

April 9, 2015

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

Re: **Notice of Exempt Modification – Facility Modification  
89 Doctor Knott Road, Franklin, Connecticut**

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) wireless telecommunications antennas at the 169-foot level on an existing 300-foot guyed-lattice tower at 89 Doctor Knott Road in Franklin (the “Property”). The tower is owned American Tower Corporation. Cellco’s use of the tower was approved by the Council in 2006. Cellco now intends to modify its facility by replacing nine (9) of its existing antennas with three (3) model LNX-8513DS-VTM, 850 MHz antennas; three (3) model HBXX-6517DS-VTM, 1900 MHz antennas; and three (3) model HBXX-6517DS-VTM, 2100 MHz antennas, all at the same 169-foot level on the tower. Cellco also intends to install six (6) remote radio heads (“RRHs”) behind its 1900 MHz and 2100 MHz antennas and one (1) HYBRIFLEX™ antenna cable. Included in Attachment 1 are specifications for Cellco’s replacement antennas, RRHs and HYBRIFLEX™ cable.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Richard Matters, First Selectman of the Town of Franklin. A copy of this letter is also being sent to Hidden Brook Farms LLC, the owner of the Property.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

13583621-v1

# Robinson+Cole

Melanie A. Bachman

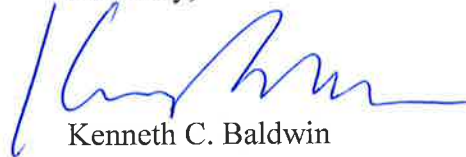
April \_\_, 2015

Page 2

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and RRHs will be installed on its existing antenna platform at the 169-foot level on the tower.
2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative General Power Density table with Cellco's modified facility is included in Attachment 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support Cellco's proposed modifications. (*See Structural Analysis Report included in Attachment 3*).

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

Sincerely,



Kenneth C. Baldwin

Enclosures

Copy to:

Richard Matters, Franklin First Selectman  
Hidden Brook Farms LLC  
Tim Parks

# **ATTACHMENT 1**

# Product Specifications

COMMSCOPE®

LNX-8513DS-VTM

Andrew® Teletilt® Antenna, 698–896 MHz, 85° horizontal beamwidth, RET compatible

POWERED BY



## Electrical Specifications

Frequency Band, MHz	698–806	806–896
Gain, dBi	14.6	15.3
Beamwidth, Horizontal, degrees	85	85
Beamwidth, Vertical, degrees	12.2	11.0
Beam Tilt, degrees	0–10	0–10
USLS, typical, dB	17	17
Front-to-Back Ratio at 180°, dB	25	26
Isolation, dB	30	30
VSWR   Return Loss, dB	1.4   15.6	1.4   15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153
Input Power per Port, maximum, watts	400	400
Polarization	±45°	±45°

## Mechanical Specifications

Color   Radome Material	Light gray   Fiberglass, UV resistant
Connector Interface   Location   Quantity	7-16 DIN Female   Bottom   2
Wind Loading, maximum	617.7 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h   149.8 mph
Antenna Dimensions, L x W x D	1847.0 mm x 301.0 mm x 181.0 mm   72.7 in x 11.9 in x 7.1 in
Net Weight	17.8 kg   39.2 lb
Model with factory installed AISG 2.0 RET	LNX-8513DS-A1M



# Product Specifications

COMMScope®

POWERED BY



## HBXX-6517DS-VTM

Andrew® Quad Port Antenna, 1710–2180 MHz, 65° horizontal beamwidth, RET compatible

- Superior azimuth tracking and pattern symmetry with excellent passive intermodulation suppression

### Electrical Specifications

Frequency Band, MHz	1710–1880	1850–1990	1920–2180
Gain, dBi	19.0	19.1	19.2
Beamwidth, Horizontal, degrees	67	66	65
Beamwidth, Vertical, degrees	5.0	4.7	4.4
Beam Tilt, degrees	0–6	0–6	0–6
USLS, dB	18	18	18
Front-to-Back Ratio at 180°, dB	30	30	30
CPR at Boresight, dB	21	22	21
CPR at Sector, dB	10	11	9
Isolation, dB	30	30	30
VSWR   Return Loss, dB	1.4   15.6	1.4   15.6	1.4   15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350
Polarization	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm

### Electrical Specifications, BASTA\*

Frequency Band, MHz	1710–1880	1850–1990	1920–2180
Gain by all Beam Tilts, average, dBi	18.5	18.6	18.8
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.3	±0.4
Gain by Beam Tilt, average, dBi	0°   18.4	0°   18.4	0°   18.7
	3°   18.7	3°   18.7	3°   18.9
	6°   18.4	6°   18.5	6°   18.6
Beamwidth, Horizontal Tolerance, degrees	±2.4	±1.7	±2.9
Beamwidth, Vertical Tolerance, degrees	±0.3	±0.3	±0.3
USLS, dB	18	19	19
Front-to-Back Total Power at 180° ± 30°, dB	25	26	26
CPR at Boresight, dB	22	23	22
CPR at Sector, dB	10	10	9

\* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, [download the whitepaper Time to Raise the Bar on BSAs.](#)

### General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol® quad
Band	Single band
Brand	DualPol®   Teletilt®
Operating Frequency Band	1710 – 2180 MHz

# Product Specifications

COMMSCOPE®

HBXX-6517DS-VTM

POWERED BY



## Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Low loss circuit board
Radome Material	PVC, UV resistant
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	4
Wind Loading, maximum	668.0 N @ 150 km/h 150.2 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h   149.8 mph

## Dimensions

Depth	166.0 mm   6.5 in
Length	1903.0 mm   74.9 in
Width	305.0 mm   12.0 in
Net Weight	19.5 kg   43.0 lb

## Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 2.0 Actuator	HBXX-6517DS-A2M
RET System	Teletilt®

## Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system



## Included Products

600899A-2 — Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

# PCS RF MODULES

## RRH1900 2X60 - HW CHARACTERISTICS

LA6.0.1/13.3

RRH2x60	
RF Output Power	2X60W
Instantaneous Bandwidth	20MHz
Transmitter	2 TX
Receiver	2 Branch RX – LA6.0.1 4 Branch RX – LR13.3
Features	AISG 2.0 for RET/TMA Internal Smart Bias-T
Power	-48VDC
CPRI Ports	2 CPRI Rate 3 Ports
External Alarms	4 External User Alarms
Monitor Ports	TX
Environmental	GR487 Compliance
RF Connectors	7/16 DIN (top mounted)



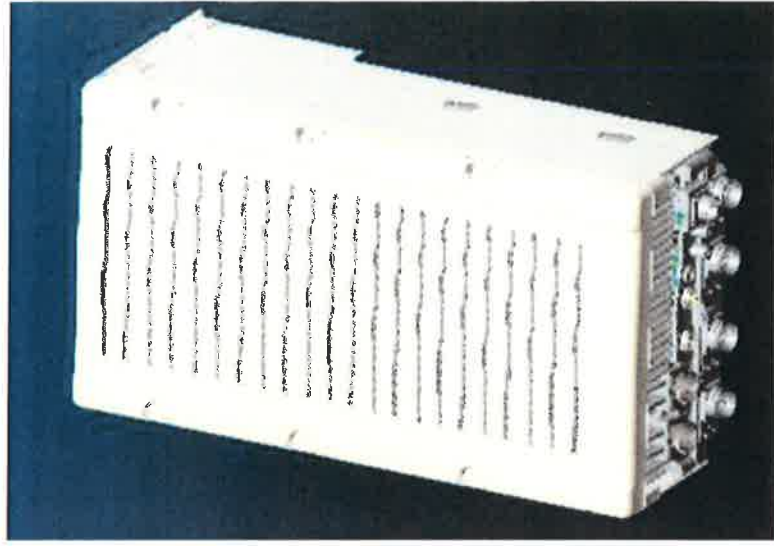
\*\* Not a Verizon Wireless deployed product

# NEW PCS RF MODULES FOR VZW

## RRH2X60 - HW CHARACTERISTICS

LR14.3

RRH2X60	
RF Output Power	2x60W (4x30W HW Ready)
Instantaneous Bandwidth	60MHz
Target Reliability (Annual Return Rate)	<2%
Receiver	4 Branch Rx
Features	AISG 2.0 for RET/TMA
Power	-48VDC
	Internal Smart Bias-T
CPRI Ports	2 CPRI Rate 5 Ports
External Alarms	4 External User Alarms
Monitor Ports	TX, RX
Environmental	GR487 Compliance
RF Connectors	7/16 DIN (downward facing)
Dimensions	22"(h) x 12"(w) x 9.4" (d)**
Weight	55lb**

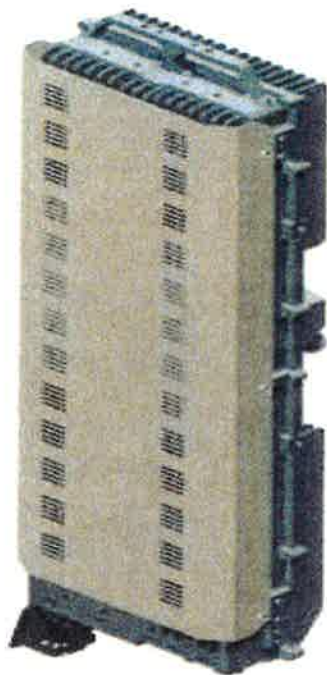


\*\* - Includes solar shield but not mounting brackets (8 lbs.)



# ALCATEL-LUCENT WIRELESS PRODUCT DATASHEET RRH2X60-AWS FOR BAND 4 APPLICATIONS

The Alcatel-Lucent RRH2x60-AWS is a high power, small form factor Remote Radio Head operating in the AWS frequency band (3GPP Band 4) for LTE technology. It is designed with an eco-efficient approach, providing operators with the means to achieve high quality and high capacity coverage with minimum site requirements and efficient operation.



A distributed Node B expands the deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of a Node B to be installed separately, within the same site or several kilometers apart.

The Alcatel-Lucent RRH2x60-AWS is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals

along with operations, administration and maintenance (OA&M) information.

## SUPERIOR RF PERFORMANCE

The Alcatel-Lucent RRH2x60-AWS integrates all the latest technologies. This allows to offer best-in-class characteristics.

It delivers an outstanding 120 watts of total RF power thanks to its two transmit RF paths of 60 W each.

It is ideally suited to support multiple-input multiple-output (MIMO) 2x2 operation.

It includes four RF receivers to natively support 4-way uplink reception diversity. This improves the radio uplink coverage and this can be used to extend the cell radius commensurate with 2x2MIMO 2x60 W for the downlink.

It supports multiple discontinuous LTE carriers within an instantaneous bandwidth of 45 MHz corresponding to the entire AWS B4 spectrum.

The latest generation power amplifiers (PA) used in this product achieve high efficiency (>40%), resulting in improved power consumption figures.

## OPTIMIZED TCO

The Alcatel-Lucent RRH2x60-AWS is designed to make available all the benefits of a distributed Node B, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX).

The Alcatel-Lucent RRH2x60-AWS is a very cost-effective solution to deploy LTE MIMO.

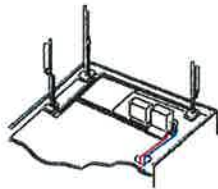
## EASY INSTALLATION

The RRH2x60-AWS includes a reversible mounting bracket which allows for ease of installation behind an antenna, or on a rooftop knee wall while providing easy access to the mid body RF connectors.

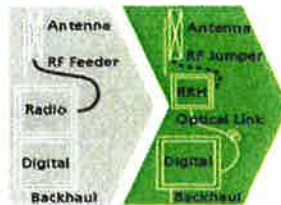
The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment. However, many of these sites can host an Alcatel-Lucent RRH2x60-AWS installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

The Alcatel-Lucent RRH2x60-AWS is a zero-footprint solution and is convection cooled without fans for silent operation, simplifying negotiations with site property owners and minimizing environmental impacts.

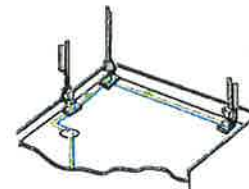
Installation can easily be done by a single person as the Alcatel-Lucent RRH2x60-AWS is compact and weighs about 20 kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day.



Macro



RRH for space-constrained cell sites



Distributed

## FEATURES

- RRH2x60-AWS integrates two power amplifiers of 60W rating (at each antenna connector)
- Support multiple carriers over the entire 3GPP band 4
- RRH2x60-AWS is optimized for LTE operation
- RRH2x60-AWS is a very compact and lightweight product
- Advanced power management techniques are embedded to provide power savings, such as PA bias control

## BENEFITS

- MIMO LTE operation with only one single unit per sector
- Improved uplink coverage with built-in 4-way receive diversity capability
- RRH can be mounted close to the antenna, eliminating nearly all losses in RF cables and thus reducing power consumption by 50% compared to conventional solutions
- Distributed configurations provide easily deployable and cost-effective solutions, near zero footprint and

silent solutions, with minimum impact on the neighborhood, which ease the deployment

- RETA and TMA support without additional hardware thanks to the AISG v2.0 port and the integrated Bias-Tees. Bias-Tees support AISG DC supply and signaling.

## TECHNICAL SPECIFICATIONS

Specifications listed are hardware capabilities. Some capabilities depend on support in a specific software release or future release.

### Dimensions and weights

- HxWxD : 510x285x186mm (27 l with solar shield)
- Weight : 20 kg (44 lbs)

### Electrical Data

- Power Supply : -48V DC (-40.5 to -57V)
- Power Consumption (ETSI average traffic load reference) : 250W @2x60W

### RF Characteristics

- Frequency band: 1710-1755, UL / 2110-2155 MHz, DL (3GPP band 4)
- Output power: 2x60W at antenna connectors
- Technology supported: LTE
- Instantaneous bandwidth: 45 MHz
- Rx diversity: 2-way and 4-way uplink reception
- Typical sensitivity without Rx diversity: -105 dBm for LTE

### Connectivity

- Two CPRI optical ports for daisy chaining and up to six RRHs per fiber
- Type of optical fiber: Single-Mode (SM) and Multi-Mode (MM) SFPs
- Optical fiber length: up to 500m using MM fiber, up to 20km using SM fiber
- TMA/RETA : AISG 2.0 (RS485 connector and internal Bias-Tee)
- Six external alarms
- Surge protection for all external ports (DC and RF)

### Environmental specifications

- Operating temperature: -40°C to 55°C including solar load
- Operating relative humidity: 8% to 100%
- Environmental Conditions : ETS 300 019-1-4 class 4.1E
- Ingress Protection : IEC 60529 IP65
- Acoustic Noise : Noiseless (natural convection cooling)

### Safety and Regulatory Data

- EMC : 3GPP 25113, EN 301 489-1, EN 301 489-23, GR 1089, GR 3108, OET-65
- Safety : IEC60950-1, EN 60825-1, UL, ANSI/NFPA 70, CAN/CSA-C22.2
- Regulatory : FCC Part 15 Class B, CE Mark – European Directive : 2002/95/EC (ROHS); 2002/96/EC (WEEE); 1999/5/EC (R&TTE)
- Health : EN 50385

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**HYBRIFLEX™ RRH Hybrid Feeder Cabling Solution, 1-5/8", Single-Mode Fiber**

**Product Description**

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world's most innovative solution for RRH deployments.

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX® accessories can be used with HYBRIFLEX cable. Both pre-connectorized and on-site options are available.

**Features/Benefits**

- Aluminum corrugated armor with outstanding bending characteristics - minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding - Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design - Decreases tower loading
- Robust cabling - Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH - Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable - Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- Outdoor polyethylene jacket - Ensures long-lasting cable protection



Figure 1: HYBRIFLEX Series

**Technical Specifications**

Outer Conductor Armor:	Corrugated Aluminum	(mm (in))	46.5 (1.83)
Jacket:	Polyethylene, PE	(mm (in))	50.3 (1.98)
UV-Protection	Individual and External Jacket		Yes
<b>Mechanical Properties</b>			
Weight, Approximate		(kg/m (lb/ft))	1.9 (1.30)
Minimum Bending Radius, Single Bending		(mm (in))	200 (8)
Minimum Bending Radius, Repeated Bending		(mm (in))	500 (20)
Recommended/Maximum Clamp Spacing		(m (ft))	1.0 / 1.2 (3.25 / 4.0)
<b>Electrical Properties</b>			
DC-Resistance Outer Conductor Armor		(Ω/km (Ω/1000ft))	0.68 (0.205)
DC-Resistance Power Cable, 8.4mm <sup>2</sup> (18AWG)		(Ω/km (Ω/1000ft))	2.1 (0.307)
<b>Optical Properties</b>			
Version			Single-mode OM3
Quantity, Fiber Count			16 (8 pairs)
Core/Clad		(μm)	50/125
Primary Coating (Acrylate)		(μm)	245
Buffer Diameter, Nominal		(μm)	900
Secondary Protection, Jacket, Nominal		(mm (in))	2.0 (0.08)
Minimum Bending Radius		(mm (in))	104 (4.1)
Insertion Loss @ wavelength 850nm		dB/km	3.0
Insertion Loss @ wavelength 1310nm		dB/km	1.0
Standards (Meets or exceeds)			UL94-V0, UL1666 RoHS Compliant
<b>DC Power Cable Properties</b>			
Size (Power)		(mm (AWG))	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		(mm (AWG))	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		(mm (in))	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-95-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
<b>Environment</b>			
Installation Temperature		(°C (°F))	-40 to +65 (-40 to 149)
Operation Temperature		(°C (°F))	-40 to +65 (-40 to 149)

\* This data is provisional and subject to change

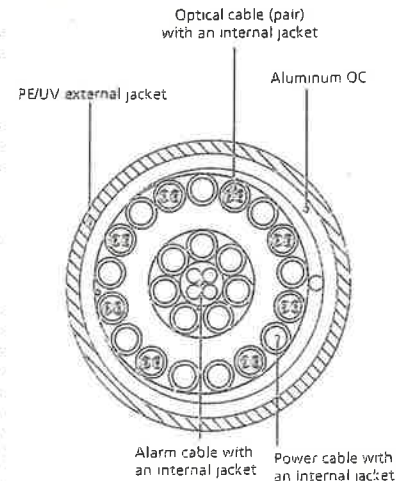


Figure 2: Construction Detail

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

# **ATTACHMENT 2**



# **ATTACHMENT 3**



**AMERICAN TOWER®**  
CORPORATION

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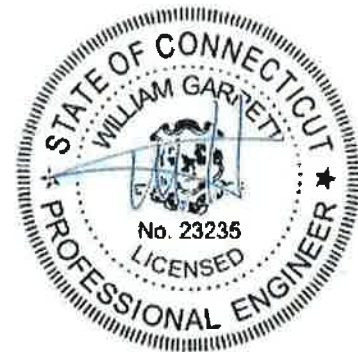
## Structural Analysis Report

**Structure** : 300 ft Guyed Tower  
**ATC Site Name** : Franklin CT, CT  
**ATC Site Number** : 6310  
**Engineering Number** : 60540423  
**Proposed Carrier** : Verizon Wireless  
**Carrier Site Name** : Franklin CT  
**Carrier Site Number** : 117732  
**Site Location** : 89 Dr. Nott Road  
North Franklin, CT 06254-1316  
41.597664,-72.144974  
**County** : New London  
**Date** : March 4, 2015  
**Max Usage** : 77%  
**Result** : Pass

Reviewed by:  
William Garrett, PE  
Chief Engineer

Prepared By:  
Jessica Abbott, E.I.  
Structural Engineer I

*Jessica Abbott*



Mar 4 2015 5:22 PM



**Table of Contents**

Introduction .....	1
Supporting Documents .....	1
Analysis .....	1
Conclusion.....	1
Existing and Reserved Equipment.....	2
Equipment to be Removed.....	2
Proposed Equipment .....	2
Structure Usages .....	3
Foundations .....	3
Deflection, Twist, and Sway.....	3
Standard Conditions .....	4
Calculations .....	Attached





## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 300 ft guyed tower to reflect the change in loading by Verizon Wireless.

## Supporting Documents

<b>Tower Drawings</b>	FWT Job #18504, dated January, 20, 1999
<b>Foundation Drawing</b>	FWT Job #18504, dated January, 20, 1999
<b>Geotechnical Report</b>	Tectonic Engineering Consultants P.C. dated October 26, 1998
<b>Modifications</b>	ATC Project #430070H1, dated March 5, 1999

## 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/EIA-222.

<b>Basic Wind Speed:</b>	85 mph (Fastest Mile)
<b>Basic Wind Speed w/ Ice:</b>	74 mph (Fastest Mile)w/ 1/2" radial ice concurrent
<b>Code:</b>	ANSI/TIA/EIA-222-F / 2003 IBC , Sec. 1609.1.1, Exception (4) & Sec. 3108.4 w/ 2005 CT Supplement & 2009 CT Amendment

## Conclusion

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

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



**Existing and Reserved Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier	
Mount	RAD						
294.0	301.0	1	7' Omni	Side Arms	(2) 1 1/4" Coax	--	
	287.0	1	20' Dipole				
	305.0	1	Decibel ASP-973		(1) 7/8" Coax	Laidlaw	
	306.0	2	20' Dipole		(2) 7/8" Coax	Quinnebaug Valley Emergency	
268.0	277.0	1	10' Dipole	Side Arms	(1) 1 1/4" Coax	--	
	275.0	1	8' Omni		(1) 1 1/4" Coax		American Messaging
	273.0	2	Andrew DB810K-XT		(2) 1 5/8" Coax		AT&T Mobility
233.0	237.0	2	Scala OGT9-840	(2) 1 5/8" Coax			
	228.0	2	11' Omni	(2) 1 1/4" Coax	USA Mobility		
202.0	212.0	1	20' Dipole	Side Arms	(1) 7/8" Coax	New England & Central Railroad	
		1	Andrew DB224		(1) 7/8" Coax		Prov & Worcester RR
176.0	180.0	6	14" x 9" TTA	Sector Frames	(15) 1 5/8" Coax	Sprint Nextel	
		3	EMS RR90-17-02DPL2				
		9	Decibel 844H90E-XY				
165.0	169.0	3	Antel BXA-70063-6CF-EDIN-X	Sector Frames	(12) 1 5/8" Coax	Verizon	
		6	RFS FD9R6004/2C-3L				
129.0	130.0	2	AP7-850/065	Side Arm	(2) 3/8" Coax (2) 1 5/8" Coax	AT&T Mobility	
		1	18"x18"x4" Junction Box				
105.0	105.0	1	3' Yagi	Leg	(1) 1/2" Coax	--	
	115.0	1	20' Dipole		(1) 1/2" Coax		New England Central Railroad
100.0	102.0	1	2' x 4' Rectangular Grid Dish	Leg	(1) 7/8" Coax	USA Mobility	
84.0	84.0	1	6' Ice Shield	Leg	-	AT&T Mobility	
78.0	78.0	1	RFS PA6-65AC	Leg	(1) EW52		

**Equipment to be Removed**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
165.0	169.0	6	Antel LPA-80063-4CF	-	-	Verizon
		3	Antel BXA-171063-12BF-EDIN-X			

**Proposed Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
165.0	169.0	3	Commscope LNX-8513DS-VTM	Sector Frames	(1) 1 5/8" Fiber	Verizon
		1	RFS DB-T1-6Z-8AB-OZ			
		6	Commscope HBXX-6517DS-A2M			
		3	Alcatel-Lucent RRH 2X60-AWS			
		3	Alcatel-Lucent RRH 2X60-1900			

<sup>1</sup>Mount 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).

Install proposed coax alongside existing Verizon Wireless coax.



**Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Legs	69%	Pass
Diagonals	63%	Pass
Horizontals	56%	Pass
Guys	77%	Pass

**Foundations**

Reaction Component	Original Design Reactions	Analysis Reactions	% of Design
Base Axial (kips)	208.2	155.7	75%
Anchor 1 Uplift (kips)	73.5	57.8	79%
Anchor 1 Shear (kips)	85.9	71.6	83%

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

**Deflection, Twist and Sway\***

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
165.0	Alcatel-Lucent RRH 2X60-1900	Verizon Wireless	0.183	0.399	0.092
	Alcatel-Lucent RRH 2X60-AWS		0.183	0.399	0.092
	Commscope HBXX-6517DS-A2M		0.183	0.399	0.092
	Commscope LNX-8513DS-VTM		0.183	0.399	0.092
	RFS DB-T1-6Z-8AB-0Z		0.183	0.399	0.092
100.0	2' x 4' Rectangular Grid Dish	USA Mobility	0.134	0.522	0.018
78.0	RFS PA6-65AC	AT&T Mobility	0.125	0.608	0.064

\*Deflection, Twist and Sway was evaluated considering a design wind speed of 50 mph (Fastest Mile) per ANSI/TIA/EIA-222-F.



## **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.

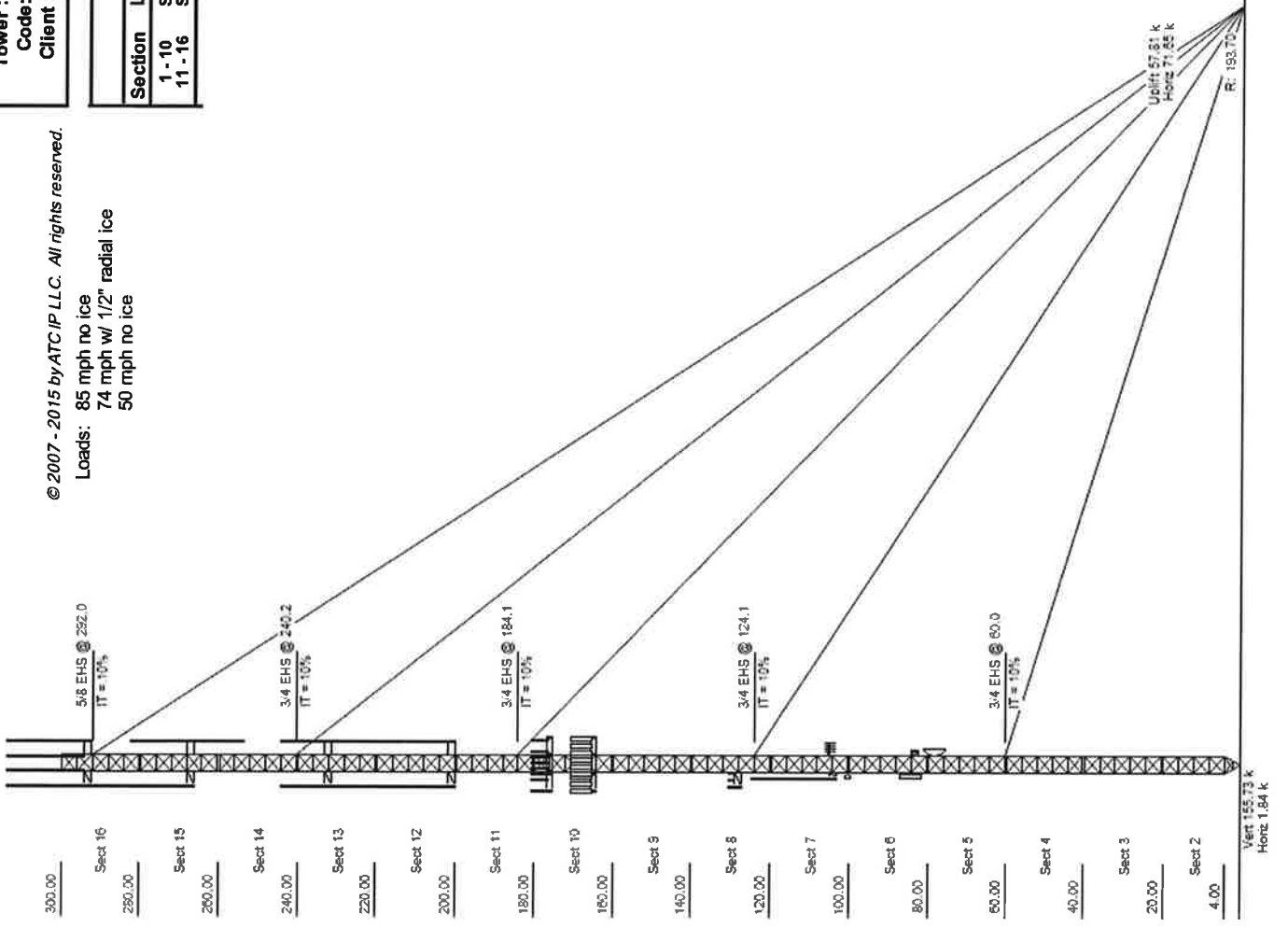
Job Information		
Tower : 6310	Location : Franklin CT, CT	Base Width : 4.00 ft
Code : TIA/EIA-222-F	Shape : Triangle	
Client : Verizon Wireless		

Sections Properties		
Section	Leg Members	Diagonal Members
1 - 10	SOL 50 ksi 2 1/4" SOLID	SOL 50 ksi 5/8" SOLID
11 - 16	SOL 50 ksi 2" SOLID	SOL 50 ksi 5/8" SOLID
		Horizontal Members
		SAE 36 ksi 2X2X0.1875
		SAE 36 ksi 2X2X0.1875

Discrete Appurtenance		
Elev (ft)	Type	Qty Description
294.00	Straight Arm	3 Side Arm
294.00	Whip	1 7' Omni
294.00	Whip	1 20' Dipole
294.00	Whip	1 Decibel ASP-973
294.00	Whip	2 20' Dipole
268.00	Whip	1 Andrew DB810K-XT
268.00	Straight Arm	3 Side Arm
268.00	Whip	1 Andrew DB810K-XT
268.00	Whip	1 10' Dipole
268.00	Whip	1 8' Omni
233.00	Whip	3 Side Arm
233.00	Whip	1 11' Omni
202.00	Whip	2 Scala OGT9-840
202.00	Whip	1 Andrew DB224
202.00	Straight Arm	2 Side Arm
202.00	Whip	1 20' Dipole
176.00	Panel	6 14" x 9" TTA
176.00	Panel	3 EMS RR90-17-02DPL2
176.00	Panel	9 Decibel 844H90E-XY
165.00	Mounting Frame	3 Sector Frame
165.00	Panel	6 Commscope HBXX-6517DS-A2M
165.00	Panel	3 Alcatel-Lucent RRH 2X60-AWS
165.00	Panel	3 Alcatel-Lucent RRH 2X60-1900
165.00	Panel	1 Commscope LNX-8513DS-VTM
165.00	Panel	1 RFS DB-T1-8Z-8AB-4Z
165.00	Panel	3 Arnel BXA-70063-6CF-EDIN-X
165.00	Panel	6 RFS FD9R6004/2C-3L
129.00	Mounting Frame	2 Sector Frame
129.00	Panel	1 AP7-850/065
129.00	Panel	1 18"x18"x4" Junction Box
105.00	Straight Arm	1 Side Arm
105.00	Yagi	1 3' Yagi
100.00	Whip	1 20' Dipole
84.00	Dish	1 2' x 4' Rectangular Grid Dish
78.00	Panel	1 6' Ice Shield
78.00	Dish	1 RFS PA6-65AC

Linear Appurtenance		
Elev (ft)	From To	Qty Description
4,000	294.00	1 7/8" Coax
4,000	294.00	2 7/8" Coax
4,000	294.00	2 1 1/4" Coax
4,000	268.00	2 1 1/4" Coax
4,000	268.00	1 1 1/4" Coax
4,000	268.00	1 1 1/4" Coax
4,000	233.00	2 1 1/4" Coax
4,000	233.00	2 1 1/4" Coax
4,000	202.00	1 7/8" Coax
4,000	202.00	1 7/8" Coax
4,000	176.00	15 1 5/8" Coax
4,000	165.00	1 1 5/8" Fiber
4,000	165.00	12 1 5/8" Coax
4,000	129.00	2 3/8" Coax
4,000	129.00	2 1 5/8" Coax
4,000	105.00	1 1/2" Coax
4,000	105.00	1 1/2" Coax

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 Loads: 85 mph no ice  
 74 mph w/ 1/2" radial ice  
 50 mph no ice

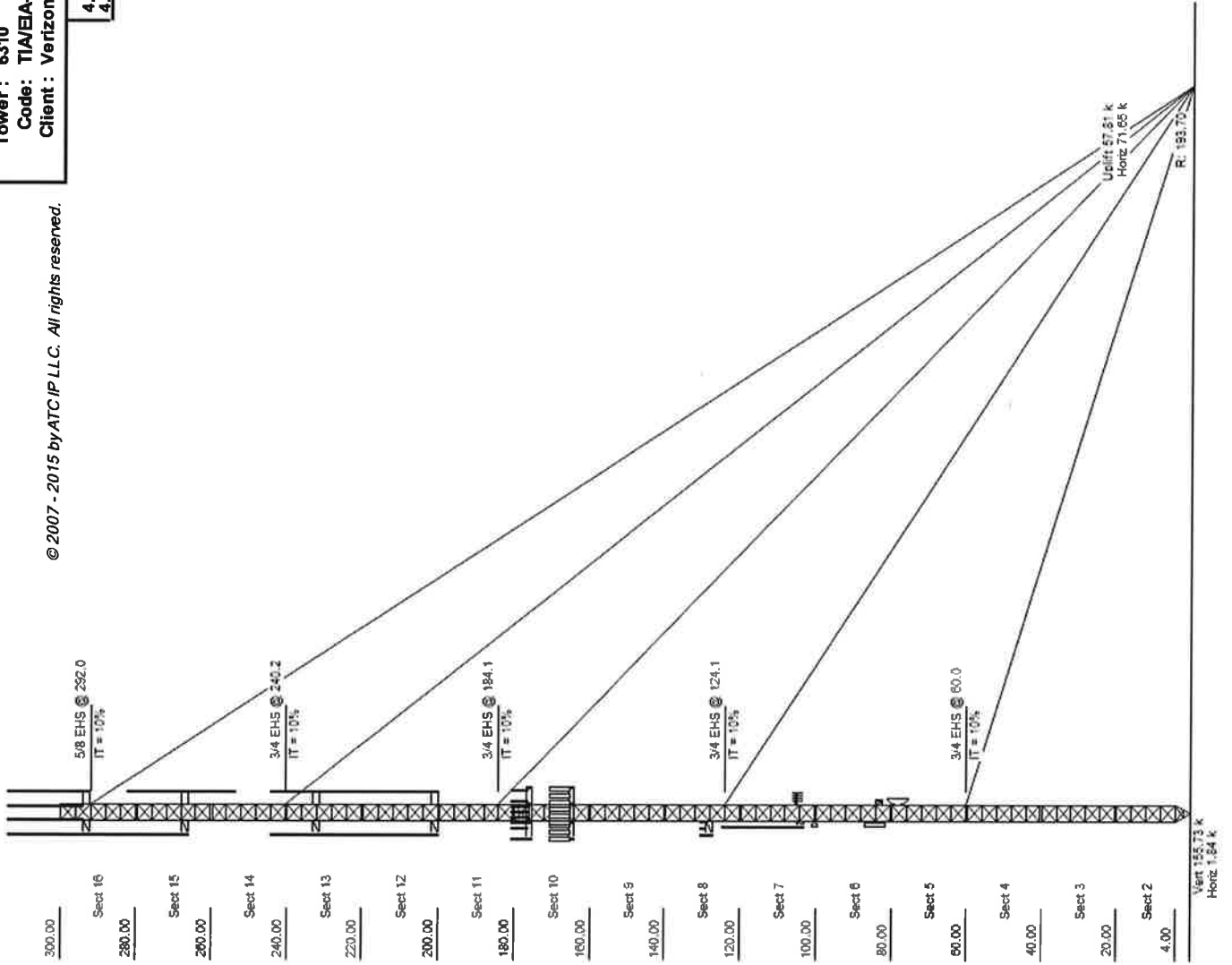


**Job Information**

Tower : 6310 Location : Franklin CT, CT  
 Code : TIA/EIA-222-F Shape : Triangle Base Width : 4.00 ft  
 Client : Verizon Wireless

4.000	100.00	1	7/8" Coax
4.000	78.000	1	EM52

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Site Number: 6310

Code:

TIA/EIA-222-F

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Site Name: Franklin CT, CT

Engineering Number: 60540423

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Customer: Verizon Wireless

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## Analysis Parameters

### Tower Loading

Location:	New London County, CT	Height:	300
Code:	TIA/EIA-222-F	Base Elevation:	0.00 ft
Shape:	Triangle	Base Face Width:	4.00 ft
Tower Manufacturer:	FWT Inc	Top Face Width:	4.00 ft
Tower Type:	Guyed		

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### Ice & Wind Parameters

Exposure Category:	C	Design Windspeed Without Ice:	85 mph
Design Ice Thickness:	0.50 in	Design Windspeed With Ice:	74 mph

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### Load Cases

Normal No Ice	85 mph Wind Normal To Face with No Ice
60 deg No Ice	85 mph Wind at 60 degree From Face with No Ice
90 deg No Ice	85 mph Wind at 90 degree From Face with No Ice
Normal Ice	74 mph Wind Normal To Face with Ice
60 deg Ice	74 mph Wind at 60 degree From Face with Ice
90 deg Ice	74 mph Wind at 90 degree From Face with Ice
Normal Twist/Sway	50 mph Wind Normal To Face with No Ice
60 deg Twist/Sway	50 mph Wind at 60 degree From Face with No Ice
90 deg Twist/Sway	50 mph Wind at 90 degree From Face with No Ice

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Site Number: 6310  
 Site Name: Franklin CT, CT  
 Customer: Verizon Wireless

Code: TIA/EIA-222-F  
 Engineering Number: 60540423

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## Tower Loading

### Discrete Appurtenance Properties Normal No Ice

Elevation (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Dist. From Face (ft)	X Angle (deg)	Vert Ecc (ft)	Mom (lb-ft)	Qz (psf)	Total Force (lb)	Pu (lb)
294.00	20' Dipole	2	60	7.5	1.00	0.0	0.00	12.0	6860.8	34.95	572	120
294.00	20' Dipole	1	60	7.5	1.00	0.0	0.00	-7.0	1964.7	34.31	281	60
294.00	7' Omni	1	35	2.1	1.00	0.0	0.00	7.0	556.2	34.78	79	35
294.00	Decibel ASP-973	1	27	3.3	1.00	0.0	0.00	11.0	1395.3	34.92	127	27
294.00	Side Arm	3	150	6.3	0.75	0.0	0.00	0.0	0.0	34.55	533	450
268.00	10' Dipole	1	30	3.8	1.00	0.0	0.00	9.0	1250.3	33.97	139	30
268.00	8' Omni	1	40	2.4	1.00	0.0	0.00	7.0	619.4	33.90	88	40
268.00	Andrew DB810K-XT	1	35	4.3	1.00	0.0	0.00	-5.0	791.8	33.47	158	35
268.00	Andrew DB810K-XT	1	35	4.3	1.00	0.0	0.00	5.0	800.3	33.83	160	35
268.00	Side Arm	3	150	6.3	0.75	0.0	0.00	0.0	0.0	33.65	519	450
233.00	11' Omni	2	11	3.3	1.00	0.0	0.00	-5.0	1153.3	32.13	231	22
233.00	Scala OGT9-840	2	19	2.3	1.00	0.0	0.00	4.0	645.4	32.49	161	37
233.00	Side Arm	3	150	6.3	0.75	0.0	0.00	0.0	0.0	32.33	498	450
202.00	20' Dipole	1	60	7.5	1.00	0.0	0.00	10.0	2574.1	31.47	257	60
202.00	Andrew DB224	1	38	6.1	1.00	0.0	0.00	10.0	2070.9	31.47	207	38
202.00	Side Arm	2	150	6.3	1.00	0.0	0.00	0.0	0.0	31.04	425	300
176.00	14" x 9" TTA	6	10	1.2	0.67	0.0	0.00	4.0	646.1	30.03	162	60
176.00	Decibel 844H90E-XY	9	12	3.7	0.95	0.0	0.00	4.0	4167.1	30.03	1042	104
176.00	EMS RR90-17-02DPL2	3	18	4.4	0.73	0.0	0.00	4.0	1247.6	30.03	312	54
176.00	Sector Frame	3	300	14.4	0.75	0.0	0.00	0.0	0.0	29.84	1052	900
165.00	Alcatel-Lucent RRH	3	40	2.2	0.50	0.0	0.00	0.0	0.0	29.29	105	119
165.00	Alcatel-Lucent RRH	3	40	2.2	0.50	0.0	0.00	0.0	0.0	29.29	105	119
165.00	Antel BXA-70063-6CF-	3	17	7.7	0.77	0.0	0.00	4.0	2291.5	29.50	573	51
165.00	Commscope HBXX-	6	40	8.7	0.81	0.0	0.00	0.0	0.0	29.29	1352	238
165.00	Commscope LNX-	3	39	8.4	0.83	0.0	0.00	4.0	2677.8	29.50	669	118
165.00	RFS DB-T1-6Z-8AB-0Z	1	44	5.6	1.00	0.0	0.00	4.0	718.7	29.50	180	44
165.00	RFS FD9R6004/2C-3L	6	3	0.4	0.67	0.0	0.00	4.0	190.9	29.50	48	19
165.00	Sector Frame	3	400	17.9	0.75	0.0	0.00	0.0	0.0	29.29	1283	1200
129.00	18"x18"x4" Junction	1	15	2.1	1.00	0.0	0.00	1.0	62.5	27.37	63	15
129.00	AP7-850/065	2	3	1.3	1.00	0.0	0.00	1.0	76.2	27.37	76	6
129.00	Side Arm	1	150	5.2	1.00	0.0	0.00	0.0	0.0	27.31	154	150
105.00	20' Dipole	1	60	7.5	1.00	0.0	0.00	10.0	2161.4	26.42	216	60
105.00	3' Yagi	1	10	3.0	1.00	0.0	0.00	0.0	0.0	25.75	83	10
100.00	2' x 4' Rectangular Grid	1	40	4.8	1.00	0.0	0.00	2.0	263.8	25.53	132	40
84.00	6' Ice Shield	1	450	3.9	1.00	0.0	0.00	0.0	0.0	24.16	102	450
78.00	RFS PA6-65AC	1	250	24.4	1.00	0.0	0.00	0.0	0.0	23.65	628	250
	<b>Totals</b>	<b>84</b>	<b>6194</b>	<b>462.9</b>								

### Discrete Appurtenance Properties Normal Ice

Elevation (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Dist. From Face (ft)	X Angle (deg)	Vert Ecc (ft)	Mom (lb-ft)	Qz (psf)	Total Force (lb)	Pu (lb)
294.00	20' Dipole	2	124	10.9	1.00	0.0	0.00	12.0	7471.6	26.21	623	247
294.00	20' Dipole	1	124	10.9	1.00	0.0	0.00	-7.0	2139.7	25.73	306	124
294.00	7' Omni	1	55	2.8	1.00	0.0	0.00	7.0	562.1	26.09	80	55
294.00	Decibel ASP-973	1	52	4.8	1.00	0.0	0.00	11.0	1497.6	26.18	136	52



Site Number: 6310  
 Site Name: Franklin CT, CT  
 Customer: Verizon Wireless

Code: TIA/EIA-222-F  
 Engineering Number: 60540423

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### Tower Loading

294.00	Side Arm	3	230	7.0	0.75	0.0	0.00	0.0	0.0	25.91	444	690
268.00	10' Dipole	1	62	5.5	1.00	0.0	0.00	9.0	1366.6	25.47	152	62
268.00	8' Omni	1	62	3.2	1.00	0.0	0.00	7.0	625.2	25.42	89	62
268.00	Andrew DB810K-XT	1	70	5.8	1.00	0.0	0.00	-5.0	791.7	25.10	158	70
268.00	Andrew DB810K-XT	1	70	5.8	1.00	0.0	0.00	5.0	800.2	25.37	160	70
268.00	Side Arm	3	230	7.0	0.75	0.0	0.00	0.0	0.0	25.24	432	690
233.00	11' Omni	2	35	4.4	1.00	0.0	0.00	-5.0	1161.1	24.10	232	70
233.00	Scala OGT9-840	2	41	3.4	1.00	0.0	0.00	4.0	730.2	24.36	183	82
233.00	Side Arm	3	230	7.0	0.75	0.0	0.00	0.0	0.0	24.25	415	690
202.00	20' Dipole	1	124	10.9	1.00	0.0	0.00	10.0	2803.3	23.60	280	124
202.00	Andrew DB224	1	91	11.3	1.00	0.0	0.00	10.0	2900.8	23.60	290	91
202.00	Side Arm	2	230	7.0	1.00	0.0	0.00	0.0	0.0	23.28	354	460
176.00	14" x 9" TTA	6	18	1.5	0.67	0.0	0.00	4.0	575.1	22.52	144	108
176.00	Decibel 844H90E-XY	9	38	4.3	0.95	0.0	0.00	4.0	3594.4	22.52	899	342
176.00	EMS RR90-17-02DPL2	3	40	5.0	0.73	0.0	0.00	4.0	1070.9	22.52	268	121
176.00	Sector Frame	3	415	19.2	0.75	0.0	0.00	0.0	0.0	22.38	1052	1245
165.00	Alcatel-Lucent RRH	3	55	2.5	0.50	0.0	0.00	0.0	0.0	21.97	90	166
165.00	Alcatel-Lucent RRH	3	55	2.5	0.50	0.0	0.00	0.0	0.0	21.97	90	166
165.00	Antel BXA-70063-6CF-	3	58	8.5	0.77	0.0	0.00	4.0	1898.6	22.12	475	174
165.00	Commscope HBXX-	6	89	9.6	0.81	0.0	0.00	0.0	0.0	21.97	1120	533
165.00	Commscope LNX-	3	90	9.2	0.83	0.0	0.00	4.0	2214.3	22.12	554	270
165.00	RFS DB-T1-6Z-8AB-0Z	1	66	6.5	1.00	0.0	0.00	4.0	625.6	22.12	156	66
165.00	RFS FD9R6004/2C-3L	6	5	0.5	0.67	0.0	0.00	4.0	193.5	22.12	48	32
165.00	Sector Frame	3	510	22.2	0.75	0.0	0.00	0.0	0.0	21.97	1194	1530
129.00	18"x18"x4" Junction	1	31	2.4	1.00	0.0	0.00	1.0	53.6	20.52	54	31
129.00	AP7-850/065	2	10	1.5	1.00	0.0	0.00	1.0	66.1	20.52	66	20
129.00	Side Arm	1	175	5.9	1.00	0.0	0.00	0.0	0.0	20.48	131	175
105.00	20' Dipole	1	124	10.9	1.00	0.0	0.00	10.0	2353.8	19.82	235	124
105.00	3' Yagi	1	36	4.8	1.00	0.0	0.00	0.0	0.0	19.31	100	36
100.00	2' x 4' Rectangular Grid	1	83	14.0	1.00	0.0	0.00	2.0	584.0	19.15	292	83
84.00	6' Ice Shield	1	350	7.5	1.00	0.0	0.00	0.0	0.0	18.12	148	350
78.00	RFS PA6-65AC	1	453	25.1	1.00	0.0	0.00	0.0	0.0	17.74	484	453
	Totals	84	9664	571.4								

### Discrete Appurtenance Properties Normal Twist/Sway

Elevation (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Dist. From Face (ft)	X Angle (deg)	Vert Ecc (ft)	Mom (lb-ft)	Qz (psf)	Total Force (lb)	Pu (lb)
294.00	20' Dipole	2	60	7.5	1.00	0.0	0.00	12.0	2374.0	12.09	198	120
294.00	20' Dipole	1	60	7.5	1.00	0.0	0.00	-7.0	679.8	11.87	97	60
294.00	7' Omni	1	35	2.1	1.00	0.0	0.00	7.0	192.5	12.04	27	35
294.00	Decibel ASP-973	1	27	3.3	1.00	0.0	0.00	11.0	482.8	12.08	44	27
294.00	Side Arm	3	150	6.3	0.75	0.0	0.00	0.0	0.0	11.96	184	450
268.00	10' Dipole	1	30	3.8	1.00	0.0	0.00	9.0	432.6	11.75	48	30
268.00	8' Omni	1	40	2.4	1.00	0.0	0.00	7.0	214.3	11.73	31	40
268.00	Andrew DB810K-XT	1	35	4.3	1.00	0.0	0.00	-5.0	274.0	11.58	55	35
268.00	Andrew DB810K-XT	1	35	4.3	1.00	0.0	0.00	5.0	276.9	11.70	55	35
268.00	Side Arm	3	150	6.3	0.75	0.0	0.00	0.0	0.0	11.64	180	450
233.00	11' Omni	2	11	3.3	1.00	0.0	0.00	-5.0	399.1	11.12	80	22
233.00	Scala OGT9-840	2	19	2.3	1.00	0.0	0.00	4.0	223.3	11.24	56	37
233.00	Side Arm	3	150	6.3	0.75	0.0	0.00	0.0	0.0	11.19	172	450
202.00	20' Dipole	1	60	7.5	1.00	0.0	0.00	10.0	890.7	10.89	89	60

Site Number: 6310  
 Site Name: Franklin CT, CT  
 Customer: Verizon Wireless

Code: TIA/EIA-222-F  
 Engineering Number: 60540423

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### Tower Loading

202.00	Andrew DB224	1	38	6.1	1.00	0.0	0.00	10.0	716.6	10.89	72	38
202.00	Side Arm	2	150	6.3	1.00	0.0	0.00	0.0	0.0	10.74	147	300
176.00	14" x 9" TTA	6	10	1.2	0.67	0.0	0.00	4.0	223.6	10.39	56	60
176.00	Decibel 844H90E-XY	9	12	3.7	0.95	0.0	0.00	4.0	1441.9	10.39	360	104
176.00	EMS RR90-17-02DPL2	3	18	4.4	0.73	0.0	0.00	4.0	431.7	10.39	108	54
176.00	Sector Frame	3	300	14.4	0.75	0.0	0.00	0.0	0.0	10.33	364	900
165.00	Alcatel-Lucent RRH	3	40	2.2	0.50	0.0	0.00	0.0	0.0	10.14	36	119
165.00	Alcatel-Lucent RRH	3	40	2.2	0.50	0.0	0.00	0.0	0.0	10.14	36	119
165.00	Antel BXA-70063-6CF-	3	17	7.7	0.77	0.0	0.00	4.0	792.9	10.21	198	51
165.00	Commscope HBXX-	6	40	8.7	0.81	0.0	0.00	0.0	0.0	10.14	468	238
165.00	Commscope LNX-	3	39	8.4	0.83	0.0	0.00	4.0	926.6	10.21	232	118
165.00	RFS DB-T1-6Z-8AB-0Z	1	44	5.6	1.00	0.0	0.00	4.0	248.7	10.21	62	44
165.00	RFS FD9R6004/2C-3L	6	3	0.4	0.67	0.0	0.00	4.0	66.0	10.21	17	19
165.00	Sector Frame	3	400	17.9	0.75	0.0	0.00	0.0	0.0	10.14	444	1200
129.00	18"x18"x4" Junction	1	15	2.1	1.00	0.0	0.00	1.0	21.6	9.47	22	15
129.00	AP7-850/065	2	3	1.3	1.00	0.0	0.00	1.0	26.4	9.47	26	6
129.00	Side Arm	1	150	5.2	1.00	0.0	0.00	0.0	0.0	9.45	53	150
105.00	20' Dipole	1	60	7.5	1.00	0.0	0.00	10.0	747.9	9.14	75	60
105.00	3' Yagi	1	10	3.0	1.00	0.0	0.00	0.0	0.0	8.91	29	10
100.00	2' x 4' Rectangular Grid	1	40	4.8	1.00	0.0	0.00	2.0	91.3	8.83	46	40
84.00	6' Ice Shield	1	450	3.9	1.00	0.0	0.00	0.0	0.0	8.36	35	450
78.00	RFS PA6-65AC	1	250	24.4	1.00	0.0	0.00	0.0	0.0	8.18	217	250
	Totals	84	6194	462.9								

Site Number: 6310  
 Site Name: Franklin CT, CT  
 Customer: Verizon Wireless

Code: TIA/EIA-222-F  
 Engineering Number: 60540423

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## Tower Loading

### Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Wind	Spread On Faces	Bundling Arrangement
4.00	294.00	1 1/4" Coax	2	1.55	0.63	100.00	1	Separate
4.00	294.00	7/8" Coax	2	1.09	0.33	100.00	2	Separate
4.00	294.00	7/8" Coax	1	1.09	0.33	100.00	2	Separate
4.00	268.00	1 1/4" Coax	1	1.55	0.63	100.00	1	Separate
4.00	268.00	1 1/4" Coax	1	1.55	0.63	100.00	1	Separate
4.00	268.00	1 5/8" Coax	2	1.98	0.82	100.00	3	Separate
4.00	233.00	1 1/4" Coax	2	1.55	0.63	100.00	1	Separate
4.00	233.00	1 5/8" Coax	2	1.98	0.82	100.00	3	Separate
4.00	202.00	7/8" Coax	1	1.09	0.33	100.00	1	Separate
4.00	202.00	7/8" Coax	1	1.09	0.33	100.00	1	Separate
4.00	176.00	1 5/8" Coax	15	1.98	0.82	55.00	2	Separate
4.00	165.00	1 5/8" Coax	12	1.98	0.82	50.00	3	Separate
4.00	165.00	1 5/8" Fiber	1	1.63	1.61	100.00	3	Separate
4.00	129.00	1 5/8" Coax	2	1.98	0.82	100.00	3	Separate
4.00	129.00	3/8" Coax	2	0.44	0.08	100.00	3	Separate
4.00	105.00	1/2" Coax	1	0.63	0.15	100.00	3	Separate
4.00	105.00	1/2" Coax	1	0.63	0.15	100.00	3	Separate
4.00	100.00	7/8" Coax	1	1.09	0.33	100.00	3	Separate
4.00	78.00	EW52	1	2.25	0.59	100.00	3	Separate

Site Number: 6310  
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 Engineering Number: 60540423

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### Force/Stress Summary

**Section: 1 Base Bot Elev (ft): 0.00 Height (ft): 4.000**

		Force	Len	Bracing %				Fa	Member			Shear	Bear	Use	
		(kip)	(ft)	X	Y	Z	KL/R	(ksi)	Cap (kip)	Num Bolts	Num Holes	Cap (kip)	Cap (kip)	%	Controls
<b>Max Compression Member</b>															
LEG	SOL - 2 1/4" SOLID	-61.53	2.31	100	100	100	49.2	32.6	129.69	0	0	0.00	0.00	47	Member X
HORIZ		0.00	0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG	SOL - 5/8" SOLID	-0.28	3.651	50	75	50	189.6	5.5	1.70	0	0	0.00	0.00		

		Force	Fy	Cap	Num	Num	Shear	Bear	Use	Controls
		(kip)	(ksi)	(kip)	Bolts	Holes	Cap (kip)	Cap (kip)	%	
<b>Max Tension Member</b>										
LEG		0.00	0	0.00	0	0	0.00	0.00	0	
HORIZ SAE - 2X2X0.1875		11.55	36	20.59	0	0	0.00	0.00	56	Member
DIAG		0.00	0	0.00	0	0	0.00	0.00	0	

**Section: 2 16'-4 Bays Bot Elev (ft): 4.00 Height (ft): 16.000**

		Force	Len	Bracing %				Fa	Member			Shear	Bear	Use	
		(kip)	(ft)	X	Y	Z	KL/R	(ksi)	Cap (kip)	Num Bolts	Num Holes	Cap (kip)	Cap (kip)	%	Controls
<b>Max Compression Member</b>															
LEG	SOL - 2 1/4" SOLID	-58.03	3.90	100	100	100	83.2	24.5	97.36	0	0	0.00	0.00	59	Member X
HORIZ SAE - 2X2X0.1875		-1.16	4.000	100	100	100	85.3	19.7	14.07	0	0	0.00	0.00	8	Member Z
DIAG	SOL - 5/8" SOLID	-0.03	5.587	50	75	50	290.0	2.4	0.73	0	0	0.00	0.00		

		Force	Fy	Cap	Num	Num	Shear	Bear	Use	Controls
		(kip)	(ksi)	(kip)	Bolts	Holes	Cap (kip)	Cap (kip)	%	
<b>Max Tension Member</b>										
LEG		0.00	0	0.00	0	0	0.00	0.00	0	
HORIZ SAE - 2X2X0.1875		5.98	36	20.59	0	0	0.00	0.00	29	Member
DIAG SOL - 5/8" SOLID		1.74	50	12.27	0	0	0.00	0.00	14	Member

**Section: 3 20'-5 Bays Bot Elev (ft): 20.00 Height (ft): 20.000**

		Force	Len	Bracing %				Fa	Member			Shear	Bear	Use	
		(kip)	(ft)	X	Y	Z	KL/R	(ksi)	Cap (kip)	Num Bolts	Num Holes	Cap (kip)	Cap (kip)	%	Controls
<b>Max Compression Member</b>															
LEG	SOL - 2 1/4" SOLID	-57.56	3.92	100	100	100	83.6	24.4	96.90	0	0	0.00	0.00	59	Member X
HORIZ SAE - 2X2X0.1875		-1.18	4.000	100	100	100	85.3	19.7	14.07	0	0	0.00	0.00	8	Member Z
DIAG	SOL - 5/8" SOLID	-0.28	5.601	50	75	50	290.8	2.4	0.72	0	0	0.00	0.00		

		Force	Fy	Cap	Num	Num	Shear	Bear	Use	Controls
		(kip)	(ksi)	(kip)	Bolts	Holes	Cap (kip)	Cap (kip)	%	
<b>Max Tension Member</b>										
LEG		0.00	0	0.00	0	0	0.00	0.00	0	
HORIZ SAE - 2X2X0.1875		0.22	36	20.59	0	0	0.00	0.00	1	Member
DIAG SOL - 5/8" SOLID		1.94	50	12.27	0	0	0.00	0.00	15	Member

Site Number: 6310  
 Site Name: Franklin CT, CT  
 Customer: Verizon Wireless

Code: TIA/EIA-222-F  
 Engineering Number: 60540423

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### Force/Stress Summary

**Section: 4    20'-5 Bays    Bot Elev (ft): 40.00    Height (ft): 20.000**

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing %				Fa (ksi)	Member			Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
				X	Y	Z	KL/R		Cap (kip)	Num Bolts	Num Holes				
LEG SOL - 2 1/4" SOLID	-67.79	Normal Ice	3.92	100	100	100	83.6	24.4	96.90	0	0	0.00	0.00	69	Member X
HORIZ SAE - 2X2X0.1875	-2.84	90 deg Ice	4.000	100	100	100	85.3	19.7	14.07	0	0	0.00	0.00	20	Member Z
DIAG SOL - 5/8" SOLID	-0.08	60 deg No Ice	5.601	50	75	50	290.8	2.4	0.72	0	0	0.00	0.00		

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG	0.00		0	0.00	0	0	0.00	0.00	0	
HORIZ SAE - 2X2X0.1875	2.35	Normal Ice	36	20.59	0	0	0.00	0.00	11	Member
DIAG SOL - 5/8" SOLID	3.95	90 deg Ice	50	12.27	0	0	0.00	0.00	32	Member

**Section: 5    20'-5 Bays    Bot Elev (ft): 60.00    Height (ft): 20.000**

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing %				Fa (ksi)	Member			Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
				X	Y	Z	KL/R		Cap (kip)	Num Bolts	Num Holes				
LEG SOL - 2 1/4" SOLID	-66.50	Normal Ice	3.92	100	100	100	83.6	24.4	96.90	0	0	0.00	0.00	68	Member X
HORIZ SAE - 2X2X0.1875	-3.39	90 deg Ice	4.000	100	100	100	85.3	19.7	14.07	0	0	0.00	0.00	24	Member Z
DIAG SOL - 5/8" SOLID	-0.04	Normal Ice	5.601	50	75	50	290.8	2.4	0.72	0	0	0.00	0.00		

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG	0.00		0	0.00	0	0	0.00	0.00	0	
HORIZ SAE - 2X2X0.1875	2.19	Normal Ice	36	20.59	0	0	0.00	0.00	10	Member
DIAG SOL - 5/8" SOLID	4.82	90 deg Ice	50	12.27	0	0	0.00	0.00	39	Member

**Section: 6    20'-5 Bays    Bot Elev (ft): 80.00    Height (ft): 20.000**

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing %				Fa (ksi)	Member			Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
				X	Y	Z	KL/R		Cap (kip)	Num Bolts	Num Holes				
LEG SOL - 2 1/4" SOLID	-52.52	90 deg Ice	3.92	100	100	100	83.6	24.4	96.90	0	0	0.00	0.00	54	Member X
HORIZ SAE - 2X2X0.1875	-1.39	90 deg Ice	4.000	100	100	100	85.3	19.7	14.07	0	0	0.00	0.00	9	Member Z
DIAG SOL - 5/8" SOLID	-0.18	Normal No Ice	5.601	50	75	50	290.8	2.4	0.72	0	0	0.00	0.00		

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG	0.00		0	0.00	0	0	0.00	0.00	0	
HORIZ SAE - 2X2X0.1875	1.01	Normal	36	20.59	0	0	0.00	0.00	4	Member
DIAG SOL - 5/8" SOLID	2.30	90 deg Ice	50	12.27	0	0	0.00	0.00	18	Member

Site Number: 6310  
 Site Name: Franklin CT, CT  
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 Engineering Number: 60540423

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### Force/Stress Summary

**Section: 7    20'-5 Bays    Bot Elev (ft): 100.0    Height (ft): 20.000**

	Force (kip)	Load Case	Len (ft)	Bracing %				Fa (ksi)	Member			Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
				X	Y	Z	KL/R		Cap (kip)	Num Bolts	Num Holes				
<b>Max Compression Member</b>															
LEG SOL - 2 1/4" SOLID	-51.45	90 deg Ice	3.92	100	100	100	83.6	24.4	96.90	0	0	0.00	0.00	53	Member X
HORIZ SAE - 2X2X0.1875	-2.93	60 deg Ice	4.000	100	100	100	85.3	19.7	14.07	0	0	0.00	0.00	20	Member Z
DIAG SOL - 5/8" SOLID	-0.36	60 deg No Ice	5.601	50	75	50	290.8	2.4	0.72	0	0	0.00	0.00		

	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
<b>Max Tension Member</b>										
LEG	0.00		0	0.00	0	0	0.00	0.00	0	
HORIZ SAE - 2X2X0.1875	0.98	Normal	36	20.59	0	0	0.00	0.00	4	Member
DIAG SOL - 5/8" SOLID	4.68	60 deg Ice	50	12.27	0	0	0.00	0.00	38	Member

**Section: 8    20'-5 Bays    Bot Elev (ft): 120.0    Height (ft): 20.000**

	Force (kip)	Load Case	Len (ft)	Bracing %				Fa (ksi)	Member			Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
				X	Y	Z	KL/R		Cap (kip)	Num Bolts	Num Holes				
<b>Max Compression Member</b>															
LEG SOL - 2 1/4" SOLID	-51.67	Normal Ice	3.92	100	100	100	83.6	24.4	96.90	0	0	0.00	0.00	53	Member X
HORIZ SAE - 2X2X0.1875	-5.39	90 deg Ice	4.000	100	100	100	85.3	19.7	14.07	0	0	0.00	0.00	38	Member Z
DIAG SOL - 5/8" SOLID	-0.33	Normal No Ice	5.601	50	75	50	290.8	2.4	0.72	0	0	0.00	0.00		

	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
<b>Max Tension Member</b>										
LEG	0.00		0	0.00	0	0	0.00	0.00	0	
HORIZ SAE - 2X2X0.1875	0.90	Normal Ice	36	20.59	0	0	0.00	0.00	4	Member
DIAG SOL - 5/8" SOLID	7.76	90 deg Ice	50	12.27	0	0	0.00	0.00	63	Member

**Section: 9    20'-5 Bays    Bot Elev (ft): 140.0    Height (ft): 20.000**

	Force (kip)	Load Case	Len (ft)	Bracing %				Fa (ksi)	Member			Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
				X	Y	Z	KL/R		Cap (kip)	Num Bolts	Num Holes				
<b>Max Compression Member</b>															
LEG SOL - 2 1/4" SOLID	-60.20	60 deg Ice	3.92	100	100	100	83.6	24.4	96.90	0	0	0.00	0.00	62	Member X
HORIZ SAE - 2X2X0.1875	-3.38	90 deg Ice	4.000	100	100	100	85.3	19.7	14.07	0	0	0.00	0.00	23	Member Z
DIAG SOL - 5/8" SOLID	-0.72	60 deg No Ice	5.601	50	75	50	290.8	2.4	0.72	0	0	0.00	0.00		

	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
<b>Max Tension Member</b>										
LEG SOL - 2 1/4" SOLID	1.81	Normal No Ice	50	159.04	0	0	0.00	0.00	1	Member
HORIZ SAE - 2X2X0.1875	0.83	Normal	36	20.59	0	0	0.00	0.00	4	Member
DIAG SOL - 5/8" SOLID	5.20	90 deg Ice	50	12.27	0	0	0.00	0.00	42	Member

Site Number: 6310  
 Site Name: Franklin CT, CT  
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 Engineering Number: 60540423

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### Force/Stress Summary

**Section: 10 20'-5 Bays Bot Elev (ft): 160.0 Height (ft): 20.000**

	Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member			Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
				X	Y	Z		KL/R	Cap (kip)	Num Bolts				
<b>Max Compression Member</b>														
LEG SOL - 2 1/4" SOLID	-60.33	60 deg Ice	3.92	100	100	100	83.6	24.4	96.90	0	0	0.00	0.00	62 Member X
HORIZ SAE - 2X2X0.1875	-4.28	90 deg Ice	4.000	100	100	100	85.3	19.7	14.07	0	0	0.00	0.00	30 Member Z
DIAG SOL - 5/8" SOLID	-0.36	60 deg No Ice	5.601	50	75	50	290.8	2.4	0.72	0	0	0.00	0.00	

	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
<b>Max Tension Member</b>										
LEG SOL - 2 1/4" SOLID	3.33	Normal No Ice	50	159.04	0	0	0.00	0.00	2	Member
HORIZ SAE - 2X2X0.1875	1.12	Normal	36	20.59	0	0	0.00	0.00	5	Member
DIAG SOL - 5/8" SOLID	7.53	90 deg Ice	50	12.27	0	0	0.00	0.00	61	Member

**Section: 11 20'-5 Bays Bot Elev (ft): 180.0 Height (ft): 20.000**

	Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member			Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
				X	Y	Z		KL/R	Cap (kip)	Num Bolts				
<b>Max Compression Member</b>														
LEG SOL - 2" SOLID	-37.89	90 deg Ice	3.92	100	100	100	94.1	21.4	67.22	0	0	0.00	0.00	56 Member X
HORIZ SAE - 2X2X0.1875	-2.89	Normal Ice	4.000	100	100	100	85.3	19.7	14.07	0	0	0.00	0.00	20 Member Z
DIAG SOL - 5/8" SOLID	-0.68	Normal No Ice	5.601	50	75	50	290.8	2.4	0.72	0	0	0.00	0.00	

	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
<b>Max Tension Member</b>										
LEG	0.00		0	0.00	0	0	0.00	0.00	0	
HORIZ SAE - 2X2X0.1875	1.04	Normal No Ice	36	20.59	0	0	0.00	0.00	5	Member
DIAG SOL - 5/8" SOLID	7.54	90 deg Ice	50	12.27	0	0	0.00	0.00	61	Member

**Section: 12 20'-5 Bays Bot Elev (ft): 200.0 Height (ft): 20.000**

	Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member			Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
				X	Y	Z		KL/R	Cap (kip)	Num Bolts				
<b>Max Compression Member</b>														
LEG SOL - 2" SOLID	-25.30	90 deg Ice	3.92	100	100	100	94.1	21.4	67.22	0	0	0.00	0.00	37 Member X
HORIZ SAE - 2X2X0.1875	-0.61	Normal Ice	4.000	100	100	100	85.3	19.7	14.07	0	0	0.00	0.00	4 Member Z
DIAG SOL - 5/8" SOLID	-0.66	Normal No Ice	5.601	50	75	50	290.8	2.4	0.72	0	0	0.00	0.00	

	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
<b>Max Tension Member</b>										
LEG	0.00		0	0.00	0	0	0.00	0.00	0	
HORIZ SAE - 2X2X0.1875	1.16	Normal No Ice	36	20.59	0	0	0.00	0.00	5	Member
DIAG SOL - 5/8" SOLID	0.95	Normal Ice	50	12.27	0	0	0.00	0.00	7	Member

Site Number: 6310  
 Site Name: Franklin CT, CT  
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Code: TIA/EIA-222-F  
 Engineering Number: 60540423

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### Force/Stress Summary

**Section: 13 20'-5 Bays Bot Elev (ft): 220.0 Height (ft): 20.000**

Max Compression Member	Force		Len (ft)	Bracing %				Fa (ksi)	Member			Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
	(kip)	Load Case		X	Y	Z	KL/R		Cap (kip)	Num Bolts	Num Holes				
LEG SOL - 2" SOLID	-29.15	Normal Ice	3.92	100	100	100	94.1	21.4	67.22	0	0	0.00	0.00	43	Member X
HORIZ SAE - 2X2X0.1875	-2.11	Normal Ice	4.000	100	100	100	85.3	19.7	14.07	0	0	0.00	0.00	15	Member Z
DIAG SOL - 5/8" SOLID	-0.63	Normal No Ice	5.601	50	75	50	290.8	2.4	0.72	0	0	0.00	0.00		

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG	0.00		0	0.00	0	0	0.00	0.00	0	
HORIZ SAE - 2X2X0.1875	0.87	Normal No Ice	36	20.59	0	0	0.00	0.00	4	Member
DIAG SOL - 5/8" SOLID	3.04	Normal Ice	50	12.27	0	0	0.00	0.00	24	Member

**Section: 14 20'-5 Bays Bot Elev (ft): 240.0 Height (ft): 20.000**

Max Compression Member	Force		Len (ft)	Bracing %				Fa (ksi)	Member			Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
	(kip)	Load Case		X	Y	Z	KL/R		Cap (kip)	Num Bolts	Num Holes				
LEG SOL - 2" SOLID	-27.58	Normal Ice	3.92	100	100	100	94.1	21.4	67.22	0	0	0.00	0.00	41	Member X
HORIZ SAE - 2X2X0.1875	-2.15	90 deg Ice	4.000	100	100	100	85.3	19.7	14.07	0	0	0.00	0.00	15	Member Z
DIAG SOL - 5/8" SOLID	-0.11	Normal No Ice	5.601	50	75	50	290.8	2.4	0.72	0	0	0.00	0.00		

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SOL - 2" SOLID	6.50	60 deg Ice	50	125.66	0	0	0.00	0.00	5	Member
HORIZ SAE - 2X2X0.1875	0.96	60 deg Ice	36	20.59	0	0	0.00	0.00	4	Member
DIAG SOL - 5/8" SOLID	3.13	90 deg Ice	50	12.27	0	0	0.00	0.00	25	Member

**Section: 15 20'-5 Bays Bot Elev (ft): 260.0 Height (ft): 20.000**

Max Compression Member	Force		Len (ft)	Bracing %				Fa (ksi)	Member			Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
	(kip)	Load Case		X	Y	Z	KL/R		Cap (kip)	Num Bolts	Num Holes				
LEG SOL - 2" SOLID	-12.18	60 deg Ice	3.92	100	100	100	94.1	21.4	67.22	0	0	0.00	0.00	18	Member X
HORIZ SAE - 2X2X0.1875	-1.21	60 deg Ice	4.000	100	100	100	85.3	19.7	14.07	0	0	0.00	0.00	8	Member Z
DIAG SOL - 5/8" SOLID	-0.28	Normal No Ice	5.601	50	75	50	290.8	2.4	0.72	0	0	0.00	0.00		

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG	0.00		0	0.00	0	0	0.00	0.00	0	
HORIZ SAE - 2X2X0.1875	0.64	90 deg No Ice	36	20.59	0	0	0.00	0.00	3	Member
DIAG SOL - 5/8" SOLID	2.11	90 deg Ice	50	12.27	0	0	0.00	0.00	17	Member



Site Number: 6310  
 Site Name: Franklin CT, CT  
 Customer: Verizon Wireless

Code: TIA/EIA-222-F  
 Engineering Number: 60540423

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### Force/Stress Summary

Section: 16    20'-5 Bays    Bot Elev (ft): 280.0    Height (ft): 20.000

	Force (kip)	Load Case	Len (ft)	Bracing %			Fa (ksi)	Member			Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
				X	Y	Z		KL/R	Cap (kip)	Num Bolts				
<b>Max Compression Member</b>														
LEG SOL - 2" SOLID	-12.66	60 deg Ice	3.92	100	100	100	94.1	21.4	67.22	0	0	0.00	0.00	18 Member X
HORIZ SAE - 2X2X0.1875	-1.01	Normal Ice	4.000	100	100	100	85.3	19.7	14.07	0	0	0.00	0.00	7 Member Z
DIAG SOL - 5/8" SOLID	-0.26	Normal No Ice	5.601	50	75	50	290.8	2.4	0.72	0	0	0.00	0.00	

	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG SOL - 2" SOLID	0.18	Normal No Ice	50	125.66	0	0	0.00	0.00	0	Member
HORIZ SAE - 2X2X0.1875	0.42	60 deg No Ice	36	20.59	0	0	0.00	0.00	2	Member
DIAG SOL - 5/8" SOLID	2.54	Normal Ice	50	12.27	0	0	0.00	0.00	20	Member

Site Number: 6310

Code:

TIA/EIA-222-F

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Site Name: Franklin CT, CT

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3/4/2015 4:14:11 PM

Customer: Verizon Wireless

### Deflections and Rotations

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
50 mph Wind at 60 degree From Face with No Ice	79.80	0.1078	0.4610	0.0803
	84.12	0.1117	0.4376	0.0399
	100.00	0.1211	0.3718	0.0111
	104.12	0.1218	0.3555	0.0411
	128.04	0.1290	0.2707	0.0931
	164.12	0.1755	0.2342	0.0794
	175.88	0.1726	0.2266	0.1031
	200.20	0.1682	0.1883	0.1030
	231.96	0.1681	0.1788	0.0139
	268.04	0.1754	0.1488	0.0416
50 mph Wind at 90 degree From Face with No Ice	79.80	0.1190	0.6060	0.0955
	84.12	0.1251	0.6077	0.0587
	100.00	0.1340	0.5224	0.0024
	104.12	0.1344	0.5016	0.0253
	128.04	0.1392	0.4060	0.0922
	164.12	0.1826	0.3989	0.0797
	175.88	0.1775	0.3806	0.1314
	200.20	0.1664	0.3060	0.1099
	231.96	0.1578	0.2977	0.0232
	268.04	0.1560	0.3153	0.0489
50 mph Wind Normal To Face with No Ice	79.80	0.0971	0.0000	0.0927
	84.12	0.1030	0.0000	0.0638
	100.00	0.1159	0.0000	0.0178
	104.12	0.1177	0.0020	0.0520
	128.04	0.1265	0.0025	0.0887
	164.12	0.1660	0.0023	0.0921
	175.88	0.1615	0.0026	0.0570
	200.20	0.1498	0.0003	0.0963
	231.96	0.1318	0.0009	0.0588
	268.04	0.1153	0.0002	0.0243
74 mph Wind at 60 degree From Face with Ice	79.80	0.3845	0.8422	0.3671
	84.12	0.4076	0.8207	0.2852
	100.00	0.4711	0.7155	0.1281
	104.12	0.4811	0.6738	0.1795
	128.04	0.5480	0.5382	0.3872
	164.12	0.7396	0.4524	0.2038
	175.88	0.7441	0.3950	0.2555
	200.20	0.7717	0.3607	0.3774
	231.96	0.8121	0.3713	0.0800
	268.04	0.9217	0.3666	0.1979
74 mph Wind at 90 degree From Face with Ice	79.80	0.4852	1.2589	0.4691
	84.12	0.5168	1.2713	0.3737
	100.00	0.6067	1.1568	0.2118
	104.12	0.6220	1.1070	0.1789
	128.04	0.7127	0.8491	0.4527
	164.12	0.9349	0.8897	0.0878
	175.88	0.9395	0.7942	0.2368

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3/4/2015 4:14:11 PM

	200.20	0.9561	0.7294	0.3098
	231.96	0.9549	0.5497	0.0747
	268.04	1.0093	0.5346	0.0929
	295.88	1.0412	0.5311	0.4570
74 mph Wind Normal To Face with Ice	79.80	0.4883	0.0777	0.5046
	84.12	0.5216	0.0576	0.4086
	100.00	0.6234	0.0579	0.3108
	104.12	0.6463	0.0361	0.3887
	128.04	0.7581	0.0166	0.4805
	164.12	0.9869	0.0663	0.3772
	175.88	1.0022	0.0631	0.2789
	200.20	1.0315	0.0270	0.5135
	231.96	1.0389	0.0099	0.0571
	268.04	1.0937	0.0076	0.2467
	295.88	1.1391	0.0081	0.6027
85 mph Wind at 60 degree From Face with No Ice	79.80	0.3132	0.9975	0.2569
	84.12	0.3289	0.9779	0.1721
	100.00	0.3673	0.8834	0.0823
	104.12	0.3735	0.8504	0.1273
	128.04	0.4196	0.7193	0.3017
	164.12	0.5726	0.5534	0.2322
	175.88	0.5768	0.5001	0.2799
	200.20	0.5970	0.4372	0.2966
	231.96	0.6240	0.3541	0.0572
	268.04	0.7021	0.3262	0.1520
	295.88	0.7548	0.3202	0.4536
85 mph Wind at 90 degree From Face with No Ice	79.80	0.4024	1.2565	0.3319
	84.12	0.4245	1.2511	0.2488
	100.00	0.4806	1.1189	0.1394
	104.12	0.4908	1.0737	0.1127
	128.04	0.5559	0.8519	0.3465
	164.12	0.7390	0.8367	0.1375
	175.88	0.7452	0.7551	0.2610
	200.20	0.7648	0.7070	0.2285
	231.96	0.7758	0.6049	0.0519
	268.04	0.8240	0.5481	0.0541
	295.88	0.8497	0.5394	0.4228
85 mph Wind Normal To Face with No Ice	79.80	0.3999	0.0000	0.3608
	84.12	0.4239	0.0000	0.2987
	100.00	0.4936	0.0000	0.1896
	104.12	0.5083	0.0017	0.2869
	128.04	0.5916	0.0054	0.3763
	164.12	0.7859	0.0034	0.4062
	175.88	0.8042	0.0047	0.3179
	200.20	0.8403	0.0026	0.4470
	231.96	0.8647	0.0036	0.0244
	268.04	0.9321	0.0014	0.2457
	295.88	0.9847	0.0023	0.5836