Robinson+Cole

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Also admitted in Massachusetts

April 27, 2016

Via FedEx

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

Re: **Notice of Exempt Modification – Facility Modification**
165 Elmwood Hill Road, Putnam, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the top of the existing 149-foot tower (147-foot antenna centerline) at 165 Elmwood Hill Road in Putnam, Connecticut (the "Property"). The tower is owned by American Tower Corporation ("ATC"). The Council approved Cellco's use of this tower in 2004 (Petition No. 656). Cellco now intends to replace all of its existing antennas with six (6) model SC-E 6014 850 MHz antennas; three (3) model SBNHH-1D65B, 700/2100 MHz antennas; and three (3) model SBNHH-1D65B, 1900 MHz antennas, all at the same level on the tower. Cellco also intends to install nine (9) remote radio heads ("RRHs") and two (2) HYBRIFLEX™ fiber optic antenna cables. Included in Attachment 1 are specifications for Cellco's replacement antennas, RRHs and HYBRIFLEX™ cables.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Tony Falzarano, Mayor of the Town of Putnam. A copy of this letter is also being sent to Lois S. Pray, the owner of the Property and to ATC, the tower owner.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and RRH's will be located on its existing platform at the 147-foot level on the 149-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 worst-case General Power Density table for Cellco's modified facility is included in Attachment 2.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The tower and its foundation can support Cellco's proposed modifications. (*See* Structural Analysis Report included in Attachment 3).

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

Sincerely,

Kenneth C. Baldwin

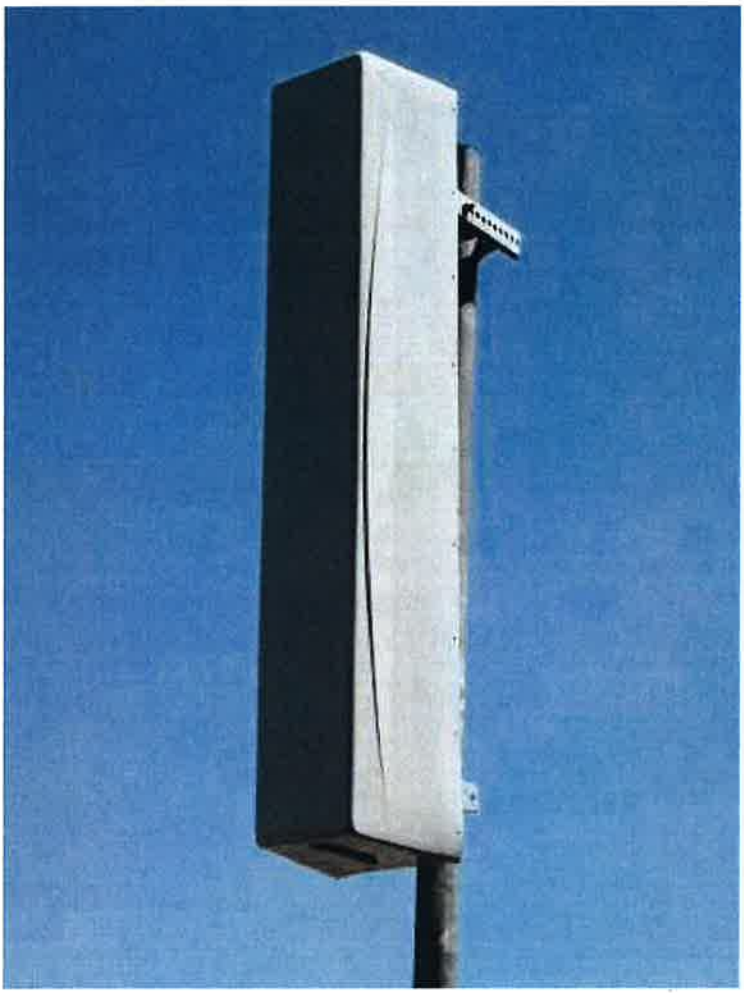
Enclosures
Copy to:
Tony Falzarano, Putnam Mayor
Lois S. Pray
ATC
Tim Parks

1

Swedcom

SC-E 6014 *rev2*

Enhanced 800 - 960 MHz log-periodic antenna



Features

- ❑ **Small size**
- ❑ **Aesthetically pleasing**
- ❑ **Suitable for TDMA/CDMA/GSM/3G**
- ❑ **High return loss**
- ❑ **Low intermodulation**
- ❑ **High front-to-back ratio**
- ❑ **Outstanding performance over the entire band (800 - 960 MHz)**
- ❑ **Upper side-lobe suppression**
- ❑ **Rugged design**
- ❑ **Dramatically improved signal to interference performance**

Electrical specifications

Frequency range:	**800-960 MHz**
Impedance:	**50 ohm**
Connector type:	**7/16 Din**
Return loss:	**20 dB**
Polarization:	**Vertical**
Gain:	**14 dBd**
Front-to-back ratio:	**> 30 dB**
Upper side-lobe suppression:	**18 dB**
Intermodulation (2x20W):	**IM5 160 dB**
	IM7/9 170 dB
Power rating:	**500 W**
H-plane (-3 dB point):	**54 - 60°**
V-plane (-3 dB point):	**16 - 18°**
Lightning protection:	**DC grounded**

Mechanical specifications

Overall height:	**43 in**	**[1092 mm]**
Width:	**8.5 in**	**[216 mm]**
Depth:	**8 in**	**[203 mm]**
Weight (excluding brackets):	**15 lbs**	**[6.8 Kg]**
Wind load measured up to:	**150 mph**	**[240 Km/h]**
Wind area (side of antenna):	**2.54 sq. ft.**	**[0.24 sq.m]**
Lateral thrust At 113 mph/ 180Km/h (worst case):	**122 lbs**	**[577 N]**

Materials

Radiating Elements:	**Aluminum**
Transformer (Power distribution)	**Ceramic PCB**
Chassis:	**Aluminum**
Radome:	**Grey Fiberglass/PVC**
Tilt-bracket:	**Hot dip galvanized steel**
Mounting bolts:	**Stainless steel**

The SC-E 6014 rev2 is made in the U.S.A.

Product Specifications

COMMSCOPE®

SBNHH-1D65B

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

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

Electrical Specifications

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

Electrical Specifications, BASTA*

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.5	14.3	17.4	17.9	18.2	18.3
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.8	±0.4	±0.3	±0.5	±0.3
	0 ° | 14.6	0 ° | 14.5	0 ° | 17.4	0 ° | 17.8	0 ° | 18.1	0 ° | 18.2
Gain by Beam Tilt, average, dBi	7 ° | 14.6	7 ° | 14.4	3 ° | 17.5	3 ° | 17.9	3 ° | 18.3	3 ° | 18.4
	14 ° | 14.2	14 ° | 13.6	7 ° | 17.4	7 ° | 17.9	7 ° | 18.2	7 ° | 18.4
Beamwidth, Horizontal Tolerance, degrees	±2.2	±3.4	±2	±4.6	±5.7	±4.3
Beamwidth, Vertical Tolerance, degrees	±0.8	±1	±0.3	±0.2	±0.3	±0.2
USLS, 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 Brand	Andrew®
Antenna Type	DualPol® multiband with internal RET
Band	Multiband
Brand	DualPol®
Operating Frequency Band	1695 – 2360 MHz | 698 – 896 MHz
Performance Note	Outdoor usage

Product Specifications

SBNHH-1D65B

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Aluminum | Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	6
Wind Loading, 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	299.0 mm | 11.8 in
Length	1970.0 mm | 77.6 in
Width	409.0 mm | 16.1 in
Shipping Weight	31.0 kg | 68.3 lb

Regulatory Compliance/Certifications

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

Product Specifications

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.

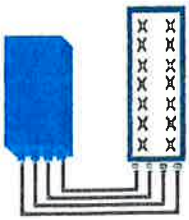
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

Alcatel·Lucent

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

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 (OA&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).

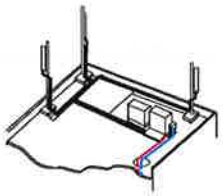
The Alcatel-Lucent RRH2x60-1900A-4R is a very cost-effective solution to deploy LTE MIMO.

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.



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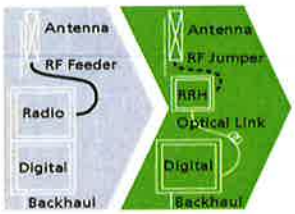
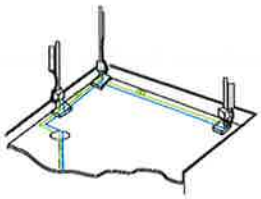


RRH for space-constrained cell sites



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 daisychaining and up to six RRHs per fiber
- Type of optical fiber: Single-Mode (SM) and Multi-Mode (MM) SFPs
- Optical fiber length: up to 500m using MM fiber, up to 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

Alcatel·Lucent

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

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

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

The Alcatel-Lucent RRH2x60-AWS is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information.

SUPERIOR RF PERFORMANCE

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

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

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

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

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

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

OPTIMIZED TCO

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

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

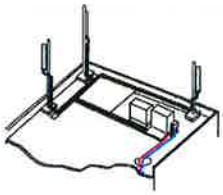
EASY INSTALLATION

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

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

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

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



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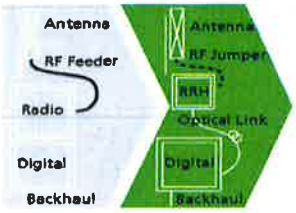
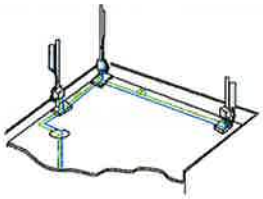


RRH for space-constrained cell sites



Distributed

FEATURES

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

BENEFITS

- MIMO LTE operation with only one single unit per sector
- Improved uplink coverage with built-in 4-way receive diversity capability
- RRH can be mounted close to the antenna, eliminating nearly all losses in RF cables and thus reducing power consumption by 50% compared to conventional solutions
- Distributed configurations provide easily deployable and cost-effective solutions, near zero footprint and silent solutions, with minimum impact on the neighborhood, which ease the deployment
- RETA and TMA support without additional hardware thanks to the AISG v2.0 port and the integrated Bias-Tees. Bias-Tees support AISG DC supply and signaling.

TECHNICAL SPECIFICATIONS

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

Dimensions and weights

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

Electrical Data

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

RF Characteristics

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

Connectivity

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

Environmental specifications

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

Safety and Regulatory Data

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

Alcatel·Lucent

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2

	General	Power	Density					
Site Name: East Putnam								
Tower Height: 149ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T	2	565	137	880	0.0237	0.5867	0.40%	
*AT&T	2	875	137	1900	0.0367	1.0000	0.37%	
*AT&T	1	283	137	880	0.0059	0.5867	0.10%	
*AT&T	4	525	137	1900	0.0440	1.0000	0.44%	
*AT&T	1	1771	137	734	0.0371	0.4893	0.76%	
Verizon	**1**	**3177**	**147**	**0.0529**	**1970**	**1.0000**	**5.29%**	
Verizon	**9**	**342**	**147**	**0.0512**	**869**	**0.5793**	**8.84%**	
Verizon	**1**	**1750**	**147**	**0.0291**	**2145**	**1.0000**	**2.91%**	
Verizon	**1**	**1050**	**147**	**0.0175**	**698**	**0.4973**	**3.51%**	
								22.62%
* Source: Siting Council								

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Structural Analysis Report

Structure	:	**149 ft Monopole**
ATC Site Name	:	**East Putnam CT, CT**
ATC Site Number	:	**415784**
Engineering Number	:	**65087721**
Proposed Carrier	:	**Verizon**
Carrier Site Name	:	**East Putnam**
Carrier Site Number	:	**N/A**
Site Location	:	**165 Elmwood Hill Road** **Thompson, CT 06277-2600** **41.929256,-71.810047**
County	:	**Windham**
Date	:	**April 18, 2016**
Max Usage	:	**61%**
Result	:	**Pass**

Reviewed by:
Scott Wirgau, PE
Structural Team Leader

Prepared By:
Christopher Jolly
Structural Engineer III

Apr 18 2016 5:04 PM

COA: PEC.0001553

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Table of Contents

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 149 ft monopole to reflect the change in loading by Verizon.

Supporting Documents

Tower Drawings	Valmont Job # 09242-1124, dated February 20, 2009
Foundation Drawing	Valmont Job # 09242-1124, dated February 20, 2009
Geotechnical Report	Clarence Welti Assoc File # 15691, dated October 23, 2008

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/EIA-222.

Basic Wind Speed:	90 mph (Fastest Mile)
Basic Wind Speed w/ Ice:	78 mph (Fastest Mile)w/ 1/2" radial ice concurrent
Code:	ANSI/TIA/EIA-222-F / 2003 IBC , Sec. 1609.1.1, Exception (4) & Sec. 3108.4 w/ 2005 CT Supplement & 2009 CT Amendment

Conclusion

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

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

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
149.0	149.0	1	VZW Unused Reserve: 18,980 sq in	Platform w/ Handrails	(12) 1 5/8" Coax	Verizon
137.0	137.0	6	Powerwave Allgon LGP13519	Low Profile Platform	(12) 1 5/8" Coax (3) 1 1/4" Hybriflex (2) 0.78" 8 AWG 6 (1) 0.39" Fiber Trunk	AT&T Mobility
		6	Powerwave Allgon LGP21401			
136.0	136.0	1	Raycap DC2-48-60-0-9E			
		6	Ericsson RRUS-11			
		6	Powerwave Allgon 7770.00			
		3	KMW AM-X-CD-17-65-00T-RET			

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
150.0	150.0	6	36" x 12" Panel	-	(6) 1 5/8" Coax	Verizon
149.0	149.0	6	72" x 12" x 7" Panel			

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
149.0	149.0	6	Alcatel-Lucent B25 RRH4x30	Platform w/ Handrails	(2) 1 5/8" Hybriflex	Verizon
		3	Alcatel-Lucent RRH4X45-B66 w/ Solar Shield			
		6	Swedcom SC-E 6014 rev2			
		2	RFS DB-T1-6Z-8AB-0Z			
		6	Commscope SBNHH-1D65B			

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

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	53%	Pass
Shaft	61%	Pass
Base Plate	58%	Pass

Foundations

Reaction Component	Analysis Reactions
Moment (Kips-Ft)	3,976.1
Axial (Kips)	49.1
Shear (Kips)	35.2

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
149.0	Alcatel-Lucent B25 RRH4x30	Verizon	1.359	1.055
	Alcatel-Lucent RRH4X45-B66 w/ Solar Shield			
	Swedcom SC-E 6014 rev2			
	RFS DB-T1-6Z-8AB-0Z			
	Commscope SBNHH-1D65B			

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

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Standard Conditions

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

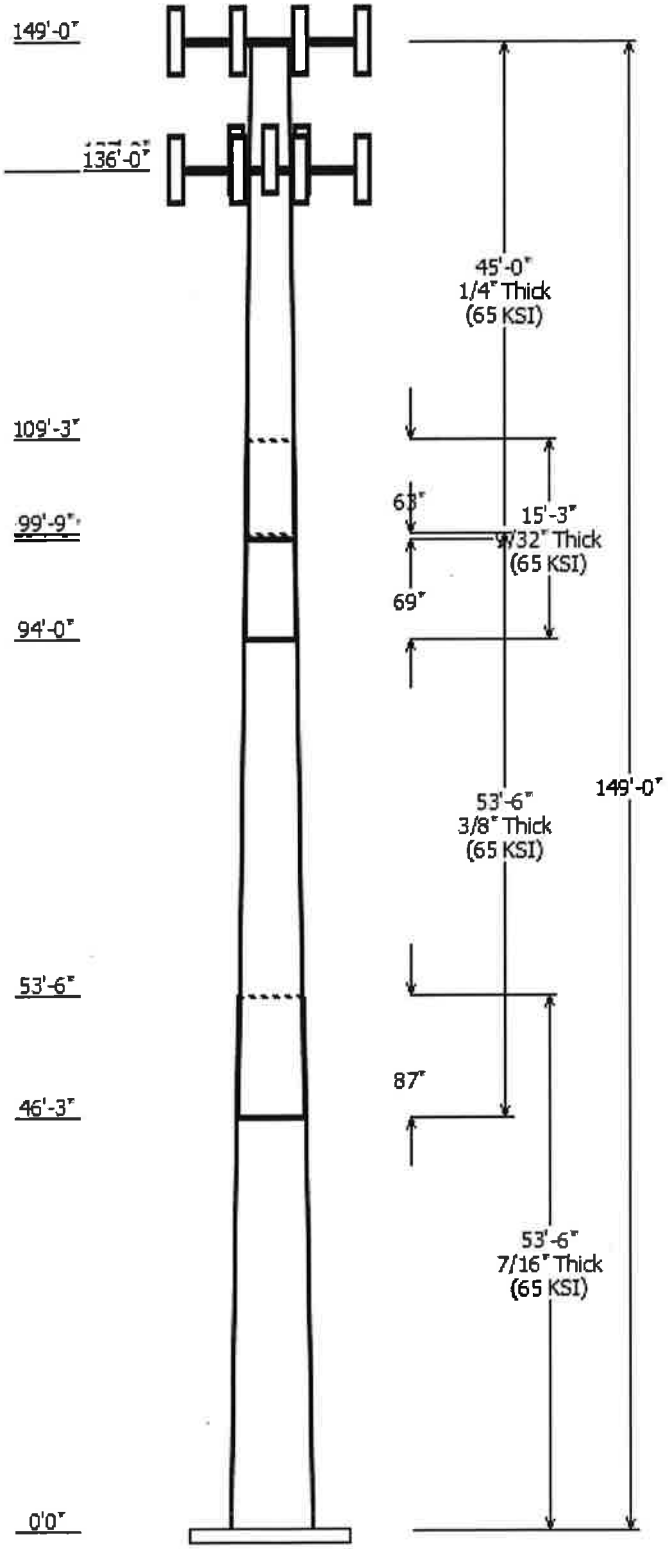
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

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

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.



Job Information

Pole :	415784
Description :	149 ft EEI
Client :	Verizon Wireless
Location :	East Putnam CT, CT
Shape :	18 Sides
Height :	149.00 (ft)
Base Elev (ft):	0.00
Taper:	0.295731 (in/ft)

Code: TIA/EIA-222-F

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
1	53.500	54.45	70.28	0.438		0.000	0.295700	65
2	53.500	41.53	57.35	0.375	Slip Joint	87.000	0.295700	65
3	15.250	39.28	43.79	0.281	Slip Joint	69.000	0.295700	65
4	45.000	28.02	41.33	0.250	Slip Joint	63.000	0.295700	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
149.000	149.000	3	Alcatel-Lucent RRH4X45-B66
149.000	149.000	2	RFS DB-T1-6Z-8AB-0Z
149.000	149.000	6	Alcatel-Lucent B25 RRH4x30
149.000	149.000	6	Swedcom SC-E 6014 rev2
149.000	149.000	6	Commscope SBNHH-1D65B
149.000	149.000	1	Flat Platform w/ Handrails
149.000	149.000	1	VZW Unused Reserve: 18,980
137.000	137.000	6	Powerwave Allgon LGP21401
137.000	137.000	6	Powerwave Allgon LGP13519
136.000	136.000	1	Round Low Profile Platform
136.000	136.000	3	KMW AM-X-CD-17-65-00T-RET
136.000	136.000	6	Powerwave Allgon 7770.00
136.000	136.000	6	Ericsson RRUS-11
136.000	136.000	1	Raycap DC2-48-60-0-9E

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
5.000	136.0	0.39" Fiber Trunk	No
5.000	136.0	0.78" 8 AWG 6	No
5.000	136.0	1 1/4" Hybriflex	No
5.000	137.0	1 5/8" Coax	No
5.000	149.0	1 5/8" Coax	No
5.000	149.0	1 5/8" Hybriflex	No

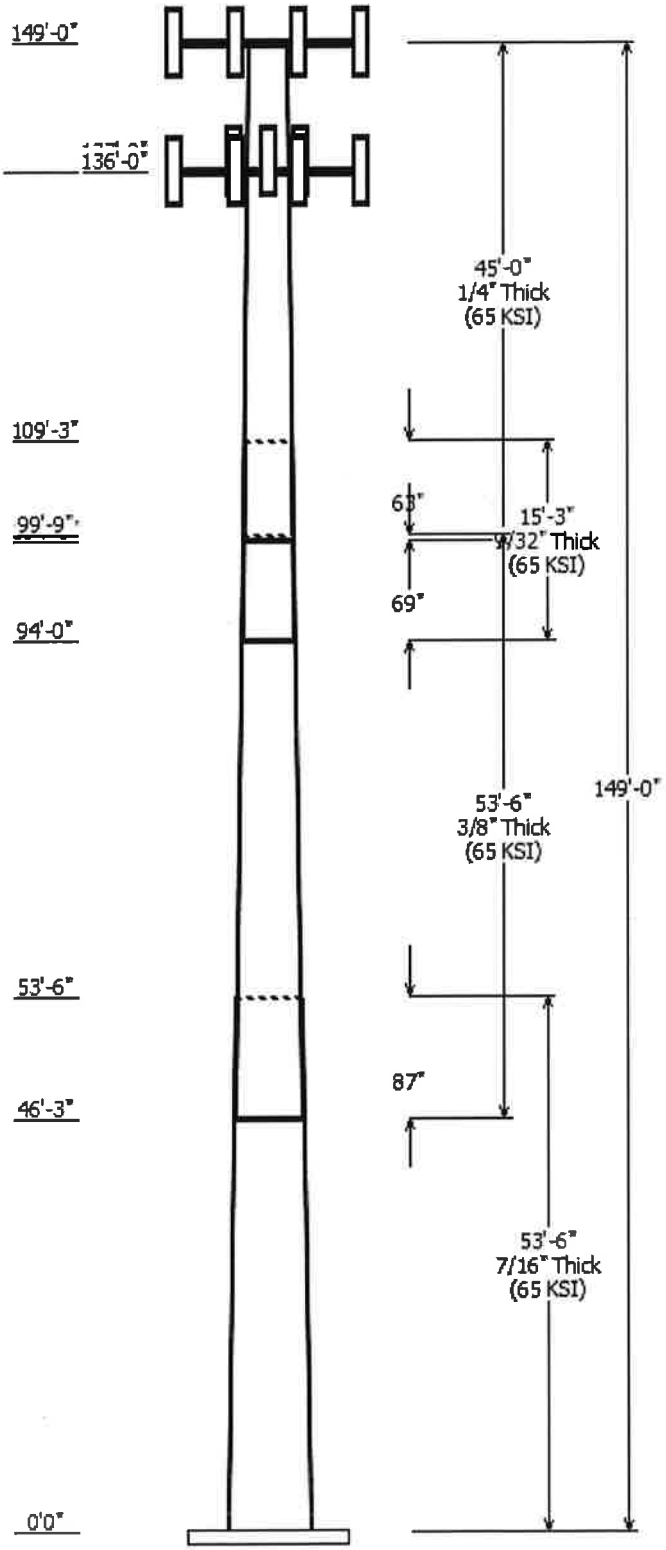
Load Cases

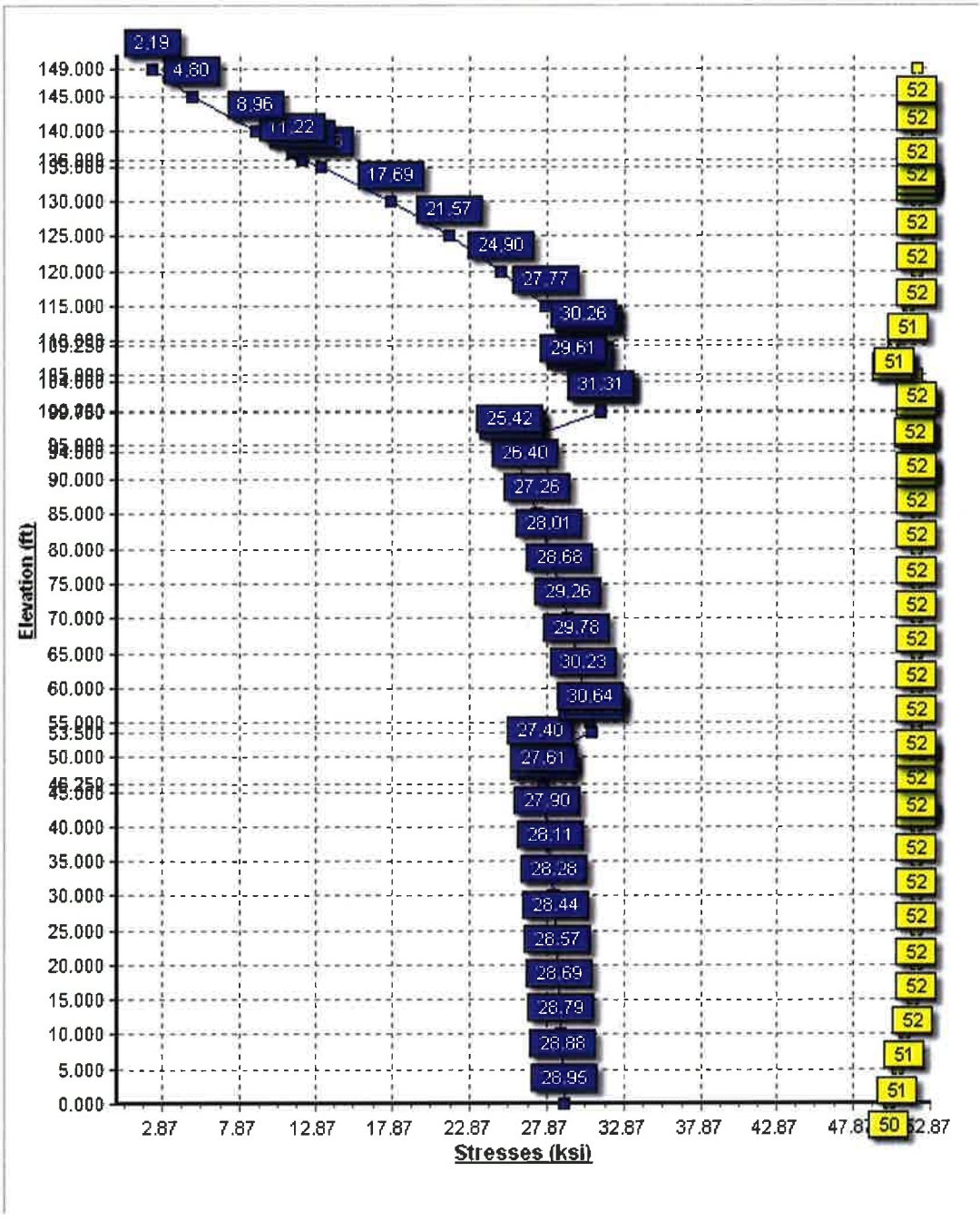
No Ice	90.00 mph Wind with No Ice
Ice	77.94 mph Wind with Ice
Twist/Sway	50.00 mph Wind with No Ice

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
No Ice	3976.13	35.25	42.85
Ice	3187.92	27.89	49.12
Twist/Sway	1227.69	10.88	42.88

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000




2.19
4.80
8.96
11.22
17.69
21.57
24.90
27.77
30.26
29.61
31.31
25.42
26.40
27.26
28.01
28.68
29.26
29.78
30.23
30.64
27.40
27.61
27.90
28.11
28.28
28.44
28.57
28.69
28.79
28.88
28.95
52
51
50
Elevation (ft)
149.000
145.000
140.000
125.000
120.000
115.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
50.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
2.87
7.87
12.87
17.87
22.87
27.87
32.87
37.87
42.87
47.87
52.87
Stresses (ksi)

Site Number:	**415784**	**Code: TIA/EIA-222-F**	
Site Name:	**East Putnam CT, CT**	**Engineering Number: 65087721**	**4/18/2016 11:37:55 AM**
Customer:	**Verizon Wireless**		

Analysis Parameters

Location:	**Windham County, CT**		
Code:	**TIA/EIA-222-F**	**Height (ft):**	**149**
Shape:	**18 Sides**	**Base Diameter (in):**	**70.28**
Pole Type:	**Taper**	**Top Diameter (in):**	**28.03**
Pole Manfacturer:	**EEI**	**Taper (in/ft) :**	**0.296**

Load Cases

No Ice	**90.00 mph Wind with No Ice**
Ice	**77.94 mph Wind with Ice**
Twist/Sway	**50.00 mph Wind with No Ice**

Site Number: 415784 Code: TIA/EIA-222-F

Site Name: East Putnam CT, CT Engineering Number: 65087721 4/18/2016 11:37:55 AM

Customer: Verizon Wireless

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Slip Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	53.500	0.4375	65		0.00	15,656	70.28	0.00	96.98	59769.8	26.91	160.64	54.45	53.50	75.01	27656.8	20.54	124.48	0.295735
2-18	53.500	0.3750	65	Slip	87.00	10,631	57.35	46.25	67.81	27815.1	25.56	152.94	41.53	99.75	48.98	10482.3	18.12	110.75	0.295735
3-18	15.250	0.2813	65	Slip	69.00	1,911	43.79	94.00	38.84	9291.1	26.05	155.71	39.28	109.25	34.82	6691.2	23.22	139.67	0.295735
4-18	45.000	0.2500	65	Slip	63.00	4,184	41.33	104.00	32.60	6952.9	27.74	165.34	28.02	149.00	22.04	2148.8	18.36	112.11	0.295735
				Shaft Weight		32,382													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
149.00	Alcatel-Lucent B25 RRH4x30	6	53.00	2.470	0.67	70.30	2.810	0.67	0.000	0.000
149.00	Alcatel-Lucent RRH4X45-B66	3	64.00	3.100	0.67	3.49	3.490	0.67	0.000	0.000
149.00	Commscope SBNHH-1D65B	6	50.70	8.380	0.82	101.00	9.210	0.82	0.000	0.000
149.00	Flat Platform w/ Handrails	1	2000.00	42.400	1.00	2,450.00	48.400	1.00	0.000	0.000
149.00	RFS DB-T1-6Z-8AB-0Z	2	44.00	5.600	0.67	80.10	6.080	0.67	0.000	0.000
149.00	Swedcom SC-E 6014 rev2	6	15.00	3.550	0.67	42.16	4.060	0.67	0.000	0.000
149.00	VZW Unused Reserve:	1	1507.80	131.92	1.00	1,522.88	133.240	1.00	0.000	0.000
137.00	Powerwave Allgon LGP13519	6	5.30	0.340	0.50	14.30	0.440	0.50	0.000	0.000
137.00	Powerwave Allgon LGP21401	6	14.10	1.290	0.50	21.26	1.530	0.50	0.000	0.000
136.00	Ericsson RRUS-11	6	55.00	4.420	0.67	80.70	4.850	0.67	0.000	0.000
136.00	KMW AM-X-CD-17-65-00T-	3	59.50	11.310	0.80	120.90	12.230	0.80	0.000	0.000
136.00	Powerwave Allgon 7770.00	6	35.00	5.880	0.75	67.63	6.530	0.75	0.000	0.000
136.00	Raycap DC2-48-60-0-9E	1	16.00	1.020	1.00	24.40	1.230	1.00	0.000	0.000
136.00	Round Low Profile Platform	1	1500.00	21.700	1.00	1,700.00	27.200	1.00	0.000	0.000
	Totals	54	6850.90			8,614.75			Number of Loadings :	14

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	No Ice Weight (lb/ft)	No Ice CaAa (sf/ft)	Ice Weight (lb/ft)	Ice CaAa (sf/ft)	Exposed To Wind
5.00	149.00	12	1 5/8" Coax	9.84	1.98	0.00	0.00	N
5.00	149.00	2	1 5/8" Hybriflex	2.60	1.98	0.00	0.00	N
5.00	137.00	12	1 5/8" Coax	9.84	1.98	0.00	0.00	N
5.00	136.00	1	0.39" Fiber Trunk	0.06	0.39	0.00	0.00	N
5.00	136.00	2	0.78" 8 AWG 6	1.18	0.78	0.00	0.00	N
5.00	136.00	3	1 1/4" Hybriflex	3.00	1.54	0.00	0.00	N
			Total Weight	3,645.68 (lb)		0.00 (lb)		

Segment Properties (Max Len : 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Fa (ksi)	Weight (lb)
0.00		0.4375	70.280	96.982	59,769.8	26.91	160.64	65	50	0	0.0
5.00		0.4375	68.801	94.928	56,053.3	26.32	157.26	65	51	0	1,632.6
10.00		0.4375	67.323	92.875	52,494.2	25.72	153.88	65	51	0	1,597.6
15.00		0.4375	65.844	90.822	49,089.1	25.13	150.50	65	52	0	1,562.7
20.00		0.4375	64.365	88.769	45,834.4	24.53	147.12	65	52	0	1,527.8
25.00		0.4375	62.887	86.715	42,726.9	23.93	143.74	65	52	0	1,492.8
30.00		0.4375	61.408	84.662	39,763.1	23.34	140.36	65	52	0	1,457.9
35.00		0.4375	59.929	82.609	36,939.7	22.74	136.98	65	52	0	1,423.0
40.00		0.4375	58.451	80.556	34,253.2	22.15	133.60	65	52	0	1,388.0
45.00		0.4375	56.972	78.502	31,700.2	21.55	130.22	65	52	0	1,353.1
46.25	Bot - Section 2	0.4375	56.602	77.989	31,082.4	21.40	129.38	65	52	0	332.8
50.00		0.4375	55.493	76.449	29,277.3	20.96	126.84	65	52	0	1,842.3
53.50	Top - Section 1	0.3750	55.208	65.263	24,791.7	24.55	147.22	65	52	0	1,686.5
55.00		0.3750	54.765	64.735	24,194.8	24.34	146.04	65	52	0	331.8
60.00		0.3750	53.286	62.975	22,274.7	23.64	142.10	65	52	0	1,086.4
65.00		0.3750	51.807	61.215	20,458.9	22.95	138.15	65	52	0	1,056.5
70.00		0.3750	50.329	59.455	18,744.5	22.25	134.21	65	52	0	1,026.5
75.00		0.3750	48.850	57.695	17,128.8	21.56	130.27	65	52	0	996.6
80.00		0.3750	47.371	55.935	15,608.6	20.86	126.32	65	52	0	966.6
85.00		0.3750	45.893	54.175	14,181.2	20.17	122.38	65	52	0	936.7
90.00		0.3750	44.414	52.415	12,843.5	19.47	118.44	65	52	0	906.8
94.00	Bot - Section 3	0.3750	43.231	51.007	11,836.1	18.92	115.28	65	52	0	703.8
95.00		0.3750	42.935	50.655	11,592.7	18.78	114.49	65	52	0	304.7
99.75	Top - Section 2	0.2813	42.093	37.323	8,243.9	24.98	149.66	65	52	0	1,418.6
100.0		0.2813	42.019	37.257	8,200.2	24.93	149.40	65	52	0	31.7
104.0	Bot - Section 4	0.2813	40.836	36.201	7,522.5	24.19	145.19	65	52	0	499.9
105.0		0.2813	40.540	35.937	7,359.2	24.01	144.14	65	52	0	233.3
109.2	Top - Section 3	0.2500	39.783	31.369	6,194.1	26.65	159.13	65	50	0	972.5
110.0		0.2500	39.562	31.193	6,090.4	26.49	158.25	65	51	0	79.8
115.0		0.2500	38.083	30.019	5,428.7	25.45	152.33	65	51	0	520.7
120.0		0.2500	36.604	28.846	4,816.7	24.41	146.42	65	52	0	500.8
125.0		0.2500	35.126	27.673	4,252.6	23.36	140.50	65	52	0	480.8
130.0		0.2500	33.647	26.500	3,734.3	22.32	134.59	65	52	0	460.8
135.0		0.2500	32.168	25.326	3,259.9	21.28	128.67	65	52	0	440.9
136.0		0.2500	31.873	25.092	3,170.1	21.07	127.49	65	52	0	85.8
137.0		0.2500	31.577	24.857	3,082.0	20.86	126.31	65	52	0	85.0
140.0		0.2500	30.690	24.153	2,827.5	20.24	122.76	65	52	0	250.2
145.0		0.2500	29.211	22.980	2,435.1	19.19	116.84	65	52	0	401.0
149.0		0.2500	28.028	22.041	2,148.8	18.36	112.11	65	52	0	306.4
											32,381.7

Site Number: 415784 Code: TIA/EIA-222-F

Site Name: East Putnam CT, CT Engineering Number: 65087721 4/18/2016 11:37:55 AM

Customer: Verizon Wireless

Load Case: No Ice 90.00 mph Wind with No Ice 20 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		330.0	0.0					0.0	0.0	330.0	0.0	0.0	0.0
5.00		653.0	1,632.6					0.0	0.0	653.0	1,632.6	0.0	0.0
10.00		639.0	1,597.6					0.0	132.6	639.0	1,730.2	0.0	0.0
15.00		624.9	1,562.7					0.0	132.6	624.9	1,695.3	0.0	0.0
20.00		610.9	1,527.8					0.0	132.6	610.9	1,660.4	0.0	0.0
25.00		596.9	1,492.8					0.0	132.6	596.9	1,625.4	0.0	0.0
30.00		582.8	1,457.9					0.0	132.6	582.8	1,590.5	0.0	0.0
35.00		579.2	1,423.0					0.0	132.6	579.2	1,555.6	0.0	0.0
40.00		585.7	1,388.0					0.0	132.6	585.7	1,520.6	0.0	0.0
45.00		368.3	1,353.1					0.0	132.6	368.3	1,485.7	0.0	0.0
46.25	Bot - Section 2	299.1	332.8					0.0	33.2	299.1	366.0	0.0	0.0
50.00		435.7	1,842.3					0.0	99.5	435.7	1,941.7	0.0	0.0
53.50	Top - Section 1	300.7	1,686.5					0.0	92.8	300.7	1,779.3	0.0	0.0
55.00		390.7	331.8					0.0	39.8	390.7	371.5	0.0	0.0
60.00		599.7	1,086.4					0.0	132.6	599.7	1,219.0	0.0	0.0
65.00		596.6	1,056.5					0.0	132.6	596.6	1,189.1	0.0	0.0
70.00		592.0	1,026.5					0.0	132.6	592.0	1,159.1	0.0	0.0
75.00		586.1	996.6					0.0	132.6	586.1	1,129.2	0.0	0.0
80.00		578.9	966.6					0.0	132.6	578.9	1,099.2	0.0	0.0
85.00		570.6	936.7					0.0	132.6	570.6	1,069.3	0.0	0.0
90.00		506.1	906.8					0.0	132.6	506.1	1,039.4	0.0	0.0
94.00	Bot - Section 3	278.9	703.8					0.0	106.1	278.9	809.9	0.0	0.0
95.00		318.8	304.7					0.0	26.5	318.8	331.2	0.0	0.0
99.75	Top - Section 2	276.5	1,418.6					0.0	126.0	276.5	1,544.6	0.0	0.0
100.00		230.8	31.7					0.0	6.6	230.8	38.4	0.0	0.0
104.00	Bot - Section 4	271.5	499.9					0.0	106.1	271.5	606.0	0.0	0.0
105.00		282.5	233.3					0.0	26.5	282.5	259.8	0.0	0.0
109.25	Top - Section 3	268.0	972.5					0.0	112.7	268.0	1,085.2	0.0	0.0
110.00		301.3	79.8					0.0	19.9	301.3	99.7	0.0	0.0
115.00		516.3	520.7					0.0	132.6	516.3	653.3	0.0	0.0
120.00		502.3	500.8					0.0	132.6	502.3	633.4	0.0	0.0
125.00		487.7	480.8					0.0	132.6	487.7	613.4	0.0	0.0
130.00		472.4	460.8					0.0	132.6	472.4	593.4	0.0	0.0
135.00		277.8	440.9					0.0	132.6	277.8	573.5	0.0	0.0
136.00	Appertunance(s)	90.7	85.8	4,941.8	0.0	0.0	2,234.5	0.0	26.5	5,032.5	2,346.8	0.0	0.0
137.00	Appertunance(s)	178.7	85.0	257.4	0.0	0.0	116.4	0.0	22.3	436.1	223.7	0.0	0.0
140.00		349.4	250.2					0.0	37.3	349.4	287.5	0.0	0.0
145.00		382.4	401.0					0.0	62.2	382.4	463.2	0.0	0.0
149.00	Appertunance(s)	166.5	306.4	13,665.1	0.0	0.0	4,500.0	0.0	49.8	13,831.6	4,856.2	0.0	0.0
								Totals:		35,543.7	42,878.2	0.00	0.00

Site Number: 415784 Code: TIA/EIA-222-F

Site Name: East Putnam CT, CT Engineering Number: 65087721 4/18/2016 11:37:56 AM

Customer: Verizon Wireless

Load Case: No Ice 90.00 mph Wind with No Ice 20 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-35.249	-42.849	0.000	0.000	0.000	-3,976.133	0.000	0.000	0.000	0.000
5.00	-34.662	-41.160	0.000	0.000	0.000	-3,799.889	-0.050	0.000	0.050	-0.093
10.00	-34.084	-39.375	0.000	0.000	0.000	-3,626.582	-0.198	0.000	0.198	-0.187
15.00	-33.516	-37.626	0.000	0.000	0.000	-3,456.163	-0.446	0.000	0.446	-0.283
20.00	-32.957	-35.912	0.000	0.000	0.000	-3,288.585	-0.795	0.000	0.795	-0.380
25.00	-32.408	-34.235	0.000	0.000	0.000	-3,123.801	-1.248	0.000	1.248	-0.480
30.00	-31.869	-32.593	0.000	0.000	0.000	-2,961.762	-1.806	0.000	1.806	-0.581
35.00	-31.329	-30.987	0.000	0.000	0.000	-2,802.420	-2.470	0.000	2.470	-0.684
40.00	-30.778	-29.417	0.000	0.000	0.000	-2,645.778	-3.244	0.000	3.244	-0.789
45.00	-30.420	-27.902	0.000	0.000	0.000	-2,491.890	-4.128	0.000	4.128	-0.896
46.25	-30.142	-27.511	0.000	0.000	0.000	-2,453.865	-4.367	0.000	4.367	-0.924
50.00	-29.709	-25.536	0.000	0.000	0.000	-2,340.834	-5.126	0.000	5.126	-1.006
53.50	-29.399	-23.734	0.000	0.000	0.000	-2,236.853	-5.893	0.000	5.893	-1.084
55.00	-29.034	-23.329	0.000	0.000	0.000	-2,192.755	-6.240	0.000	6.240	-1.118
60.00	-28.458	-22.060	0.000	0.000	0.000	-2,047.585	-7.478	0.000	7.478	-1.243
65.00	-27.880	-20.823	0.000	0.000	0.000	-1,905.298	-8.848	0.000	8.848	-1.369
70.00	-27.304	-19.618	0.000	0.000	0.000	-1,765.897	-10.351	0.000	10.351	-1.497
75.00	-26.729	-18.445	0.000	0.000	0.000	-1,629.381	-11.988	0.000	11.988	-1.625
80.00	-26.157	-17.304	0.000	0.000	0.000	-1,495.739	-13.761	0.000	13.761	-1.755
85.00	-25.590	-16.195	0.000	0.000	0.000	-1,364.955	-15.670	0.000	15.670	-1.885
90.00	-25.079	-15.123	0.000	0.000	0.000	-1,237.009	-17.715	0.000	17.715	-2.016
94.00	-24.788	-14.295	0.000	0.000	0.000	-1,136.692	-19.450	0.000	19.450	-2.121
95.00	-24.475	-13.943	0.000	0.000	0.000	-1,111.905	-19.897	0.000	19.897	-2.148
99.75	-24.153	-12.384	0.000	0.000	0.000	-995.648	-22.098	0.000	22.098	-2.271
100.0	-23.936	-12.325	0.000	0.000	0.000	-989.610	-22.217	0.000	22.217	-2.278
104.0	-23.657	-11.697	0.000	0.000	0.000	-893.866	-24.183	0.000	24.183	-2.408
105.0	-23.381	-11.415	0.000	0.000	0.000	-870.209	-24.691	0.000	24.691	-2.442
109.2	-23.079	-10.311	0.000	0.000	0.000	-770.843	-26.927	0.000	26.927	-2.577
110.0	-22.791	-10.187	0.000	0.000	0.000	-753.534	-27.334	0.000	27.334	-2.601
115.0	-22.271	-9.497	0.000	0.000	0.000	-639.581	-30.147	0.000	30.147	-2.764
120.0	-21.760	-8.834	0.000	0.000	0.000	-528.228	-33.126	0.000	33.126	-2.917
125.0	-21.260	-8.198	0.000	0.000	0.000	-419.427	-36.258	0.000	36.258	-3.057
130.0	-20.771	-7.591	0.000	0.000	0.000	-313.126	-39.527	0.000	39.527	-3.179
135.0	-20.468	-7.014	0.000	0.000	0.000	-209.272	-42.913	0.000	42.913	-3.279
136.0	-15.311	-4.956	0.000	0.000	0.000	-188.804	-43.602	0.000	43.602	-3.296
137.0	-14.865	-4.750	0.000	0.000	0.000	-173.493	-44.294	0.000	44.294	-3.312
140.0	-14.503	-4.471	0.000	0.000	0.000	-128.899	-46.390	0.000	46.390	-3.354
145.0	-14.096	-4.024	0.000	0.000	0.000	-56.384	-49.930	0.000	49.930	-3.401
149.0	-13.832	0.000	0.000	0.000	0.000	0.000	-52.787	0.000	52.787	-3.414

Site Number: 415784 | Code: TIA/EIA-222-F |

Site Name: East Putnam CT, CT | Engineering Number: 65087721 | 4/18/2016 11:37:56 AM

Customer: Verizon Wireless

Load Case: No Ice — 90.00 mph Wind with No Ice — 20 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses							Allowable Stress (Fb) (ksi)	Allowable Stress (Fa) (ksi)	Stress Ratio
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)			
0.00	0.44	0.73	0.00	0.00	0.00	28.48	28.95	50.2	0.0	0.577
5.00	0.43	0.74	0.00	0.00	0.00	28.42	28.88	50.7	0.0	0.570
10.00	0.42	0.74	0.00	0.00	0.00	28.34	28.79	51.2	0.0	0.562
15.00	0.41	0.74	0.00	0.00	0.00	28.24	28.69	51.7	0.0	0.555
20.00	0.40	0.75	0.00	0.00	0.00	28.14	28.57	52.0	0.0	0.550
25.00	0.39	0.75	0.00	0.00	0.00	28.01	28.44	52.0	0.0	0.547
30.00	0.38	0.76	0.00	0.00	0.00	27.87	28.28	52.0	0.0	0.544
35.00	0.38	0.76	0.00	0.00	0.00	27.70	28.11	52.0	0.0	0.541
40.00	0.37	0.77	0.00	0.00	0.00	27.51	27.90	52.0	0.0	0.537
45.00	0.36	0.78	0.00	0.00	0.00	27.29	27.67	52.0	0.0	0.532
46.25	0.35	0.78	0.00	0.00	0.00	27.23	27.61	52.0	0.0	0.531
50.00	0.33	0.78	0.00	0.00	0.00	27.03	27.40	52.0	0.0	0.527
53.50	0.36	0.91	0.00	0.00	0.00	30.35	30.75	52.0	0.0	0.592
55.00	0.36	0.90	0.00	0.00	0.00	30.24	30.64	52.0	0.0	0.589
60.00	0.35	0.91	0.00	0.00	0.00	29.84	30.23	52.0	0.0	0.582
65.00	0.34	0.92	0.00	0.00	0.00	29.39	29.78	52.0	0.0	0.573
70.00	0.33	0.93	0.00	0.00	0.00	28.89	29.26	52.0	0.0	0.563
75.00	0.32	0.93	0.00	0.00	0.00	28.31	28.68	52.0	0.0	0.552
80.00	0.31	0.94	0.00	0.00	0.00	27.66	28.01	52.0	0.0	0.539
85.00	0.30	0.95	0.00	0.00	0.00	26.91	27.26	52.0	0.0	0.524
90.00	0.29	0.96	0.00	0.00	0.00	26.06	26.40	52.0	0.0	0.508
94.00	0.28	0.98	0.00	0.00	0.00	25.29	25.63	52.0	0.0	0.493
95.00	0.28	0.97	0.00	0.00	0.00	25.09	25.42	52.0	0.0	0.489
99.75	0.33	1.30	0.00	0.00	0.00	30.97	31.39	51.8	0.0	0.606
100.00	0.33	1.29	0.00	0.00	0.00	30.89	31.31	51.9	0.0	0.604
104.00	0.32	1.32	0.00	0.00	0.00	29.56	29.97	52.0	0.0	0.577
105.00	0.32	1.31	0.00	0.00	0.00	29.21	29.61	52.0	0.0	0.570
109.25	0.33	1.48	0.00	0.00	0.00	30.16	30.60	50.4	0.0	0.607
110.00	0.33	1.47	0.00	0.00	0.00	29.82	30.26	50.6	0.0	0.599
115.00	0.32	1.50	0.00	0.00	0.00	27.34	27.77	51.4	0.0	0.540
120.00	0.31	1.52	0.00	0.00	0.00	24.46	24.90	52.0	0.0	0.479
125.00	0.30	1.55	0.00	0.00	0.00	21.11	21.57	52.0	0.0	0.415
130.00	0.29	1.58	0.00	0.00	0.00	17.19	17.69	52.0	0.0	0.340
135.00	0.28	1.63	0.00	0.00	0.00	12.58	13.16	52.0	0.0	0.253
136.00	0.20	1.23	0.00	0.00	0.00	11.57	11.95	52.0	0.0	0.230
137.00	0.19	1.21	0.00	0.00	0.00	10.83	11.22	52.0	0.0	0.216
140.00	0.19	1.21	0.00	0.00	0.00	8.52	8.96	52.0	0.0	0.172
145.00	0.18	1.24	0.00	0.00	0.00	4.12	4.80	52.0	0.0	0.092
149.00	0.00	1.26	0.00	0.00	0.00	0.00	2.19	52.0	0.0	0.042

Site Number: 415784 | Code: TIA/EIA-222-F |

Site Name: East Putnam CT, CT | Engineering Number: 65087721 | 4/18/2016 11:37:56 AM

Customer: Verizon Wireless

Load Case: Ice | 77.94 mph Wind with Ice | 20 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		251.0	0.0					0.0	0.0	251.0	0.0	0.0	0.0
5.00		496.8	1,846.4					0.0	0.0	496.8	1,846.4	0.0	0.0
10.00		486.3	1,806.9					0.0	132.6	486.3	1,939.5	0.0	0.0
15.00		475.8	1,767.4					0.0	132.6	475.8	1,900.0	0.0	0.0
20.00		465.3	1,727.9					0.0	132.6	465.3	1,860.5	0.0	0.0
25.00		454.7	1,688.4					0.0	132.6	454.7	1,821.0	0.0	0.0
30.00		444.2	1,648.9					0.0	132.6	444.2	1,781.5	0.0	0.0
35.00		441.7	1,609.4					0.0	132.6	441.7	1,742.0	0.0	0.0
40.00		446.8	1,569.9					0.0	132.6	446.8	1,702.5	0.0	0.0
45.00		281.0	1,530.4					0.0	132.6	281.0	1,663.0	0.0	0.0
46.25	Bot - Section 2	228.2	376.9					0.0	33.2	228.2	410.0	0.0	0.0
50.00		332.5	1,973.6					0.0	99.5	332.5	2,073.0	0.0	0.0
53.50	Top - Section 1	229.6	1,806.9					0.0	92.8	229.6	1,899.7	0.0	0.0
55.00		298.4	382.9					0.0	39.8	298.4	422.7	0.0	0.0
60.00		458.2	1,252.4					0.0	132.6	458.2	1,385.0	0.0	0.0
65.00		456.1	1,217.9					0.0	132.6	456.1	1,350.5	0.0	0.0
70.00		452.8	1,183.4					0.0	132.6	452.8	1,316.0	0.0	0.0
75.00		448.5	1,148.9					0.0	132.6	448.5	1,281.5	0.0	0.0
80.00		443.3	1,114.4					0.0	132.6	443.3	1,247.0	0.0	0.0
85.00		437.3	1,079.9					0.0	132.6	437.3	1,212.5	0.0	0.0
90.00		388.1	1,045.4					0.0	132.6	388.1	1,178.0	0.0	0.0
94.00	Bot - Section 3	214.0	811.8					0.0	106.1	214.0	917.9	0.0	0.0
95.00		244.6	331.8					0.0	26.5	244.6	358.4	0.0	0.0
99.75	Top - Section 2	212.2	1,543.5					0.0	126.0	212.2	1,669.5	0.0	0.0
100.00		177.3	38.3					0.0	6.6	177.3	44.9	0.0	0.0
104.00	Bot - Section 4	208.5	602.0					0.0	106.1	208.5	708.0	0.0	0.0
105.00		217.1	258.9					0.0	26.5	217.1	285.4	0.0	0.0
109.25	Top - Section 3	206.0	1,078.1					0.0	112.7	206.0	1,190.8	0.0	0.0
110.00		231.8	98.4					0.0	19.9	231.8	118.3	0.0	0.0
115.00		397.4	639.8					0.0	132.6	397.4	772.4	0.0	0.0
120.00		387.0	615.3					0.0	132.6	387.0	747.9	0.0	0.0
125.00		376.1	590.7					0.0	132.6	376.1	723.3	0.0	0.0
130.00		364.8	566.2					0.0	132.6	364.8	698.8	0.0	0.0
135.00		214.7	541.7					0.0	132.6	214.7	674.3	0.0	0.0
136.00	Appertunance(s)	70.1	105.8	4,201.3	0.0	0.0	2,977.1	0.0	26.5	4,271.5	3,109.4	0.0	0.0
137.00	Appertunance(s)	138.3	104.8	233.3	0.0	0.0	213.4	0.0	22.3	371.6	340.4	0.0	0.0
140.00		270.7	307.9					0.0	37.3	270.7	345.2	0.0	0.0
145.00		296.5	492.6					0.0	62.2	296.5	554.8	0.0	0.0
149.00	Appertunance(s)	129.2	376.8	10,905.1	0.0	0.0	5,424.3	0.0	49.8	11,034.3	5,850.9	0.0	0.0
								Totals:		28,112.7	49,142.9	0.00	0.00

Site Number: 415784 | Code: TIA/EIA-222-F |

Site Name: East Putnam CT, CT | Engineering Number: 65087721 | 4/18/2016 11:37:58 AM

Customer: Verizon Wireless

Load Case: Ice | 77.94 mph Wind with Ice | 20 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-27.894	-49.124	0.000	0.000	0.000	-3,187.924	0.000	0.000	0.000	0.000
5.00	-27.458	-47.242	0.000	0.000	0.000	-3,048.454	-0.040	0.000	0.040	-0.074
10.00	-27.028	-45.268	0.000	0.000	0.000	-2,911.166	-0.159	0.000	0.159	-0.150
15.00	-26.605	-43.333	0.000	0.000	0.000	-2,776.026	-0.358	0.000	0.358	-0.227
20.00	-26.189	-41.439	0.000	0.000	0.000	-2,643.003	-0.638	0.000	0.638	-0.305
25.00	-25.779	-39.584	0.000	0.000	0.000	-2,512.063	-1.001	0.000	1.001	-0.385
30.00	-25.375	-37.770	0.000	0.000	0.000	-2,383.171	-1.449	0.000	1.449	-0.467
35.00	-24.971	-35.995	0.000	0.000	0.000	-2,256.296	-1.983	0.000	1.983	-0.550
40.00	-24.558	-34.261	0.000	0.000	0.000	-2,131.444	-2.605	0.000	2.605	-0.634
45.00	-24.287	-32.578	0.000	0.000	0.000	-2,008.658	-3.316	0.000	3.316	-0.720
46.25	-24.079	-32.153	0.000	0.000	0.000	-1,978.299	-3.508	0.000	3.508	-0.743
50.00	-23.752	-30.057	0.000	0.000	0.000	-1,888.004	-4.118	0.000	4.118	-0.809
53.50	-23.517	-28.143	0.000	0.000	0.000	-1,804.873	-4.735	0.000	4.735	-0.872
55.00	-23.243	-27.699	0.000	0.000	0.000	-1,769.598	-5.014	0.000	5.014	-0.899
60.00	-22.809	-26.281	0.000	0.000	0.000	-1,653.383	-6.011	0.000	6.011	-1.000
65.00	-22.372	-24.899	0.000	0.000	0.000	-1,539.341	-7.113	0.000	7.113	-1.102
70.00	-21.936	-23.553	0.000	0.000	0.000	-1,427.480	-8.324	0.000	8.324	-1.205
75.00	-21.500	-22.242	0.000	0.000	0.000	-1,317.802	-9.642	0.000	9.642	-1.309
80.00	-21.066	-20.968	0.000	0.000	0.000	-1,210.304	-11.070	0.000	11.070	-1.414
85.00	-20.634	-19.729	0.000	0.000	0.000	-1,104.976	-12.609	0.000	12.609	-1.520
90.00	-20.244	-18.528	0.000	0.000	0.000	-1,001.808	-14.258	0.000	14.258	-1.625
94.00	-20.020	-17.599	0.000	0.000	0.000	-920.831	-15.657	0.000	15.657	-1.711
95.00	-19.783	-17.227	0.000	0.000	0.000	-900.812	-16.018	0.000	16.018	-1.733
99.75	-19.533	-15.547	0.000	0.000	0.000	-806.842	-17.793	0.000	17.793	-1.832
100.0	-19.370	-15.488	0.000	0.000	0.000	-801.958	-17.889	0.000	17.889	-1.838
104.0	-19.155	-14.766	0.000	0.000	0.000	-724.479	-19.475	0.000	19.475	-1.943
105.0	-18.946	-14.465	0.000	0.000	0.000	-705.324	-19.885	0.000	19.885	-1.970
109.2	-18.713	-13.261	0.000	0.000	0.000	-624.805	-21.690	0.000	21.690	-2.080
110.0	-18.495	-13.127	0.000	0.000	0.000	-610.771	-22.019	0.000	22.019	-2.099
115.0	-18.096	-12.329	0.000	0.000	0.000	-518.299	-24.290	0.000	24.290	-2.231
120.0	-17.703	-11.561	0.000	0.000	0.000	-427.821	-26.696	0.000	26.696	-2.355
125.0	-17.317	-10.822	0.000	0.000	0.000	-339.306	-29.225	0.000	29.225	-2.469
130.0	-16.938	-10.113	0.000	0.000	0.000	-252.722	-31.867	0.000	31.867	-2.568
135.0	-16.700	-9.437	0.000	0.000	0.000	-168.034	-34.602	0.000	34.602	-2.648
136.0	-12.290	-6.526	0.000	0.000	0.000	-151.334	-35.158	0.000	35.158	-2.662
137.0	-11.906	-6.198	0.000	0.000	0.000	-139.044	-35.717	0.000	35.717	-2.675
140.0	-11.623	-5.859	0.000	0.000	0.000	-103.326	-37.409	0.000	37.409	-2.708
145.0	-11.303	-5.314	0.000	0.000	0.000	-45.211	-40.268	0.000	40.268	-2.746
149.0	-11.034	0.000	0.000	0.000	0.000	0.000	-42.575	0.000	42.575	-2.756

Load Case: Ice — 77.94 mph Wind with Ice — 20 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)	Allowable Stress (Fb) (ksi)	Allowable Stress (Fa) (ksi)	Stress Ratio
0.00	0.51	0.58	0.00	0.00	0.00	22.84	23.37	50.2	0.0	0.466
5.00	0.50	0.58	0.00	0.00	0.00	22.80	23.32	50.7	0.0	0.460
10.00	0.49	0.59	0.00	0.00	0.00	22.75	23.26	51.2	0.0	0.454
15.00	0.48	0.59	0.00	0.00	0.00	22.69	23.19	51.7	0.0	0.448
20.00	0.47	0.59	0.00	0.00	0.00	22.61	23.10	52.0	0.0	0.444
25.00	0.46	0.60	0.00	0.00	0.00	22.53	23.01	52.0	0.0	0.443
30.00	0.45	0.60	0.00	0.00	0.00	22.42	22.89	52.0	0.0	0.440
35.00	0.44	0.61	0.00	0.00	0.00	22.30	22.76	52.0	0.0	0.438
40.00	0.43	0.61	0.00	0.00	0.00	22.16	22.61	52.0	0.0	0.435
45.00	0.41	0.62	0.00	0.00	0.00	21.99	22.44	52.0	0.0	0.432
46.25	0.41	0.62	0.00	0.00	0.00	21.95	22.39	52.0	0.0	0.431
50.00	0.39	0.63	0.00	0.00	0.00	21.80	22.22	52.0	0.0	0.428
53.50	0.43	0.73	0.00	0.00	0.00	24.49	24.95	52.0	0.0	0.480
55.00	0.43	0.72	0.00	0.00	0.00	24.40	24.86	52.0	0.0	0.478
60.00	0.42	0.73	0.00	0.00	0.00	24.10	24.55	52.0	0.0	0.472
65.00	0.41	0.74	0.00	0.00	0.00	23.75	24.19	52.0	0.0	0.465
70.00	0.40	0.74	0.00	0.00	0.00	23.35	23.78	52.0	0.0	0.458
75.00	0.39	0.75	0.00	0.00	0.00	22.90	23.32	52.0	0.0	0.449
80.00	0.37	0.76	0.00	0.00	0.00	22.38	22.79	52.0	0.0	0.438
85.00	0.36	0.77	0.00	0.00	0.00	21.79	22.19	52.0	0.0	0.427
90.00	0.35	0.78	0.00	0.00	0.00	21.11	21.50	52.0	0.0	0.414
94.00	0.35	0.79	0.00	0.00	0.00	20.49	20.88	52.0	0.0	0.402
95.00	0.34	0.79	0.00	0.00	0.00	20.33	20.71	52.0	0.0	0.398
99.75	0.42	1.05	0.00	0.00	0.00	25.10	25.58	51.8	0.0	0.494
100.00	0.42	1.05	0.00	0.00	0.00	25.04	25.52	51.9	0.0	0.492
104.00	0.41	1.07	0.00	0.00	0.00	23.96	24.44	52.0	0.0	0.470
105.00	0.40	1.06	0.00	0.00	0.00	23.67	24.15	52.0	0.0	0.465
109.25	0.42	1.20	0.00	0.00	0.00	24.45	24.96	50.4	0.0	0.495
110.00	0.42	1.19	0.00	0.00	0.00	24.17	24.68	50.6	0.0	0.488
115.00	0.41	1.21	0.00	0.00	0.00	22.15	22.66	51.4	0.0	0.441
120.00	0.40	1.24	0.00	0.00	0.00	19.81	20.32	52.0	0.0	0.391
125.00	0.39	1.26	0.00	0.00	0.00	17.08	17.60	52.0	0.0	0.339
130.00	0.38	1.29	0.00	0.00	0.00	13.87	14.43	52.0	0.0	0.278
135.00	0.37	1.33	0.00	0.00	0.00	10.10	10.72	52.0	0.0	0.206
136.00	0.26	0.99	0.00	0.00	0.00	9.27	9.68	52.0	0.0	0.186
137.00	0.25	0.97	0.00	0.00	0.00	8.68	9.08	52.0	0.0	0.175
140.00	0.24	0.97	0.00	0.00	0.00	6.83	7.27	52.0	0.0	0.140
145.00	0.23	0.99	0.00	0.00	0.00	3.30	3.93	52.0	0.0	0.076
149.00	0.00	1.01	0.00	0.00	0.00	0.00	1.75	52.0	0.0	0.034

Load Case: Twist/Sway — 50.00 mph Wind with No Ice — 19 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		101.9	0.0					0.0	0.0	101.9	0.0	0.0	0.0
5.00		201.5	1,632.6					0.0	0.0	201.5	1,632.6	0.0	0.0
10.00		197.2	1,597.6					0.0	132.6	197.2	1,730.2	0.0	0.0
15.00		192.9	1,562.7					0.0	132.6	192.9	1,695.3	0.0	0.0
20.00		188.5	1,527.8					0.0	132.6	188.5	1,660.4	0.0	0.0
25.00		184.2	1,492.8					0.0	132.6	184.2	1,625.4	0.0	0.0
30.00		179.9	1,457.9					0.0	132.6	179.9	1,590.5	0.0	0.0
35.00		178.8	1,423.0					0.0	132.6	178.8	1,555.6	0.0	0.0
40.00		180.8	1,388.0					0.0	132.6	180.8	1,520.6	0.0	0.0
45.00		113.7	1,353.1					0.0	132.6	113.7	1,485.7	0.0	0.0
46.25	Bot - Section 2	92.3	332.8					0.0	33.2	92.3	366.0	0.0	0.0
50.00		134.5	1,842.3					0.0	99.5	134.5	1,941.7	0.0	0.0
53.50	Top - Section 1	92.8	1,686.5					0.0	92.8	92.8	1,779.3	0.0	0.0
55.00		120.6	331.8					0.0	39.8	120.6	371.5	0.0	0.0
60.00		185.1	1,086.4					0.0	132.6	185.1	1,219.0	0.0	0.0
65.00		184.1	1,056.5					0.0	132.6	184.1	1,189.1	0.0	0.0
70.00		182.7	1,026.5					0.0	132.6	182.7	1,159.1	0.0	0.0
75.00		180.9	996.6					0.0	132.6	180.9	1,129.2	0.0	0.0
80.00		178.7	966.6					0.0	132.6	178.7	1,099.2	0.0	0.0
85.00		176.1	936.7					0.0	132.6	176.1	1,069.3	0.0	0.0
90.00		156.2	906.8					0.0	132.6	156.2	1,039.4	0.0	0.0
94.00	Bot - Section 3	86.1	703.8					0.0	106.1	86.1	809.9	0.0	0.0
95.00		98.4	304.7					0.0	26.5	98.4	331.2	0.0	0.0
99.75	Top - Section 2	85.3	1,418.6					0.0	126.0	85.3	1,544.6	0.0	0.0
100.00		71.2	31.7					0.0	6.6	71.2	38.4	0.0	0.0
104.00	Bot - Section 4	83.8	499.9					0.0	106.1	83.8	606.0	0.0	0.0
105.00		87.2	233.3					0.0	26.5	87.2	259.8	0.0	0.0
109.25	Top - Section 3	82.7	972.5					0.0	112.7	82.7	1,085.2	0.0	0.0
110.00		93.0	79.8					0.0	19.9	93.0	99.7	0.0	0.0
115.00		159.3	520.7					0.0	132.6	159.3	653.3	0.0	0.0
120.00		155.0	500.8					0.0	132.6	155.0	633.4	0.0	0.0
125.00		150.5	480.8					0.0	132.6	150.5	613.4	0.0	0.0
130.00		145.8	460.8					0.0	132.6	145.8	593.4	0.0	0.0
135.00		85.7	440.9					0.0	132.6	85.7	573.5	0.0	0.0
136.00	Appertunance(s)	28.0	85.8	1,525.3	0.0	0.0	2,234.5	0.0	26.5	1,553.2	2,346.8	0.0	0.0
137.00	Appertunance(s)	55.2	85.0	79.4	0.0	0.0	116.4	0.0	22.3	134.6	223.7	0.0	0.0
140.00		107.8	250.2					0.0	37.3	107.8	287.5	0.0	0.0
145.00		118.0	401.0					0.0	62.2	118.0	463.2	0.0	0.0
149.00	Appertunance(s)	51.4	306.4	4,217.6	0.0	0.0	4,500.0	0.0	49.8	4,269.0	4,856.2	0.0	0.0
								Totals:		10,970.2	42,878.2	0.00	0.00

Site Number: 415784 Code: TIA/EIA-222-F

Site Name: East Putnam CT, CT Engineering Number: 65087721 4/18/2016 11:37:59 AM

Customer: Verizon Wireless

Load Case: Twist/Sway 50.00 mph Wind with No Ice 19 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-10.879	-42.875	0.000	0.000	0.000	-1,227.693	0.000	0.000	0.000	0.000
5.00	-10.698	-41.238	0.000	0.000	0.000	-1,173.299	-0.016	0.000	0.016	-0.029
10.00	-10.519	-39.502	0.000	0.000	0.000	-1,119.811	-0.061	0.000	0.061	-0.058
15.00	-10.344	-37.802	0.000	0.000	0.000	-1,067.215	-0.138	0.000	0.138	-0.087
20.00	-10.172	-36.136	0.000	0.000	0.000	-1,015.495	-0.246	0.000	0.246	-0.117
25.00	-10.002	-34.506	0.000	0.000	0.000	-964.637	-0.385	0.000	0.385	-0.148
30.00	-9.836	-32.910	0.000	0.000	0.000	-914.625	-0.558	0.000	0.558	-0.179
35.00	-9.670	-31.350	0.000	0.000	0.000	-865.445	-0.763	0.000	0.763	-0.211
40.00	-9.500	-29.825	0.000	0.000	0.000	-817.097	-1.002	0.000	1.002	-0.244
45.00	-9.390	-28.336	0.000	0.000	0.000	-769.599	-1.275	0.000	1.275	-0.277
46.25	-9.304	-27.968	0.000	0.000	0.000	-757.862	-1.349	0.000	1.349	-0.285
50.00	-9.171	-26.023	0.000	0.000	0.000	-722.973	-1.583	0.000	1.583	-0.311
53.50	-9.075	-24.241	0.000	0.000	0.000	-690.877	-1.820	0.000	1.820	-0.335
55.00	-8.962	-23.867	0.000	0.000	0.000	-677.264	-1.927	0.000	1.927	-0.345
60.00	-8.785	-22.643	0.000	0.000	0.000	-632.453	-2.309	0.000	2.309	-0.384
65.00	-8.607	-21.449	0.000	0.000	0.000	-588.528	-2.732	0.000	2.732	-0.423
70.00	-8.430	-20.286	0.000	0.000	0.000	-545.493	-3.197	0.000	3.197	-0.462
75.00	-8.252	-19.152	0.000	0.000	0.000	-503.346	-3.702	0.000	3.702	-0.502
80.00	-8.076	-18.049	0.000	0.000	0.000	-462.084	-4.250	0.000	4.250	-0.542
85.00	-7.902	-16.976	0.000	0.000	0.000	-421.703	-4.839	0.000	4.839	-0.582
90.00	-7.745	-15.934	0.000	0.000	0.000	-382.194	-5.471	0.000	5.471	-0.623
94.00	-7.655	-15.122	0.000	0.000	0.000	-351.215	-6.007	0.000	6.007	-0.655
95.00	-7.559	-14.789	0.000	0.000	0.000	-343.560	-6.145	0.000	6.145	-0.663
99.75	-7.460	-13.243	0.000	0.000	0.000	-307.656	-6.825	0.000	6.825	-0.701
100.0	-7.393	-13.202	0.000	0.000	0.000	-305.791	-6.862	0.000	6.862	-0.704
104.0	-7.307	-12.594	0.000	0.000	0.000	-276.219	-7.469	0.000	7.469	-0.744
105.0	-7.222	-12.332	0.000	0.000	0.000	-268.912	-7.626	0.000	7.626	-0.754
109.2	-7.130	-11.245	0.000	0.000	0.000	-238.218	-8.317	0.000	8.317	-0.796
110.0	-7.041	-11.143	0.000	0.000	0.000	-232.871	-8.443	0.000	8.443	-0.803
115.0	-6.881	-10.487	0.000	0.000	0.000	-197.667	-9.312	0.000	9.312	-0.854
120.0	-6.724	-9.850	0.000	0.000	0.000	-163.262	-10.233	0.000	10.233	-0.901
125.0	-6.570	-9.235	0.000	0.000	0.000	-129.641	-11.201	0.000	11.201	-0.944
130.0	-6.420	-8.640	0.000	0.000	0.000	-96.789	-12.211	0.000	12.211	-0.982
135.0	-6.327	-8.066	0.000	0.000	0.000	-64.690	-13.258	0.000	13.258	-1.013
136.0	-4.733	-5.747	0.000	0.000	0.000	-58.363	-13.471	0.000	13.471	-1.018
137.0	-4.595	-5.525	0.000	0.000	0.000	-53.631	-13.684	0.000	13.684	-1.023
140.0	-4.483	-5.238	0.000	0.000	0.000	-39.846	-14.332	0.000	14.332	-1.036
145.0	-4.358	-4.777	0.000	0.000	0.000	-17.430	-15.426	0.000	15.426	-1.051
149.0	-4.269	0.000	0.000	0.000	0.000	0.000	-16.309	0.000	16.309	-1.055

Site Number: 415784 Code: TIA/EIA-222-F

Site Name: East Putnam CT, CT Engineering Number: 65087721 4/18/2016 11:37:59 AM

Customer: Verizon Wireless

Load Case: Twist/Sway 50.00 mph Wind with No Ice 19 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses							Allowable Stress (Fb) (ksi)	Allowable Stress (Fa) (ksi)	Stress Ratio
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)			
0.00	0.44	0.23	0.00	0.00	0.00	8.80	9.25	50.2	0.0	0.184
5.00	0.43	0.23	0.00	0.00	0.00	8.77	9.22	50.7	0.0	0.182
10.00	0.43	0.23	0.00	0.00	0.00	8.75	9.18	51.2	0.0	0.179
15.00	0.42	0.23	0.00	0.00	0.00	8.72	9.15	51.7	0.0	0.177
20.00	0.41	0.23	0.00	0.00	0.00	8.69	9.10	52.0	0.0	0.175
25.00	0.40	0.23	0.00	0.00	0.00	8.65	9.06	52.0	0.0	0.174
30.00	0.39	0.23	0.00	0.00	0.00	8.61	9.00	52.0	0.0	0.173
35.00	0.38	0.24	0.00	0.00	0.00	8.55	8.94	52.0	0.0	0.172
40.00	0.37	0.24	0.00	0.00	0.00	8.49	8.87	52.0	0.0	0.171
45.00	0.36	0.24	0.00	0.00	0.00	8.43	8.80	52.0	0.0	0.169
46.25	0.36	0.24	0.00	0.00	0.00	8.41	8.78	52.0	0.0	0.169
50.00	0.34	0.24	0.00	0.00	0.00	8.35	8.70	52.0	0.0	0.167
53.50	0.37	0.28	0.00	0.00	0.00	9.37	9.76	52.0	0.0	0.188
55.00	0.37	0.28	0.00	0.00	0.00	9.34	9.72	52.0	0.0	0.187
60.00	0.36	0.28	0.00	0.00	0.00	9.22	9.59	52.0	0.0	0.184
65.00	0.35	0.28	0.00	0.00	0.00	9.08	9.44	52.0	0.0	0.182
70.00	0.34	0.29	0.00	0.00	0.00	8.92	9.28	52.0	0.0	0.178
75.00	0.33	0.29	0.00	0.00	0.00	8.75	9.09	52.0	0.0	0.175
80.00	0.32	0.29	0.00	0.00	0.00	8.54	8.88	52.0	0.0	0.171
85.00	0.31	0.29	0.00	0.00	0.00	8.31	8.64	52.0	0.0	0.166
90.00	0.30	0.30	0.00	0.00	0.00	8.05	8.37	52.0	0.0	0.161
94.00	0.30	0.30	0.00	0.00	0.00	7.82	8.13	52.0	0.0	0.156
95.00	0.29	0.30	0.00	0.00	0.00	7.75	8.06	52.0	0.0	0.155
99.75	0.35	0.40	0.00	0.00	0.00	9.57	9.95	51.8	0.0	0.192
100.00	0.35	0.40	0.00	0.00	0.00	9.55	9.93	51.9	0.0	0.191
104.00	0.35	0.41	0.00	0.00	0.00	9.14	9.51	52.0	0.0	0.183
105.00	0.34	0.41	0.00	0.00	0.00	9.03	9.39	52.0	0.0	0.181
109.25	0.36	0.46	0.00	0.00	0.00	9.32	9.71	50.4	0.0	0.193
110.00	0.36	0.45	0.00	0.00	0.00	9.22	9.61	50.6	0.0	0.190
115.00	0.35	0.46	0.00	0.00	0.00	8.45	8.83	51.4	0.0	0.172
120.00	0.34	0.47	0.00	0.00	0.00	7.56	7.94	52.0	0.0	0.153
125.00	0.33	0.48	0.00	0.00	0.00	6.52	6.91	52.0	0.0	0.133
130.00	0.33	0.49	0.00	0.00	0.00	5.31	5.70	52.0	0.0	0.110
135.00	0.32	0.50	0.00	0.00	0.00	3.89	4.30	52.0	0.0	0.083
136.00	0.23	0.38	0.00	0.00	0.00	3.58	3.86	52.0	0.0	0.074
137.00	0.22	0.37	0.00	0.00	0.00	3.35	3.63	52.0	0.0	0.070
140.00	0.22	0.37	0.00	0.00	0.00	2.63	2.92	52.0	0.0	0.056
145.00	0.21	0.38	0.00	0.00	0.00	1.27	1.62	52.0	0.0	0.031
149.00	0.00	0.39	0.00	0.00	0.00	0.00	0.68	52.0	0.0	0.013

Analysis Summary

	Reactions						Max Stresses			
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
No Ice	35.2	0.00	42.85	0.00	0.00	3976.13	30.60	50.4	109.25	0.607
Ice	27.9	0.00	49.12	0.00	0.00	3187.92	24.96	50.4	109.25	0.495
Twist/Sway	10.9	0.00	42.88	0.00	0.00	1227.69	9.71	50.4	109.25	0.193

Base Summary

Reactions

Original Design			Analysis			
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment Design %
			3,976.13	49.12	35.25	

Base Plate

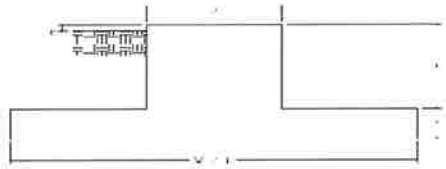
Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Moment (kip-in)	Allow Stress (ksi)	Applied Stress (ksi)	Stress Ratio
50.0	3.000	77.000	Clipped	0	18.00	9.294	401.44	50.00	28.79	0.58

Anchor Bolts

Bolt Circle	Num Bolts	Bolt Type	Bolt Dia (in)	Yield (ksi)	Ultimate (ksi)	Arrange	Cluster Dist (in)	Start Angle (deg)	Compression Force (kip)	Compression Allow (kip)	Compression Ratio	Tension Force (kip)	Tension Allow (kip)	Tension Ratio
78.00	24	2.25" 18J	2.25	75.00	100.00	Clustered	6.00	45.0	104.00	195.00	0.53	99.91	195.00	0.51

Site Name:	East Putnam CT, CT
Site Number:	415784
Engineering Number:	65087721
Engineer:	C. Jolly
Date:	04/18/16
Tower Type:	MP

Program Last Updated: *5/13/2014*



Design Loads (Unfactored)

Design / Analysis / Mapping:	Analysis		Concrete Strength (f'_c):	4000	psi
Compression/Leg:	42.9	k	Pad Tension Steel Depth:	44.00	in
Uplift/Leg:	0.0	k	Wind Load Factor:	1.3	
Total Shear:	35.3	k	ϕ_{Shear}:	0.75	
Moment:	3976.1	k-ft	$\phi_{Flexure\ /\ Tension}$:	0.90	
Tower + Appurtenance Weight:	42.9	k	$\phi_{Compression}$:	0.65	
Depth to Base of Foundation:	4.00	ft	β:	0.85	
Diameter of Pier (d):	9.00	ft	Bottom Pad Rebar Size #:	10	
Height of Pier above Ground (h):	0.50		# of Bottom Pad Rebar:	28	
Width of Pad (W):	29.00	ft	Pad Bottom Steel Area:	35.56	in^2
Length of Pad (L):	29.00	ft	Pad Steel F_y:	60000	psi
Thickness of Pad (t):	4.00	ft	Top Pad Rebar Size #:	10	
Tower Leg Center to Center:	0.00	ft	# of Top Pad Rebar:	28	
Number of Tower Legs:	1.0	(1 if MP or GT)	Pad Top Steel Area:	35.56	in^2
Tower Center from Mat Center:	0.00	ft	Pier Rebar Size #:	10	
Depth Below Ground Surface to Water Table:	13.00	ft	Pier Steel Area (Single Bar):	1.27	in^2
Unit Weight of Concrete:	150.0	pcf	# of Pier Rebar:	52	
Unit Weight of Soil Above Water Table:	125.0	pcf	Pier Steel F_y:	60000	psi
Unit Weight of Water:	62.4	pcf	Pier Cage Diameter:	100.0	in
Unit Weight of Soil Below Water Table:	65.0	pcf	Rebar Strain Limit:	0.008	
Friction Angle of Uplift:	15.00	Degrees	Steel Elastic Modulus:	29000	ksi
Ultimate Coefficient of Shear Friction:	0.35		Tie Rebar Size #:	5	
Allowable Compressive Bearing Pressure:	6000.0	psf	Tie Steel Area (Single Bar):	0.31	in^2
Ultimate Passive Pressure on Pad Face:	0.0	psf	Tie Spacing:	6	in
Allowable Capacity Increase:	1.00		Tie Steel F_y:	40000	psi

Overturning Factor of Safety

Design OTM:	4134.8	k-ft
OTM Resistance:	8235.3	k-ft
OTM Resistance / Design OTM Factor of Safety:	1.99	Result: OK

Soil Bearing Pressure Usage:

Net Bearing Pressure:	1870	psf
Allowable Bearing Pressure:	6000	psf
Net Bearing Pressure/Allowable Bearing Pressure:	0.31	Result: OK
Load Direction Controling Design Bearing Pressure:	Diagonal to Pad Edge	

Sliding Factor of Safety

Total Ultimate Sliding Resistance:	193.3	k
Sliding Resistance/Sliding Design Factor of Safety:	5.48	Result: OK

One Way Shear, Flexual Capacity, and Punching Shear

Factored One Way Shear (V_u):	226.3	k
One Way Shear Capacity (ϕV_c):	1236.2	k - ACI11.3.1.1
$V_u / \phi V_c$:	0.18	Result: OK
Load Direction Controling Shear Capacity:	Diagonal to Pad Edge	
Lower Pad Steel Factored Moment (M_u):	2066.9	k-ft
Lower Steel Pad Moment Capacity (ϕM_n):	7320.9	k-ft - ACI10.3
$M_u / \phi M_n$:	0.28	Result: OK
Load Direction Controling Flexural Capacity:	Diagonal to Pad Edge	
Upper Steel Pad Factored Moment (M_u):	1121.0	k-ft
Upper Steel Pad Moment Capacity (ϕM_n):	6918.2	k-ft
$M_u / \phi M_n$:	0.16	Result: OK
Lower Pad Flexural Reinforcement Ratio:	0.0023	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Upper Pad Flexural Reinforcement Ratio:	0.0023	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Lower Pad Reinforcement Spacing:	13	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Upper Pad Reinforcement Spacing:	13	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Factored Punching Shear (V_u):	0.0	k
Nominal Punching Shear Capacity ($\phi_c V_n$):	3986.6	k - ACI11.12.2.1
$V_u / \phi V_c$:	0.00	Result: OK
Factored Moment in Pier (M_u):	5191.9	k-ft
Pier Moment Capacity (ϕM_n):	14530.8	k-ft
$M_u / \phi M_n$:	0.36	Result: OK
Factored Shear in Pier (V_u):	45.8	k
Pier Shear Capacity (ϕV_n):	871.1	k
$V_u / \phi V_c$:	0.05	Result: OK
Pier Shear Reinforcement Ratio:	0.0004	No Ties Necessary for Shear - ACI11.5.6.1
Factored Tension in Pier (T_u):	0.0	k
Pier Tension Capacity (ϕT_n):	3566.2	k
$T_u / \phi T_n$:	0.00	Result: OK
Factored Compression in Pier (P_u):	55.7	k
Pier Compression Capacity (ϕP_n):	16079.7	k - ACI10.3.6.2
$P_u / \phi P_n$:	0.00	Result: OK
Pier Compression Reinforcement Ratio:	0.007	OK - Reinforcement Ratio Met - ACI10.9.1 & 10.8.4
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.36	Result: OK

Nominal and Design Moment Capacity and Factored Design Loads