

August 2, 2016

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

Re: **Notice of Exempt Modification – Facility Modification
49 Brainerd Road, Niantic (East Lyme), Connecticut**

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) antennas at the 147- foot level of the existing 169-foot tower at 49 Brainerd Road in Niantic, Connecticut (the “Property”). The tower is owned by SBA. Cellco’s shared use of this tower was approved by the Council in 2011 (Docket No. 396). Cellco now intends to modify its facility by replacing six (6) of its existing antennas with three (3) model SBNHH-1D65B, 700/2100 MHz antennas; and three (3) model SBNHH-1D65B, 1900 MHz antennas at the same level on the tower. Cellco also intends to install nine (9) remote radio heads (“RRHs”), three (3) each behind its 700, 1900 and 2100 MHz antennas. Cellco also intends to install two (2) HYBRIFLEX™ antenna cables inside the monopole tower. 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 Mark C. Nickerson, First Selectman for the Town of East Lyme. A copy of this letter is also being sent to Christopher Samuelson, the owner of the Property and 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).

Melanie A. Bachman

August 2, 2015

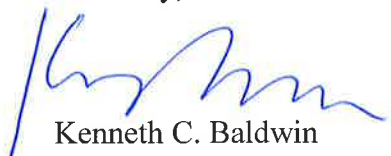
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1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and RRHs will be installed at the 147-foot level of the 169-foot tower.
2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative General Power Density table 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*).

A copy of the Town Assessor's Parcel Map and property owner information is included in Attachment 4.

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:

Mark C. Nickerson, East Lyme First Selectman

Christopher Samuelsen

SBA

Tim Parks

ATTACHMENT 1



SBNHH-1D65B

Multiband 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 (First Lobe), dB	14	13	15	15	15	13
Front-to-Back Ratio at 180°, dB	27	29	28	28	28	27
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
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, beampeak to 20° above beampeak, 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 Type	Sector with internal RET
Band	Multiband
Brand	DualPol®
Operating Frequency Band	1695 – 2360 MHz 698 – 896 MHz
Performance Note	Outdoor usage

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground

SBNHH-1D65B

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, frontal	618.0 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Loading, lateral	197.0 N @ 150 km/h 44.3 lbf @ 150 km/h
Wind Loading, rear	728.0 N @ 150 km/h 163.7 lbf @ 150 km/h
Wind Speed, maximum	241 km/h 150 mph

Dimensions

Depth	180.0 mm 7.1 in
Length	1851.0 mm 72.9 in
Width	301.0 mm 11.9 in
Net Weight, without mounting kit	18.4 kg 40.6 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal RET	High band (1) Low band (1)
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

Packed Dimensions

Depth	296.0 mm 11.7 in
Length	2025.0 mm 79.7 in
Width	390.0 mm 15.4 in
Shipping Weight	31.0 kg 68.3 lb

Regulatory Compliance/Certifications

Agency

RoHS 2011/65/EU
China RoHS SJ/T 11364-2006
ISO 9001:2008

Classification

Compliant by Exemption
Above Maximum Concentration Value (MCV)
Designed, manufactured and/or distributed under this quality management system



SBNHH-1D65B

Included Products

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

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.

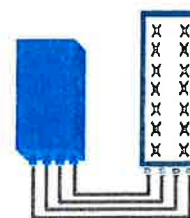


FEATURES

- 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

TECHNICAL SPECIFICATIONS

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.)	550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield)
Volume in L	38 (with solar shield)
Weight in kg (lb) (w/o mounting HW)	26 (57.2) (with solar shield)
DC voltage range	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption
DC power consumption	550W typical @100% RF load (in 2Tx or 4Tx mode)
Environmental conditions	-40°C (-40°F) / +55°C (+131°F)
Wind load (@150km/h or 93mph)	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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ALCATEL-LUCENT WIRELESS PRODUCT DATASHEET RRH2X60-1900A-4R FOR BAND 2/25 APPLICATIONS

The Alcatel-Lucent RRH2x60-1900A-4R is a high power, small form factor Remote Radio Head operating in the PCS 1900MHz frequency band for WCDMA and LTE technologies. 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 RRH2x60-1900A-4R is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations,

administration and maintenance (O&M) information.

SUPERIOR RF PERFORMANCE

The Alcatel-Lucent RRH2x60-1900A-4R integrates all the latest technologies. This allows operators 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.

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 RRH2x60-1900A-4R 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).

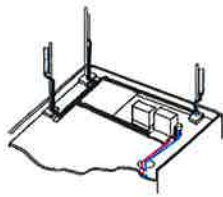
The Alcatel-Lucent RRH2x60-1900A-4R is a very cost-effective solution to deploy LTE MIMO.

EASY INSTALLATION

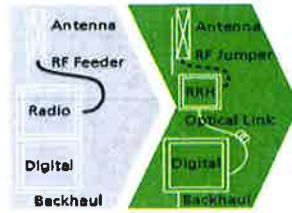
The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment. However, many of these sites can host an Alcatel-Lucent RRH2x60-1900A-4R installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

The Alcatel-Lucent RRH2x60-1900A-4R is a zero-footprint solution and is convection cooled without fans for silent operation, simplifying negotiations with site property owners and minimizing environmental impacts.

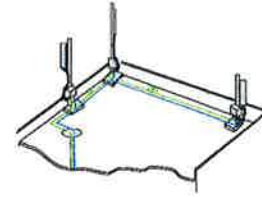
Installation can easily be done by a single person as the Alcatel-Lucent RRH2x60-190A-4R is compact and weighs about 21 kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day.



Macro



RRH for space-constrained cell sites



Distributed

FEATURES

- RRH2x60-1900A-4R integrates two power amplifiers of 60W rating (at each antenna connector)
- RRH2x60-1900A-4R can operate WCDMA only, LTE only or a mix of WCDMA and LTE
- RRH2x60-1900A-4R offers the possibility for WCDMA (non MIMO) to operate the two radio chains independently (2 blocks of 20 MHz anywhere in the band)

- RRH2x60-1900A-4R is a very compact and lightweight product
- Advanced power management techniques are embedded to provide power savings, such as PA bias control

BENEFITS

- MIMO deployment and/or WCDMA and LTE simultaneous 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 : 500x285x208 mm (30l with solar shield)
- Weight : 21 kg (46 lbs) (with solar shield)

Electrical Data

- Power Supply : -48V DC (-40.5 to -57V)
- Power Consumption: 460W typ. @2x60W (100%RF)

RF Characteristics

- Supported spectrum: DL 1930-1990 / UL 1850-1910
- Frequency band: 3GPP band 2/25
- Output power: 2x60W at antenna connectors
- Technology supported: W-CDMA and LTE
- Instantaneous bandwidth: 20 MHz (MIMO) or 2x20 MHz (non MIMO)
- Rx diversity: 2-way and 4-way uplink reception

- Typical sensitivity without Rx diversity: -124.8dBm for WCDMA and -105 dBm for LTE

Connectivity

- Two CPRI optical ports for daisy chaining and up to six RRHs per fiber
- Type of optical fiber: Single-Mode (SM) and Multi-Mode (MM) SFPs
- Optical fiber length: up to 500m using MM fiber, up to 15km 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: ETS300-019-1-4 class4.1E
- 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
- Safety : IEC60950-1, EN 60825-1
- Regulatory: CE Mark-European Directive 2002/95/EC (RoHS), 2002/96/EC (WEEE), 1999/5/EC (R&TTE)
- Health : EN 50385

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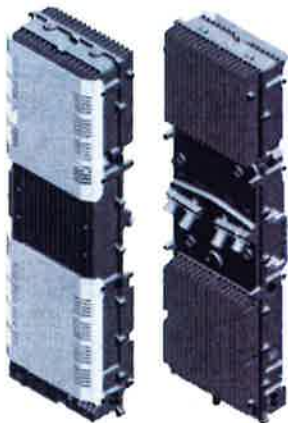
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ALCATEL-LUCENT

WIRELESS PRODUCT DATASHEET

B4 RRH2X60-4R FOR AWS BAND APPLICATIONS

The Alcatel-Lucent B4 RRH2x60-4R 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 B4 RRH2x60-4R 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 B4 RRH2x60-4R integrates all the latest

technologies. This allows operators 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 B4 RRH2x60-4R 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 B4 RRH2x60-4R is a very cost-effective solution to deploy LTE MIMO.

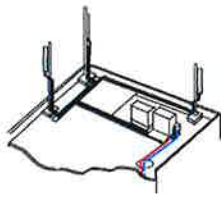
EASY INSTALLATION

The B4 RRH2x60-4R 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.

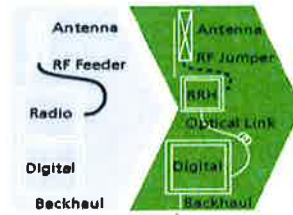
The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment. However, many of these sites can host an Alcatel-Lucent B4 RRH2x60-4R installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

The Alcatel-Lucent B4 RRH2x60-4R is a zero-footprint solution and is convection cooled without fans for silent operation, simplifying negotiations with site property owners and minimizing environmental impacts.

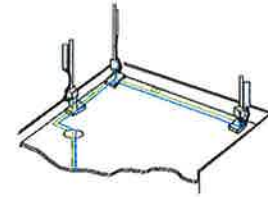
Installation can easily be done by a single person as the Alcatel-Lucent B4 RRH2x60-4R is compact and weighs about 25 kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day.



Macro



RRH for space-constrained cell sites



Distributed

FEATURES

- B4 RRH2x60-4R integrates two power amplifiers of 60W rating (at each antenna connector)
- Support multiple carriers over the entire 3GPP band 4
- B4 RRH2x60-4R is optimized for LTE operation
- B4 RRH2x60-4R 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 : 930x270x146 mm (with solar shield)
- Weight : 25 kg (55 lbs) (with solar shield)

Electrical Data

- Power Supply : -48V DC (-38 to -57V)
- Power Consumption: 346W typ. @2x30W (100%RF), 560W typ. @2x60W (100%RF)

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 (3-6) optical ports for daisy chaining and up to six RRHs per fiber
- Type of optical fiber: Single-Mode (SM) and Multi-Mode (MM) SFPs
- Optical fiber length: up to 300m using MM fiber, up to 15km using SM fiber
- TMA/RETA : AISG 2.0 (RS485 connector and internal Bias-Tee)
- Four 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
- Health : EN 50385

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

Product Description

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

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

Features/Benefits

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



Figure 1: HYBRIFLEX Series

Technical Specifications

Outer Conductor Armor	Corrugated Aluminum	(mm (in))	46.5 (1.83)
Jacket	Polyethylene, PE	(mm (in))	50.3 (1.98)
UV-Protection	Individual and External Jacket		Yes
Weight and Dimensions			
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)
Electrical Specifications			
DC-Resistance Outer Conductor Armor		(Ω/km (Ω/1000ft))	0.68 (0.205)
DC-Resistance Power Cable, 8.4mm ² (18AWG)		(Ω/km (Ω/1000ft))	2.1 (0.307)
Optical Specifications			
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
Power Specifications			
Size (Power)		(mm (AWG))	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		(mm (AWG))	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		(mm (in))	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-95-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Temperature Specifications			
Installation Temperature		(°C (°F))	-40 to +65 (-40 to 149)
Operation Temperature		(°C (°F))	-40 to +65 (-40 to 149)

* This data is provisional and subject to change

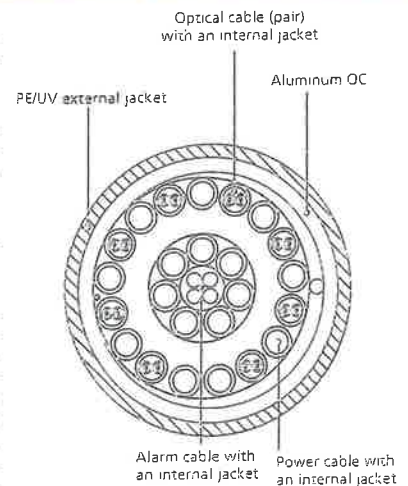


Figure 2: Construction Detail

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

ATTACHMENT 2

Site Name: Rocky Neck (East Lyme)		General		Power		Density							
Tower Height: 169ft													
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	PERMISS. EXP.	FRACTION MPE	Total					
*AT&T	1	500	168.5	1900	0.0068	1.0000	0.07%						
*AT&T	1	500	168.5	700	0.0068	0.4667	0.15%						
*AT&T	1	500	168.5	2300	0.0068	1.0000	0.07%						
*AT&T	2	500	168.5	880	0.0136	0.5867	0.23%						
*AT&T	1	500	168.5	1900	0.0068	1.0000	0.07%						
*T-Mobile	2	12	160	1950	0.0004	1.0000	0.00%						
*T-Mobile	2	12	160	2100	0.0004	1.0000	0.00%						
*T-Mobile	2	24	160	2100	0.0007	1.0000	0.01%						
Verizon PCS	11	399	147	0.0730	1970	1.0000	7.30%						
Verizon Cellular	9	342	147	0.0512	869	0.5793	8.84%						
Verizon AWS	1	4994	147	0.0831	2145	1.0000	8.31%						
Verizon 700	1	1637	147	0.0272	746	0.4973	5.48%						
								30.53%					
* 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 169 ft SABRE Monopole
Customer Name: SBA Communications Corp
Customer Site Number: CT11794-S
Customer Site Name: East Lyme 1
Carrier Name: Verizon
Carrier Site ID / Name: Rocky Neck
Site Location: 49 Brainerd Road
Niantic, Connecticut
New Haven County
Latitude: 41.307583
Longitude: -72.223916

Analysis Result:

Max Structural Usage: 90.3% [Pass]
Max Foundation Usage: 61.0% [Pass]
Report Prepared by: Tawfeeq Alajaj



Introduction

The purpose of this report is to summarize the analysis results on the 169 ft SABRE 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	Sabre Towers & Poles, Job# 42498. Dated 04/06/2011.
Foundation Drawing	Sabre Towers & Poles, Job# 42498. Dated 04/06/2011.
Geotechnical Report	Tower Engineering Professionals, Project #: 103196.01. Dated 03/18/2011.
Modification Drawings	N/A

Analysis Criteria

The rigorous 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
1	170.0	3	CCI - HPA-65R-BBU-H8 - Panel	(3) Reinforced T-Arms	(6) 1-5/8" (1) 1.496" Fiber (6) 0.645" DC	AT&T
2		3	CCI - HPA-65R-BUU-H6 - Panel			
3		3	Commscope SBNHH-1D65A - Panel			
4		6	Ericsson RRUS 12 RRUs			
5		6	Ericsson RRUS A2 Module			
6		3	Ericsson RRUS-32 RRUs			
7		3	Ericsson RRUS-E2 RRUs			
8		3	Raycap DC6-48-60-18-8F			
9	167.0	1	Andrew SBNH-1D6565C - Panel			
10		3	CCI DTMAP7819VG12A TMAs			
11		2	KMW AM-X-CD-14-65-00T - Panel			
12		6	Ericsson RRUS 11 RRUs			
13	160.0	6	Ericsson AIR 21 - Panel	(3) T-Arms [Valmont P/N RMV 12-472]	(12) 1 5/8" (1) 1 5/8" Fiber	T-Mobile
14		3	Ericsson KRY 112-114/1 TMAs			
-	147.0	2	Antel LPA-80080/4CF Panel	Low Profile Platform	(12) 1-5/8"	Verizon
-		4	Swedcom SC-E 6014 rev2 - Panel			
-		6	RFS FD9R6004/2C-3L Diplexers			
-		3	Antel BXA-171063-8BF-2			
-		3	Antel BXA-70063/6CFx2			

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of 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	147.0	2	Antel LPA-80080/4CF Panel	Low Profile Platform	(10) 1 5/8" (2) 1 5/8" Fiber	Verizon
2		6	Commscope SBNHH-1D65B - Panel			
3		4	Swedcom SC-E 6014 rev2 - Panel			
4		3	ALU RRH2X60-700 RRH			
5		3	ALU RRH2X60-AWS RRH			
6		3	ALU RRH2X60-PCS RRH			
7		6	RFS FD9R6004/2C-3L Diplexers			
8		2	RFS DB-T1-6Z-8AB-OZ			

All 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:	90.3%	77.8%	60.9%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Original Design Reactions	6776.7	55.5	62.8
Analysis Reactions	4150.5	32.0	49.7
% of Design Reactions	61.2%	57.6%	79.2%

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 2.4319 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 90.3% at 100.0ft

Structure: CT11794-S-SBA
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

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

1/21/2016

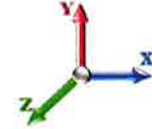


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Dead Load Factor: 1.00
Wind Load Factor: 1.00

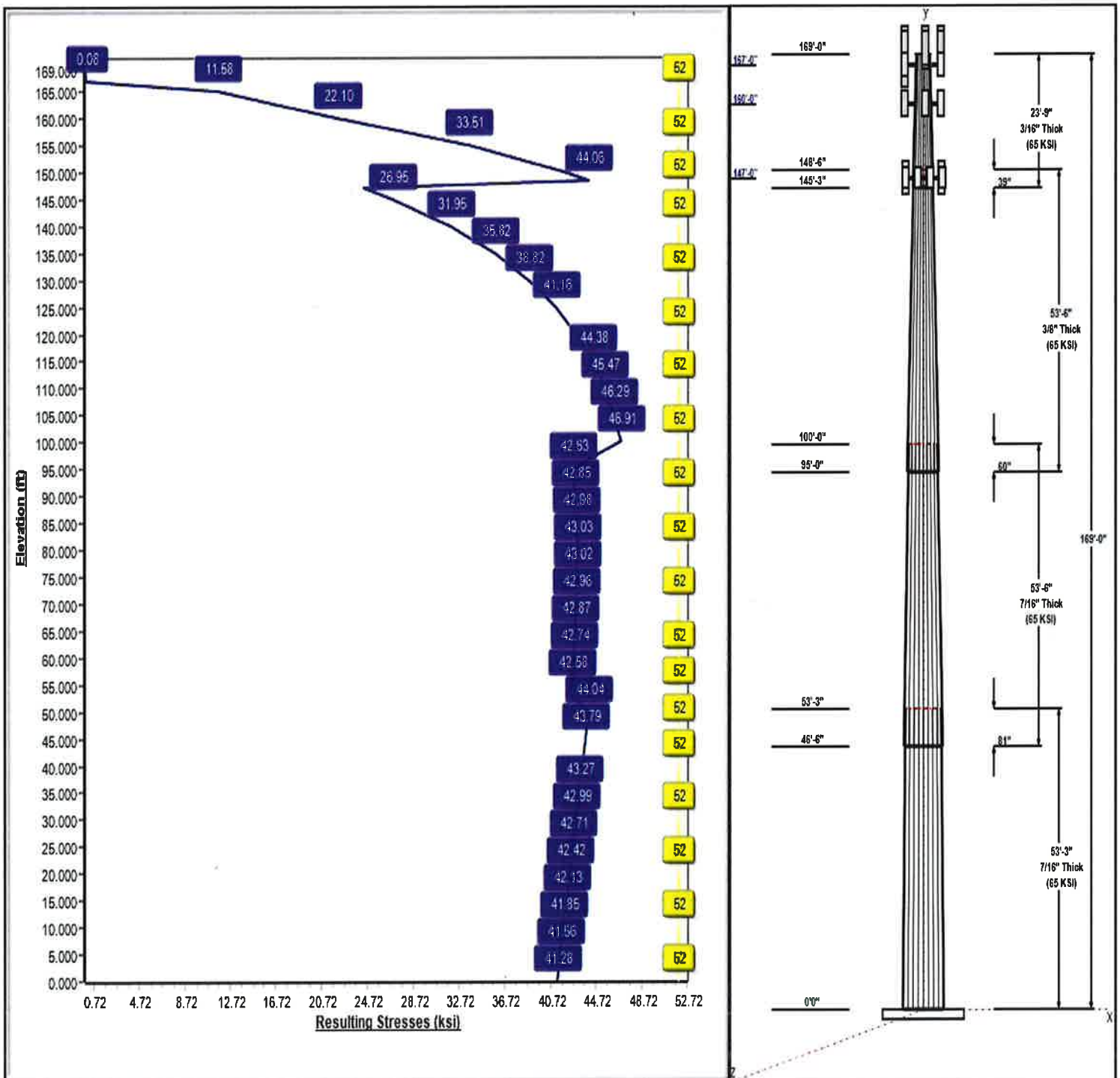
Iterations: 25

Load Case : 85 mph Wind with 0 in Ice



- 52 Allowable Stress
- 47 Resulting Stress

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Structure: CT11794-S-SBA

Type: Tapered
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.27302

1/21/2016

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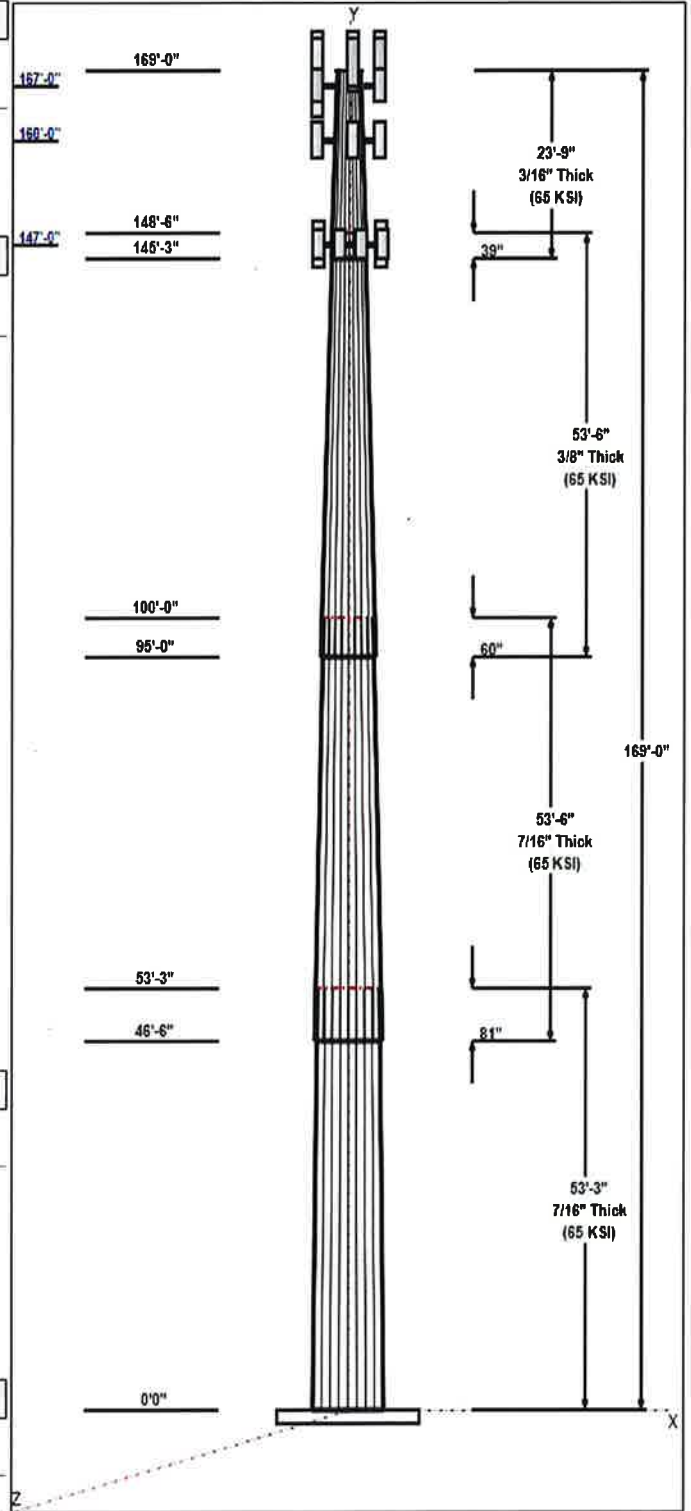
Shaft Properties							
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.25	45.60	60.14	0.438		0.27302	65
2	53.50	33.71	48.32	0.438	Slip	0.27302	65
3	53.50	21.22	35.83	0.375	Slip	0.27302	65
4	23.75	16.00	22.48	0.188	Slip	0.27302	65

Discrete Appurtenances				
Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
167.00	167.00	1	Andrew SBNH-1D6565C	AT&T
167.00	167.00	3	CCI DTMABP7819VG12A	AT&T
167.00	170.00	3	Commscope	AT&T
167.00	167.00	6	Ericsson RRUS 11 RRUs	AT&T
167.00	170.00	6	Ericsson RRUS 12 RRUs	AT&T
167.00	170.00	6	Ericsson RRUS A2 Module	AT&T
167.00	170.00	3	Ericsson RRUS-32 RRUs	AT&T
167.00	170.00	3	Ericsson RRUS-E2 RRUs	AT&T
167.00	170.00	3	HPA-65R-BBU-H8	AT&T
167.00	170.00	3	HPA-65R-BBU-H6	AT&T
167.00	167.00	2	KMW	AT&T
167.00	170.00	3	Raycap DC6-48-60-18-8F	AT&T
167.00	167.00	3	T-Arm	AT&T
160.00	160.00	6	Ericsson AIR 21	T-Mobile
160.00	160.00	3	Ericsson KRY 112-114/1	T-Mobile
160.00	160.00	3	T-Arm	T-Mobile
147.00	147.00	3	ALU RRH2X60-700 RRH	Verizon
147.00	147.00	3	ALU RRH2X60-AWS RRH	Verizon
147.00	147.00	3	ALU RRH2X60-PCS RRH	Verizon
147.00	147.00	2	Antel LPA-80080/4CF	Verizon
147.00	147.00	6	Commscope	Verizon
147.00	147.00	6	FD9R6004/2C-3L	Verizon
147.00	147.00	1	Low Profile Platform	Verizon
147.00	147.00	2	RFS DB-T1-6Z-8AB-0Z	Verizon
147.00	147.00	4	Swedcom SC-E 6014 rev2	Verizon

Linear Appurtenances				
Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	170.00	Inside	0.645" DC	AT&T
0.00	170.00	Inside	1 5/8" Coax	AT&T
0.00	170.00	Inside	1.496" Fiber	AT&T
0.00	160.00	Inside	1 5/8" Coax	T-Mobile
0.00	160.00	Inside	1 5/8" Fiber	T-Mobile
0.00	147.00	Inside	1 5/8" Coax	Verizon
0.00	147.00	Inside	1 5/8" Fiber	Verizon

Anchor Bolts			
Qty	Specifications	Grade (ksi)	Arrangement
20	2.25" 18J	75.0	Radial

Base Plate			
Thickness (in)	Specifications (in)	Grade (ksi)	Geometry



Structure: CT11794-S-SBA

Type: Tapered
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.27302

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2.7500 72.8 50.0 Round

Reactions

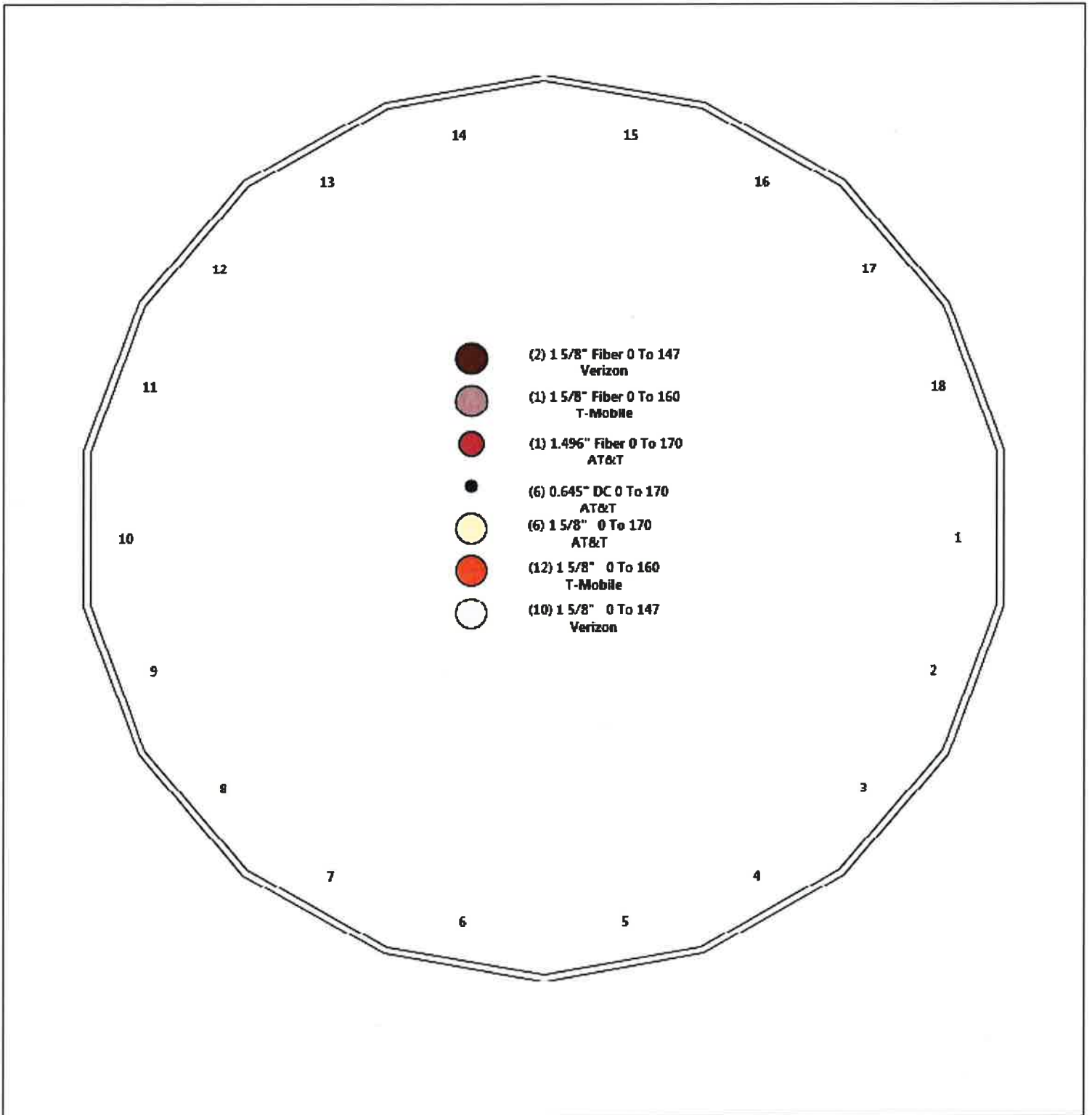
Load Case	Moment	Shear	Axial
85 mph Wind with 0" Ice	4150.5	32.0	43.1
73.61 mph Wind with 0.5" Ice	3347.5	25.4	49.7
50 mph Wind with 0" Ice	1439.0	11.1	43.1

Structure: CT11794-S-SBA - Coax Line Placement

Type: Monopole
Site Name: East Lyme 1
Height: 169.00 (ft)

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Shaft Properties

Structure: CT11794-S-SBA
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

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

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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.250	0.4375	65		0.00	13,193
2	18	53.500	0.4375	65	Slip	81.00	10,258
3	18	53.500	0.3750	65	Slip	60.00	6,099
4	18	23.750	0.1875	65	Slip	39.00	916
Total Shaft Weight:							30,466

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	60.14	0.00	82.90	37333.61	22.83	137.46	45.60	53.25	62.71	16162.5	16.97	104.23	0.273018
2	48.32	46.50	66.49	19259.46	18.06	110.44	33.71	100.0	46.21	6464.05	12.18	77.06	0.273018
3	35.83	95.00	42.20	6701.10	15.44	95.54	21.22	148.5	24.81	1362.38	8.57	56.59	0.273018
4	22.48	145.2	13.27	833.42	19.73	119.92	16.00	169.0	9.41	297.27	13.64	85.33	0.273018

Loading Summary

Structure: CT11794-S-SBA
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

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

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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	167.00	Andrew SBNH-1D6565C	1	66.10	11.44	0.80	132.00	12.370	0.80	0.00	0.00
2	167.00	CCI DTMAPB7819VG12A TMAs	3	19.20	1.14	0.67	26.50	1.360	0.67	0.00	0.00
3	167.00	Commscope SBNHH-1D65A	3	33.50	6.36	0.83	68.80	6.740	0.83	0.00	3.00
4	167.00	Ericsson RRUS 11 RRUs	6	50.70	2.94	0.76	66.00	3.140	0.76	0.00	0.00
5	167.00	Ericsson RRUS 12 RRUs	6	58.00	3.67	0.70	75.70	3.890	0.70	0.00	3.00
6	167.00	Ericsson RRUS A2 Module	6	21.20	1.86	0.62	31.40	2.150	0.62	0.00	3.00
7	167.00	Ericsson RRUS-32 RRUs	3	77.00	3.87	0.87	103.50	4.300	0.87	0.00	3.00
8	167.00	Ericsson RRUS-E2 RRUs	3	77.00	3.87	0.87	103.50	4.300	0.87	0.00	3.00
9	167.00	HPA-65R-BBU-H8	3	68.00	13.30	0.79	137.00	13.900	0.79	0.00	3.00
10	167.00	HPA-65R-BUU-H6	3	51.00	10.36	0.85	108.40	10.580	0.85	0.00	3.00
11	167.00	KMW AM-X-CD-14-65-00T-RET	2	36.40	5.50	0.75	68.30	6.100	0.75	0.00	0.00
12	167.00	Raycap DC6-48-60-18-8F	3	32.80	1.47	1.00	50.50	1.670	1.00	0.00	3.00
13	167.00	T-Arm	3	400.00	14.17	0.75	480.00	12.500	0.75	0.00	0.00
14	160.00	Ericsson AIR 21	6	91.00	6.58	0.86	129.20	6.870	0.86	0.00	0.00
15	160.00	Ericsson KRY 112-114/1 TMAs	3	11.00	0.41	0.70	14.10	0.550	0.70	0.00	0.00
16	160.00	T-Arm	3	400.00	10.00	0.75	480.00	12.500	0.75	0.00	0.00
17	147.00	ALU RRH2X60-700 RRH	3	60.00	3.96	0.76	80.10	4.230	0.76	0.00	0.00
18	147.00	ALU RRH2X60-AWS RRH	3	60.00	3.96	0.76	80.10	4.230	0.76	0.00	0.00
19	147.00	ALU RRH2X60-PCS RRH	3	55.00	2.57	0.89	70.90	2.760	0.89	0.00	0.00
20	147.00	Antel LPA-80080/4CF	2	12.00	6.06	1.70	0.00	6.650	1.70	0.00	0.00
21	147.00	Commscope SBNHH-1D65B	6	50.71	8.33	0.83	87.00	8.800	0.83	0.00	0.00
22	147.00	FD9R6004/2C-3L	6	3.10	0.36	1.00	5.40	0.500	1.00	0.00	0.00
23	147.00	Low Profile Platform	1	1200.00	25.00	1.00	1500.00	31.000	1.00	0.00	0.00
24	147.00	RFS DB-T1-6Z-8AB-0Z	2	18.90	5.60	0.71	46.00	5.870	0.71	0.00	0.00
25	147.00	Swedcom SC-E 6014 rev2	4	15.00	3.55	0.97	42.10	4.060	0.97	0.00	0.00
Totals:			87	7,142.46			9,807.40				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	No Ice		Ice		Exposed
			Weight (lb/ft)	CaAa (sf/ft)	Weight (lb/ft)	CaAa (sf/ft)	
0.00	170.00	(6) 0.645" DC	2.40	0.00	2.40	0.00	Inside
0.00	170.00	(6) 1 5/8" Coax	6.24	0.00	6.24	0.00	Inside
0.00	170.00	(1) 1.496" Fiber	1.15	0.00	1.15	0.00	Inside
0.00	160.00	(12) 1 5/8" Coax	12.48	0.00	12.48	0.00	Inside
0.00	160.00	(1) 1 5/8" Fiber	1.10	0.00	1.10	0.00	Inside
0.00	147.00	(10) 1 5/8" Coax	10.40	0.00	10.40	0.00	Inside
0.00	147.00	(2) 1 5/8" Fiber	1.10	0.00	1.10	0.00	Inside
Totals:			5,527.60		5,527.60		

Shaft Section Properties

Structure: CT11794-S-SBA
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

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

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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		0.4375	60.140	82.901	37333.6	22.83	137.46	65	52	0.0
5.00		0.4375	58.775	81.006	34830.8	22.28	134.34	65	52	1394.4
10.00		0.4375	57.410	79.110	32442.5	21.73	131.22	65	52	1362.1
15.00		0.4375	56.045	77.215	30165.9	21.18	128.10	65	52	1329.8
20.00		0.4375	54.680	75.319	27998.4	20.63	124.98	65	52	1297.6
25.00		0.4375	53.315	73.424	25937.3	20.08	121.86	65	52	1265.3
30.00		0.4375	51.949	71.528	23979.9	19.53	118.74	65	52	1233.1
35.00		0.4375	50.584	69.633	22123.5	18.98	115.62	65	52	1200.8
40.00		0.4375	49.219	67.737	20365.5	18.43	112.50	65	52	1168.6
45.00		0.4375	47.854	65.842	18703.2	17.88	109.38	65	52	1136.3
46.50	Bot - Section 2	0.4375	47.445	65.273	18222.8	17.71	108.44	65	52	334.6
50.00		0.4375	46.489	63.946	17133.9	17.33	106.26	65	52	1553.4
53.25	Top - Section 1	0.4375	46.477	63.929	17120.2	17.32	106.23	65	52	1414.2
55.00		0.4375	45.999	63.266	16592.7	17.13	105.14	65	52	378.7
60.00		0.4375	44.634	61.370	15145.5	16.58	102.02	65	52	1060.3
65.00		0.4375	43.269	59.475	13785.0	16.03	98.90	65	52	1028.0
70.00		0.4375	41.904	57.579	12508.5	15.48	95.78	65	52	995.8
75.00		0.4375	40.539	55.683	11313.4	14.93	92.66	65	52	963.5
80.00		0.4375	39.174	53.788	10196.9	14.38	89.54	65	52	931.3
85.00		0.4375	37.808	51.892	9156.4	13.83	86.42	65	52	899.0
90.00		0.4375	36.443	49.997	8189.2	13.28	83.30	65	52	866.8
95.00	Bot - Section 3	0.4375	35.078	48.101	7292.7	12.73	80.18	65	52	834.5
100.00	Top - Section 2	0.3750	34.463	40.572	5956.5	14.79	91.90	65	52	1506.4
105.00		0.3750	33.098	38.947	5269.1	14.15	88.26	65	52	676.5
110.00		0.3750	31.733	37.323	4636.8	13.51	84.62	65	52	648.8
115.00		0.3750	30.368	35.698	4057.3	12.87	80.98	65	52	621.2
120.00		0.3750	29.003	34.073	3528.1	12.23	77.34	65	52	593.5
125.00		0.3750	27.638	32.448	3047.1	11.58	73.70	65	52	565.9
130.00		0.3750	26.273	30.824	2611.9	10.94	70.06	65	52	538.3
135.00		0.3750	24.908	29.199	2220.3	10.30	66.42	65	52	510.6
140.00		0.3750	23.543	27.574	1869.9	9.66	62.78	65	52	483.0
145.00		0.3750	22.177	25.949	1558.4	9.02	59.14	65	52	455.3
145.25	Bot - Section 4	0.3750	22.109	25.868	1543.8	8.99	58.96	65	52	22.0
147.00		0.3750	21.631	25.300	1444.3	8.76	57.68	65	52	230.5
148.50	Top - Section 3	0.1875	21.597	12.741	737.8	18.90	115.18	65	52	193.5
150.00		0.1875	21.187	12.497	696.3	18.51	113.00	65	52	64.4
155.00		0.1875	19.822	11.685	569.1	17.23	105.72	65	52	205.7
160.00		0.1875	18.457	10.872	458.5	15.95	98.44	65	52	191.9
165.00		0.1875	17.092	10.060	363.2	14.66	91.16	65	52	178.1
167.00		0.1875	16.546	9.735	329.1	14.15	88.25	65	52	67.4
169.00		0.1875	16.000	9.410	297.3	13.64	85.33	65	52	65.1

30466.3

Wind Loading - Shaft

Structure: CT11794-S-SBA
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

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

1/21/2016

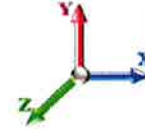
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Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00

Iterations: 25



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	425.99	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	416.32	0.650	0.000	5.00	24.774	16.10	503.4	0.0	1394.4
10.00		0.00	1.00	18.496	31.26	406.65	0.650	0.000	5.00	24.205	15.73	491.8	0.0	1362.1
15.00		0.00	1.00	18.496	31.26	396.98	0.650	0.000	5.00	23.636	15.36	480.2	0.0	1329.8
20.00		0.00	1.00	18.496	31.26	387.31	0.650	0.000	5.00	23.068	14.99	468.7	0.0	1297.6
25.00		0.00	1.00	18.496	31.26	377.64	0.650	0.000	5.00	22.499	14.62	457.1	0.0	1265.3
30.00		0.00	1.00	18.496	31.26	367.98	0.650	0.000	5.00	21.930	14.25	445.6	0.0	1233.1
35.00		0.00	1.02	18.810	31.79	361.33	0.650	0.000	5.00	21.361	13.88	441.4	0.0	1200.8
40.00		0.00	1.06	19.541	33.02	358.35	0.650	0.000	5.00	20.792	13.52	446.3	0.0	1168.6
45.00		0.00	1.09	20.210	34.15	354.32	0.650	0.000	5.00	20.224	13.15	449.0	0.0	1136.3
46.50 Bot - Section 2		0.00	1.10	20.400	34.48	352.94	0.650	0.000	1.50	5.956	3.87	133.5	0.0	334.6
50.00		0.00	1.13	20.827	35.20	349.44	0.650	0.000	3.50	13.954	9.07	319.3	0.0	1553.4
53.25 Top - Section 1		0.00	1.15	21.206	35.84	345.86	0.650	0.000	3.25	12.708	8.26	296.0	0.0	1414.2
55.00		0.00	1.16	21.402	36.17	350.49	0.650	0.000	1.75	6.743	4.38	158.5	0.0	378.7
60.00		0.00	1.19	21.941	37.08	344.35	0.650	0.000	5.00	18.882	12.27	455.1	0.0	1060.3
65.00		0.00	1.21	22.449	37.94	337.65	0.650	0.000	5.00	18.313	11.90	451.6	0.0	1028.0
70.00		0.00	1.24	22.929	38.75	330.48	0.650	0.000	5.00	17.744	11.53	446.9	0.0	995.8
75.00		0.00	1.26	23.386	39.52	322.88	0.650	0.000	5.00	17.176	11.16	441.2	0.0	963.5
80.00		0.00	1.29	23.821	40.26	314.90	0.650	0.000	5.00	16.607	10.79	434.6	0.0	931.3
85.00		0.00	1.31	24.237	40.96	306.57	0.650	0.000	5.00	16.038	10.42	427.0	0.0	899.0
90.00		0.00	1.33	24.636	41.63	297.92	0.650	0.000	5.00	15.469	10.05	418.6	0.0	866.8
95.00 Bot - Section 3		0.00	1.35	25.020	42.28	288.99	0.650	0.000	5.00	14.900	9.69	409.5	0.0	834.5
100.00 Top - Section 2		0.00	1.37	25.389	42.91	279.78	0.650	0.000	5.00	14.644	9.52	408.4	0.0	1506.4
105.00		0.00	1.39	25.745	43.51	276.60	0.650	0.000	5.00	14.075	9.15	398.1	0.0	676.5
110.00		0.00	1.41	26.090	44.09	266.96	0.650	0.000	5.00	13.506	8.78	387.1	0.0	648.8
115.00		0.00	1.43	26.423	44.66	257.10	0.650	0.000	5.00	12.938	8.41	375.5	0.0	621.2
120.00		0.00	1.45	26.747	45.20	247.04	0.650	0.000	5.00	12.369	8.04	363.4	0.0	593.5
125.00		0.00	1.46	27.060	45.73	236.79	0.650	0.000	5.00	11.800	7.67	350.8	0.0	565.9
130.00		0.00	1.48	27.365	46.25	226.36	0.650	0.000	5.00	11.231	7.30	337.6	0.0	538.3
135.00		0.00	1.50	27.662	46.75	215.76	0.650	0.000	5.00	10.663	6.93	324.0	0.0	510.6
140.00		0.00	1.51	27.951	47.24	205.00	0.650	0.000	5.00	10.094	6.56	309.9	0.0	483.0
145.00		0.00	1.53	28.233	47.71	194.08	0.650	0.000	5.00	9.525	6.19	295.4	0.0	455.3
145.25 Bot - Section 4		0.00	1.53	28.246	47.74	193.53	0.650	0.000	0.25	0.461	0.30	14.3	0.0	22.0
147.00 Appurtenance(s)		0.00	1.53	28.343	47.90	189.67	0.650	0.000	1.75	3.244	2.11	101.0	0.0	230.5
148.50 Top - Section 3		0.00	1.54	28.426	48.04	186.35	0.650	0.000	1.50	2.725	1.77	85.1	0.0	193.5
150.00		0.00	1.54	28.507	48.18	186.32	0.650	0.000	1.50	2.674	1.74	83.7	0.0	64.4
155.00		0.00	1.56	28.776	48.63	175.13	0.650	0.000	5.00	8.544	5.55	270.1	0.0	205.7
160.00 Appurtenance(s)		0.00	1.57	29.038	49.07	163.81	0.650	0.000	5.00	7.975	5.18	254.4	0.0	191.9
165.00		0.00	1.58	29.294	49.51	152.37	0.650	0.000	5.00	7.406	4.81	238.3	0.0	178.1
167.00 Appurtenance(s)		0.00	1.59	29.395	49.68	147.75	0.650	0.000	2.00	2.803	1.82	90.5	0.0	67.4
169.00		0.00	1.59	29.495	49.85	143.12	0.650	0.000	2.00	2.712	1.76	87.9	0.0	65.1
Totals:									169.00			13,350.8		30,466.3

Discrete Appurtenance Forces

Structure: CT11794-S-SB
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

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

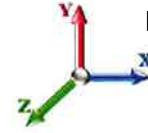
1/21/2016

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Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 25

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	167.00	Ericsson RRUS-32 RRUs	3	29.545	49.931	0.87	10.10	231.00	0.000	3.000	504.34	0.00	1513.03
2	167.00	CCI DTMABP7819VG12A	3	29.395	49.678	0.67	2.29	57.60	0.000	0.000	113.83	0.00	0.00
3	167.00	Commscope SBNHH-1D65A	3	29.545	49.931	0.83	15.84	100.50	0.000	3.000	790.74	0.00	2372.21
4	167.00	Ericsson RRUS 11 RRUs	6	29.395	49.678	0.76	13.41	304.20	0.000	0.000	666.00	0.00	0.00
5	167.00	Ericsson RRUS 12 RRUs	6	29.545	49.931	0.70	15.41	348.00	0.000	3.000	769.64	0.00	2308.93
6	167.00	Ericsson RRUS A2 Module	6	29.545	49.931	0.62	6.92	127.20	0.000	3.000	345.49	0.00	1036.46
7	167.00	Andrew SBNH-1D6565C	1	29.395	49.678	0.80	9.15	66.10	0.000	0.000	454.65	0.00	0.00
8	167.00	Ericsson RRUS-E2 RRUs	3	29.545	49.931	0.87	10.10	231.00	0.000	3.000	504.34	0.00	1513.03
9	167.00	HPA-65R-BBU-H8	3	29.545	49.931	0.79	31.52	204.00	0.000	3.000	1573.89	0.00	4721.67
10	167.00	HPA-65R-BUU-H6	3	29.545	49.931	0.85	26.42	153.00	0.000	3.000	1319.09	0.00	3957.27
11	167.00	KMW	2	29.395	49.678	0.75	8.25	72.80	0.000	0.000	409.84	0.00	0.00
12	167.00	Raycap DC6-48-60-18-8F	3	29.545	49.931	1.00	4.41	98.40	0.000	3.000	220.20	0.00	660.59
13	167.00	T-Arm	3	29.395	49.678	0.75	31.88	1200.00	0.000	0.000	1583.86	0.00	0.00
14	160.00	Ericsson KRY 112-114/1	3	29.038	49.074	0.70	0.86	33.00	0.000	0.000	42.25	0.00	0.00
15	160.00	Ericsson AIR 21	6	29.038	49.074	0.86	33.95	546.00	0.000	0.000	1666.20	0.00	0.00
16	160.00	T-Arm	3	29.038	49.074	0.75	22.50	1200.00	0.000	0.000	1104.17	0.00	0.00
17	147.00	Antel LPA-80080/4CF	2	28.343	47.900	1.70	20.60	24.00	0.000	0.000	986.93	0.00	0.00
18	147.00	ALU RRH2X60-700 RRH	3	28.343	47.900	0.76	9.03	180.00	0.000	0.000	432.48	0.00	0.00
19	147.00	ALU RRH2X60-AWS RRH	3	28.343	47.900	0.76	9.03	180.00	0.000	0.000	432.48	0.00	0.00
20	147.00	ALU RRH2X60-PCS RRH	3	28.343	47.900	0.89	6.86	165.00	0.000	0.000	328.69	0.00	0.00
21	147.00	Low Profile Platform	1	28.343	47.900	1.00	25.00	1200.00	0.000	0.000	1197.50	0.00	0.00
22	147.00	Commscope SBNHH-1D65B	6	28.343	47.900	0.83	41.48	304.26	0.000	0.000	1987.06	0.00	0.00
23	147.00	FD9R6004/2C-3L	6	28.343	47.900	1.00	2.16	18.60	0.000	0.000	103.46	0.00	0.00
24	147.00	RFS DB-T1-6Z-8AB-0Z	2	28.343	47.900	0.71	7.95	37.80	0.000	0.000	380.90	0.00	0.00
25	147.00	Swedcom SC-E 6014 rev2	4	28.343	47.900	0.97	13.77	60.00	0.000	0.000	659.78	0.00	0.00
Totals:								7,142.46			18,577.84		

Total Applied Force Summary

Structure: CT11794-S-SB
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

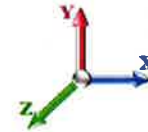
Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

1/21/2016
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Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 25

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		503.35	1568.70	0.00	0.00
10.00		491.80	1536.45	0.00	0.00
15.00		480.24	1504.20	0.00	0.00
20.00		468.68	1471.95	0.00	0.00
25.00		457.13	1439.70	0.00	0.00
30.00		445.57	1407.45	0.00	0.00
35.00		441.37	1375.20	0.00	0.00
40.00		446.33	1342.95	0.00	0.00
45.00		448.98	1310.70	0.00	0.00
46.50		133.47	386.92	0.00	0.00
50.00		319.25	1675.48	0.00	0.00
53.25		296.02	1527.50	0.00	0.00
55.00		158.53	439.74	0.00	0.00
60.00		455.10	1234.62	0.00	0.00
65.00		451.60	1202.37	0.00	0.00
70.00		446.94	1170.12	0.00	0.00
75.00		441.22	1137.87	0.00	0.00
80.00		434.55	1105.62	0.00	0.00
85.00		427.00	1073.37	0.00	0.00
90.00		418.64	1041.12	0.00	0.00
95.00		409.52	1008.87	0.00	0.00
100.00		408.42	1680.73	0.00	0.00
105.00		398.07	850.82	0.00	0.00
110.00		387.09	823.17	0.00	0.00
115.00		375.53	795.53	0.00	0.00
120.00		363.41	767.89	0.00	0.00
125.00		350.77	740.24	0.00	0.00
130.00		337.62	712.60	0.00	0.00
135.00		324.00	684.96	0.00	0.00
140.00		309.92	657.31	0.00	0.00
145.00		295.40	629.67	0.00	0.00
145.25		14.31	30.76	0.00	0.00
147.00	(30) appurtenances	6610.30	2461.20	0.00	0.00
148.50		85.10	228.60	0.00	0.00
150.00		83.74	99.46	0.00	0.00
155.00		270.07	322.56	0.00	0.00
160.00	(12) appurtenances	3067.00	2087.74	0.00	0.00
165.00		238.33	227.02	0.00	0.00
167.00	(45) appurtenances	9346.45	3280.74	0.00	18083.19
169.00		87.88	84.73	0.00	0.00
	Totals:	31,928.69	43,126.60	0.00	18,083.19

Resulting Forces and Deflections

Structure: CT11794-S-SB
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

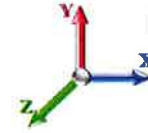
Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

1/21/2016
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Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 25

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	-31.988	-43.082	0.000	0.000	0.000	-4150.489	0.000	0.000	0.000	0.000	0.000
5.00	-31.596	-41.428	0.000	0.000	0.000	-3990.552	-0.083	0.000	0.083	-0.155	0.000
10.00	-31.211	-39.805	0.000	0.000	0.000	-3832.573	-0.332	0.000	0.332	-0.315	0.000
15.00	-30.832	-38.214	0.000	0.000	0.000	-3676.521	-0.750	0.000	0.750	-0.479	0.000
20.00	-30.459	-36.655	0.000	0.000	0.000	-3522.364	-1.343	0.000	1.343	-0.649	0.000
25.00	-30.093	-35.129	0.000	0.000	0.000	-3370.070	-2.117	0.000	2.117	-0.824	0.000
30.00	-29.733	-33.633	0.000	0.000	0.000	-3219.608	-3.077	0.000	3.077	-1.005	0.000
35.00	-29.372	-32.170	0.000	0.000	0.000	-3070.947	-4.230	0.000	4.230	-1.192	0.000
40.00	-29.001	-30.738	0.000	0.000	0.000	-2924.090	-5.581	0.000	5.581	-1.384	0.000
45.00	-28.585	-29.375	0.000	0.000	0.000	-2779.089	-7.137	0.000	7.137	-1.584	0.000
46.50	-28.494	-28.939	0.000	0.000	0.000	-2736.213	-7.645	0.000	7.645	-1.646	0.000
50.00	-28.192	-27.204	0.000	0.000	0.000	-2636.487	-8.907	0.000	8.907	-1.793	0.000
53.25	-27.895	-25.634	0.000	0.000	0.000	-2544.863	-10.176	0.000	10.176	-1.933	0.000
55.00	-27.785	-25.130	0.000	0.000	0.000	-2496.047	-10.900	0.000	10.900	-2.011	0.000
60.00	-27.373	-23.812	0.000	0.000	0.000	-2357.126	-13.117	0.000	13.117	-2.219	0.000
65.00	-26.959	-22.527	0.000	0.000	0.000	-2220.265	-15.555	0.000	15.555	-2.434	0.000
70.00	-26.544	-21.273	0.000	0.000	0.000	-2085.474	-18.222	0.000	18.222	-2.656	0.000
75.00	-26.130	-20.051	0.000	0.000	0.000	-1952.754	-21.125	0.000	21.125	-2.885	0.000
80.00	-25.718	-18.862	0.000	0.000	0.000	-1822.104	-24.273	0.000	24.273	-3.123	0.000
85.00	-25.308	-17.704	0.000	0.000	0.000	-1693.514	-27.673	0.000	27.673	-3.368	0.000
90.00	-24.902	-16.579	0.000	0.000	0.000	-1566.974	-31.334	0.000	31.334	-3.621	0.000
95.00	-24.499	-15.486	0.000	0.000	0.000	-1442.467	-35.264	0.000	35.264	-3.883	0.000
100.00	-24.040	-13.723	0.000	0.000	0.000	-1319.972	-39.472	0.000	39.472	-4.152	0.000
105.00	-23.645	-12.784	0.000	0.000	0.000	-1199.775	-43.965	0.000	43.965	-4.429	0.000
110.00	-23.258	-11.868	0.000	0.000	0.000	-1081.553	-48.765	0.000	48.765	-4.737	0.000
115.00	-22.877	-10.981	0.000	0.000	0.000	-965.265	-53.890	0.000	53.890	-5.051	0.000
120.00	-22.502	-10.124	0.000	0.000	0.000	-850.882	-59.345	0.000	59.345	-5.370	0.000
125.00	-22.134	-9.297	0.000	0.000	0.000	-738.372	-65.133	0.000	65.133	-5.690	0.000
130.00	-21.773	-8.503	0.000	0.000	0.000	-627.704	-71.255	0.000	71.255	-6.009	0.000
135.00	-21.418	-7.743	0.000	0.000	0.000	-518.843	-77.707	0.000	77.707	-6.321	0.000
140.00	-21.072	-7.019	0.000	0.000	0.000	-411.751	-84.477	0.000	84.477	-6.619	0.000
145.00	-20.720	-6.379	0.000	0.000	0.000	-306.393	-91.545	0.000	91.545	-6.892	0.000
145.25	-20.708	-6.331	0.000	0.000	0.000	-301.213	-91.906	0.000	91.906	-6.906	0.000
147.00	-13.855	-4.669	0.000	0.000	0.000	-264.975	-94.449	0.000	94.449	-6.998	0.000
148.50	-13.748	-4.434	0.000	0.000	0.000	-244.194	-96.654	0.000	96.654	-7.073	0.000
150.00	-13.671	-4.288	0.000	0.000	0.000	-223.572	-98.883	0.000	98.883	-7.146	0.000
155.00	-13.386	-3.921	0.000	0.000	0.000	-155.218	-106.564	0.000	106.564	-7.533	0.000
160.00	-10.077	-2.220	0.000	0.000	0.000	-88.289	-114.607	0.000	114.607	-7.837	0.000
165.00	-9.813	-2.009	0.000	0.000	0.000	-37.907	-122.907	0.000	122.907	-8.033	0.000
167.00	-0.099	-0.072	0.000	0.000	0.000	-0.198	-126.273	0.000	126.273	-8.077	0.000
169.00	-0.088	0.000	0.000	0.000	0.000	0.000	0.000	0.000	129.645	-8.077	0.000

Resulting Stresses

Structure: CT11794-S-SBA
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

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

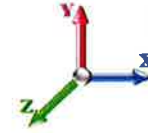
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Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 25

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	0.52	0.78	0.00	0.00	0.00	40.73	41.28	52.0	0.794
5.00	0.51	0.79	0.00	0.00	0.00	41.03	41.56	52.0	0.800
10.00	0.50	0.80	0.00	0.00	0.00	41.32	41.85	52.0	0.805
15.00	0.49	0.80	0.00	0.00	0.00	41.62	42.13	52.0	0.811
20.00	0.49	0.82	0.00	0.00	0.00	41.91	42.42	52.0	0.816
25.00	0.48	0.83	0.00	0.00	0.00	42.20	42.71	52.0	0.822
30.00	0.47	0.84	0.00	0.00	0.00	42.49	42.99	52.0	0.827
35.00	0.46	0.85	0.00	0.00	0.00	42.78	43.27	52.0	0.832
40.00	0.45	0.86	0.00	0.00	0.00	43.06	43.54	52.0	0.838
45.00	0.45	0.87	0.00	0.00	0.00	43.32	43.79	52.0	0.843
46.50	0.44	0.88	0.00	0.00	0.00	43.40	43.87	52.0	0.844
50.00	0.43	0.89	0.00	0.00	0.00	43.58	44.04	52.0	0.847
53.25	0.40	0.88	0.00	0.00	0.00	42.09	42.52	52.0	0.818
55.00	0.40	0.89	0.00	0.00	0.00	42.16	42.58	52.0	0.819
60.00	0.39	0.90	0.00	0.00	0.00	42.32	42.74	52.0	0.822
65.00	0.38	0.91	0.00	0.00	0.00	42.46	42.87	52.0	0.825
70.00	0.37	0.93	0.00	0.00	0.00	42.56	42.96	52.0	0.827
75.00	0.36	0.95	0.00	0.00	0.00	42.63	43.02	52.0	0.828
80.00	0.35	0.96	0.00	0.00	0.00	42.65	43.03	52.0	0.828
85.00	0.34	0.98	0.00	0.00	0.00	42.60	42.98	52.0	0.827
90.00	0.33	1.00	0.00	0.00	0.00	42.49	42.85	52.0	0.824
95.00	0.32	1.03	0.00	0.00	0.00	42.27	42.63	52.0	0.820
100.00	0.34	1.19	0.00	0.00	0.00	46.53	46.91	52.0	0.903
105.00	0.33	1.22	0.00	0.00	0.00	45.92	46.29	52.0	0.891
110.00	0.32	1.26	0.00	0.00	0.00	45.10	45.47	52.0	0.875
115.00	0.31	1.29	0.00	0.00	0.00	44.02	44.38	52.0	0.854
120.00	0.30	1.33	0.00	0.00	0.00	42.62	42.97	52.0	0.827
125.00	0.29	1.37	0.00	0.00	0.00	40.80	41.16	52.0	0.792
130.00	0.28	1.42	0.00	0.00	0.00	38.47	38.82	52.0	0.747
135.00	0.27	1.48	0.00	0.00	0.00	35.46	35.82	52.0	0.689
140.00	0.25	1.54	0.00	0.00	0.00	31.58	31.95	52.0	0.615
145.00	0.25	1.61	0.00	0.00	0.00	26.56	26.95	52.0	0.519
145.25	0.24	1.61	0.00	0.00	0.00	26.28	26.67	52.0	0.513
147.00	0.18	1.10	0.00	0.00	0.00	24.18	24.44	52.0	0.470
148.50	0.35	2.17	0.00	0.00	0.00	43.55	44.06	52.0	0.848
150.00	0.34	2.20	0.00	0.00	0.00	41.45	41.96	52.0	0.807
155.00	0.34	2.31	0.00	0.00	0.00	32.94	33.51	52.0	0.645
160.00	0.20	1.87	0.00	0.00	0.00	21.65	22.10	52.0	0.425
165.00	0.20	1.97	0.00	0.00	0.00	10.87	11.58	52.0	0.223
167.00	0.01	0.02	0.00	0.00	0.00	0.06	0.08	52.0	0.001
169.00	0.00	0.02	0.00	0.00	0.00	0.00	0.03	52.0	0.001

Wind Loading - Shaft

Structure: CT11794-S-SBA
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

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

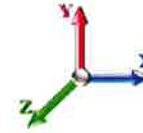
1/21/2016

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Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 25

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 (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	13.871	23.44	368.91	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	360.54	0.650	0.500	5.00	25.191	16.37	383.8	182.9	1577.3
10.00		0.00	1.00	13.871	23.44	352.16	0.650	0.500	5.00	24.622	16.00	375.2	178.7	1540.8
15.00		0.00	1.00	13.871	23.44	343.79	0.650	0.500	5.00	24.053	15.63	366.5	174.5	1504.3
20.00		0.00	1.00	13.871	23.44	335.41	0.650	0.500	5.00	23.484	15.26	357.8	170.3	1467.9
25.00		0.00	1.00	13.871	23.44	327.04	0.650	0.500	5.00	22.915	14.90	349.2	166.1	1431.4
30.00		0.00	1.00	13.871	23.44	318.67	0.650	0.500	5.00	22.347	14.53	340.5	161.8	1394.9
35.00		0.00	1.02	14.106	23.84	312.91	0.650	0.500	5.00	21.778	14.16	337.5	157.6	1358.5
40.00		0.00	1.06	14.655	24.77	310.33	0.650	0.500	5.00	21.209	13.79	341.4	153.4	1322.0
45.00		0.00	1.09	15.156	25.61	306.84	0.650	0.500	5.00	20.640	13.42	343.6	149.2	1285.6
46.50	Bot - Section 2	0.00	1.10	15.299	25.86	305.65	0.650	0.500	1.50	6.081	3.95	102.2	44.4	379.0
50.00		0.00	1.13	15.620	26.40	302.61	0.650	0.500	3.50	14.246	9.26	244.4	103.4	1656.8
53.25	Top - Section 1	0.00	1.15	15.903	26.88	299.52	0.650	0.500	3.25	12.978	8.44	226.7	94.2	1508.4
55.00		0.00	1.16	16.051	27.13	303.53	0.650	0.500	1.75	6.889	4.48	121.5	50.2	428.9
60.00		0.00	1.19	16.455	27.81	298.20	0.650	0.500	5.00	19.299	12.54	348.8	139.3	1199.5
65.00		0.00	1.21	16.836	28.45	292.41	0.650	0.500	5.00	18.730	12.17	346.4	135.1	1163.1
70.00		0.00	1.24	17.196	29.06	286.20	0.650	0.500	5.00	18.161	11.80	343.1	130.8	1126.6
75.00		0.00	1.26	17.538	29.64	279.61	0.650	0.500	5.00	17.592	11.43	338.9	126.6	1090.2
80.00		0.00	1.29	17.865	30.19	272.70	0.650	0.500	5.00	17.023	11.07	334.1	122.4	1053.7
85.00		0.00	1.31	18.177	30.72	265.49	0.650	0.500	5.00	16.455	10.70	328.6	118.2	1017.2
90.00		0.00	1.33	18.476	31.22	258.00	0.650	0.500	5.00	15.886	10.33	322.4	114.0	980.8
95.00	Bot - Section 3	0.00	1.35	18.764	31.71	250.26	0.650	0.500	5.00	15.317	9.96	315.7	109.8	944.3
100.00	Top - Section 2	0.00	1.37	19.041	32.18	242.29	0.650	0.500	5.00	15.061	9.79	315.0	107.9	1614.3
105.00		0.00	1.39	19.308	32.63	239.54	0.650	0.500	5.00	14.492	9.42	307.4	103.7	780.1
110.00		0.00	1.41	19.566	33.07	231.19	0.650	0.500	5.00	13.923	9.05	299.3	99.5	748.3
115.00		0.00	1.43	19.816	33.49	222.65	0.650	0.500	5.00	13.354	8.68	290.7	95.2	716.4
120.00		0.00	1.45	20.059	33.90	213.94	0.650	0.500	5.00	12.786	8.31	281.7	91.0	684.6
125.00		0.00	1.46	20.294	34.30	205.06	0.650	0.500	5.00	12.217	7.94	272.3	86.8	652.7
130.00		0.00	1.48	20.523	34.68	196.03	0.650	0.500	5.00	11.648	7.57	262.6	82.6	620.9
135.00		0.00	1.50	20.745	35.06	186.85	0.650	0.500	5.00	11.079	7.20	252.5	78.4	589.0
140.00		0.00	1.51	20.962	35.43	177.53	0.650	0.500	5.00	10.510	6.83	242.0	74.2	557.2
145.00		0.00	1.53	21.173	35.78	168.07	0.650	0.500	5.00	9.942	6.46	231.2	70.0	525.3
145.25	Bot - Section 4	0.00	1.53	21.184	35.80	167.60	0.650	0.500	0.25	0.482	0.31	11.2	3.5	25.5
147.00	Appurtenance(s)	0.00	1.53	21.256	35.92	164.26	0.650	0.500	1.75	3.390	2.20	79.2	24.3	254.8
148.50	Top - Section 3	0.00	1.54	21.318	36.03	161.38	0.650	0.500	1.50	2.850	1.85	66.7	20.5	214.0
150.00		0.00	1.54	21.379	36.13	161.35	0.650	0.500	1.50	2.799	1.82	65.7	20.1	84.5
155.00		0.00	1.56	21.581	36.47	151.66	0.650	0.500	5.00	8.960	5.82	212.4	62.7	268.4
160.00	Appurtenance(s)	0.00	1.57	21.777	36.80	141.86	0.650	0.500	5.00	8.392	5.45	200.7	58.5	250.4
165.00		0.00	1.58	21.969	37.13	131.95	0.650	0.500	5.00	7.823	5.08	188.8	54.3	232.4
167.00	Appurtenance(s)	0.00	1.59	22.045	37.26	127.95	0.650	0.500	2.00	2.970	1.93	71.9	21.0	88.4
169.00		0.00	1.59	22.120	37.38	123.94	0.650	0.500	2.00	2.879	1.87	70.0	20.4	85.5
Totals:									169.00			10,289.8		34,423.8

Discrete Appurtenance Forces

Structure: CT11794-S-SB
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

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

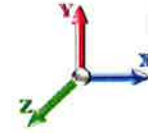
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Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 25

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	167.00	Ericsson RRUS-32 RRUs	3	22.158	37.446	0.87	11.22	310.50	0.000	3.000	420.26	0.00	1260.78
2	167.00	CCI DTMABP7819VG12A	3	22.045	37.256	0.67	2.73	79.50	0.000	0.000	101.84	0.00	0.00
3	167.00	Commscope SBNHH-1D65A	3	22.158	37.446	0.83	16.78	206.40	0.000	3.000	628.45	0.00	1885.34
4	167.00	Ericsson RRUS 11 RRUs	6	22.045	37.256	0.76	14.32	396.00	0.000	0.000	533.45	0.00	0.00
5	167.00	Ericsson RRUS 12 RRUs	6	22.158	37.446	0.70	16.34	454.20	0.000	3.000	611.80	0.00	1835.40
6	167.00	Ericsson RRUS A2 Module	6	22.158	37.446	0.62	8.00	188.40	0.000	3.000	299.50	0.00	898.49
7	167.00	Andrew SBNH-1D6565C	1	22.045	37.256	0.80	9.90	132.00	0.000	0.000	368.69	0.00	0.00
8	167.00	Ericsson RRUS-E2 RRUs	3	22.158	37.446	0.87	11.22	310.50	0.000	3.000	420.26	0.00	1260.78
9	167.00	HPA-65R-BBU-H8	3	22.158	37.446	0.79	32.94	411.00	0.000	3.000	1233.60	0.00	3700.79
10	167.00	HPA-65R-BUU-H6	3	22.158	37.446	0.85	26.98	325.20	0.000	3.000	1010.27	0.00	3030.80
11	167.00	KMW	2	22.045	37.256	0.75	9.15	136.60	0.000	0.000	340.90	0.00	0.00
12	167.00	Raycap DC6-48-60-18-8F	3	22.158	37.446	1.00	5.01	151.50	0.000	3.000	187.61	0.00	562.82
13	167.00	T-Arm	3	22.045	37.256	0.75	28.13	1440.00	0.000	0.000	1047.84	0.00	0.00
14	160.00	Ericsson KRY 112-114/1	3	21.777	36.803	0.70	1.16	42.30	0.000	0.000	42.51	0.00	0.00
15	160.00	Ericsson AIR 21	6	21.777	36.803	0.86	35.45	775.20	0.000	0.000	1304.65	0.00	0.00
16	160.00	T-Arm	3	21.777	36.803	0.75	28.13	1440.00	0.000	0.000	1035.10	0.00	0.00
17	147.00	Antel LPA-80080/4CF	2	21.256	35.923	1.70	22.61	0.00	0.000	0.000	812.22	0.00	0.00
18	147.00	ALU RRH2X60-700 RRH	3	21.256	35.923	0.76	9.64	240.30	0.000	0.000	346.46	0.00	0.00
19	147.00	ALU RRH2X60-AWS RRH	3	21.256	35.923	0.76	9.64	240.30	0.000	0.000	346.46	0.00	0.00
20	147.00	ALU RRH2X60-PCS RRH	3	21.256	35.923	0.89	7.37	212.70	0.000	0.000	264.72	0.00	0.00
21	147.00	Low Profile Platform	1	21.256	35.923	1.00	31.00	1500.00	0.000	0.000	1113.61	0.00	0.00
22	147.00	Commscope SBNHH-1D65B	6	21.256	35.923	0.83	43.82	522.00	0.000	0.000	1574.29	0.00	0.00
23	147.00	FD9R6004/2C-3L	6	21.256	35.923	1.00	3.00	32.40	0.000	0.000	107.77	0.00	0.00
24	147.00	RFS DB-T1-6Z-8AB-0Z	2	21.256	35.923	0.71	8.34	92.00	0.000	0.000	299.43	0.00	0.00
25	147.00	Swedcom SC-E 6014 rev2	4	21.256	35.923	0.97	15.75	168.40	0.000	0.000	565.89	0.00	0.00
Totals:								9,807.40			15,017.56		

Total Applied Force Summary

Structure: CT11794-S-SB
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

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

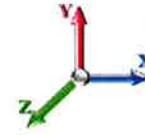
1/21/2016
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Load Case: 73.61 mph Wind with 0.5" Ice

Iterations: 25

Dead Load Factor 1.00
Wind Load Factor 1.00



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		383.84	1751.61	0.00	0.00
10.00		375.17	1715.14	0.00	0.00
15.00		366.51	1678.68	0.00	0.00
20.00		357.84	1642.22	0.00	0.00
25.00		349.17	1605.76	0.00	0.00
30.00		340.51	1569.29	0.00	0.00
35.00		337.47	1532.83	0.00	0.00
40.00		341.43	1496.37	0.00	0.00
45.00		343.65	1459.91	0.00	0.00
46.50		102.20	431.30	0.00	0.00
50.00		244.43	1778.87	0.00	0.00
53.25		226.73	1621.72	0.00	0.00
55.00		121.46	489.95	0.00	0.00
60.00		348.83	1373.89	0.00	0.00
65.00		346.39	1337.43	0.00	0.00
70.00		343.05	1300.96	0.00	0.00
75.00		338.93	1264.50	0.00	0.00
80.00		334.07	1228.04	0.00	0.00
85.00		328.55	1191.58	0.00	0.00
90.00		322.42	1155.11	0.00	0.00
95.00		315.71	1118.65	0.00	0.00
100.00		315.01	1788.61	0.00	0.00
105.00		307.37	954.49	0.00	0.00
110.00		299.26	922.64	0.00	0.00
115.00		290.70	890.78	0.00	0.00
120.00		281.72	858.93	0.00	0.00
125.00		272.35	827.07	0.00	0.00
130.00		262.60	795.21	0.00	0.00
135.00		252.48	763.36	0.00	0.00
140.00		242.02	731.50	0.00	0.00
145.00		231.23	699.65	0.00	0.00
145.25		11.22	34.25	0.00	0.00
147.00	(30) appurtenances	5510.00	3323.95	0.00	0.00
148.50		66.75	249.05	0.00	0.00
150.00		65.74	119.54	0.00	0.00
155.00		212.42	385.27	0.00	0.00
160.00	(12) appurtenances	2583.00	2624.74	0.00	0.00
165.00		188.79	281.30	0.00	0.00
167.00	(45) appurtenances	7276.38	4649.78	0.00	14435.21
169.00		69.95	105.09	0.00	0.00
	Totals:	25,307.35	49,749.02	0.00	14,435.21

Resulting Forces and Deflections

Structure: CT11794-S-SB
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

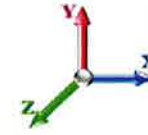
Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

1/21/2016
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Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 25

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	-25.362	-49.721	0.000	0.000	0.000	-3347.518	0.000	0.000	0.000	0.000	0.000
5.00	-25.083	-47.914	0.000	0.000	0.000	-3220.708	-0.067	0.000	0.067	-0.125	0.000
10.00	-24.808	-46.143	0.000	0.000	0.000	-3095.296	-0.268	0.000	0.268	-0.254	0.000
15.00	-24.537	-44.409	0.000	0.000	0.000	-2971.260	-0.605	0.000	0.605	-0.387	0.000
20.00	-24.270	-42.711	0.000	0.000	0.000	-2848.580	-1.084	0.000	1.084	-0.524	0.000
25.00	-24.007	-41.049	0.000	0.000	0.000	-2727.233	-1.709	0.000	1.709	-0.666	0.000
30.00	-23.749	-39.422	0.000	0.000	0.000	-2607.200	-2.485	0.000	2.485	-0.812	0.000
35.00	-23.489	-37.832	0.000	0.000	0.000	-2488.459	-3.417	0.000	3.417	-0.963	0.000
40.00	-23.221	-36.278	0.000	0.000	0.000	-2371.016	-4.509	0.000	4.509	-1.120	0.000
45.00	-22.911	-34.783	0.000	0.000	0.000	-2254.912	-5.768	0.000	5.768	-1.281	0.000
46.50	-22.850	-34.320	0.000	0.000	0.000	-2220.546	-6.179	0.000	6.179	-1.332	0.000
50.00	-22.629	-32.502	0.000	0.000	0.000	-2140.571	-7.201	0.000	7.201	-1.451	0.000
53.25	-22.407	-30.852	0.000	0.000	0.000	-2067.028	-8.228	0.000	8.228	-1.565	0.000
55.00	-22.334	-30.321	0.000	0.000	0.000	-2027.817	-8.814	0.000	8.814	-1.628	0.000
60.00	-22.031	-28.892	0.000	0.000	0.000	-1916.150	-10.609	0.000	10.609	-1.797	0.000
65.00	-21.726	-27.499	0.000	0.000	0.000	-1805.999	-12.585	0.000	12.585	-1.972	0.000
70.00	-21.420	-26.143	0.000	0.000	0.000	-1697.370	-14.746	0.000	14.746	-2.153	0.000
75.00	-21.115	-24.823	0.000	0.000	0.000	-1590.271	-17.100	0.000	17.100	-2.340	0.000
80.00	-20.810	-23.539	0.000	0.000	0.000	-1484.699	-19.653	0.000	19.653	-2.533	0.000
85.00	-20.506	-22.291	0.000	0.000	0.000	-1380.653	-22.412	0.000	22.412	-2.733	0.000
90.00	-20.204	-21.079	0.000	0.000	0.000	-1278.126	-25.384	0.000	25.384	-2.939	0.000
95.00	-19.905	-19.904	0.000	0.000	0.000	-1177.108	-28.575	0.000	28.575	-3.153	0.000
100.00	-19.559	-18.060	0.000	0.000	0.000	-1077.586	-31.993	0.000	31.993	-3.372	0.000
105.00	-19.265	-17.045	0.000	0.000	0.000	-979.793	-35.645	0.000	35.645	-3.599	0.000
110.00	-18.978	-16.060	0.000	0.000	0.000	-883.468	-39.547	0.000	39.547	-3.850	0.000
115.00	-18.695	-15.107	0.000	0.000	0.000	-788.578	-43.714	0.000	43.714	-4.107	0.000
120.00	-18.415	-14.188	0.000	0.000	0.000	-695.105	-48.152	0.000	48.152	-4.367	0.000
125.00	-18.140	-13.302	0.000	0.000	0.000	-603.030	-52.862	0.000	52.862	-4.629	0.000
130.00	-17.868	-12.451	0.000	0.000	0.000	-512.333	-57.846	0.000	57.846	-4.889	0.000
135.00	-17.601	-11.636	0.000	0.000	0.000	-422.993	-63.099	0.000	63.099	-5.144	0.000
140.00	-17.337	-10.859	0.000	0.000	0.000	-334.990	-68.612	0.000	68.612	-5.386	0.000
145.00	-17.059	-10.152	0.000	0.000	0.000	-248.307	-74.368	0.000	74.368	-5.608	0.000
145.25	-17.053	-10.106	0.000	0.000	0.000	-244.042	-74.662	0.000	74.662	-5.620	0.000
147.00	-11.250	-7.329	0.000	0.000	0.000	-214.200	-76.733	0.000	76.733	-5.693	0.000
148.50	-11.166	-7.076	0.000	0.000	0.000	-197.325	-78.529	0.000	78.529	-5.754	0.000
150.00	-11.113	-6.926	0.000	0.000	0.000	-180.576	-80.343	0.000	80.343	-5.813	0.000
155.00	-10.893	-6.511	0.000	0.000	0.000	-125.014	-86.597	0.000	86.597	-6.126	0.000
160.00	-8.054	-4.156	0.000	0.000	0.000	-70.548	-93.142	0.000	93.142	-6.370	0.000
165.00	-7.841	-3.886	0.000	0.000	0.000	-30.279	-99.894	0.000	99.894	-6.526	0.000
167.00	-0.081	-0.096	0.000	0.000	0.000	-0.163	-102.631	0.000	102.631	-6.562	0.000
169.00	-0.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000	105.374	-6.562	0.000

Resulting Stresses

Structure: CT11794-S-SBA
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

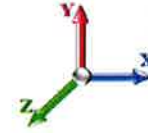
Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

1/21/2016
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Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 25

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	0.62	0.00	0.00	0.00	32.85	33.47	52.0	0.644
5.00	0.59	0.62	0.00	0.00	0.00	33.11	33.72	52.0	0.649
10.00	0.58	0.63	0.00	0.00	0.00	33.37	33.97	52.0	0.654
15.00	0.58	0.64	0.00	0.00	0.00	33.63	34.23	52.0	0.658
20.00	0.57	0.65	0.00	0.00	0.00	33.89	34.48	52.0	0.663
25.00	0.56	0.66	0.00	0.00	0.00	34.15	34.73	52.0	0.668
30.00	0.55	0.67	0.00	0.00	0.00	34.41	34.98	52.0	0.673
35.00	0.54	0.68	0.00	0.00	0.00	34.67	35.23	52.0	0.678
40.00	0.54	0.69	0.00	0.00	0.00	34.91	35.47	52.0	0.682
45.00	0.53	0.70	0.00	0.00	0.00	35.15	35.70	52.0	0.687
46.50	0.53	0.71	0.00	0.00	0.00	35.22	35.77	52.0	0.688
50.00	0.51	0.71	0.00	0.00	0.00	35.39	35.91	52.0	0.691
53.25	0.48	0.71	0.00	0.00	0.00	34.19	34.69	52.0	0.667
55.00	0.48	0.71	0.00	0.00	0.00	34.25	34.75	52.0	0.669
60.00	0.47	0.72	0.00	0.00	0.00	34.40	34.90	52.0	0.671
65.00	0.46	0.74	0.00	0.00	0.00	34.54	35.02	52.0	0.674
70.00	0.45	0.75	0.00	0.00	0.00	34.64	35.12	52.0	0.676
75.00	0.45	0.76	0.00	0.00	0.00	34.72	35.19	52.0	0.677
80.00	0.44	0.78	0.00	0.00	0.00	34.75	35.21	52.0	0.677
85.00	0.43	0.80	0.00	0.00	0.00	34.73	35.19	52.0	0.677
90.00	0.42	0.81	0.00	0.00	0.00	34.65	35.10	52.0	0.675
95.00	0.41	0.83	0.00	0.00	0.00	34.50	34.94	52.0	0.672
100.00	0.45	0.97	0.00	0.00	0.00	37.99	38.47	52.0	0.740
105.00	0.44	1.00	0.00	0.00	0.00	37.50	37.97	52.0	0.731
110.00	0.43	1.02	0.00	0.00	0.00	36.84	37.31	52.0	0.718
115.00	0.42	1.06	0.00	0.00	0.00	35.96	36.43	52.0	0.701
120.00	0.42	1.09	0.00	0.00	0.00	34.81	35.28	52.0	0.679
125.00	0.41	1.13	0.00	0.00	0.00	33.32	33.79	52.0	0.650
130.00	0.40	1.17	0.00	0.00	0.00	31.40	31.87	52.0	0.613
135.00	0.40	1.21	0.00	0.00	0.00	28.91	29.38	52.0	0.565
140.00	0.39	1.27	0.00	0.00	0.00	25.70	26.18	52.0	0.504
145.00	0.39	1.32	0.00	0.00	0.00	21.53	22.04	52.0	0.424
145.25	0.39	1.33	0.00	0.00	0.00	21.29	21.81	52.0	0.419
147.00	0.29	0.90	0.00	0.00	0.00	19.55	19.90	52.0	0.383
148.50	0.56	1.77	0.00	0.00	0.00	35.19	35.88	52.0	0.690
150.00	0.55	1.79	0.00	0.00	0.00	33.48	34.17	52.0	0.657
155.00	0.56	1.88	0.00	0.00	0.00	26.53	27.28	52.0	0.525
160.00	0.38	1.49	0.00	0.00	0.00	17.30	17.87	52.0	0.344
165.00	0.39	1.57	0.00	0.00	0.00	8.68	9.47	52.0	0.182
167.00	0.01	0.02	0.00	0.00	0.00	0.05	0.07	52.0	0.001
169.00	0.00	0.01	0.00	0.00	0.00	0.00	0.03	52.0	0.000

Wind Loading - Shaft

Structure: CT11794-S-SBA
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

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

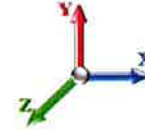
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Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 24

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	250.58	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	244.90	0.650	0.000	5.00	24.774	16.10	174.2	0.0	1394.4
10.00		0.00	1.00	6.400	10.82	239.21	0.650	0.000	5.00	24.205	15.73	170.2	0.0	1362.1
15.00		0.00	1.00	6.400	10.82	233.52	0.650	0.000	5.00	23.636	15.36	166.2	0.0	1329.8
20.00		0.00	1.00	6.400	10.82	227.83	0.650	0.000	5.00	23.068	14.99	162.2	0.0	1297.6
25.00		0.00	1.00	6.400	10.82	222.14	0.650	0.000	5.00	22.499	14.62	158.2	0.0	1265.3
30.00		0.00	1.00	6.400	10.82	216.46	0.650	0.000	5.00	21.930	14.25	154.2	0.0	1233.1
35.00		0.00	1.02	6.509	11.00	212.55	0.650	0.000	5.00	21.361	13.88	152.7	0.0	1200.8
40.00		0.00	1.06	6.762	11.43	210.79	0.650	0.000	5.00	20.792	13.52	154.4	0.0	1168.6
45.00		0.00	1.09	6.993	11.82	208.43	0.650	0.000	5.00	20.224	13.15	155.4	0.0	1136.3
46.50	Bot - Section 2	0.00	1.10	7.059	11.93	207.61	0.650	0.000	1.50	5.956	3.87	46.2	0.0	334.6
50.00		0.00	1.13	7.207	12.18	205.55	0.650	0.000	3.50	13.954	9.07	110.5	0.0	1553.4
53.25	Top - Section 1	0.00	1.15	7.338	12.40	203.45	0.650	0.000	3.25	12.708	8.26	102.4	0.0	1414.2
55.00		0.00	1.16	7.406	12.52	206.17	0.650	0.000	1.75	6.743	4.38	54.9	0.0	378.7
60.00		0.00	1.19	7.592	12.83	202.56	0.650	0.000	5.00	18.882	12.27	157.5	0.0	1060.3
65.00		0.00	1.21	7.768	13.13	198.62	0.650	0.000	5.00	18.313	11.90	156.3	0.0	1028.0
70.00		0.00	1.24	7.934	13.41	194.40	0.650	0.000	5.00	17.744	11.53	154.6	0.0	995.8
75.00		0.00	1.26	8.092	13.68	189.93	0.650	0.000	5.00	17.176	11.16	152.7	0.0	963.5
80.00		0.00	1.29	8.242	13.93	185.23	0.650	0.000	5.00	16.607	10.79	150.4	0.0	931.3
85.00		0.00	1.31	8.387	14.17	180.33	0.650	0.000	5.00	16.038	10.42	147.8	0.0	899.0
90.00		0.00	1.33	8.525	14.41	175.25	0.650	0.000	5.00	15.469	10.05	144.9	0.0	866.8
95.00	Bot - Section 3	0.00	1.35	8.657	14.63	169.99	0.650	0.000	5.00	14.900	9.69	141.7	0.0	834.5
100.00	Top - Section 2	0.00	1.37	8.785	14.85	164.58	0.650	0.000	5.00	14.644	9.52	141.3	0.0	1506.4
105.00		0.00	1.39	8.908	15.06	162.71	0.650	0.000	5.00	14.075	9.15	137.7	0.0	676.5
110.00		0.00	1.41	9.028	15.26	157.04	0.650	0.000	5.00	13.506	8.78	133.9	0.0	648.8
115.00		0.00	1.43	9.143	15.45	151.24	0.650	0.000	5.00	12.938	8.41	129.9	0.0	621.2
120.00		0.00	1.45	9.255	15.64	145.32	0.650	0.000	5.00	12.369	8.04	125.7	0.0	593.5
125.00		0.00	1.46	9.363	15.82	139.29	0.650	0.000	5.00	11.800	7.67	121.4	0.0	565.9
130.00		0.00	1.48	9.469	16.00	133.15	0.650	0.000	5.00	11.231	7.30	116.8	0.0	538.3
135.00		0.00	1.50	9.572	16.18	126.92	0.650	0.000	5.00	10.663	6.93	112.1	0.0	510.6
140.00		0.00	1.51	9.672	16.35	120.59	0.650	0.000	5.00	10.094	6.56	107.2	0.0	483.0
145.00		0.00	1.53	9.769	16.51	114.17	0.650	0.000	5.00	9.525	6.19	102.2	0.0	455.3
145.25	Bot - Section 4	0.00	1.53	9.774	16.52	113.84	0.650	0.000	0.25	0.461	0.30	5.0	0.0	22.0
147.00	Appurtenance(s)	0.00	1.53	9.807	16.57	111.57	0.650	0.000	1.75	3.244	2.11	34.9	0.0	230.5
148.50	Top - Section 3	0.00	1.54	9.836	16.62	109.62	0.650	0.000	1.50	2.725	1.77	29.4	0.0	193.5
150.00		0.00	1.54	9.864	16.67	109.60	0.650	0.000	1.50	2.674	1.74	29.0	0.0	64.4
155.00		0.00	1.56	9.957	16.83	103.02	0.650	0.000	5.00	8.544	5.55	93.4	0.0	205.7
160.00	Appurtenance(s)	0.00	1.57	10.048	16.98	96.36	0.650	0.000	5.00	7.975	5.18	88.0	0.0	191.9
165.00		0.00	1.58	10.136	17.13	89.63	0.650	0.000	5.00	7.406	4.81	82.5	0.0	178.1
167.00	Appurtenance(s)	0.00	1.59	10.171	17.19	86.91	0.650	0.000	2.00	2.803	1.82	31.3	0.0	67.4
169.00		0.00	1.59	10.206	17.25	84.19	0.650	0.000	2.00	2.712	1.76	30.4	0.0	65.1
Totals:									169.00			4,619.7		30,466.3

Discrete Appurtenance Forces

Structure: CT11794-S-SB
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

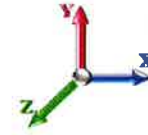
Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

1/21/2016
 Page: 19



Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 24

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	167.00	Ericsson RRUS-32 RRUs	3	10.223	17.277	0.87	10.10	231.00	0.000	3.000	174.51	0.00	523.54
2	167.00	CCI DTMABP7819VG12A	3	10.171	17.190	0.67	2.29	57.60	0.000	0.000	39.39	0.00	0.00
3	167.00	Commscope SBNHH-1D65A	3	10.223	17.277	0.83	15.84	100.50	0.000	3.000	273.61	0.00	820.83
4	167.00	Ericsson RRUS 11 RRUs	6	10.171	17.190	0.76	13.41	304.20	0.000	0.000	230.45	0.00	0.00
5	167.00	Ericsson RRUS 12 RRUs	6	10.223	17.277	0.70	15.41	348.00	0.000	3.000	266.31	0.00	798.94
6	167.00	Ericsson RRUS A2 Module	6	10.223	17.277	0.62	6.92	127.20	0.000	3.000	119.55	0.00	358.64
7	167.00	Andrew SBNH-1D6565C	1	10.171	17.190	0.80	9.15	66.10	0.000	0.000	157.32	0.00	0.00
8	167.00	Ericsson RRUS-E2 RRUs	3	10.223	17.277	0.87	10.10	231.00	0.000	3.000	174.51	0.00	523.54
9	167.00	HPA-65R-BBU-H8	3	10.223	17.277	0.79	31.52	204.00	0.000	3.000	544.60	0.00	1633.80
10	167.00	HPA-65R-BUU-H6	3	10.223	17.277	0.85	26.42	153.00	0.000	3.000	456.43	0.00	1369.30
11	167.00	KMW	2	10.171	17.190	0.75	8.25	72.80	0.000	0.000	141.81	0.00	0.00
12	167.00	Raycap DC6-48-60-18-8F	3	10.223	17.277	1.00	4.41	98.40	0.000	3.000	76.19	0.00	228.58
13	167.00	T-Arm	3	10.171	17.190	0.75	31.88	1200.00	0.000	0.000	548.05	0.00	0.00
14	160.00	Ericsson KRY 112-114/1	3	10.048	16.981	0.70	0.86	33.00	0.000	0.000	14.62	0.00	0.00
15	160.00	Ericsson AIR 21	6	10.048	16.981	0.86	33.95	546.00	0.000	0.000	576.54	0.00	0.00
16	160.00	T-Arm	3	10.048	16.981	0.75	22.50	1200.00	0.000	0.000	382.06	0.00	0.00
17	147.00	Antel LPA-80080/4CF	2	9.807	16.574	1.70	20.60	24.00	0.000	0.000	341.50	0.00	0.00
18	147.00	ALU RRH2X60-700 RRH	3	9.807	16.574	0.76	9.03	180.00	0.000	0.000	149.65	0.00	0.00
19	147.00	ALU RRH2X60-AWS RRH	3	9.807	16.574	0.76	9.03	180.00	0.000	0.000	149.65	0.00	0.00
20	147.00	ALU RRH2X60-PCS RRH	3	9.807	16.574	0.89	6.86	165.00	0.000	0.000	113.73	0.00	0.00
21	147.00	Low Profile Platform	1	9.807	16.574	1.00	25.00	1200.00	0.000	0.000	414.36	0.00	0.00
22	147.00	Commscope SBNHH-1D65B	6	9.807	16.574	0.83	41.48	304.26	0.000	0.000	687.56	0.00	0.00
23	147.00	FD9R6004/2C-3L	6	9.807	16.574	1.00	2.16	18.60	0.000	0.000	35.80	0.00	0.00
24	147.00	RFS DB-T1-6Z-8AB-0Z	2	9.807	16.574	0.71	7.95	37.80	0.000	0.000	131.80	0.00	0.00
25	147.00	Swedcom SC-E 6014 rev2	4	9.807	16.574	0.97	13.77	60.00	0.000	0.000	228.30	0.00	0.00
Totals:								7,142.46			6,428.32		

Total Applied Force Summary

Structure: CT11794-S-SB
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

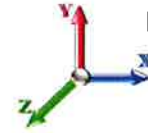
Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

1/21/2016
 Page: 20



Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 24

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		174.17	1568.70	0.00	0.00
10.00		170.17	1536.45	0.00	0.00
15.00		166.17	1504.20	0.00	0.00
20.00		162.17	1471.95	0.00	0.00
25.00		158.18	1439.70	0.00	0.00
30.00		154.18	1407.45	0.00	0.00
35.00		152.72	1375.20	0.00	0.00
40.00		154.44	1342.95	0.00	0.00
45.00		155.35	1310.70	0.00	0.00
46.50		46.19	386.92	0.00	0.00
50.00		110.47	1675.48	0.00	0.00
53.25		102.43	1527.50	0.00	0.00
55.00		54.86	439.74	0.00	0.00
60.00		157.47	1234.62	0.00	0.00
65.00		156.26	1202.37	0.00	0.00
70.00		154.65	1170.12	0.00	0.00
75.00		152.67	1137.87	0.00	0.00
80.00		150.36	1105.62	0.00	0.00
85.00		147.75	1073.37	0.00	0.00
90.00		144.86	1041.12	0.00	0.00
95.00		141.70	1008.87	0.00	0.00
100.00		141.32	1680.73	0.00	0.00
105.00		137.74	850.82	0.00	0.00
110.00		133.94	823.17	0.00	0.00
115.00		129.94	795.53	0.00	0.00
120.00		125.75	767.89	0.00	0.00
125.00		121.37	740.24	0.00	0.00
130.00		116.82	712.60	0.00	0.00
135.00		112.11	684.96	0.00	0.00
140.00		107.24	657.31	0.00	0.00
145.00		102.22	629.67	0.00	0.00
145.25		4.95	30.76	0.00	0.00
147.00	(30) appurtenances	2287.30	2461.20	0.00	0.00
148.50		29.44	228.60	0.00	0.00
150.00		28.97	99.46	0.00	0.00
155.00		93.45	322.56	0.00	0.00
160.00	(12) appurtenances	1061.25	2087.74	0.00	0.00
165.00		82.47	227.02	0.00	0.00
167.00	(45) appurtenances	3234.06	3280.74	0.00	6257.16
169.00		30.41	84.73	0.00	0.00
	Totals:	11,047.99	43,126.60	0.00	6,257.16

Resulting Forces and Deflections

Structure: CT11794-S-SB
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

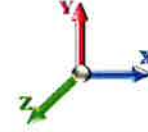
Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

1/21/2016
 Page: 21



Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 24

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	-11.068	-43.121	0.000	0.000	0.000	-1438.967	0.000	0.000	0.000	0.000	0.000
5.00	-10.933	-41.542	0.000	0.000	0.000	-1383.629	-0.029	0.000	0.029	-0.054	0.000
10.00	-10.800	-39.995	0.000	0.000	0.000	-1328.967	-0.115	0.000	0.115	-0.109	0.000
15.00	-10.669	-38.481	0.000	0.000	0.000	-1274.970	-0.260	0.000	0.260	-0.166	0.000
20.00	-10.540	-36.999	0.000	0.000	0.000	-1221.628	-0.466	0.000	0.466	-0.225	0.000
25.00	-10.414	-35.548	0.000	0.000	0.000	-1168.928	-0.734	0.000	0.734	-0.286	0.000
30.00	-10.290	-34.130	0.000	0.000	0.000	-1116.860	-1.067	0.000	1.067	-0.349	0.000
35.00	-10.166	-32.745	0.000	0.000	0.000	-1065.412	-1.467	0.000	1.467	-0.413	0.000
40.00	-10.038	-31.391	0.000	0.000	0.000	-1014.586	-1.935	0.000	1.935	-0.480	0.000
45.00	-9.894	-30.074	0.000	0.000	0.000	-964.397	-2.475	0.000	2.475	-0.549	0.000
46.50	-9.863	-29.681	0.000	0.000	0.000	-949.556	-2.651	0.000	2.651	-0.571	0.000
50.00	-9.760	-27.998	0.000	0.000	0.000	-915.035	-3.089	0.000	3.089	-0.622	0.000
53.25	-9.658	-26.466	0.000	0.000	0.000	-883.316	-3.530	0.000	3.530	-0.671	0.000
55.00	-9.620	-26.018	0.000	0.000	0.000	-866.416	-3.781	0.000	3.781	-0.697	0.000
60.00	-9.479	-24.774	0.000	0.000	0.000	-818.316	-4.550	0.000	4.550	-0.770	0.000
65.00	-9.337	-23.561	0.000	0.000	0.000	-770.924	-5.396	0.000	5.396	-0.844	0.000
70.00	-9.195	-22.381	0.000	0.000	0.000	-724.242	-6.321	0.000	6.321	-0.921	0.000
75.00	-9.053	-21.233	0.000	0.000	0.000	-678.270	-7.329	0.000	7.329	-1.001	0.000
80.00	-8.912	-20.118	0.000	0.000	0.000	-633.006	-8.422	0.000	8.422	-1.084	0.000
85.00	-8.772	-19.034	0.000	0.000	0.000	-588.447	-9.603	0.000	9.603	-1.169	0.000
90.00	-8.633	-17.983	0.000	0.000	0.000	-544.588	-10.874	0.000	10.874	-1.257	0.000
95.00	-8.496	-16.964	0.000	0.000	0.000	-501.423	-12.239	0.000	12.239	-1.348	0.000
100.00	-8.339	-15.273	0.000	0.000	0.000	-458.944	-13.701	0.000	13.701	-1.441	0.000
105.00	-8.205	-14.412	0.000	0.000	0.000	-417.250	-15.262	0.000	15.262	-1.538	0.000
110.00	-8.074	-13.577	0.000	0.000	0.000	-376.226	-16.930	0.000	16.930	-1.645	0.000
115.00	-7.945	-12.771	0.000	0.000	0.000	-335.857	-18.711	0.000	18.711	-1.754	0.000
120.00	-7.818	-11.992	0.000	0.000	0.000	-296.134	-20.608	0.000	20.608	-1.865	0.000
125.00	-7.694	-11.241	0.000	0.000	0.000	-257.043	-22.621	0.000	22.621	-1.976	0.000
130.00	-7.572	-10.519	0.000	0.000	0.000	-218.573	-24.751	0.000	24.751	-2.087	0.000
135.00	-7.453	-9.825	0.000	0.000	0.000	-180.712	-26.997	0.000	26.997	-2.196	0.000
140.00	-7.336	-9.159	0.000	0.000	0.000	-143.448	-29.353	0.000	29.353	-2.300	0.000
145.00	-7.215	-8.528	0.000	0.000	0.000	-106.768	-31.815	0.000	31.815	-2.395	0.000
145.25	-7.212	-8.495	0.000	0.000	0.000	-104.965	-31.940	0.000	31.940	-2.400	0.000
147.00	-4.826	-6.130	0.000	0.000	0.000	-92.344	-32.826	0.000	32.826	-2.432	0.000
148.50	-4.789	-5.901	0.000	0.000	0.000	-85.106	-33.594	0.000	33.594	-2.458	0.000
150.00	-4.765	-5.796	0.000	0.000	0.000	-77.922	-34.370	0.000	34.370	-2.484	0.000
155.00	-4.669	-5.468	0.000	0.000	0.000	-54.099	-37.047	0.000	37.047	-2.618	0.000
160.00	-3.516	-3.427	0.000	0.000	0.000	-30.757	-39.850	0.000	39.850	-2.725	0.000
165.00	-3.425	-3.202	0.000	0.000	0.000	-13.176	-42.744	0.000	42.744	-2.793	0.000
167.00	-0.034	-0.083	0.000	0.000	0.000	-0.069	-43.917	0.000	43.917	-2.808	0.000
169.00	-0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	45.093	-2.808	0.000

Resulting Stresses

Structure: CT11794-S-SBA
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

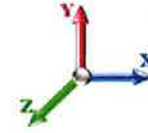
Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

1/21/2016
 Page: 22



Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 24

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	0.52	0.27	0.00	0.00	0.00	14.12	14.65	52.0	0.282
5.00	0.51	0.27	0.00	0.00	0.00	14.22	14.75	52.0	0.284
10.00	0.51	0.28	0.00	0.00	0.00	14.33	14.84	52.0	0.286
15.00	0.50	0.28	0.00	0.00	0.00	14.43	14.94	52.0	0.287
20.00	0.49	0.28	0.00	0.00	0.00	14.54	15.03	52.0	0.289
25.00	0.48	0.29	0.00	0.00	0.00	14.64	15.13	52.0	0.291
30.00	0.48	0.29	0.00	0.00	0.00	14.74	15.23	52.0	0.293
35.00	0.47	0.29	0.00	0.00	0.00	14.84	15.32	52.0	0.295
40.00	0.46	0.30	0.00	0.00	0.00	14.94	15.41	52.0	0.296
45.00	0.46	0.30	0.00	0.00	0.00	15.03	15.50	52.0	0.298
46.50	0.45	0.30	0.00	0.00	0.00	15.06	15.53	52.0	0.299
50.00	0.44	0.31	0.00	0.00	0.00	15.13	15.57	52.0	0.300
53.25	0.41	0.30	0.00	0.00	0.00	14.61	15.03	52.0	0.289
55.00	0.41	0.31	0.00	0.00	0.00	14.63	15.05	52.0	0.290
60.00	0.40	0.31	0.00	0.00	0.00	14.69	15.11	52.0	0.291
65.00	0.40	0.32	0.00	0.00	0.00	14.74	15.15	52.0	0.291
70.00	0.39	0.32	0.00	0.00	0.00	14.78	15.18	52.0	0.292
75.00	0.38	0.33	0.00	0.00	0.00	14.81	15.20	52.0	0.292
80.00	0.37	0.33	0.00	0.00	0.00	14.82	15.20	52.0	0.292
85.00	0.37	0.34	0.00	0.00	0.00	14.80	15.18	52.0	0.292
90.00	0.36	0.35	0.00	0.00	0.00	14.77	15.14	52.0	0.291
95.00	0.35	0.36	0.00	0.00	0.00	14.69	15.06	52.0	0.290
100.00	0.38	0.41	0.00	0.00	0.00	16.18	16.57	52.0	0.319
105.00	0.37	0.42	0.00	0.00	0.00	15.97	16.35	52.0	0.315
110.00	0.36	0.44	0.00	0.00	0.00	15.69	16.07	52.0	0.309
115.00	0.36	0.45	0.00	0.00	0.00	15.32	15.69	52.0	0.302
120.00	0.35	0.46	0.00	0.00	0.00	14.83	15.20	52.0	0.293
125.00	0.35	0.48	0.00	0.00	0.00	14.20	14.57	52.0	0.280
130.00	0.34	0.50	0.00	0.00	0.00	13.39	13.76	52.0	0.265
135.00	0.34	0.51	0.00	0.00	0.00	12.35	12.72	52.0	0.245
140.00	0.33	0.54	0.00	0.00	0.00	11.00	11.37	52.0	0.219
145.00	0.33	0.56	0.00	0.00	0.00	9.26	9.63	52.0	0.185
145.25	0.33	0.56	0.00	0.00	0.00	9.16	9.54	52.0	0.183
147.00	0.24	0.38	0.00	0.00	0.00	8.43	8.69	52.0	0.167
148.50	0.46	0.76	0.00	0.00	0.00	15.18	15.70	52.0	0.302
150.00	0.46	0.77	0.00	0.00	0.00	14.45	14.97	52.0	0.288
155.00	0.47	0.81	0.00	0.00	0.00	11.48	12.03	52.0	0.231
160.00	0.32	0.65	0.00	0.00	0.00	7.54	7.94	52.0	0.153
165.00	0.32	0.69	0.00	0.00	0.00	3.78	4.26	52.0	0.082
167.00	0.01	0.01	0.00	0.00	0.00	0.02	0.03	52.0	0.001
169.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	52.0	0.000

Final Analysis Summary

Structure: CT11794-S-SBA
Site Name: East Lyme 1
Height: 169.00 (ft)
Base Elev: 0.000 (ft)

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

1/21/2016

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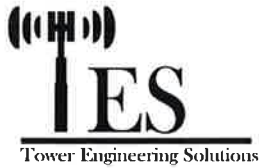


Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
85 mph Wind with 0" Ice	32.0	0.00	43.08	0.00	0.00	4150.49
73.61 mph Wind with 0.5" Ice	25.4	0.00	49.72	0.00	0.00	3347.52
50 mph Wind with 0" Ice	11.1	0.00	43.12	0.00	0.00	1438.97

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	0.34	1.19	0.00	0.00	0.00	46.53	46.91	52.0	100.00	0.903
73.61 mph Wind with 0.5" Ice	0.45	0.97	0.00	0.00	0.00	37.99	38.47	52.0	100.00	0.740
50 mph Wind with 0" Ice	0.38	0.41	0.00	0.00	0.00	16.18	16.57	52.0	100.00	0.319



Monopole Mat Foundation Design

Date
1/20/2016

Customer Name:	Verizon	EIA/TIA Standard:	EIA-222-F
Site Name:		Structure Height (Ft.):	169
Site Number:	CT11794-S-SBA	Engineer Name:	T. Alajaj
Engr. Number:	20096	Engineer Login ID:	IES

Foundation Info Obtained from:

Drawings/Calculations

Structure Type:

Monopole

Analysis or Design?

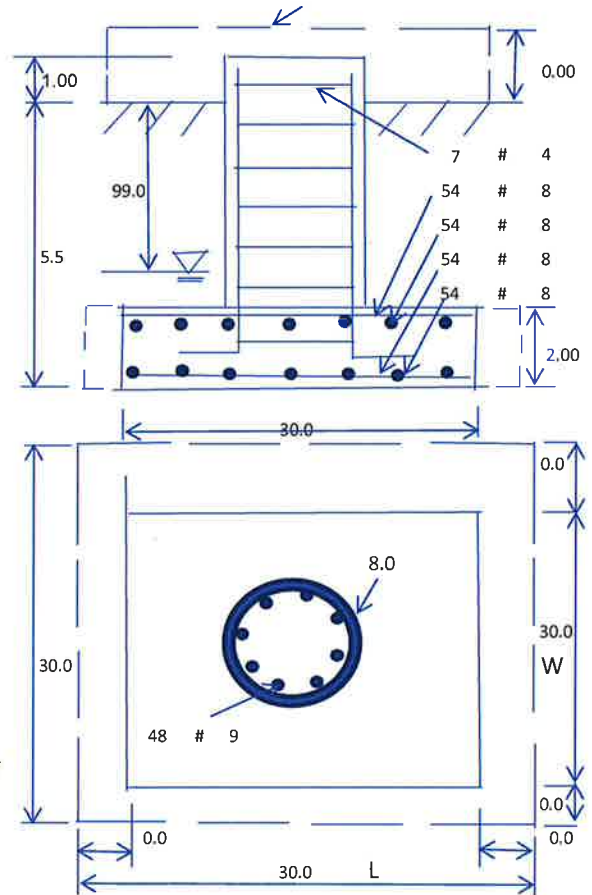
Analysis

Base Reactions (Unfactored)

Axial Load (Kips):	49.7	Shear Force (Kips):	32.0
Uplift Force (Kips):	0.0	Moment (Kips-ft):	4150.5

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	8.0	Depth of Base BG (ft.):	5.5
Pier Height A. G. (ft.):	1.00	Thickness of Pad (ft):	2.00
Length of Pad (ft.):	30	Width of Pad (ft.):	30
Final Length of pad (ft)	30.0	Final width of pad (ft):	30.0
Control Value for Cell D18:	0	Control Value for Cell F18:	0



Material Properties and Rebar Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	48	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
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):	54	Qty. of Rebar in Pad (W):	54	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	54	Qty. of Rebar in Pad (W):	54	

Soil Design Parameters:

Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	50.0	Pcf	
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad: 30
Allowable Net Soil Bearing (psf):	15000	Allowable Skin Friction:	0	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.):	2974.07	Total Dry Soil Weight (Kips):	356.89
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	356.89	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2026.19	Total Dry Concrete Weight (Kips):	303.93
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	303.93	Total Vertical Load on Base (Kips):	710.52

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	1550	<	Allowable Soil Bearing (psf):	15000	0.10	OK!
Allowable Foundation Overturning Resistance (SF=1.5, kips-ft.):	7105.2	>	Applied Momont (kips-ft):	4359	0.61	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.45					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 compression):	0.65	Wind Load Factor on Concrete Design:	1.30

(1) Concrete Pier:

				Load/ Capacity Ratio	
Vertical Steel Rebar Area (sq. in./each):	1.00	Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	9280.8	> Design Factored Moment (Mu, Kips-Ft)	4294.5	0.46	OK!
Calculated Shear Capacity (Kips):	840.3	> Design Factored Shear (Kips):	41.6	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	2592.0	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	12712.3	> Design Factored Axial Load (Pu Kips):	64.6	0.01	OK!
Moment & Axial Strength Combination:	0.46	OK! Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.007	Reinforcement Ratio is satisfied per ACI			

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	700.1	> One-Way Factored Shear (L-D. Kips):	287.1	0.41	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	700.1	> One-Way Factored Shear (W-D., Kips)	287.1	0.41	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	803.4	> One-Way Factored Shear (C-C, Kips):	367.7	0.46	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0058	OK! Lower Steel Pad Reinf. Ratio (W-Direct	0.0058		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	3734.7	> Moment at Bottom (L-Direct. K-Ft):	1026.2	0.27	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	3734.7	> Moment at Bottom (W-Direct. K-Ft):	1026.2	0.27	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	5215.6	> Moment at Bottom (C-C Dir. K-Ft):	1451.2	0.28	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0058	OK! Upper Steel Reinf. Ratio (W-Direct.):	0.0058		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	3734.7	> Moment at the top (L-Dir Kips-Ft):	175.6	0.05	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	3734.7	> Moment at the top (W-Dir Kips-Ft):	175.6	0.05	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	5215.6	> Moment at the top (C-C Direc. K-Ft):	976.1	0.19	OK!

ATTACHMENT 4



Property Information

Property ID 45-07.4/21
Location 49 BRAINERD RD
Owner SAMUELSEN CHRISTOPHER



**MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT**

The Town makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Parcels updated October 1, 2013



49 BRAINERD RD

Location 49 BRAINERD RD

Mblu 07.4/ 21/ / /

Acct# 005680

Owner SAMUELSEN CHRISTOPHER

Assessment \$356,230

Appraisal \$667,800

PID 5939

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$231,900	\$435,900	\$667,800

Assessment			
Valuation Year	Improvements	Land	Total
2015	\$162,330	\$193,900	\$356,230

Owner of Record

Owner SAMUELSEN CHRISTOPHER
Co-Owner
Address 49 BRAINERD RD
NIANTIC, CT 06357

Sale Price \$0
Certificate
Book & Page 831/ 222
Sale Date 07/10/2009
Instrument 04

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
SAMUELSEN CHRISTOPHER & SAMUELSEN CHRISTOPHER	\$560,000		788/ 266 748/ 207	04 07	10/24/2007 07/13/2006
BOUTIN WYNN R			737/ 532	01	04/03/2006
BOUTIN ZACHARY H OR WYNN R			542/ 147	08	10/01/2001

Building Information

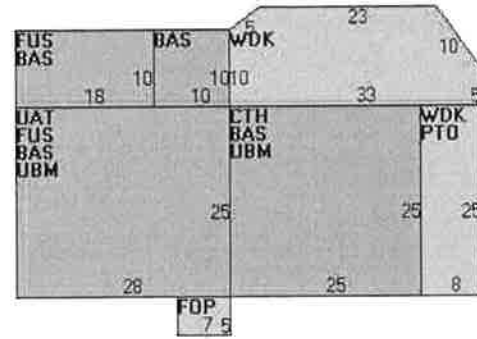
Building 1 : Section 1

Year Built: 1890
Living Area: 2485
Replacement Cost: \$290,654
Building Percent 67
Good:
Replacement Cost

Less Depreciation: \$194,700

Building Attributes	
Field	Description
Style	Conventional
Model	Residential
Grade:	Good
Stories:	2 Stories
Occupancy	1
Exterior Wall 1	Wood Shingle
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asph/F GlS/Cmp
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	Ceram Clay Til
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	Central
Total Bedrooms:	4 Bedrooms
Total Bthrms:	2
Total Half Baths:	1
Total Xtra Fixtrs:	
Total Rooms:	8 Rooms
Bath Style:	Modern
Kitchen Style:	Modern

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1605	1605
FUS	Upper Story, Finished	880	880
CTH	Cathedral Ceiling	625	0
FOP	Porch, Open, Finished	35	0
PTO	Patio	200	0
UAT	Attic, Unfinished	700	0
UBM	Basement, Unfinished	1325	0
WDK	Deck, Wood	599	0
		5969	2485

Extra Features

Extra Features		Legend
No Data for Extra Features		

Land

Land Use

Use Code	1010
Description	Single Fam MDL-01
Zone	R40
Neighborhood	0060
Alt Land Appr Category	No

Land Line Valuation

Size (Acres)	51.31
Frontage	0
Depth	0
Assessed Value	\$193,900
Appraised Value	\$435,900

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
BRN4	1 STY LFT&BSMT			378 S.F.	\$3,400	1
SHP1	WORK SHOP AVE			841 S.F.	\$16,800	1
FGR2	GARAGE-GOOD			841 S.F.	\$16,800	1
SHD1	SHED FRAME			45 S.F.	\$200	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2014	\$231,900	\$435,900	\$667,800
2013	\$231,900	\$435,900	\$667,800
2012	\$231,900	\$435,900	\$667,800

Assessment			
Valuation Year	Improvements	Land	Total
2014	\$162,330	\$193,900	\$356,230
2013	\$162,330	\$193,900	\$356,230
2012	\$162,330	\$193,900	\$356,230

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