSTOCK, CT 06267) (Flat Rate) (Expected Delivery Day) (Monday 07/15/2019) (USPS Tracking #) (9505 5124 4841 9193 1907 21)	1	$8.00
Insurance (Up to $50.00 included)	1	$0.00
Total		$32.00
Debit Card Remit'd (Card Name:VISA) (Account #:XXXXXXXXXXXX0959) (Approval #:) (Transaction #:882) (Receipt #:021040) (Debit Card Purchase:$32.00) (Cash Back:$0.00) (AID:A0000000980840 Chip) (AL:US DEBIT) (PIN:Verified)		$32.00

Includes up to $50 insurance

Text your tracking number to 28777 (2USPS) to get the latest status. Standard Message and Data rates may apply. You may also visit www.usps.com
USPS Tracking or call 1-800-222-1811