Robinson+Cole

KENNETH C. BALDWIN

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Direct (860) 275-8345

Also admitted in Massachusetts

October 20, 2015

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

Re: **Notice of Exempt Modification – Facility Modification**
12 Carpenter Road, Bolton, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the top of the existing 139-foot tower at 12 Carpenter Road in Bolton, Connecticut (the "Property"). The tower is owned by SBA. The Council approved Cellco's use of this tower in 2007. Cellco now intends to replace six (6) of its existing antennas with three (3) model SBNHH-1D65B, 1900 MHz antennas and three (3) model SBNHH-1D65B, 2100 MHz antennas, all at the same level on the tower. Cellco also intends to replace three (3) remote radio heads ("RRHs") and install six (6) new RRHs and two (2) HYBRIFLEX™ fiber optic antenna cables. Included in Attachment 1 are specifications for Cellco's replacement antennas, RRHs and HYBRIFLEX™ cables.

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 Robert Morra, First Selectman for the Town of Bolton. A copy of this letter is also being sent to Terry L. Veo, Trustee, the owner of the Property and to SBA, the tower owner.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and RRH's will be located on its existing platform at the top of 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 worst-case General Power Density table for 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:
Robert Morra, Bolton First Selectman
Terry L. Veo, Trustee
SBA
Tim Parks

ATTACHMENT 1

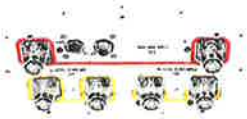
Product Specifications

COMMSCOPE®

POWERED BY ANDREW.

SBNHH-1D65B

Andrew® Tri-band Antenna, 698–896 and 2x 1695–2360 MHz, 65° horizontal beamwidth, internal RET. Both high bands share the same electrical tilt.



- Interleaved dipole technology providing for attractive, low wind load mechanical package

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.9	14.7	17.7	18.2	18.6	18.6
Beamwidth, Horizontal, degrees	68	66	69	66	63	58
Beamwidth, Vertical, degrees	12.1	10.7	5.6	5.2	5.0	4.5
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS, dB	14	13	15	15	15	13
Front-to-Back Ratio at 180°, dB	27	29	28	28	28	27
CPR at Boresight, dB	20	23	20	20	17	21
CPR at Sector, dB	14	10	12	10	9	1
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR | Return Loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.5	14.3	17.4	17.9	18.2	18.3
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.8	±0.4	±0.3	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0 ° | 14.6	0 ° | 14.5	0 ° | 17.4	0 ° | 17.8	0 ° | 18.1	0 ° | 18.2
	7 ° | 14.6	7 ° | 14.4	3 ° | 17.5	3 ° | 17.9	3 ° | 18.3	3 ° | 18.4
	14 ° | 14.2	14 ° | 13.6	7 ° | 17.4	7 ° | 17.9	7 ° | 18.2	7 ° | 18.4
Beamwidth, Horizontal Tolerance, degrees	±2.2	±3.4	±2	±4.6	±5.7	±4.3
Beamwidth, Vertical Tolerance, degrees	±0.8	±1	±0.3	±0.2	±0.3	±0.2
USLS, dB	16	14	16	16	16	15
Front-to-Back Total Power at 180° ± 30°, dB	25	26	27	26	26	26
CPR at Boresight, dB	22	23	21	20	20	22
CPR at Sector, dB	13	11	16	12	11	4

* 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® multiband with internal RET
Band	Multiband
Brand	DualPol® | Teletilt®
Operating Frequency Band	1695 – 2360 MHz | 698 – 896 MHz
Performance Note	Outdoor usage

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Product Specifications

SBNHH-1D65B

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Aluminum | Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	6
Wind Loading, maximum	617.7 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Speed, maximum	241.4 km/h | 150.0 mph

Dimensions

Depth	181.0 mm | 7.1 in
Length	1851.0 mm | 72.9 in
Width	301.0 mm | 11.9 in
Net Weight	18.4 kg | 40.6 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Multi-RET)
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	1 female | 1 male
RET System	Teletilt®

Packed Dimensions

Depth	299.0 mm | 11.8 in
Length	1970.0 mm | 77.6 in
Width	409.0 mm | 16.1 in
Shipping Weight	31.0 kg | 68.3 lb

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

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Product Specifications

SBNHH-1D65B

BSAMNT-1 — Wide Profile Antenna 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.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

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ALCATEL-LUCENT B13 RRH4X30-4R

Alcatel-Lucent B13 Remote Radio Head 4x30-4R is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B13 RRH4x30-4R allows operators to have a compact radio solution to deploy LTE in the 700U band (700 MHz, 3GPP band 13), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B13 RRH4x30-4R product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity and up to 10MHz instantaneous bandwidth.

The Alcatel-Lucent B13 RRH4x30-4R is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

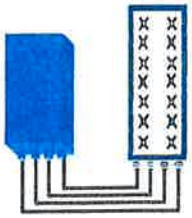
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 700 MHz band (700U, 3GPP band 13)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- 10MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in 700U band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through MIMO4
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



4x30W with 4T4R
or
2x60W with 2T4R

Can be switched between modes via SW w/o site visit

Alcatel·Lucent

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	U700 (C) (3GPP bands 13): DL: 746 - 756 MHz / UL: 777 - 787 MHz
Instantaneous bandwidth - #carriers	10MHz – 1 LTE carrier (in 10MHz occupied bandwidth)
LTE carrier bandwidth	10 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure – RX Diversity scheme	2 dB typ. (<2.5 dB max) – 2 or 4 way Rx diversity
Sizes (HxWxD) in mm (in.) Volume in L Weight in kg (lb) (w/o mounting HW)	550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield) 38 (with solar shield) 26 (57.2) (with solar shield)
DC voltage range DC power consumption	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 550W typical @100% RF load (in 2Tx or 4TX mode)
Environmental conditions Wind load (@150km/h or 93mph)	-40°C (-40°F) /+55°C (+131°F) IP65 Frontal:<200N / Lateral :<150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate7, 9.8 Gbps) SFP single mode dual fiber
AISG interfaces	1 AISG2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) – 4 RF Tx & 4 RF Rx monitor ports - 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

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PCS RF MODULES

RRH1900 2X60 - HW CHARACTERISTICS

LA6.0.1/13.3

		RRH2x60
RF Output Power		2x60W
Instantaneous Bandwidth		20MHz
Transmitter		2 TX
Receiver	1900 HW version	2 Branch RX – LA6.0.1
	1900A HW version	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

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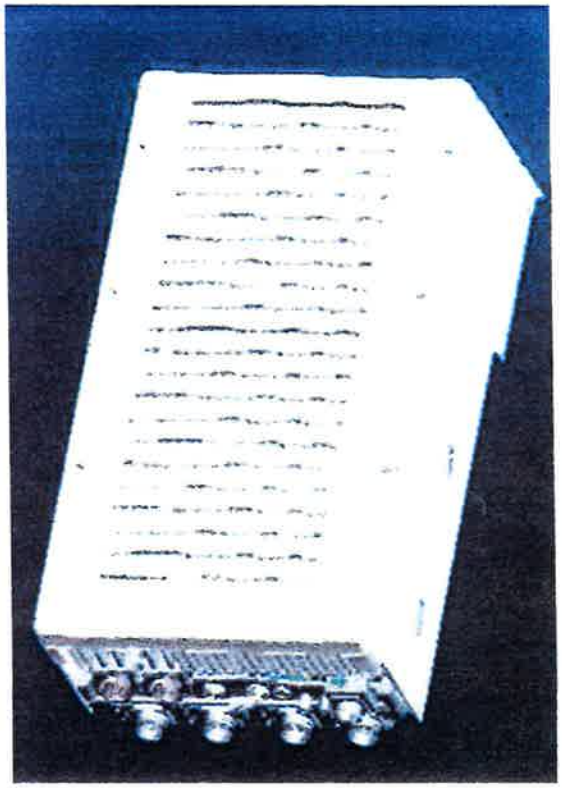
NEW PCS RF MODULES FOR VZW

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.)

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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.

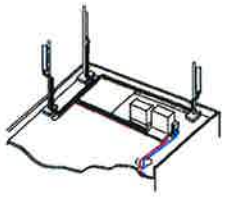
EASY INSTALLATION

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.

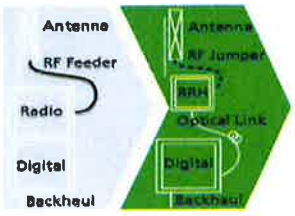
The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment. However, many of these sites can host an Alcatel-Lucent RRH2x60-AWS installation, providing more flexible site selection and improved network quality along with greatly reduced installation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

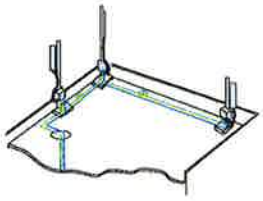
Installation can easily be done by a single person as the Alcatel–Lucent RRH2x60-AWS is compact and weighs about 20 kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day.



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 daisychaining 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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Alcatel·Lucent

AT THE SPEED OF IDEAS™

Product Data Sheet HB158-1-08U8-S8J18

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.

Figure 1: HYBRIFLEX Series

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

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
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)
DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	068 (0.205)
DC-Resistance Power Cable, 8.4mm² (8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)
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
Size (Power)		[mm² (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm² (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
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

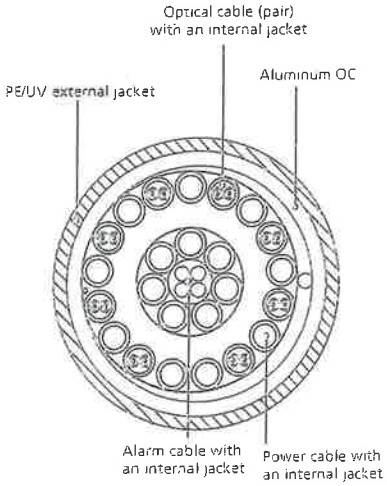

Figure 2: Construction Detail

* This data is provisional and subject to change

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

ATTACHMENT 2

	General	Power	Density					
Site Name: Manchester 2 (Bolton)								
Tower Height: 139ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*Sprint Nextel	12	100	117	0.0350	851	0.5673	0.62%	
*T-Mobile	2	2334	126.5	0.1156	1900	1.0000	1.16%	
*T-Mobile	4	1167	126.5	0.1156	1900	1.0000	1.16%	
*T-Mobile	1	865	126.5	0.0214	700	0.4667	0.46%	
*Pocket (now MetroPCS)	3	631	97	0.0822	2130	1.0000	0.82%	
*AT&T UMTS	2	565	110	0.0376	880	0.5867	0.64%	
*AT&T UMTS	2	875	110	0.0582	1900	1.0000	0.58%	
*AT&T GSM	1	283	110	0.0094	880	0.5867	0.16%	
*AT&T GSM	4	525	110	0.0698	1900	1.0000	0.70%	
*AT&T LTE	1	1313	110	0.0437	734	0.4893	0.89%	
Verizon PCS	**11**	**421**	**137**	**0.0887**	**1970**	**1.0000**	**8.87%**	
Verizon Cellular	**9**	**393**	**137**	**0.0678**	**869**	**0.5793**	**11.70%**	
Verizon AWS	**1**	**3500**	**137**	**0.0671**	**2145**	**1.0000**	**6.71%**	
Verizon 700	**1**	**2100**	**137**	**0.0402**	**746**	**0.4973**	**8.09%**	
								42.55%
* Source: Siting Council								

ATTACHMENT 3

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

Structural Analysis Report

Existing 139 ft Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT11558-A

Customer Site Name: Bolton 2, CT

Carrier Name: Verizon

Carrier Site Number: 119653

Carrier Site Name: N/A

Site Location: 12 Carpenter Road

Bolton, Connecticut

Tolland County

Latitude: 41.779083

Longitude: -72.465303

Analysis Result:

Max Structural Usage: 78% [Pass]

Max Foundation Usage: 90% [Pass]

Report Prepared By : Ram Kodali

Introduction

The purpose of this report is to summarize the analysis results on the 139 ft. Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Fred A Nudd Corporation Project #207-13312, dated September 5, 2007
Foundation Drawing	Fred A Nudd Corporation Project #207-13312, dated September 5, 2007
Geotechnical Report	Subsurface Drilling & Remediation Co., Project # 02910, dated 7/24/07 & Original design soil parameters from Fred A. Nudd Corporation

Analysis Criteria

The analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-F. In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Basic Wind Speed Used in the Analysis:	85.0 mph (fastest mile)
Basic Wind Speed with Ice:	74 mph (fastest mile) with 1/2" radial ice concurrent
Operational Wind Speed:	50 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-F / 2005 Connecticut State Building Code

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
-	137.0	1	Antel - BXA-70063-4CF-EDIN-X - Panel	Low Profile Platform	(12) 1 5/8" (1) 1 5/8" Hybrid	Verizon
-		3	Antel - BXA-70063-6CF-2 - Panel			
-		2	Antel - BXA-70080-6BF - Panel			
-		1	Andrew - DB-T1-6Z-8AB-0Z - Panel			
-		1	Generic GPS			
-		3	Alcatel Lucent RRh 2x40-AWS			
-		6	FD9R6004/2c-3L			
-		6	TMA			
10	126.5	3	Ericsson - AIR 21, 1.3M, B2A B4P - Panel	Low Profile Platform	(12) 1 5/8" (1) 1 5/8" Hybrid	T-Mobile
11		3	Ericsson - AIR 21, 1.3M, B4A B2P - Panel			
12		3	KRY 112 144/1			
13		3	Andrew - LNX-6515DS-A1M - Panel			
14		3	S11B12			
15	110.0	9	Powerwave - 7770.00 - Panel	Low Profile Platform	(12) 1 5/8" (1) 3" Conduit (2) 7/8" DC (1) RET	AT&T
16		1	DC6-48-60-18-8F			
17		3	4 LTE - KMW AM-X-CD-16-65-00T			
18		12	LGP2140X			
19		6	RRUS 11			
20	97.0	3	RFS - APXV18-206517S-C - Panel	(3) Pipe Mounts	(6) 1 5/8" Outside	Metro PCS

Proposed Antennas, Mounts and Transmission Lines

Information pertaining to the proposed antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	137.0	1	Antel - BXA-70063-4CF-EDIN-X - Panel	Low Profile Platform	(12) 1 5/8" (3) 1 5/8" Hybrid	Verizon
2		3	Antel - BXA-70063-6CF-2 - Panel			
3		2	Antel - BXA-70080-6BF - Panel			
4		1	DB-T1-6Z-8AB-0Z			
5		1	Generic GPS			
6		3	Alcatel-Lucent - RRH2x60-700U - TTA			
7		3	Alcatel-Lucent - RRH2X60-AWS - TTA			
8		3	Alcatel-Lucent -RRH2x60-PCS-TTA			
9		6	Andrew - SBNHH-1D65B - Panel			

All proposed transmission lines are considered running inside of the pole shafts.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**78%**	**66%**	**57%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)
Original Design Reactions	3019.2
Analysis Reactions	2994.9
% of Design Reactions	99.2%

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity)

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-F for the installed antennas. Maximum twist/sway at the elevation of the proposed equipment is 1.395 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA/EIA 222-F Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.

3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.

4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.

5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.

6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed or/and ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Stress 78.0% at 0.0ft

Structure:	CT11558-A-SBA	**Code:**	EIA/TIA-222-F	6/30/2015	
Site Name:	Bolton 2, CT	**Exposure:**	C		
Height:	139.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)			Page: 1	

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Dead Load Factor:	1.00
Wind Load Factor:	1.00

52 Alllowable Stress

41 Resulting Stress

Load Case : 85 mph Wind with 0 in Ice

Iterations: 22

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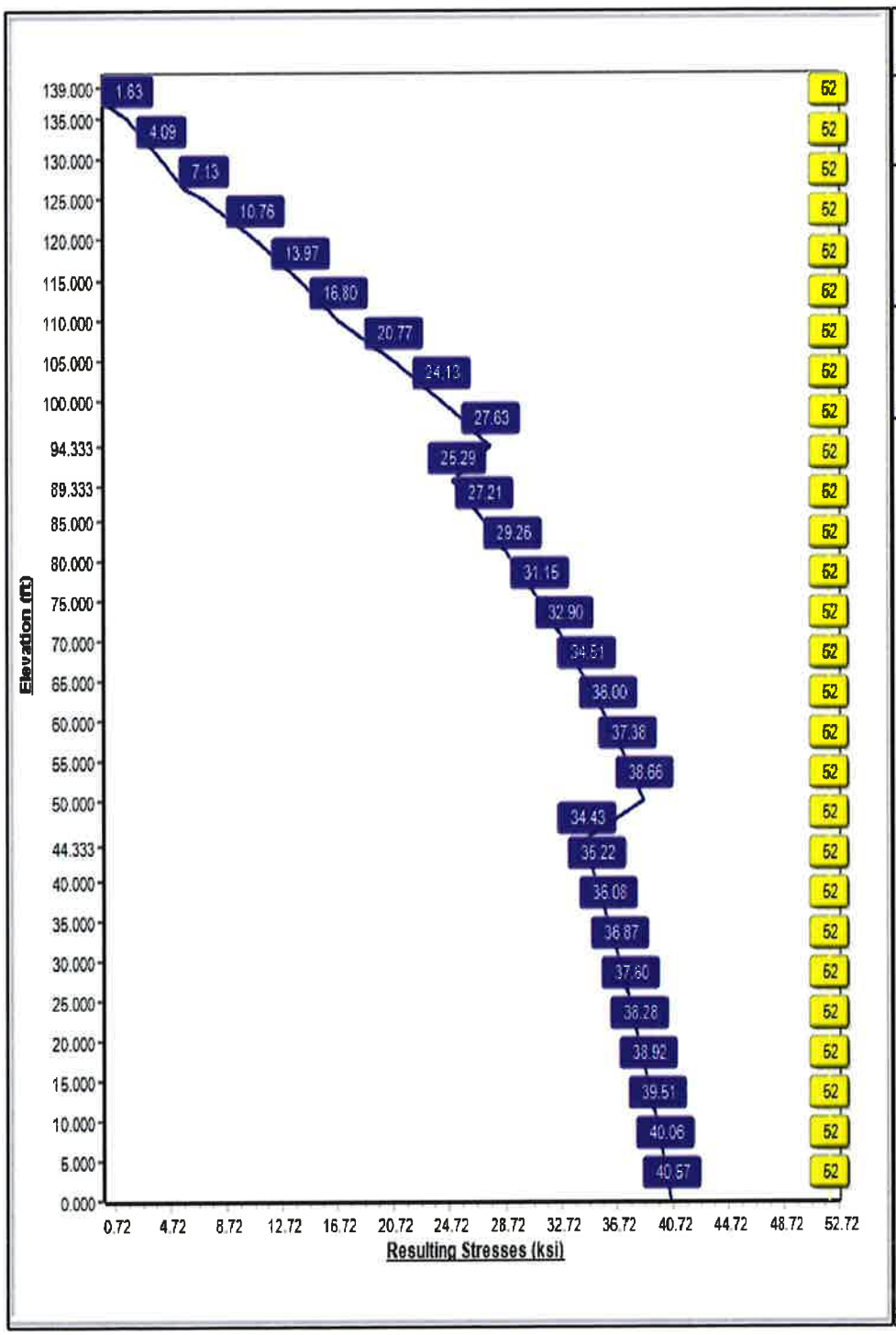

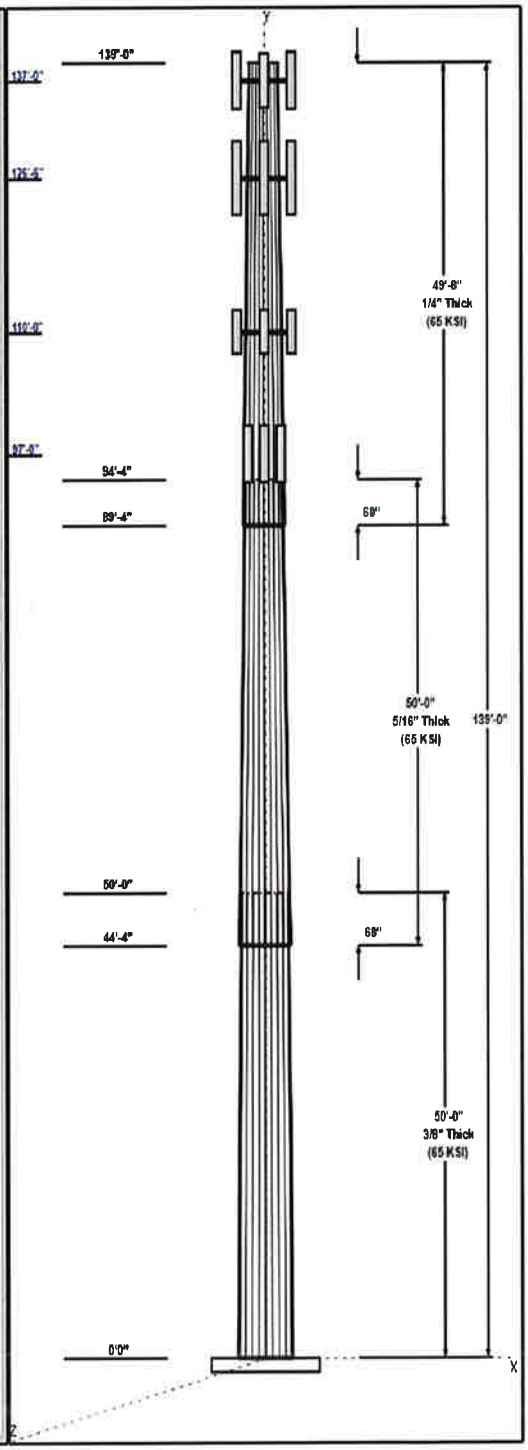

Structure: CT11558-A-SBA

Type: Tapered
Site Name: Bolton 2, CT
Height: 139.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.23561

6/30/2015

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Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	50.00	43.84	55.63	0.375		0.23561	65
2	50.00	34.02	45.80	0.313	Slip	0.23561	65
3	49.67	24.00	35.70	0.250	Slip	0.23561	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
139.00	139.00	1	Lightning Rod	Verizon
137.00	137.00	1	BXA-70063-4CF-EDIN-X	Verizon
137.00	137.00	3	BXA-70063-6CF-2	Verizon
137.00	137.00	2	BXA-70080-6BF	Verizon
137.00	137.00	1	DB-T1-6Z-8AB-0Z	Verizon
137.00	137.00	1	GPS	Verizon
137.00	137.00	1	Low Profile Platform-flat	Verizon
137.00	137.00	3	RRH2x60-700U	Verizon
137.00	137.00	3	RRH2X60-AWS	Verizon
137.00	137.00	3	RRH2x60-PCS)	Verizon
137.00	137.00	6	SBNHH-1D65B	Verizon
126.50	126.50	3	AIR 21, 1.3M, B2A B4P	T-Mobile
126.50	126.50	3	AIR 21, 1.3M, B4A B2P	T-Mobile
126.50	126.50	3	KRY 112 144/1	T-Mobile
126.50	126.50	3	LNX-6515DS-A1M	T-Mobile
126.50	126.50	1	Low Profile Platform-flat	T-Mobile
126.50	126.50	3	S11B12	T-Mobile
110.00	110.00	9	7770.00	AT&T
110.00	110.00	3	AM-X-CD-16-65-00T-RET	AT&T
110.00	110.00	1	DC6-48-60-18-8F	AT&T
110.00	110.00	12	LGP2140X	AT&T
110.00	110.00	1	Low Profile Platform-flat	AT&T
110.00	110.00	6	RRUS 11	AT&T
97.00	97.00	3	APXV18-206517S-C	Metro PCS
97.00	97.00	3	Pipe Mount	Metro PCS

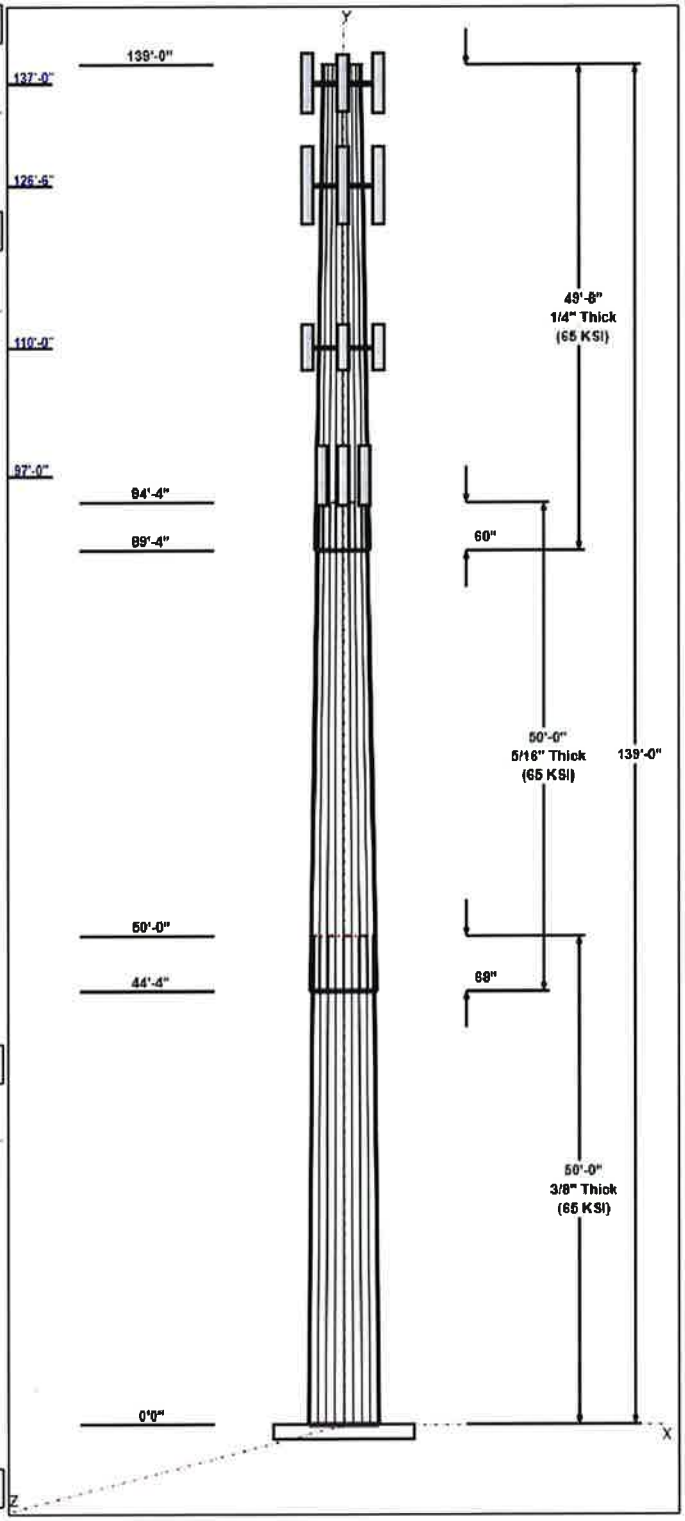
Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	139.00	Inside	Safety Cable	
0.00	139.00	Inside	Step bolts (ladder)	
0.00	137.00	Inside	1 5/8" Coax	Verizon
0.00	137.00	Inside	1 5/8" Hybrid Cable	Verizon
0.00	126.50	Inside	1 5/8" Coax	T-Mobile
0.00	126.50	Inside	1 5/8" Hybrid Cable	T-Mobile
0.00	110.00	Inside	1 5/8" Coax	AT&T
0.00	110.00	Inside	3" Conduit	AT&T
0.00	110.00	Inside	7/8" DC Power	AT&T
0.00	110.00	Inside	RET	AT&T
0.00	97.00	Outside	1 5/8" Coax	T-Mobile

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
20	2.00" F1554 105	105.0	Radial

Base Plate



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Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.5000	68.0	60.0	Round

Reactions

Load Case	Moment	Shear	Axial
85 mph Wind with 0" Ice	2994.9	32.6	33.7
73.61 mph Wind with 0.5" Ice	2493.7	26.4	39.3
50 mph Wind with 0" Ice	1036.9	11.3	33.8

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Shaft Properties

Structure:	CT11558-A-SBA	**Code:**	EIA/TIA-222-F	6/30/2015	
Site Name:	Bolton 2, CT	**Exposure:**	C		
Height:	139.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 4	

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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	50.000	0.3750	65		0.00	9,995
2	18	50.000	0.3125	65	Slip	68.00	6,683
3	18	49.667	0.2500	65	Slip	60.00	3,970
					Total Shaft Weight:		**20,648**

	Bottom						Top						
Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	55.63	0.00	65.76	25361.36	24.74	148.3	43.84	50.00	51.74	12351.7	19.20	116.9	0.235612
2	45.80	44.33	45.12	11797.80	24.43	146.5	34.02	94.33	33.44	4800.96	17.78	108.8	0.235612
3	35.70	89.33	28.13	4466.92	23.77	142.8	24.00	139.0	18.84	1343.00	15.51	95.99	0.235612

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Loading Summary

Structure:	CT11558-A-SBA	**Code:**	EIA/TIA-222-F	6/30/2015	
Site Name:	Bolton 2, CT	**Exposure:**	C		
Height:	139.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 5	

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Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	139.0	Lightning Rod	1	5.00	0.50	0.75	11.00	1.000	1.00	0.00	0.00
2	137.0	BXA-70063-4CF-EDIN-X	1	9.90	5.16	0.73	39.00	5.740	0.73	0.00	0.00
3	137.0	BXA-70063-6CF-2	3	17.00	7.73	0.73	0.00	8.540	0.73	0.00	0.00
4	137.0	BXA-70080-6BF	2	18.00	5.77	0.87	54.30	6.450	0.87	0.00	0.00
5	137.0	DB-T1-6Z-8AB-0Z	1	14.00	5.60	0.76	0.00	6.080	0.76	0.00	0.00
6	137.0	GPS	1	10.00	1.00	1.00	18.00	1.250	0.75	0.00	0.00
7	137.0	Low Profile Platform-flat	1	1100.00	23.00	1.00	1400.00	31.00	1.00	0.00	0.00
8	137.0	RRH2x60-700U	3	19.50	1.76	0.50	48.40	1.930	0.50	0.00	0.00
9	137.0	RRH2X60-AWS	3	60.00	3.96	0.50	80.10	4.230	0.50	0.00	0.00
10	137.0	RRH2x60-PCS)	3	50.00	2.48	0.50	71.10	2.810	0.50	0.00	0.00
11	137.0	SBNHH-1D65B	6	40.00	8.40	0.83	86.60	8.870	0.83	0.00	0.00
12	126.5	AIR 21, 1.3M, B2A B4P	3	91.50	6.58	0.86	129.20	6.970	0.86	0.00	0.00
13	126.5	AIR 21, 1.3M, B4A B2P	3	90.40	6.58	0.86	128.10	6.970	0.86	0.00	0.00
14	126.5	KRY 112 144/1	3	11.00	0.41	0.50	14.10	0.550	0.50	0.00	0.00
15	126.5	LNX-6515DS-A1M	3	49.80	11.41	0.80	115.60	12.34	0.80	0.00	0.00
16	126.5	Low Profile Platform-flat	1	1100.00	23.00	1.00	1400.00	31.00	1.00	0.00	0.00
17	126.5	S11B12	3	50.70	2.94	0.50	66.00	3.140	0.50	0.00	0.00
18	110.0	7770.00	9	35.00	5.88	0.73	0.00	6.530	0.73	0.00	0.00
19	110.0	AM-X-CD-16-65-00T-RET (54")	3	33.00	6.62	0.81	74.50	7.270	0.84	0.00	0.00
20	110.0	DC6-48-60-18-8F	1	31.80	1.47	0.50	49.50	1.670	0.50	0.00	0.00
21	110.0	LGP2140X	12	14.10	1.29	0.50	21.20	1.530	0.50	0.00	0.00
22	110.0	Low Profile Platform-flat	1	1200.00	25.00	1.00	1500.00	31.00	1.00	0.00	0.00
23	110.0	RRUS 11	6	50.70	2.94	0.50	66.00	3.140	0.50	0.00	0.00
24	97.00	APXV18-206517S-C	3	22.00	5.02	0.74	0.00	5.700	0.75	0.00	0.00
25	97.00	Pipe Mount	3	350.00	3.00	0.75	450.00	6.000	0.75	0.00	0.00
		Totals:	**79**	**7,069.80**			**9,227.40**				

Linear Appurtenances

			No Ice		Ice		
Bottom Elev. (ft)	Top Elev. (ft)	Description	Weight (lb/ft)	CaAa (sf/ft)	Weight (lb/ft)	CaAa (sf/ft)	Exposed
0.00	139.0	(1) Safety Cable	0.27	0.00	0.27	0.00	Inside
0.00	139.0	(1) Step bolts (ladder)	1.04	0.00	1.04	0.00	Inside
0.00	137.0	(12) 1 5/8" Coax	12.48	0.00	12.48	0.00	Inside
0.00	137.0	(3) 1 5/8" Hybrid Cable	1.10	0.00	1.10	0.00	Inside
0.00	126.5	(12) 1 5/8" Coax	12.48	0.00	12.48	0.00	Inside
0.00	126.5	(1) 1 5/8" Hybrid Cable	1.10	0.00	1.10	0.00	Inside
0.00	110.0	(12) 1 5/8" Coax	12.48	0.00	12.48	0.00	Inside
0.00	110.0	(1) 3" Conduit	1.61	0.00	1.61	0.00	Inside
0.00	110.0	(2) 7/8" DC Power	1.30	0.00	1.30	0.00	Inside
0.00	110.0	(1) RET	0.03	0.00	0.03	0.00	Inside
0.00	97.00	(6) 1 5/8" Coax	6.24	1.98	6.24	1.98	Outside
		Totals:	**6,062.32**		**6,061.90**		

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Shaft Section Properties

Structure: CT11558-A-SBA
Site Name: Bolton 2, CT
Height: 139.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

6/30/2015

Tower Engineering Solutions

Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)
0.00		0.3750	55.625	65.759	25361.4	24.74	148.33	65	52	0.0
5.00		0.3750	54.447	64.357	23773.4	24.19	145.19	65	52	1106.9
10.00		0.3750	53.269	62.955	22253.2	23.64	142.05	65	52	1083.0
15.00		0.3750	52.091	61.553	20799.2	23.08	138.91	65	52	1059.2
20.00		0.3750	50.913	60.150	19409.9	22.53	135.77	65	52	1035.3
25.00		0.3750	49.735	58.748	18084.0	21.97	132.63	65	52	1011.5
30.00		0.3750	48.557	57.346	16819.8	21.42	129.48	65	52	987.6
35.00		0.3750	47.379	55.944	15616.0	20.87	126.34	65	52	963.8
40.00		0.3750	46.201	54.542	14471.0	20.31	123.20	65	52	939.9
44.33	Bot - Section 2	0.3750	45.180	53.327	13525.2	19.83	120.48	65	52	795.3
45.00		0.3750	45.022	53.140	13383.4	19.76	120.06	65	52	222.9
50.00	Top - Section 1	0.3125	44.469	43.797	10789.2	23.68	142.30	65	52	1647.3
55.00		0.3125	43.291	42.628	9948.5	23.02	138.53	65	52	735.2
60.00		0.3125	42.113	41.460	9152.7	22.35	134.76	65	52	715.3
65.00		0.3125	40.935	40.291	8400.4	21.69	130.99	65	52	695.5
70.00		0.3125	39.757	39.123	7690.6	21.02	127.22	65	52	675.6
75.00		0.3125	38.579	37.954	7021.9	20.36	123.45	65	52	655.7
80.00		0.3125	37.401	36.786	6393.2	19.69	119.68	65	52	635.8
85.00		0.3125	36.223	35.617	5803.1	19.03	115.91	65	52	615.9
89.33	Bot - Section 3	0.3125	35.202	34.605	5322.1	18.45	112.65	65	52	517.7
90.00		0.3125	35.045	34.449	5250.5	18.36	112.14	65	52	142.0
94.33	Top - Section 2	0.2500	34.524	27.195	4036.2	22.94	138.10	65	52	907.5
95.00		0.2500	34.367	27.071	3981.0	22.83	137.47	65	52	61.6
97.00		0.2500	33.896	26.697	3818.3	22.50	135.58	65	52	183.0
100.00		0.2500	33.189	26.136	3582.7	22.00	132.76	65	52	269.7
105.00		0.2500	32.011	25.201	3211.9	21.17	128.04	65	52	436.7
110.00		0.2500	30.833	24.267	2867.6	20.34	123.33	65	52	420.8
115.00		0.2500	29.655	23.332	2548.8	19.51	118.62	65	52	404.9
120.00		0.2500	28.477	22.397	2254.6	18.67	113.91	65	52	389.0
125.00		0.2500	27.299	21.462	1983.9	17.84	109.19	65	52	373.1
126.50		0.2500	26.945	21.182	1907.1	17.59	107.78	65	52	108.8
130.00		0.2500	26.121	20.528	1735.8	17.01	104.48	65	52	248.4
135.00		0.2500	24.942	19.593	1509.3	16.18	99.77	65	52	341.3
137.00		0.2500	24.471	19.219	1424.5	15.85	97.88	65	52	132.1
139.00		0.2500	24.000	18.845	1343.0	15.52	96.00	65	52	129.5
										20647.7

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Wind Loading - Shaft

Structure: CT11558-A-SBA
Site Name: Bolton 2, CT
Height: 139.00 (ft)
Base Elev: 0.000 (ft)

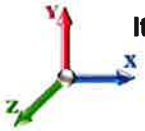
Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

6/30/2015

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 22

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	18.496	31.26	394.01	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	18.496	31.26	385.67	0.650	0.000	5.00	22.932	14.91	465.9	0.0	1106.9
10.00		0.00	1.00	18.496	31.26	377.32	0.650	0.000	5.00	22.441	14.59	455.9	0.0	1083.0
15.00		0.00	1.00	18.496	31.26	368.98	0.650	0.000	5.00	21.950	14.27	446.0	0.0	1059.2
20.00		0.00	1.00	18.496	31.26	360.63	0.650	0.000	5.00	21.459	13.95	436.0	0.0	1035.3
25.00		0.00	1.00	18.496	31.26	352.29	0.650	0.000	5.00	20.968	13.63	426.0	0.0	1011.5
30.00		0.00	1.00	18.496	31.26	343.94	0.650	0.000	5.00	20.477	13.31	416.1	0.0	987.6
35.00		0.00	1.02	18.810	31.79	338.43	0.650	0.000	5.00	19.987	12.99	413.0	0.0	963.8
40.00		0.00	1.06	19.541	33.02	336.37	0.650	0.000	5.00	19.496	12.67	418.5	0.0	939.9
44.33	Bot - Section 2	0.00	1.09	20.124	34.01	333.81	0.650	0.000	4.33	16.499	10.72	364.7	0.0	795.3
45.00		0.00	1.09	20.210	34.15	333.36	0.650	0.000	0.67	2.540	1.65	56.4	0.0	222.9
50.00	Top - Section 1	0.00	1.13	20.827	35.20	329.56	0.650	0.000	5.00	18.774	12.20	429.5	0.0	1647.3
55.00		0.00	1.16	21.402	36.17	329.86	0.650	0.000	5.00	18.283	11.88	429.9	0.0	735.2
60.00		0.00	1.19	21.941	37.08	324.90	0.650	0.000	5.00	17.793	11.57	428.8	0.0	715.3
65.00		0.00	1.21	22.449	37.94	319.44	0.650	0.000	5.00	17.302	11.25	426.7	0.0	695.5
70.00		0.00	1.24	22.929	38.75	313.55	0.650	0.000	5.00	16.811	10.93	423.4	0.0	675.6
75.00		0.00	1.26	23.386	39.52	307.27	0.650	0.000	5.00	16.320	10.61	419.2	0.0	655.7
80.00		0.00	1.29	23.821	40.26	300.65	0.650	0.000	5.00	15.829	10.29	414.2	0.0	635.8
85.00		0.00	1.31	24.237	40.96	293.71	0.650	0.000	5.00	15.338	9.97	408.4	0.0	615.9
89.33	Bot - Section 3	0.00	1.33	24.584	41.55	287.47	0.650	0.000	4.33	12.896	8.38	348.3	0.0	517.7
90.00		0.00	1.33	24.636	41.63	286.49	0.650	0.000	0.67	1.979	1.29	53.6	0.0	142.0
94.33	Top - Section 2	0.00	1.35	24.969	42.20	280.02	0.650	0.000	4.33	12.651	8.22	347.0	0.0	907.5
95.00		0.00	1.35	25.020	42.28	283.13	0.650	0.000	0.67	1.914	1.24	52.6	0.0	61.6
97.00	Appurtenance(s)	0.00	1.36	25.169	42.54	280.08	0.650	0.000	2.00	5.689	3.70	157.3	0.0	183.0
100.00		0.00	1.37	25.389	42.91	275.43	0.650	0.000	3.00	8.386	5.45	233.9	0.0	269.7
105.00		0.00	1.39	25.745	43.51	267.51	0.650	0.000	5.00	13.583	8.83	384.2	0.0	436.7
110.00	Appurtenance(s)	0.00	1.41	26.090	44.09	259.39	0.650	0.000	5.00	13.092	8.51	375.2	0.0	420.8
115.00		0.00	1.43	26.423	44.66	251.06	0.650	0.000	5.00	12.602	8.19	365.8	0.0	404.9
120.00		0.00	1.45	26.747	45.20	242.56	0.650	0.000	5.00	12.111	7.87	355.8	0.0	389.0
125.00		0.00	1.46	27.060	45.73	233.89	0.650	0.000	5.00	11.620	7.55	345.4	0.0	373.1
126.50	Appurtenance(s)	0.00	1.47	27.153	45.89	231.25	0.650	0.000	1.50	3.390	2.20	101.1	0.0	108.8
130.00		0.00	1.48	27.365	46.25	225.05	0.650	0.000	3.50	7.739	5.03	232.6	0.0	248.4
135.00		0.00	1.50	27.662	46.75	216.06	0.650	0.000	5.00	10.638	6.91	323.3	0.0	341.3
137.00	Appurtenance(s)	0.00	1.50	27.778	46.95	212.43	0.650	0.000	2.00	4.118	2.68	125.7	0.0	132.1
139.00	Appurtenance(s)	0.00	1.51	27.894	47.14	208.77	0.650	0.000	2.00	4.039	2.63	123.8	0.0	129.5
								Totals:	**139.00**			**11,204.1**		**20,647.7**

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Discrete Appurtenance Forces

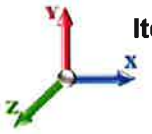
Structure:	CT11558-A-SB	**Code:**	EIA/TIA-222-F	6/30/2015	
Site Name:	Bolton 2, CT	**Exposure:**	C		
Height:	139.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 8	

TES Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	97.00	APXV18-206517S-C	3	25.169	42.536	0.74	11.14	66.00	0.000	0.000	474.03	0.00	0.00
2	97.00	Pipe Mount	3	25.169	42.536	0.75	6.75	1050.00	0.000	0.000	287.12	0.00	0.00
3	110.00	7770.00	9	26.090	44.092	0.73	38.63	315.00	0.000	0.000	1703.34	0.00	0.00
4	110.00	AM-X-CD-16-65-00T-RET	3	26.090	44.092	0.81	16.09	99.00	0.000	0.000	709.29	0.00	0.00
5	110.00	DC6-48-60-18-8F	1	26.090	44.092	0.50	0.73	31.80	0.000	0.000	32.41	0.00	0.00
6	110.00	LGP2140X	12	26.090	44.092	0.50	7.74	169.20	0.000	0.000	341.27	0.00	0.00
7	110.00	Low Profile Platform-flat	1	26.090	44.092	1.00	25.00	1200.00	0.000	0.000	1102.30	0.00	0.00
8	110.00	RRUS 11	6	26.090	44.092	0.50	8.82	304.20	0.000	0.000	388.89	0.00	0.00
9	126.50	AIR 21, 1.3M, B2A B4P	3	27.153	45.888	0.86	16.98	274.50	0.000	0.000	779.02	0.00	0.00
10	126.50	AIR 21, 1.3M, B4A B2P	3	27.153	45.888	0.86	16.98	271.20	0.000	0.000	779.02	0.00	0.00
11	126.50	KRY 112 144/1	3	27.153	45.888	0.50	0.61	33.00	0.000	0.000	28.22	0.00	0.00
12	126.50	LNX-6515DS-A1M	3	27.153	45.888	0.80	27.38	149.40	0.000	0.000	1256.60	0.00	0.00
13	126.50	Low Profile Platform-flat	1	27.153	45.888	1.00	23.00	1100.00	0.000	0.000	1055.43	0.00	0.00
14	126.50	S11B12	3	27.153	45.888	0.50	4.41	152.10	0.000	0.000	202.37	0.00	0.00
15	137.00	BXA-70063-4CF-EDIN-X	1	27.778	46.946	0.73	3.77	9.90	0.000	0.000	176.83	0.00	0.00
16	137.00	BXA-70063-6CF-2	3	27.778	46.946	0.73	16.93	51.00	0.000	0.000	794.73	0.00	0.00
17	137.00	BXA-70080-6BF	2	27.778	46.946	0.87	10.04	36.00	0.000	0.000	471.32	0.00	0.00
18	137.00	DB-T1-6Z-8AB-0Z	1	27.778	46.946	0.76	4.26	14.00	0.000	0.000	199.80	0.00	0.00
19	137.00	GPS	1	27.778	46.946	1.00	1.00	10.00	0.000	0.000	46.95	0.00	0.00
20	137.00	Low Profile Platform-flat	1	27.778	46.946	1.00	23.00	1100.00	0.000	0.000	1079.75	0.00	0.00
21	137.00	RRH2x60-700U	3	27.778	46.946	0.50	2.64	58.50	0.000	0.000	123.94	0.00	0.00
22	137.00	RRH2X60-AWS	3	27.778	46.946	0.50	5.94	180.00	0.000	0.000	278.86	0.00	0.00
23	137.00	RRH2x60-PCS)	3	27.778	46.946	0.50	3.72	150.00	0.000	0.000	174.64	0.00	0.00
24	137.00	SBNHH-1D65B	6	27.778	46.946	0.83	41.83	240.00	0.000	0.000	1963.83	0.00	0.00
25	139.00	Lightning Rod	1	27.894	47.140	0.75	0.38	5.00	0.000	0.000	17.68	0.00	0.00
						Totals:		**7,069.80**			**14,467.61**		

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Total Applied Force Summary

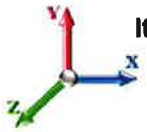
Structure:	CT11558-A-SB	**Code:**	EIA/TIA-222-F	6/30/2015	
Site Name:	Bolton 2, CT	**Exposure:**	C		
Height:	139.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		775.38	1357.55	0.00	0.00
10.00		765.41	1333.70	0.00	0.00
15.00		755.43	1309.84	0.00	0.00
20.00		745.46	1285.99	0.00	0.00
25.00		735.49	1262.13	0.00	0.00
30.00		725.51	1238.27	0.00	0.00
35.00		727.67	1214.42	0.00	0.00
40.00		745.43	1190.56	0.00	0.00
44.33		656.53	1012.52	0.00	0.00
45.00		101.48	256.36	0.00	0.00
50.00		778.00	1897.94	0.00	0.00
55.00		787.94	985.88	0.00	0.00
60.00		795.94	966.00	0.00	0.00
65.00		802.25	946.12	0.00	0.00
70.00		807.05	926.24	0.00	0.00
75.00		810.51	906.36	0.00	0.00
80.00		812.75	886.48	0.00	0.00
85.00		813.88	866.60	0.00	0.00
89.33		704.74	734.97	0.00	0.00
90.00		108.52	175.42	0.00	0.00
94.33		709.07	1124.72	0.00	0.00
95.00		108.41	94.97	0.00	0.00
97.00	(6) appurtenances	1086.87	1399.23	0.00	0.00
100.00		233.87	401.35	0.00	0.00
105.00		384.15	656.19	0.00	0.00
110.00	(32) appurtenances	4652.72	2759.48	0.00	0.00
115.00		365.77	547.28	0.00	0.00
120.00		355.83	531.38	0.00	0.00
125.00		345.41	515.47	0.00	0.00
126.50	(16) appurtenances	4201.77	2131.74	0.00	0.00
130.00		232.63	300.50	0.00	0.00
135.00		323.26	415.77	0.00	0.00
137.00	(24) appurtenances	5436.30	2011.25	0.00	0.00
139.00	(1) appurtenances	141.45	137.15	0.00	0.00
	Totals:	**32,532.88**	**33,779.81**	**0.00**	**0.00**

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Resulting Forces and Deflections

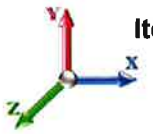
Structure:	CT11558-A-SB	**Code:**	EIA/TIA-222-F	6/30/2015	
Site Name:	Bolton 2, CT	**Exposure:**	C		
Height:	139.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 22

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-32.582	-33.732	0.000	0.000	0.000	-2994.9	0.000	0.000	0.000	0.000	0.000
5.00	-31.897	-32.284	0.000	0.000	0.000	-2832.0	-0.088	0.000	0.088	-0.163	0.000
10.00	-31.215	-30.864	0.000	0.000	0.000	-2672.5	-0.349	0.000	0.349	-0.328	0.000
15.00	-30.536	-29.471	0.000	0.000	0.000	-2516.4	-0.782	0.000	0.782	-0.494	0.000
20.00	-29.860	-28.106	0.000	0.000	0.000	-2363.8	-1.390	0.000	1.390	-0.661	0.000
25.00	-29.187	-26.768	0.000	0.000	0.000	-2214.5	-2.172	0.000	2.172	-0.829	0.000
30.00	-28.516	-25.457	0.000	0.000	0.000	-2068.5	-3.131	0.000	3.131	-0.997	0.000
35.00	-27.837	-24.175	0.000	0.000	0.000	-1925.9	-4.267	0.000	4.267	-1.166	0.000
40.00	-27.129	-22.926	0.000	0.000	0.000	-1786.8	-5.580	0.000	5.580	-1.335	0.000
44.33	-26.480	-21.891	0.000	0.000	0.000	-1669.2	-6.860	0.000	6.860	-1.482	0.000
45.00	-26.409	-21.593	0.000	0.000	0.000	-1651.5	-7.069	0.000	7.069	-1.506	0.000
50.00	-25.636	-19.642	0.000	0.000	0.000	-1519.5	-8.737	0.000	8.737	-1.674	0.000
55.00	-24.877	-18.603	0.000	0.000	0.000	-1391.3	-10.581	0.000	10.581	-1.842	0.000
60.00	-24.107	-17.585	0.000	0.000	0.000	-1266.9	-12.613	0.000	12.613	-2.032	0.000
65.00	-23.324	-16.594	0.000	0.000	0.000	-1146.4	-14.842	0.000	14.842	-2.219	0.000
70.00	-22.530	-15.629	0.000	0.000	0.000	-1029.8	-17.266	0.000	17.266	-2.404	0.000
75.00	-21.726	-14.692	0.000	0.000	0.000	-917.19	-19.881	0.000	19.881	-2.584	0.000
80.00	-20.914	-13.782	0.000	0.000	0.000	-808.56	-22.681	0.000	22.681	-2.758	0.000
85.00	-20.093	-12.903	0.000	0.000	0.000	-703.99	-25.661	0.000	25.661	-2.927	0.000
89.33	-19.368	-12.179	0.000	0.000	0.000	-616.92	-28.383	0.000	28.383	-3.067	0.000
90.00	-19.267	-11.983	0.000	0.000	0.000	-604.01	-28.813	0.000	28.813	-3.089	0.000
94.33	-18.511	-10.875	0.000	0.000	0.000	-520.52	-31.679	0.000	31.679	-3.221	0.000
95.00	-18.406	-10.772	0.000	0.000	0.000	-508.18	-32.130	0.000	32.130	-3.241	0.000
97.00	-17.255	-9.411	0.000	0.000	0.000	-471.37	-33.503	0.000	33.503	-3.311	0.000
100.00	-17.018	-8.987	0.000	0.000	0.000	-419.61	-35.615	0.000	35.615	-3.411	0.000
105.00	-16.615	-8.315	0.000	0.000	0.000	-334.52	-39.269	0.000	39.269	-3.560	0.000
110.00	-11.809	-5.831	0.000	0.000	0.000	-251.45	-43.069	0.000	43.069	-3.690	0.000
115.00	-11.417	-5.288	0.000	0.000	0.000	-192.41	-46.992	0.000	46.992	-3.800	0.000
120.00	-11.033	-4.767	0.000	0.000	0.000	-135.32	-51.022	0.000	51.022	-3.892	0.000
125.00	-10.656	-4.269	0.000	0.000	0.000	-80.158	-55.135	0.000	55.135	-3.960	0.000
126.50	-6.318	-2.431	0.000	0.000	0.000	-64.174	-56.381	0.000	56.381	-3.975	0.000
130.00	-6.066	-2.144	0.000	0.000	0.000	-42.061	-59.304	0.000	59.304	-4.003	0.000
135.00	-5.715	-1.751	0.000	0.000	0.000	-11.731	-63.508	0.000	63.508	-4.025	0.000
137.00	-0.151	-0.127	0.000	0.000	0.000	-0.301	-65.193	0.000	65.193	-4.027	0.000
139.00	-0.141	0.000	0.000	0.000	0.000	0.000	0.000	0.000	66.879	-4.027	0.000

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Resulting Stresses

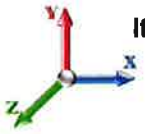
Structure:	CT11558-A-SBA	**Code:**	EIA/TIA-222-F	6/30/2015	
Site Name:	Bolton 2, CT	**Exposure:**	C		
Height:	139.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 22

	Applied Stresses								
Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Fb Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.51	1.00	0.00	0.00	0.00	40.02	40.57	52.0	0.780
5.00	0.50	1.00	0.00	0.00	0.00	39.52	40.06	52.0	0.771
10.00	0.49	1.00	0.00	0.00	0.00	38.98	39.51	52.0	0.760
15.00	0.48	1.00	0.00	0.00	0.00	38.40	38.92	52.0	0.749
20.00	0.47	1.00	0.00	0.00	0.00	37.78	38.28	52.0	0.736
25.00	0.46	1.00	0.00	0.00	0.00	37.11	37.60	52.0	0.723
30.00	0.44	1.00	0.00	0.00	0.00	36.38	36.87	52.0	0.709
35.00	0.43	1.00	0.00	0.00	0.00	35.60	36.08	52.0	0.694
40.00	0.42	1.00	0.00	0.00	0.00	34.76	35.22	52.0	0.678
44.33	0.41	1.00	0.00	0.00	0.00	33.97	34.43	52.0	0.662
45.00	0.41	1.00	0.00	0.00	0.00	33.85	34.30	52.0	0.660
50.00	0.45	1.18	0.00	0.00	0.00	38.16	38.66	52.0	0.744
55.00	0.44	1.18	0.00	0.00	0.00	36.89	37.38	52.0	0.719
60.00	0.42	1.17	0.00	0.00	0.00	35.52	36.00	52.0	0.693
65.00	0.41	1.17	0.00	0.00	0.00	34.04	34.51	52.0	0.664
70.00	0.40	1.16	0.00	0.00	0.00	32.44	32.90	52.0	0.633
75.00	0.39	1.15	0.00	0.00	0.00	30.70	31.15	52.0	0.599
80.00	0.37	1.15	0.00	0.00	0.00	28.82	29.26	52.0	0.563
85.00	0.36	1.14	0.00	0.00	0.00	26.77	27.21	52.0	0.523
89.33	0.35	1.13	0.00	0.00	0.00	24.86	25.29	52.0	0.487
90.00	0.35	1.13	0.00	0.00	0.00	24.56	24.99	52.0	0.481
94.33	0.40	1.37	0.00	0.00	0.00	27.13	27.63	52.0	0.532
95.00	0.40	1.37	0.00	0.00	0.00	26.73	27.23	52.0	0.524
97.00	0.35	1.30	0.00	0.00	0.00	25.49	25.94	52.0	0.499
100.00	0.34	1.31	0.00	0.00	0.00	23.68	24.13	52.0	0.464
105.00	0.33	1.33	0.00	0.00	0.00	20.31	20.77	52.0	0.400
110.00	0.24	0.98	0.00	0.00	0.00	16.47	16.80	52.0	0.323
115.00	0.23	0.99	0.00	0.00	0.00	13.64	13.97	52.0	0.269
120.00	0.21	0.99	0.00	0.00	0.00	10.41	10.76	52.0	0.207
125.00	0.20	1.00	0.00	0.00	0.00	6.72	7.13	52.0	0.137
126.50	0.11	0.60	0.00	0.00	0.00	5.52	5.73	52.0	0.110
130.00	0.10	0.60	0.00	0.00	0.00	3.86	4.09	52.0	0.079
135.00	0.09	0.59	0.00	0.00	0.00	1.18	1.63	52.0	0.031
137.00	0.01	0.02	0.00	0.00	0.00	0.03	0.05	52.0	0.001
139.00	0.00	0.02	0.00	0.00	0.00	0.00	0.03	52.0	0.001

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Wind Loading - Shaft

Structure: CT11558-A-SBA
Site Name: Bolton 2, CT
Height: 139.00 (ft)
Base Elev: 0.000 (ft)

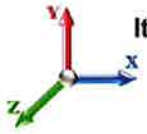
Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

6/30/2015

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 22

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	13.871	23.44	341.21	0.650	0.500	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	13.871	23.44	333.99	0.650	0.500	5.00	23.348	15.18	355.8	169.6	1276.4
10.00		0.00	1.00	13.871	23.44	326.76	0.650	0.500	5.00	22.857	14.86	348.3	165.9	1248.9
15.00		0.00	1.00	13.871	23.44	319.53	0.650	0.500	5.00	22.367	14.54	340.8	162.3	1221.5
20.00		0.00	1.00	13.871	23.44	312.31	0.650	0.500	5.00	21.876	14.22	333.3	158.6	1194.0
25.00		0.00	1.00	13.871	23.44	305.08	0.650	0.500	5.00	21.385	13.90	325.9	155.0	1166.5
30.00		0.00	1.00	13.871	23.44	297.85	0.650	0.500	5.00	20.894	13.58	318.4	151.4	1139.0
35.00		0.00	1.02	14.106	23.84	293.08	0.650	0.500	5.00	20.403	13.26	316.2	147.7	1111.5
40.00		0.00	1.06	14.655	24.77	291.30	0.650	0.500	5.00	19.912	12.94	320.6	144.1	1084.0
44.33	Bot - Section 2	0.00	1.09	15.092	25.51	289.08	0.650	0.500	4.33	16.860	10.96	279.5	122.2	917.4
45.00		0.00	1.09	15.156	25.61	288.69	0.650	0.500	0.67	2.596	1.69	43.2	19.0	241.9
50.00	Top - Section 1	0.00	1.13	15.620	26.40	285.40	0.650	0.500	5.00	19.191	12.47	329.3	138.8	1786.0
55.00		0.00	1.16	16.051	27.13	285.66	0.650	0.500	5.00	18.700	12.16	329.7	135.1	870.3
60.00		0.00	1.19	16.455	27.81	281.36	0.650	0.500	5.00	18.209	11.84	329.1	131.5	846.8
65.00		0.00	1.21	16.836	28.45	276.64	0.650	0.500	5.00	17.718	11.52	327.7	127.9	823.3
70.00		0.00	1.24	17.196	29.06	271.54	0.650	0.500	5.00	17.228	11.20	325.4	124.2	799.8
75.00		0.00	1.26	17.538	29.64	266.10	0.650	0.500	5.00	16.737	10.88	322.4	120.6	776.3
80.00		0.00	1.29	17.865	30.19	260.36	0.650	0.500	5.00	16.246	10.56	318.8	117.0	752.8
85.00		0.00	1.31	18.177	30.72	254.36	0.650	0.500	5.00	15.755	10.24	314.6	113.3	729.2
89.33	Bot - Section 3	0.00	1.33	18.437	31.16	248.95	0.650	0.500	4.33	13.257	8.62	268.5	95.5	613.2
90.00		0.00	1.33	18.476	31.22	248.10	0.650	0.500	0.67	2.035	1.32	41.3	14.8	156.8
94.33	Top - Section 2	0.00	1.35	18.726	31.65	242.50	0.650	0.500	4.33	13.012	8.46	267.7	93.7	1001.1
95.00		0.00	1.35	18.764	31.71	245.19	0.650	0.500	0.67	1.969	1.28	40.6	14.3	75.9
97.00	Appurtenance(s)	0.00	1.36	18.876	31.90	242.55	0.650	0.500	2.00	5.855	3.81	121.4	42.5	225.4
100.00		0.00	1.37	19.041	32.18	238.52	0.650	0.500	3.00	8.636	5.61	180.6	62.4	332.0
105.00		0.00	1.39	19.308	32.63	231.67	0.650	0.500	5.00	14.000	9.10	296.9	100.3	537.0
110.00	Appurtenance(s)	0.00	1.41	19.566	33.07	224.63	0.650	0.500	5.00	13.509	8.78	290.4	96.7	517.5
115.00		0.00	1.43	19.816	33.49	217.42	0.650	0.500	5.00	13.018	8.46	283.4	93.0	498.0
120.00		0.00	1.45	20.059	33.90	210.06	0.650	0.500	5.00	12.527	8.14	276.0	89.4	478.4
125.00		0.00	1.46	20.294	34.30	202.55	0.650	0.500	5.00	12.036	7.82	268.3	85.8	458.9
126.50	Appurtenance(s)	0.00	1.47	20.363	34.41	200.26	0.650	0.500	1.50	3.515	2.28	78.6	25.4	134.2
130.00		0.00	1.48	20.523	34.68	194.89	0.650	0.500	3.50	8.030	5.22	181.0	57.5	305.9
135.00		0.00	1.50	20.745	35.06	187.11	0.650	0.500	5.00	11.055	7.19	251.9	78.5	419.8
137.00	Appurtenance(s)	0.00	1.50	20.833	35.21	183.96	0.650	0.500	2.00	4.284	2.78	98.0	30.8	162.9
139.00	Appurtenance(s)	0.00	1.51	20.919	35.35	180.79	0.650	0.500	2.00	4.206	2.73	96.7	30.2	159.8
								Totals:	**139.00**			**8,620.4**		**24,062.6**

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Discrete Appurtenance Forces

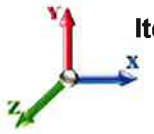
Structure:	CT11558-A-SB	**Code:**	EIA/TIA-222-F	6/30/2015	
Site Name:	Bolton 2, CT	**Exposure:**	C		
Height:	139.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 13	

TES Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	97.00	APXV18-206517S-C	3	18.876	31.900	0.75	12.83	0.00	0.000	0.000	409.12	0.00	0.00
2	97.00	Pipe Mount	3	18.876	31.900	0.75	13.50	1350.00	0.000	0.000	430.65	0.00	0.00
3	110.00	7770.00	9	19.566	33.067	0.73	42.90	0.00	0.000	0.000	1418.64	0.00	0.00
4	110.00	AM-X-CD-16-65-00T-RET	3	19.566	33.067	0.84	18.32	223.50	0.000	0.000	605.80	0.00	0.00
5	110.00	DC6-48-60-18-8F	1	19.566	33.067	0.50	0.83	49.50	0.000	0.000	27.61	0.00	0.00
6	110.00	LGP2140X	12	19.566	33.067	0.50	9.18	254.40	0.000	0.000	303.55	0.00	0.00
7	110.00	Low Profile Platform-flat	1	19.566	33.067	1.00	31.00	1500.00	0.000	0.000	1025.08	0.00	0.00
8	110.00	RRUS 11	6	19.566	33.067	0.50	9.42	396.00	0.000	0.000	311.49	0.00	0.00
9	126.50	AIR 21, 1.3M, B2A B4P	3	20.363	34.414	0.86	17.98	387.60	0.000	0.000	618.86	0.00	0.00
10	126.50	AIR 21, 1.3M, B4A B2P	3	20.363	34.414	0.86	17.98	384.30	0.000	0.000	618.86	0.00	0.00
11	126.50	KRY 112 144/1	3	20.363	34.414	0.50	0.83	42.30	0.000	0.000	28.39	0.00	0.00
12	126.50	LNX-6515DS-A1M	3	20.363	34.414	0.80	29.62	346.80	0.000	0.000	1019.21	0.00	0.00
13	126.50	Low Profile Platform-flat	1	20.363	34.414	1.00	31.00	1400.00	0.000	0.000	1066.84	0.00	0.00
14	126.50	S11B12	3	20.363	34.414	0.50	4.71	198.00	0.000	0.000	162.09	0.00	0.00
15	137.00	BXA-70063-4CF-EDIN-X	1	20.833	35.207	0.73	4.19	39.00	0.000	0.000	147.52	0.00	0.00
16	137.00	BXA-70063-6CF-2	3	20.833	35.207	0.73	18.70	0.00	0.000	0.000	658.47	0.00	0.00
17	137.00	BXA-70080-6BF	2	20.833	35.207	0.87	11.22	108.60	0.000	0.000	395.13	0.00	0.00
18	137.00	DB-T1-6Z-8AB-0Z	1	20.833	35.207	0.76	4.62	0.00	0.000	0.000	162.69	0.00	0.00
19	137.00	GPS	1	20.833	35.207	0.75	0.94	18.00	0.000	0.000	33.01	0.00	0.00
20	137.00	Low Profile Platform-flat	1	20.833	35.207	1.00	31.00	1400.00	0.000	0.000	1091.42	0.00	0.00
21	137.00	RRH2x60-700U	3	20.833	35.207	0.50	2.90	145.20	0.000	0.000	101.92	0.00	0.00
22	137.00	RRH2X60-AWS	3	20.833	35.207	0.50	6.35	240.30	0.000	0.000	223.39	0.00	0.00
23	137.00	RRH2x60-PCS)	3	20.833	35.207	0.50	4.21	213.30	0.000	0.000	148.40	0.00	0.00
24	137.00	SBNHH-1D65B	6	20.833	35.207	0.83	44.17	519.60	0.000	0.000	1555.19	0.00	0.00
25	139.00	Lightning Rod	1	20.919	35.353	1.00	1.00	11.00	0.000	0.000	35.35	0.00	0.00
						Totals:		**9,227.40**			**12,598.66**		

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Total Applied Force Summary

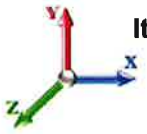
Structure:	CT11558-A-SB	**Code:**	EIA/TIA-222-F	6/30/2015	
Site Name:	Bolton 2, CT	**Exposure:**	C		
Height:	139.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 14	

TES Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		587.85	1527.10	0.00	0.00
10.00		580.37	1499.61	0.00	0.00
15.00		572.89	1472.12	0.00	0.00
20.00		565.41	1444.63	0.00	0.00
25.00		557.93	1417.14	0.00	0.00
30.00		550.45	1389.65	0.00	0.00
35.00		552.18	1362.16	0.00	0.00
40.00		565.75	1334.67	0.00	0.00
44.33		498.36	1134.68	0.00	0.00
45.00		77.03	275.35	0.00	0.00
50.00		590.62	2036.70	0.00	0.00
55.00		598.27	1121.00	0.00	0.00
60.00		604.45	1097.49	0.00	0.00
65.00		609.36	1073.97	0.00	0.00
70.00		613.13	1050.46	0.00	0.00
75.00		615.88	1026.94	0.00	0.00
80.00		617.70	1003.43	0.00	0.00
85.00		618.70	979.91	0.00	0.00
89.33		535.83	830.45	0.00	0.00
90.00		82.51	190.25	0.00	0.00
94.33		539.20	1218.38	0.00	0.00
95.00		82.45	109.32	0.00	0.00
97.00	(6) appurtenances	1087.49	1675.68	0.00	0.00
100.00		180.62	463.72	0.00	0.00
105.00		296.93	756.51	0.00	0.00
110.00	(32) appurtenances	3982.53	3160.37	0.00	0.00
115.00		283.38	640.33	0.00	0.00
120.00		276.03	620.79	0.00	0.00
125.00		268.33	601.25	0.00	0.00
126.50	(16) appurtenances	3592.87	2935.95	0.00	0.00
130.00		181.04	358.00	0.00	0.00
135.00		251.92	494.27	0.00	0.00
137.00	(24) appurtenances	4615.18	2876.67	0.00	0.00
139.00	(1) appurtenances	132.00	173.39	0.00	0.00
	Totals:	**26,364.66**	**39,352.36**	**0.00**	**0.00**

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Resulting Forces and Deflections

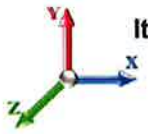
Structure:	CT11558-A-SB	**Code:**	EIA/TIA-222-F	6/30/2015	
Site Name:	Bolton 2, CT	**Exposure:**	C		
Height:	139.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 22

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-26.412	-39.320	0.000	0.000	0.000	-2493.7	0.000	0.000	0.000	0.000	0.000
5.00	-25.913	-37.732	0.000	0.000	0.000	-2361.6	-0.074	0.000	0.074	-0.136	0.000
10.00	-25.414	-36.173	0.000	0.000	0.000	-2232.0	-0.290	0.000	0.290	-0.274	0.000
15.00	-24.917	-34.644	0.000	0.000	0.000	-2105.0	-0.652	0.000	0.652	-0.412	0.000
20.00	-24.420	-33.145	0.000	0.000	0.000	-1980.4	-1.159	0.000	1.159	-0.552	0.000
25.00	-23.925	-31.675	0.000	0.000	0.000	-1858.3	-1.813	0.000	1.813	-0.693	0.000
30.00	-23.431	-30.235	0.000	0.000	0.000	-1738.7	-2.615	0.000	2.615	-0.834	0.000
35.00	-22.929	-28.825	0.000	0.000	0.000	-1621.5	-3.565	0.000	3.565	-0.976	0.000
40.00	-22.403	-27.449	0.000	0.000	0.000	-1506.9	-4.665	0.000	4.665	-1.119	0.000
44.33	-21.914	-26.297	0.000	0.000	0.000	-1409.8	-5.739	0.000	5.739	-1.243	0.000
45.00	-21.868	-25.992	0.000	0.000	0.000	-1395.2	-5.914	0.000	5.914	-1.263	0.000
50.00	-21.290	-23.917	0.000	0.000	0.000	-1285.8	-7.313	0.000	7.313	-1.405	0.000
55.00	-20.723	-22.757	0.000	0.000	0.000	-1179.4	-8.861	0.000	8.861	-1.547	0.000
60.00	-20.148	-21.621	0.000	0.000	0.000	-1075.8	-10.569	0.000	10.569	-1.708	0.000
65.00	-19.562	-20.513	0.000	0.000	0.000	-975.10	-12.444	0.000	12.444	-1.868	0.000
70.00	-18.967	-19.432	0.000	0.000	0.000	-877.29	-14.485	0.000	14.485	-2.024	0.000
75.00	-18.362	-18.380	0.000	0.000	0.000	-782.46	-16.689	0.000	16.689	-2.178	0.000
80.00	-17.750	-17.356	0.000	0.000	0.000	-690.65	-19.050	0.000	19.050	-2.327	0.000
85.00	-17.128	-16.364	0.000	0.000	0.000	-601.90	-21.566	0.000	21.566	-2.471	0.000
89.33	-16.575	-15.538	0.000	0.000	0.000	-527.68	-23.865	0.000	23.865	-2.591	0.000
90.00	-16.502	-15.333	0.000	0.000	0.000	-516.63	-24.228	0.000	24.228	-2.610	0.000
94.33	-15.922	-14.123	0.000	0.000	0.000	-445.12	-26.650	0.000	26.650	-2.723	0.000
95.00	-15.844	-14.007	0.000	0.000	0.000	-434.51	-27.031	0.000	27.031	-2.740	0.000
97.00	-14.692	-12.367	0.000	0.000	0.000	-402.82	-28.192	0.000	28.192	-2.800	0.000
100.00	-14.512	-11.886	0.000	0.000	0.000	-358.75	-29.979	0.000	29.979	-2.885	0.000
105.00	-14.199	-11.116	0.000	0.000	0.000	-286.19	-33.071	0.000	33.071	-3.013	0.000
110.00	-10.068	-8.156	0.000	0.000	0.000	-215.19	-36.287	0.000	36.287	-3.124	0.000
115.00	-9.761	-7.517	0.000	0.000	0.000	-164.86	-39.610	0.000	39.610	-3.218	0.000
120.00	-9.458	-6.902	0.000	0.000	0.000	-116.05	-43.024	0.000	43.024	-3.297	0.000
125.00	-9.159	-6.312	0.000	0.000	0.000	-68.770	-46.509	0.000	46.509	-3.355	0.000
126.50	-5.401	-3.590	0.000	0.000	0.000	-55.031	-47.565	0.000	47.565	-3.368	0.000
130.00	-5.201	-3.241	0.000	0.000	0.000	-36.128	-50.042	0.000	50.042	-3.392	0.000
135.00	-4.920	-2.762	0.000	0.000	0.000	-10.125	-53.605	0.000	53.605	-3.411	0.000
137.00	-0.142	-0.165	0.000	0.000	0.000	-0.284	-55.034	0.000	55.034	-3.413	0.000
139.00	-0.132	0.000	0.000	0.000	0.000	0.000	0.000	0.000	56.463	-3.413	0.000

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Resulting Stresses

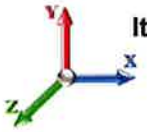
Structure:	CT11558-A-SBA	**Code:**	EIA/TIA-222-F	6/30/2015	
Site Name:	Bolton 2, CT	**Exposure:**	C		
Height:	139.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 22

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Fb Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.60	0.81	0.00	0.00	0.00	33.32	33.95	52.0	0.653
5.00	0.59	0.81	0.00	0.00	0.00	32.95	33.57	52.0	0.646
10.00	0.57	0.81	0.00	0.00	0.00	32.55	33.16	52.0	0.638
15.00	0.56	0.82	0.00	0.00	0.00	32.12	32.71	52.0	0.629
20.00	0.55	0.82	0.00	0.00	0.00	31.65	32.23	52.0	0.620
25.00	0.54	0.82	0.00	0.00	0.00	31.14	31.71	52.0	0.610
30.00	0.53	0.82	0.00	0.00	0.00	30.58	31.14	52.0	0.599
35.00	0.52	0.83	0.00	0.00	0.00	29.97	30.52	52.0	0.587
40.00	0.50	0.83	0.00	0.00	0.00	29.31	29.85	52.0	0.574
44.33	0.49	0.83	0.00	0.00	0.00	28.69	29.22	52.0	0.562
45.00	0.49	0.83	0.00	0.00	0.00	28.60	29.12	52.0	0.560
50.00	0.55	0.98	0.00	0.00	0.00	32.29	32.88	52.0	0.633
55.00	0.53	0.98	0.00	0.00	0.00	31.27	31.85	52.0	0.613
60.00	0.52	0.98	0.00	0.00	0.00	30.16	30.73	52.0	0.591
65.00	0.51	0.98	0.00	0.00	0.00	28.95	29.51	52.0	0.568
70.00	0.50	0.98	0.00	0.00	0.00	27.63	28.18	52.0	0.542
75.00	0.48	0.98	0.00	0.00	0.00	26.19	26.73	52.0	0.514
80.00	0.47	0.97	0.00	0.00	0.00	24.62	25.14	52.0	0.484
85.00	0.46	0.97	0.00	0.00	0.00	22.89	23.41	52.0	0.450
89.33	0.45	0.97	0.00	0.00	0.00	21.26	21.78	52.0	0.419
90.00	0.45	0.97	0.00	0.00	0.00	21.01	21.52	52.0	0.414
94.33	0.52	1.18	0.00	0.00	0.00	23.20	23.80	52.0	0.458
95.00	0.52	1.18	0.00	0.00	0.00	22.85	23.46	52.0	0.451
97.00	0.46	1.11	0.00	0.00	0.00	21.79	22.33	52.0	0.430
100.00	0.45	1.12	0.00	0.00	0.00	20.25	20.79	52.0	0.400
105.00	0.44	1.14	0.00	0.00	0.00	17.38	17.93	52.0	0.345
110.00	0.34	0.84	0.00	0.00	0.00	14.10	14.51	52.0	0.279
115.00	0.32	0.84	0.00	0.00	0.00	11.69	12.10	52.0	0.233
120.00	0.31	0.85	0.00	0.00	0.00	8.93	9.36	52.0	0.180
125.00	0.29	0.86	0.00	0.00	0.00	5.77	6.24	52.0	0.120
126.50	0.17	0.51	0.00	0.00	0.00	4.74	4.99	52.0	0.096
130.00	0.16	0.51	0.00	0.00	0.00	3.31	3.58	52.0	0.069
135.00	0.14	0.51	0.00	0.00	0.00	1.02	1.45	52.0	0.028
137.00	0.01	0.01	0.00	0.00	0.00	0.03	0.05	52.0	0.001
139.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	52.0	0.000

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Wind Loading - Shaft

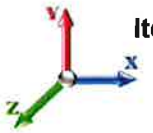
Structure: CT11558-A-SBA
Site Name: Bolton 2, CT
Height: 139.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

6/30/2015
Page: 17

TES Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice
Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 21

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	6.400	10.82	231.77	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	6.400	10.82	226.86	0.650	0.000	5.00	22.932	14.91	161.2	0.0	1106.9
10.00		0.00	1.00	6.400	10.82	221.95	0.650	0.000	5.00	22.441	14.59	157.8	0.0	1083.0
15.00		0.00	1.00	6.400	10.82	217.05	0.650	0.000	5.00	21.950	14.27	154.3	0.0	1059.2
20.00		0.00	1.00	6.400	10.82	212.14	0.650	0.000	5.00	21.459	13.95	150.9	0.0	1035.3
25.00		0.00	1.00	6.400	10.82	207.23	0.650	0.000	5.00	20.968	13.63	147.4	0.0	1011.5
30.00		0.00	1.00	6.400	10.82	202.32	0.650	0.000	5.00	20.477	13.31	144.0	0.0	987.6
35.00		0.00	1.02	6.509	11.00	199.08	0.650	0.000	5.00	19.987	12.99	142.9	0.0	963.8
40.00		0.00	1.06	6.762	11.43	197.87	0.650	0.000	5.00	19.496	12.67	144.8	0.0	939.9
44.33	Bot - Section 2	0.00	1.09	6.963	11.77	196.36	0.650	0.000	4.33	16.499	10.72	126.2	0.0	795.3
45.00		0.00	1.09	6.993	11.82	196.09	0.650	0.000	0.67	2.540	1.65	19.5	0.0	222.9
50.00	Top - Section 1	0.00	1.13	7.207	12.18	193.86	0.650	0.000	5.00	18.774	12.20	148.6	0.0	1647.3
55.00		0.00	1.16	7.406	12.52	194.04	0.650	0.000	5.00	18.283	11.88	148.7	0.0	735.2
60.00		0.00	1.19	7.592	12.83	191.12	0.650	0.000	5.00	17.793	11.57	148.4	0.0	715.3
65.00		0.00	1.21	7.768	13.13	187.91	0.650	0.000	5.00	17.302	11.25	147.6	0.0	695.5
70.00		0.00	1.24	7.934	13.41	184.44	0.650	0.000	5.00	16.811	10.93	146.5	0.0	675.6
75.00		0.00	1.26	8.092	13.68	180.75	0.650	0.000	5.00	16.320	10.61	145.1	0.0	655.7
80.00		0.00	1.29	8.242	13.93	176.85	0.650	0.000	5.00	15.829	10.29	143.3	0.0	635.8
85.00		0.00	1.31	8.387	14.17	172.77	0.650	0.000	5.00	15.338	9.97	141.3	0.0	615.9
89.33	Bot - Section 3	0.00	1.33	8.507	14.38	169.10	0.650	0.000	4.33	12.896	8.38	120.5	0.0	517.7
90.00		0.00	1.33	8.525	14.41	168.52	0.650	0.000	0.67	1.979	1.29	18.5	0.0	142.0
94.33	Top - Section 2	0.00	1.35	8.640	14.60	164.72	0.650	0.000	4.33	12.651	8.22	120.1	0.0	907.5
95.00		0.00	1.35	8.657	14.63	166.54	0.650	0.000	0.67	1.914	1.24	18.2	0.0	61.6
97.00	Appurtenance(s)	0.00	1.36	8.709	14.72	164.75	0.650	0.000	2.00	5.689	3.70	54.4	0.0	183.0
100.00		0.00	1.37	8.785	14.85	162.02	0.650	0.000	3.00	8.386	5.45	80.9	0.0	269.7
105.00		0.00	1.39	8.908	15.06	157.36	0.650	0.000	5.00	13.583	8.83	132.9	0.0	436.7
110.00	Appurtenance(s)	0.00	1.41	9.028	15.26	152.58	0.650	0.000	5.00	13.092	8.51	129.8	0.0	420.8
115.00		0.00	1.43	9.143	15.45	147.69	0.650	0.000	5.00	12.602	8.19	126.6	0.0	404.9
120.00		0.00	1.45	9.255	15.64	142.68	0.650	0.000	5.00	12.111	7.87	123.1	0.0	389.0
125.00		0.00	1.46	9.363	15.82	137.58	0.650	0.000	5.00	11.620	7.55	119.5	0.0	373.1
126.50	Appurtenance(s)	0.00	1.47	9.395	15.88	136.03	0.650	0.000	1.50	3.390	2.20	35.0	0.0	108.8
130.00		0.00	1.48	9.469	16.00	132.38	0.650	0.000	3.50	7.739	5.03	80.5	0.0	248.4
135.00		0.00	1.50	9.572	16.18	127.10	0.650	0.000	5.00	10.638	6.91	111.9	0.0	341.3
137.00	Appurtenance(s)	0.00	1.50	9.612	16.24	124.96	0.650	0.000	2.00	4.118	2.68	43.5	0.0	132.1
139.00	Appurtenance(s)	0.00	1.51	9.652	16.31	122.80	0.650	0.000	2.00	4.039	2.63	42.8	0.0	129.5
								Totals:	**139.00**			**3,876.8**		**20,647.7**

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Discrete Appurtenance Forces

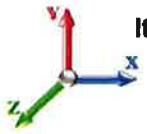
Structure:	CT11558-A-SB	**Code:**	EIA/TIA-222-F	6/30/2015	
Site Name:	Bolton 2, CT	**Exposure:**	C		
Height:	139.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 21

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	97.00	APXV18-206517S-C	3	8.709	14.718	0.74	11.14	66.00	0.000	0.000	164.03	0.00	0.00
2	97.00	Pipe Mount	3	8.709	14.718	0.75	6.75	1050.00	0.000	0.000	99.35	0.00	0.00
3	110.00	7770.00	9	9.028	15.257	0.73	38.63	315.00	0.000	0.000	589.39	0.00	0.00
4	110.00	AM-X-CD-16-65-00T-RET	3	9.028	15.257	0.81	16.09	99.00	0.000	0.000	245.43	0.00	0.00
5	110.00	DC6-48-60-18-8F	1	9.028	15.257	0.50	0.73	31.80	0.000	0.000	11.21	0.00	0.00
6	110.00	LGP2140X	12	9.028	15.257	0.50	7.74	169.20	0.000	0.000	118.09	0.00	0.00
7	110.00	Low Profile Platform-flat	1	9.028	15.257	1.00	25.00	1200.00	0.000	0.000	381.42	0.00	0.00
8	110.00	RRUS 11	6	9.028	15.257	0.50	8.82	304.20	0.000	0.000	134.56	0.00	0.00
9	126.50	AIR 21, 1.3M, B2A B4P	3	9.395	15.878	0.86	16.98	274.50	0.000	0.000	269.56	0.00	0.00
10	126.50	AIR 21, 1.3M, B4A B2P	3	9.395	15.878	0.86	16.98	271.20	0.000	0.000	269.56	0.00	0.00
11	126.50	KRY 112 144/1	3	9.395	15.878	0.50	0.61	33.00	0.000	0.000	9.77	0.00	0.00
12	126.50	LNX-6515DS-A1M	3	9.395	15.878	0.80	27.38	149.40	0.000	0.000	434.81	0.00	0.00
13	126.50	Low Profile Platform-flat	1	9.395	15.878	1.00	23.00	1100.00	0.000	0.000	365.20	0.00	0.00
14	126.50	S11B12	3	9.395	15.878	0.50	4.41	152.10	0.000	0.000	70.02	0.00	0.00
15	137.00	BXA-70063-4CF-EDIN-X	1	9.612	16.244	0.73	3.77	9.90	0.000	0.000	61.19	0.00	0.00
16	137.00	BXA-70063-6CF-2	3	9.612	16.244	0.73	16.93	51.00	0.000	0.000	274.99	0.00	0.00
17	137.00	BXA-70080-6BF	2	9.612	16.244	0.87	10.04	36.00	0.000	0.000	163.09	0.00	0.00
18	137.00	DB-T1-6Z-8AB-0Z	1	9.612	16.244	0.76	4.26	14.00	0.000	0.000	69.14	0.00	0.00
19	137.00	GPS	1	9.612	16.244	1.00	1.00	10.00	0.000	0.000	16.24	0.00	0.00
20	137.00	Low Profile Platform-flat	1	9.612	16.244	1.00	23.00	1100.00	0.000	0.000	373.62	0.00	0.00
21	137.00	RRH2x60-700U	3	9.612	16.244	0.50	2.64	58.50	0.000	0.000	42.88	0.00	0.00
22	137.00	RRH2X60-AWS	3	9.612	16.244	0.50	5.94	180.00	0.000	0.000	96.49	0.00	0.00
23	137.00	RRH2x60-PCS)	3	9.612	16.244	0.50	3.72	150.00	0.000	0.000	60.43	0.00	0.00
24	137.00	SBNHH-1D65B	6	9.612	16.244	0.83	41.83	240.00	0.000	0.000	679.53	0.00	0.00
25	139.00	Lightning Rod	1	9.652	16.312	0.75	0.38	5.00	0.000	0.000	6.12	0.00	0.00
						Totals:		**7,069.80**			**5,006.09**		

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Total Applied Force Summary

Structure:	CT11558-A-SB	**Code:**	EIA/TIA-222-F	6/30/2015	
Site Name:	Bolton 2, CT	**Exposure:**	C		
Height:	139.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 19	

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Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00

Iterations: 21

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		268.30	1357.55	0.00	0.00
10.00		264.85	1333.70	0.00	0.00
15.00		261.40	1309.84	0.00	0.00
20.00		257.94	1285.99	0.00	0.00
25.00		254.49	1262.13	0.00	0.00
30.00		251.04	1238.27	0.00	0.00
35.00		251.79	1214.42	0.00	0.00
40.00		257.94	1190.56	0.00	0.00
44.33		227.17	1012.52	0.00	0.00
45.00		35.11	256.36	0.00	0.00
50.00		269.21	1897.94	0.00	0.00
55.00		272.64	985.88	0.00	0.00
60.00		275.41	966.00	0.00	0.00
65.00		277.60	946.12	0.00	0.00
70.00		279.26	926.24	0.00	0.00
75.00		280.45	906.36	0.00	0.00
80.00		281.23	886.48	0.00	0.00
85.00		281.62	866.60	0.00	0.00
89.33		243.85	734.97	0.00	0.00
90.00		37.55	175.42	0.00	0.00
94.33		245.35	1124.72	0.00	0.00
95.00		37.51	94.97	0.00	0.00
97.00	(6) appurtenances	376.08	1399.23	0.00	0.00
100.00		80.92	401.35	0.00	0.00
105.00		132.92	656.19	0.00	0.00
110.00	(32) appurtenances	1609.94	2759.48	0.00	0.00
115.00		126.56	547.28	0.00	0.00
120.00		123.12	531.38	0.00	0.00
125.00		119.52	515.47	0.00	0.00
126.50	(16) appurtenances	1453.90	2131.74	0.00	0.00
130.00		80.50	300.50	0.00	0.00
135.00		111.85	415.77	0.00	0.00
137.00	(24) appurtenances	1881.07	2011.25	0.00	0.00
139.00	(1) appurtenances	48.94	137.15	0.00	0.00
	Totals:	**11,257.05**	**33,779.81**	**0.00**	**0.00**

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Resulting Forces and Deflections

Structure:	CT11558-A-SB	**Code:**	EIA/TIA-222-F	6/30/2015	
Site Name:	Bolton 2, CT	**Exposure:**	C		
Height:	139.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 20	

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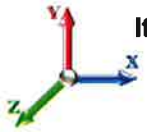
Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 21

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-11.273	-33.774	0.000	0.000	0.000	-1036.9	0.000	0.000	0.000	0.000	0.000
5.00	-11.037	-32.406	0.000	0.000	0.000	-980.54	-0.031	0.000	0.031	-0.057	0.000
10.00	-10.801	-31.062	0.000	0.000	0.000	-925.36	-0.121	0.000	0.121	-0.114	0.000
15.00	-10.566	-29.742	0.000	0.000	0.000	-871.36	-0.271	0.000	0.271	-0.171	0.000
20.00	-10.332	-28.446	0.000	0.000	0.000	-818.53	-0.481	0.000	0.481	-0.229	0.000
25.00	-10.100	-27.175	0.000	0.000	0.000	-766.87	-0.752	0.000	0.752	-0.287	0.000
30.00	-9.868	-25.928	0.000	0.000	0.000	-716.37	-1.084	0.000	1.084	-0.345	0.000
35.00	-9.634	-24.706	0.000	0.000	0.000	-667.03	-1.477	0.000	1.477	-0.404	0.000
40.00	-9.389	-23.508	0.000	0.000	0.000	-618.86	-1.932	0.000	1.932	-0.462	0.000
44.33	-9.165	-22.493	0.000	0.000	0.000	-578.18	-2.376	0.000	2.376	-0.513	0.000
45.00	-9.141	-22.232	0.000	0.000	0.000	-572.07	-2.448	0.000	2.448	-0.521	0.000
50.00	-8.874	-20.327	0.000	0.000	0.000	-526.37	-3.026	0.000	3.026	-0.580	0.000
55.00	-8.612	-19.335	0.000	0.000	0.000	-482.00	-3.664	0.000	3.664	-0.638	0.000
60.00	-8.346	-18.363	0.000	0.000	0.000	-438.94	-4.368	0.000	4.368	-0.704	0.000
65.00	-8.076	-17.411	0.000	0.000	0.000	-397.21	-5.140	0.000	5.140	-0.769	0.000
70.00	-7.802	-16.480	0.000	0.000	0.000	-356.83	-5.980	0.000	5.980	-0.832	0.000
75.00	-7.524	-15.570	0.000	0.000	0.000	-317.82	-6.886	0.000	6.886	-0.895	0.000
80.00	-7.244	-14.681	0.000	0.000	0.000	-280.20	-7.856	0.000	7.856	-0.955	0.000
85.00	-6.961	-13.813	0.000	0.000	0.000	-243.98	-8.889	0.000	8.889	-1.014	0.000
89.33	-6.710	-13.079	0.000	0.000	0.000	-213.82	-9.832	0.000	9.832	-1.062	0.000
90.00	-6.675	-12.901	0.000	0.000	0.000	-209.35	-9.981	0.000	9.981	-1.070	0.000
94.33	-6.414	-11.779	0.000	0.000	0.000	-180.42	-10.974	0.000	10.974	-1.116	0.000
95.00	-6.378	-11.683	0.000	0.000	0.000	-176.15	-11.130	0.000	11.130	-1.123	0.000
97.00	-5.979	-10.288	0.000	0.000	0.000	-163.39	-11.606	0.000	11.606	-1.147	0.000
100.00	-5.898	-9.884	0.000	0.000	0.000	-145.45	-12.338	0.000	12.338	-1.182	0.000
105.00	-5.759	-9.226	0.000	0.000	0.000	-115.97	-13.605	0.000	13.605	-1.233	0.000
110.00	-4.093	-6.499	0.000	0.000	0.000	-87.177	-14.922	0.000	14.922	-1.278	0.000
115.00	-3.958	-5.953	0.000	0.000	0.000	-66.711	-16.282	0.000	16.282	-1.317	0.000
120.00	-3.825	-5.423	0.000	0.000	0.000	-46.920	-17.679	0.000	17.679	-1.348	0.000
125.00	-3.695	-4.909	0.000	0.000	0.000	-27.794	-19.105	0.000	19.105	-1.372	0.000
126.50	-2.191	-2.813	0.000	0.000	0.000	-22.251	-19.537	0.000	19.537	-1.377	0.000
130.00	-2.103	-2.514	0.000	0.000	0.000	-14.584	-20.550	0.000	20.550	-1.387	0.000
135.00	-1.982	-2.101	0.000	0.000	0.000	-4.068	-22.008	0.000	22.008	-1.395	0.000
137.00	-0.052	-0.136	0.000	0.000	0.000	-0.104	-22.592	0.000	22.592	-1.395	0.000
139.00	-0.049	0.000	0.000	0.000	0.000	0.000	0.000	0.000	23.177	-1.395	0.000

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Resulting Stresses

Structure:	CT11558-A-SBA	**Code:**	EIA/TIA-222-F	6/30/2015	
Site Name:	Bolton 2, CT	**Exposure:**	C		
Height:	139.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 21	

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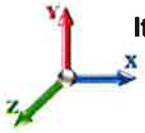
Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 21

	Applied Stresses								
Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.51	0.35	0.00	0.00	0.00	13.86	14.38	52.0	0.277
5.00	0.50	0.35	0.00	0.00	0.00	13.68	14.20	52.0	0.273
10.00	0.49	0.35	0.00	0.00	0.00	13.50	14.00	52.0	0.269
15.00	0.48	0.35	0.00	0.00	0.00	13.30	13.79	52.0	0.265
20.00	0.47	0.35	0.00	0.00	0.00	13.08	13.57	52.0	0.261
25.00	0.46	0.35	0.00	0.00	0.00	12.85	13.33	52.0	0.256
30.00	0.45	0.35	0.00	0.00	0.00	12.60	13.07	52.0	0.251
35.00	0.44	0.35	0.00	0.00	0.00	12.33	12.79	52.0	0.246
40.00	0.43	0.35	0.00	0.00	0.00	12.04	12.48	52.0	0.240
44.33	0.42	0.35	0.00	0.00	0.00	11.77	12.20	52.0	0.235
45.00	0.42	0.35	0.00	0.00	0.00	11.73	12.16	52.0	0.234
50.00	0.46	0.41	0.00	0.00	0.00	13.22	13.70	52.0	0.264
55.00	0.45	0.41	0.00	0.00	0.00	12.78	13.25	52.0	0.255
60.00	0.44	0.41	0.00	0.00	0.00	12.30	12.77	52.0	0.246
65.00	0.43	0.40	0.00	0.00	0.00	11.79	12.25	52.0	0.236
70.00	0.42	0.40	0.00	0.00	0.00	11.24	11.68	52.0	0.225
75.00	0.41	0.40	0.00	0.00	0.00	10.64	11.07	52.0	0.213
80.00	0.40	0.40	0.00	0.00	0.00	9.99	10.41	52.0	0.200
85.00	0.39	0.39	0.00	0.00	0.00	9.28	9.69	52.0	0.186
89.33	0.38	0.39	0.00	0.00	0.00	8.62	9.02	52.0	0.174
90.00	0.37	0.39	0.00	0.00	0.00	8.51	8.91	52.0	0.171
94.33	0.43	0.48	0.00	0.00	0.00	9.40	9.87	52.0	0.190
95.00	0.43	0.47	0.00	0.00	0.00	9.26	9.73	52.0	0.187
97.00	0.39	0.45	0.00	0.00	0.00	8.84	9.26	52.0	0.178
100.00	0.38	0.45	0.00	0.00	0.00	8.21	8.62	52.0	0.166
105.00	0.37	0.46	0.00	0.00	0.00	7.04	7.45	52.0	0.143
110.00	0.27	0.34	0.00	0.00	0.00	5.71	6.01	52.0	0.116
115.00	0.26	0.34	0.00	0.00	0.00	4.73	5.02	52.0	0.097
120.00	0.24	0.34	0.00	0.00	0.00	3.61	3.90	52.0	0.075
125.00	0.23	0.35	0.00	0.00	0.00	2.33	2.63	52.0	0.051
126.50	0.13	0.21	0.00	0.00	0.00	1.92	2.08	52.0	0.040
130.00	0.12	0.21	0.00	0.00	0.00	1.34	1.50	52.0	0.029
135.00	0.11	0.20	0.00	0.00	0.00	0.41	0.63	52.0	0.012
137.00	0.01	0.01	0.00	0.00	0.00	0.01	0.02	52.0	0.000
139.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	52.0	0.000

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Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	t MZ (ft-kips)
85 mph Wind with 0" Ice	32.6	0.00	33.73	0.00	0.00	2994.94
73.61 mph Wind with 0.5" Ice	26.4	0.00	39.32	0.00	0.00	2493.71
50 mph Wind with 0" Ice	11.3	0.00	33.77	0.00	0.00	1036.91

Max Stresses

Load Case	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
85 mph Wind with 0" Ice	0.51	1.00	0.00	0.00	0.00	40.02	40.57	52.0	0.00	0.780
73.61 mph Wind with 0.5" Ice	0.60	0.81	0.00	0.00	0.00	33.32	33.95	52.0	0.00	0.653
50 mph Wind with 0" Ice	0.51	0.35	0.00	0.00	0.00	13.86	14.38	52.0	0.00	0.277

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Base Plate Summary

Structure:	CT11558-A-SB	**Code:**	EIA/TIA-222-F	6/30/2015	
Site Name:	Bolton 2, CT	**Exposure:**	C		
Height:	139.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 23	

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Reactions		Base Plate		Anchor Bolts	
Original Design		**Yield (ksi):**	60.00	**Bolt Circle:**	62.00
Moment (kip-ft):	3019.20	**Width (in):**	68.00	**Number Bolts:**	20.00
Axial (kip):	29.11	**Style:**	Round	**Bolt Type:**	2.00" F1554 105
Shear (kip):	49.50	**Polygon Sides:**	0.00	**Bolt Diameter (in):**	2.00
Analysis		**Clip Length (in):**	0.00	**Yield (ksi):**	105.00
Moment (kip-ft):	2994.94	**Effective Len (in):**	10.47	**Ultimate (ksi):**	125.00
Axial (kip):	39.32	**Moment (kip-in):**	375.80	**Arrangement:**	Radial
Shear (kip):	32.58	**Allow Stress (ksi):**	60.00	**Cluster Dist (in):**	0.00
		Applied Stress (ksi):	34.45	**Start Angle (deg):**	0.00
Moment Design %:	99.20	**Stress Ratio:**	0.57	Compression	
				Force (kip):	117.90
				Allowable (kip):	209.99
				Ratio:	0.56
				Tension	
				Force (kip):	113.97
				Allowable (kip):	172.78
				Ratio:	0.66

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Monopole Mat Foundation Design

			Date: 6/30/2015
Customer Name:	Verizon	EIA/TIA Standard:	EIA-222-F
Site Name:		Structure Height (Ft.):	139
Site Nmber:	CT11558-A-SBA	Engineer Name:	Rama K.
Engr. Number:	16263	Engineer Login ID:	YES

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

Analysis or Design? Analysis

Base Reactions (Unfactored)

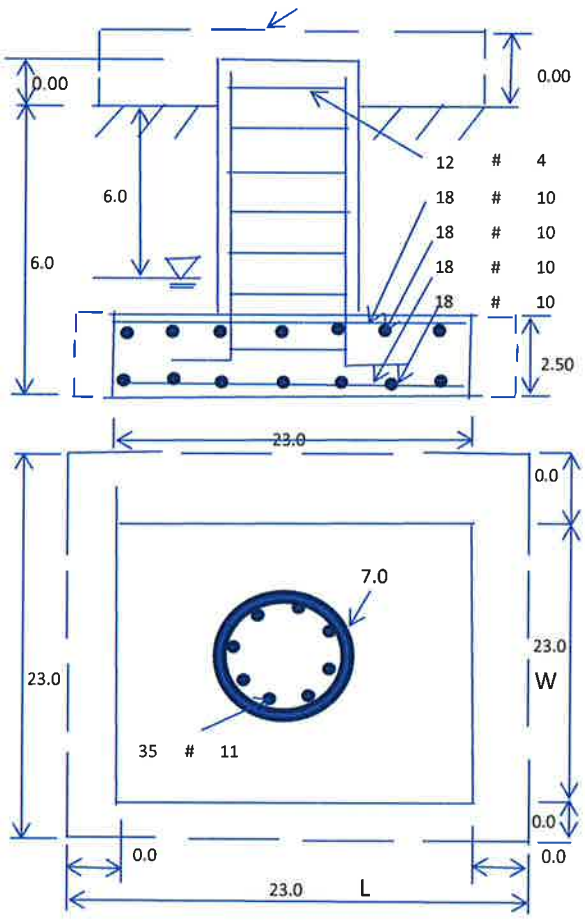
Axial Load (Kips):	39.3	Shear Force (Kips):	32.6
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2994.9

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.0	Depth of Base BG (ft.):	6.0
Pier Height A. G. (ft.):	0.00	Thickness of Pad (ft):	2.50
Length of Pad (ft.):	23	Width of Pad (ft.):	23
Final Length of pad (ft)	23.0	Final width of pad (ft):	23.0
Control Value for Cell D18:	0	Control Value for Cell F18:	0

Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	11	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	35	Tie Spacing (in):	6.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	10	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	18	Qty. of Rebar in Pad (W):	18	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	18	Qty. of Rebar in Pad (W):	18	



Soil Design Parameters:

Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	6.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Allowable Net Soil Bearing (psf):	12500	Allowable Skin Friction:	1200	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hori. force for O.T.M.:	No	Reduction factor on the maximum soil bearing pressure:			1.00	

Foundation Analysis and Design:

Total Dry Soil Volume (cu. Ft.):	1716.80	Total Dry Soil Weight (Kips):	206.02
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	206.02	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	1457.39	Total Dry Concrete Weight (Kips):	218.61
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	218.61	Total Vertical Load on Base (Kips):	463.92

Check Soil Capacities:

				Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	3594	<	Allowable Soil Bearing (psf): 12500	0.29	OK!
Allowable Foundation Overturning Resistance (SF=1.5, kips-ft.):	3556.8	>	Applied Momont (kips-ft): 3191	0.90	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.67	OK!			

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65	Wind Load Factor on Concrete Design:	1.30		
				Load/ Capacity Ratio	
(1) Concrete Pier:					
Vertical Steel Rebar Area (sq. in./each):	1.56	Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	8675.9 >	Design Factored Moment (Mu, Kips-Ft	4041.9	0.47	OK!
Calculated Shear Capacity (Kips):	794.5 >	Design Factored Shear (Kips):	42.4	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	2948.4 >	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9701.3 >	Design Factored Axial Load (Pu Kips):	51.1	0.01	OK!
Moment & Axial Strength Combination(Pu/Pn+Mu/Mn):	0.47 OK!	Check Tie Spacing (Design/Required):		0.5	OK!
Pier Reinforcement Ratio:	0.010	Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:					
One-Way Design Shear Capacity (L-Direction, Kips):	690.6 >	One-Way Factored Shear (L-D. Kips):	341.9	0.50	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	690.6 >	One-Way Factored Shear (W-D., Kips)	341.9	0.50	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	766.5 >	One-Way Factored Shear (C-C, Kips):	522.8	0.68	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0031 OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0031		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	2638.0 >	Moment at Bottom (L-Direct. K-Ft):	762.9	0.29	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	2638.0 >	Moment at Bottom (W-Direct. K-Ft):	762.9	0.29	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	3701.6 >	Moment at Bottom (C-C Dir. K-Ft):	1078.9	0.29	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0031 OK!	Upper Steel Reinf. Ratio (W-Direct.):	0.0031		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	2638.0 >	Moment at the top (L-Dir Kips-Ft):	218.7	0.08	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	2638.0 >	Moment at the top (W-Dir Kips-Ft):	218.7	0.08	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	3701.6 >	Moment at the top (C-C Direc. K-Ft):	642.6	0.17	OK!