Robinson+Cole

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Also admitted in Massachusetts

October 20, 2015

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

Re: **Notice of Exempt Modification – Facility Modification**
585 South Main Street, Naugatuck, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 40-foot level on the existing 49-foot tower at 585 South Main Street in Naugatuck, Connecticut (the "Property"). The tower is owned by American Tower Corporation ("ATC"). The Council approved Cellco's use of this tower in 2003 (Petition No. 623). Cellco now intends to replace six (6) of its existing antennas with three (3) model SBNHH-1D65B, 700/1200 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 Robert Mezzo, Mayor for the Borough of Naugatuck. A copy of this letter is also being sent to The Office LLC, 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 40-foot level on the tower.

2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. Far Field Approximation tables for RF emissions at each of Cellco's operating frequencies, as modified, are included behind Attachment 2. These tables demonstrate how the modified facility will comply with the RF emissions standards established by the FCC.

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

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

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

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Robert Mezzo, Mayor for the Borough of Naugatuck
The Office LLC
ATC
Tim Parks

ATTACHMENT 1

Product Specifications

COMMSCOPE®

POWERED BY ANDREW.

SBNHH-1D65B

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

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

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.9	14.7	17.7	18.2	18.6	18.6
Beamwidth, Horizontal, degrees	68	66	69	66	63	58
Beamwidth, Vertical, degrees	12.1	10.7	5.6	5.2	5.0	4.5
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS (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
Gain by Beam Tilt, average, dBi	0 ° | 14.6	0 ° | 14.5	0 ° | 17.4	0 ° | 17.8	0 ° | 18.1	0 ° | 18.2
	7 ° | 14.6	7 ° | 14.4	3 ° | 17.5	3 ° | 17.9	3 ° | 18.3	3 ° | 18.4
	14 ° | 14.2	14 ° | 13.6	7 ° | 17.4	7 ° | 17.9	7 ° | 18.2	7 ° | 18.4
Beamwidth, Horizontal Tolerance, degrees	±2.2	±3.4	±2	±4.6	±5.7	±4.3
Beamwidth, Vertical Tolerance, degrees	±0.8	±1	±0.3	±0.2	±0.3	±0.2
USLS, 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® | Teletilt®
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, maximum	617.7 N @ 150 km/h 138.9 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	18.4 kg | 40.6 lb

Remote Electrical Tilt (RET) Information

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

Packed Dimensions

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

Regulatory Compliance/Certifications

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

Included Products

Product Specifications

SBNHH-1D65B

BSAMNT-1 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

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.

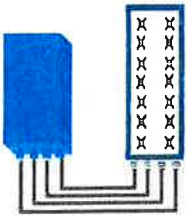
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

PCS RF MODULES

RRH1900 2X60 - HW CHARACTERISTICS

LA6.0.1/13.3

		RRH2x60
RF Output Power		2x60W
Instantaneous Bandwidth		20MHz
Transmitter		2 TX
Receiver	1900 HW version	2 Branch RX – LA6.0.1
	1900A HW version	4 Branch RX – LR13.3
Features		AISG 2.0 for RET/TMA
		Internal Smart Bias-T
Power		-48VDC
CPRI Ports		2 CPRI Rate 3 Ports
External Alarms		4 External User Alarms
Monitor Ports		TX
Environmental		GR487 Compliance
RF Connectors		7/16 DIN (top mounted)

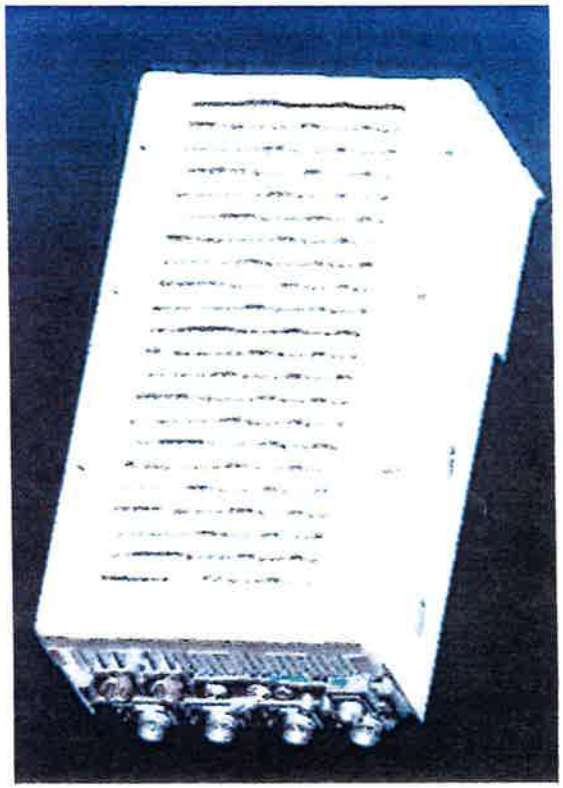
** Not a Verizon Wireless deployed product

NEW PCS RF MODULES FOR VZW

RRH2X60 - HW CHARACTERISTICS

LR14.3

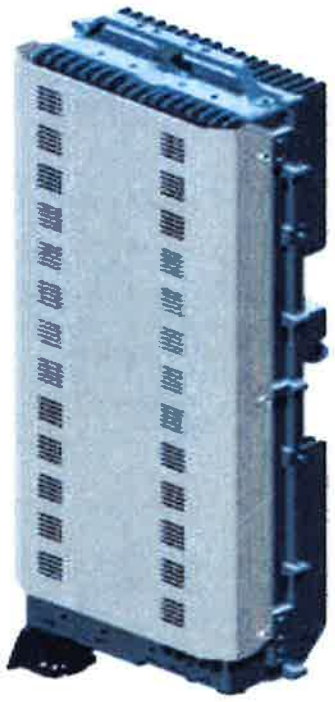
	RRH2x60
RF Output Power	2x60W (4x30W HW Ready)
Instantaneous Bandwidth	60MHz
Target Reliability (Annual Return Rate)	<2%
Receiver	4 Branch Rx
Features	AISG 2.0 for RET/TMA
Power	-48VDC
	Internal Smart Bias-T
CPRI Ports	2 CPRI Rate 5 Ports
External Alarms	4 External User Alarms
Monitor Ports	TX, RX
Environmental	GR487 Compliance
RF Connectors	7/16 DIN (downward facing)
Dimensions	22"(h) x 12"(w)x 9.4" (d)**
Weight	55lb**



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

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

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



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

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

SUPERIOR RF PERFORMANCE

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

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

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

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

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

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

OPTIMIZED TCO

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

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

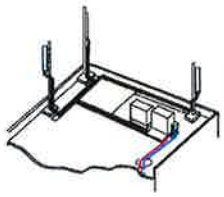
EASY INSTALLATION

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

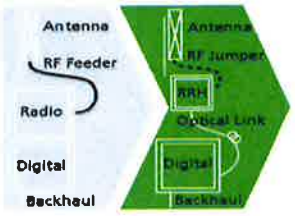
The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment. However, many of these sites can host an Alcatel-Lucent RRH2x60-AWS installation, providing more flexible site selection and improved network quality along with greatly reduced installation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

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

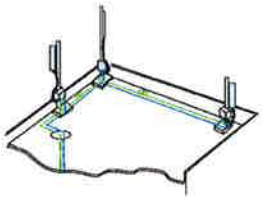
Installation can easily be done by a single person as the Alcatel–Lucent RRH2x60-AWS is compact and weighs about 20 kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day.



Macro



RRH for space-constrained cell sites



Distributed

FEATURES

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

BENEFITS

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

TECHNICAL SPECIFICATIONS

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

Dimensions and weights

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

Electrical Data

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

RF Characteristics

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

Connectivity

- Two CPRI optical ports for 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

AT THE SPEED OF IDEAS™

Product Data Sheet HB158-1-08U8-S8J18

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

Product Description

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

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

Figure 1: HYBRIFLEX Series

Features/Benefits

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

Technical Specifications

Outer Conductor Armor	Corrugated Aluminum	[mm (in)]	46.5 (1.83)
Jacket:	Polyethylene, PE	[mm (in)]	50.3 (1.98)
UV-Protection	Individual and External Jacket		Yes
Weight, Approximate		[kg/m (lb/ft)]	1.9 (1.30)
Minimum Bending Radius, Single Bending		[mm (in)]	200 (8)
Minimum Bending Radius, Repeated Bending		[mm (in)]	500 (20)
Recommended/Maximum Clamp Spacing		[m (ft)]	1.0 / 1.2 (3.25 / 4.0)
DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	068 (0.205)
DC-Resistance Power Cable, 8.4mm² (8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)
Version			Single-mode OM3
Quantity, Fiber Count			16 (8 pairs)
Core/Clad		[µm]	50/125
Primary Coating (Acrylate)		[µm]	245
Buffer Diameter, Nominal		[µm]	900
Secondary Protection, Jacket, Nominal		[mm (in)]	2.0 (0.08)
Minimum Bending Radius		[mm (in)]	104 (4.1)
Insertion Loss @ wavelength 850nm		dB/km	3.0
Insertion Loss @ wavelength 1310nm		dB/km	1.0
Standards (Meets or exceeds)			UL94-V0, UL1666 RoHS Compliant
Size (Power)		[mm² (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm² (AWG)]	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		[mm (in)]	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-93-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

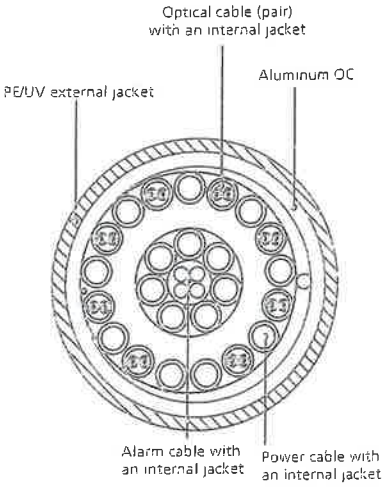


Figure 2: Construction Detail

* This data is provisional and subject to change

ATTACHMENT 2

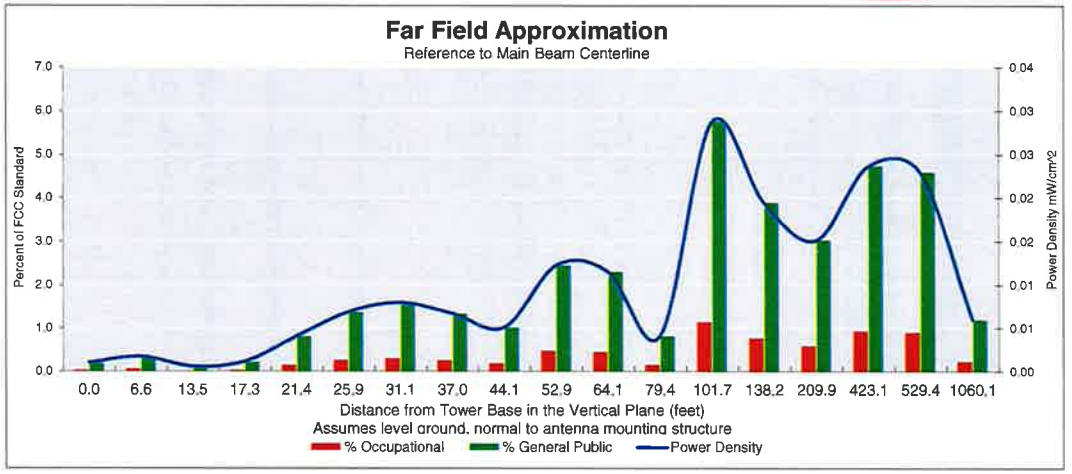
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole/Wire/Yagi Antenna Types

verizonwireless

Location:	**NAUGATUCK 2 CT**
Site #:	2-0183
Date:	09/30/15
Name:	Jaime Laredo
File Name:	NAUGATUCK 2 CT - FF POWER (LTE-700).xlsx

Operating Freq. (MHz):	**746.0**
Antenna Height (ft):	**40.0**
Antenna Gain (dBi):	**14.7**
Antenna Size (in.):	**72.0**
Downtilt (degrees):	**0.0**
Feedline Loss (dB):	**0.0**
ERP (W):	**1050.0**
No. of Channels:	**1**



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	37.0	37.6	39.4	40.8	42.7	45.2	48.3	52.3	57.6	64.5	74.0	87.6	108.2	143.0	213.2	424.7	530.7	1060.7
Distance from Antenna Structure Base in Horizontal plane	0.0	6.6	13.5	17.3	21.4	25.9	31.1	37.0	44.1	52.9	64.1	79.4	101.7	138.2	209.9	423.1	529.4	1060.1
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	36.76	34.35	38.52	35.34	29.54	26.8	25.59	25.63	25.99	21.21	20.29	23.24	13.03	12.3	9.92	2	0.2	0
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.03	0.02	0.02	0.02	0.02	0.01
Percent of Occupational Standard	0.0	0.1	0.0	0.0	0.2	0.3	0.3	0.3	0.2	0.5	0.5	0.2	1.2	0.8	0.6	1.0	0.9	0.2
Percent of General Population Standard	0.2	0.4	0.1	0.2	0.8	1.4	1.6	1.4	1.0	2.5	2.3	0.8	5.8	3.9	3.0	4.8	4.6	1.2

Antenna Type: **SBNHH-1D65B**

Max%: **5.78%**

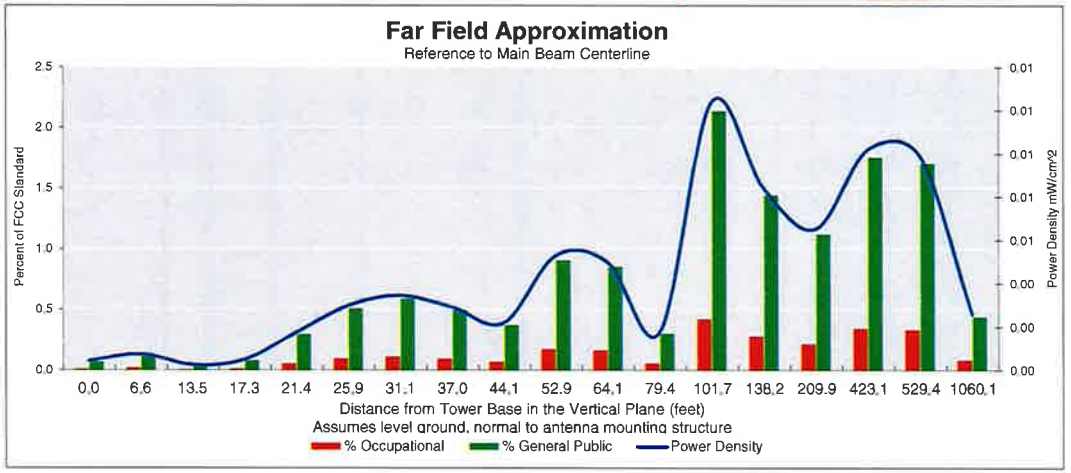
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole/Wire/Yagi Antenna Types

verizonwireless

Location:	**NAUGATUCK 2 CT**
Site #:	2-0183
Date:	09/30/15
Name:	Jaime Laredo
File Name:	NAUGATUCK 2 CT - FF POWER (Cellular).xlsx

Operating Freq. (MHz):	**869.0**
Antenna Height (ft):	**40.0**
Antenna Gain (dBi):	**15.7**
Antenna Size (in.):	**48.0**
Downtilt (degrees):	**0.0**
Feedline Loss (dB):	**0.0**
ERP (W):	**360.7**
No. of Channels:	**9**



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	37.0	37.6	39.4	40.8	42.7	45.2	48.3	52.3	57.6	64.5	74.0	87.6	108.2	143.0	213.2	424.7	530.7	1060.7
Distance from Antenna Structure Base in Horizontal plane	0.0	6.6	13.5	17.3	21.4	25.9	31.1	37.0	44.1	52.9	64.1	79.4	101.7	138.2	209.9	423.1	529.4	1060.1
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	36.76	34.35	38.52	35.34	29.54	26.8	25.59	25.63	25.99	21.21	20.29	23.24	13.03	12.3	9.92	2	0.2	0
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.4	0.3	0.2	0.4	0.3	0.1
Percent of General Population Standard	0.1	0.1	0.0	0.1	0.3	0.5	0.6	0.5	0.4	0.9	0.9	0.3	2.1	1.5	1.1	1.8	1.7	0.4

Antenna Type: **DB844H65E**

Max%: **2.14%**

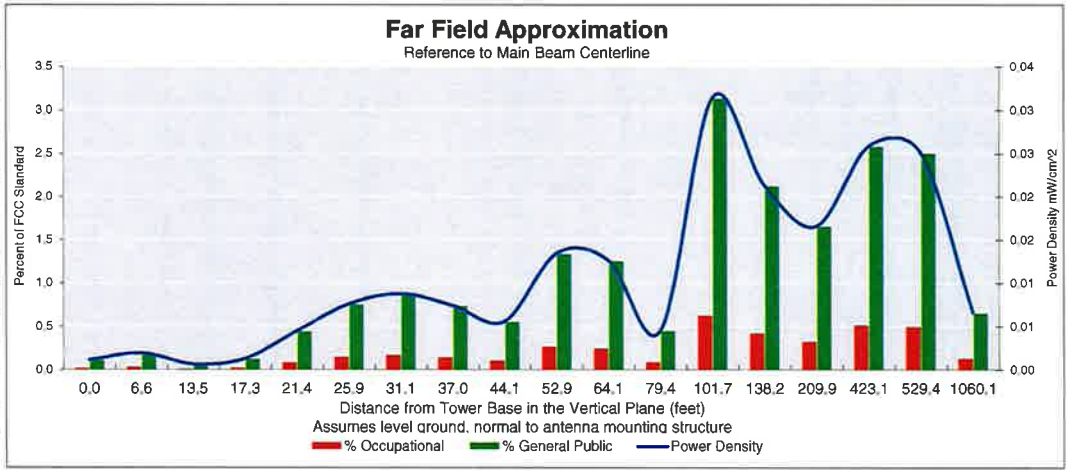
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole/Wire/Yagi Antenna Types

verizonwireless

Location:	**NAUGATUCK 2 CT**
Site #:	2-0183
Date:	09/30/15
Name:	Jaime Laredo
File Name:	NAUGATUCK 2 CT - FF POWER (PCS).xlsx

Operating Freq. (MHz):	**1970.0**
Antenna Height (ft):	**40.0**
Antenna Gain (dBi):	**18.4**
Antenna Size (in.):	**72.0**
Downtilt (degrees):	**0.0**
Feedline Loss (dB):	**0.0**
ERP (W):	**492.4**
No. of Channels:	**7**



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	37.0	37.6	39.4	40.8	42.7	45.2	48.3	52.3	57.6	64.5	74.0	87.6	108.2	143.0	213.2	424.7	530.7	1060.7
Distance from Antenna Structure Base in Horizontal plane	0.0	6.6	13.5	17.3	21.4	25.9	31.1	37.0	44.1	52.9	64.1	79.4	101.7	138.2	209.9	423.1	529.4	1060.1
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	36.76	34.35	38.52	35.34	29.54	26.8	25.59	25.63	25.99	21.21	20.29	23.24	13.03	12.3	9.92	2	0.2	0
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.03	0.02	0.02	0.03	0.03	0.01
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.3	0.3	0.1	0.6	0.4	0.3	0.5	0.5	0.1
Percent of General Population Standard	0.1	0.2	0.1	0.1	0.5	0.8	0.9	0.7	0.6	1.3	1.3	0.5	3.1	2.1	1.7	2.6	2.5	0.7

Antenna Type: **SBNHH-1D65B**

Max%: **3.15%**

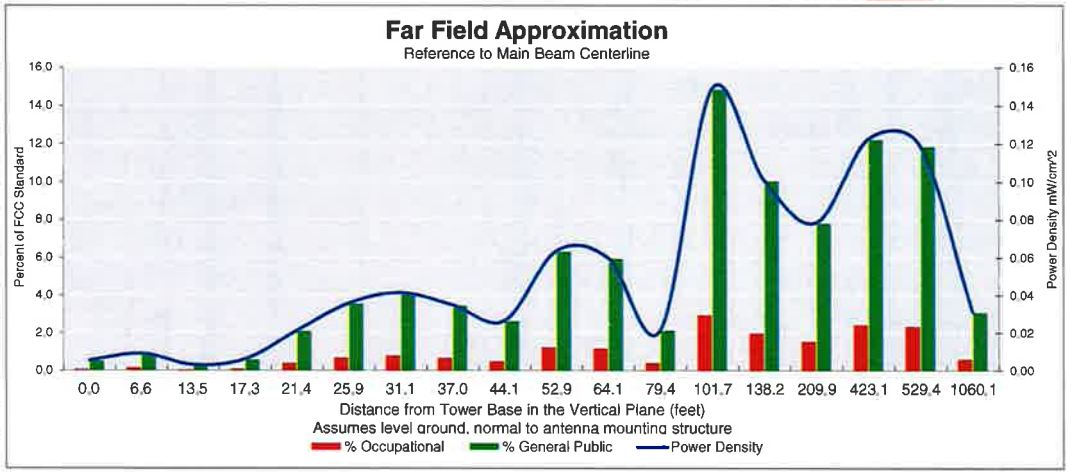
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole/Wire/Yagi Antenna Types

verizonwireless

Location:	**NAUGATUCK 2 CT**
Site #:	2-0183
Date:	09/30/15
Name:	Jaime Laredo
File Name:	NAUGATUCK 2 CT - FF POWER (LTE-AWS).xlsx

Operating Freq. (MHz):	**2145.0**
Antenna Height (ft):	**40.0**
Antenna Gain (dBi):	**18.4**
Antenna Size (in.):	**72.0**
Downtilt (degrees):	**0.0**
Feedline Loss (dB):	**0.0**
ERP (W):	**2333.2**
No. of Channels:	**1**



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	37.0	37.6	39.4	40.8	42.7	45.2	48.3	52.3	57.6	64.5	74.0	87.6	108.2	143.0	213.2	424.7	530.7	1060.7
Distance from Antenna Structure Base in Horizontal plane	0.0	6.6	13.5	17.3	21.4	25.9	31.1	37.0	44.1	52.9	64.1	79.4	101.7	138.2	209.9	423.1	529.4	1060.1
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	36.76	34.35	38.52	35.34	29.54	26.8	25.59	25.63	25.99	21.21	20.29	23.24	13.03	12.3	9.92	2	0.2	0
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.01	0.01	0.00	0.01	0.02	0.04	0.04	0.04	0.03	0.06	0.06	0.02	0.15	0.10	0.08	0.12	0.12	0.03
Percent of Occupational Standard	0.1	0.2	0.1	0.1	0.4	0.7	0.8	0.7	0.5	1.3	1.2	0.4	3.0	2.0	1.6	2.5	2.4	0.6
Percent of General Population Standard	0.5	0.9	0.3	0.6	2.1	3.6	4.1	3.5	2.7	6.4	6.0	2.2	14.9	10.1	7.9	12.3	11.9	3.1

Antenna Type: **SBNHH-1D65B**

Max%: **14.91%**

ATTACHMENT 3

AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

SEMAAN
ENGINEERING SOLUTIONS

Structural Analysis Report

Structure	:	**49 ft Monopole**
ATC Site Name	:	**Naugatuck (telephone Pole), CT**
ATC Site Number	:	**302526**
Engineering Number	:	**63584421**
Proposed Carrier	:	**Verizon Wireless**
Carrier Site Name	:	**Naugatuck 2**
Carrier Site Number	:	**N/A**
Site Location	:	**585 South Main St.** **Naugatuck, CT 06770-4725** **41.47844, -73.04850**
County	:	**New Haven**
Date	:	**September 14, 2015**
Max Usage	:	**76%**
Result	:	**Pass**

Kyle Klabunde
SES Structural Engineer I

STATE OF CONNECTICUT
THOMAS L. TAYLOR
28130
LICENSED
PROFESSIONAL ENGINEER
9.14.15

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 49 ft monopole to reflect the change in loading by Verizon Wireless.

Supporting Documents

Tower Drawings	EEI Job #11696, dated January 22, 2001
Foundation Drawing	EEI Job #11696, dated June 5, 2003
Geotechnical Report	CET Project #07729-76, dated March 28, 2003

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/TIA-222.

Basic Wind Speed:	100 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendment
Structure Class:	II
Exposure Category:	B
Topographic Category:	1

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					
49.0	52.0	4	Powerwave CM1007-DBPXBC-003	Low Profile Platform	(8) 1 5/8" Coax (2) 0.78" 8 AWG 6 (1) 0.51" Hybrid (1) 3" Conduit	AT&T Mobility
		6	CCI DTMABP7819VG12A			
		2	Ericsson RRUS A2			
		3	Raycap DC6-48-60-18-8F			
		4	Ericsson RRUS 11 (Band 12)			
		2	Ericsson RRUS 32 B30			
		2	Ericsson RRUS 12			
		2	Ericsson RRUS E2 B29			
		2	Powerwave 7770.00			
		4	CCI OPA-65R-LCUU-H6			
40.0	40.0	6	RFS FD9R6004/1C-3L	Low Profile Platform	(12) 1 5/8" Coax	Verizon Wireless
		6	Decibel DB844H80E-XY			

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
40.0	40.0	3	Antel BXA-70063/4CF	-	-	Verizon Wireless
		3	Rymsa MGD3-800T0			

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
40.0	40.0	3	Alcatel-Lucent RRH2X60-1900	Existing Low Profile Platform	(2) 1 5/8" Hybriflex	Verizon Wireless
		3	Alcatel-Lucent RRH2x60-AWS			
		3	Alcatel-Lucent RRH2x60 700			
		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 outside the pole shaft. Stacking coax is not allowed.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	53%	Pass
Shaft	76%	Pass
Base Plate	74%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	288.5	389.5	335.3	86%
Shear (Kips)	7.0	9.5	7.8	82%

*** The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1**

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
40.0	Alcatel-Lucent RRH2X60-1900	Verizon Wireless	0.294	0.756
	Alcatel-Lucent RRH2x60-AWS			
	Alcatel-Lucent RRH2x60 700			
	RFS DB-T1-6Z-8AB-0Z			
	Commscope SBNHH-1D65B			

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G**

SEMAAN
ENGINEERING SOLUTIONS

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.

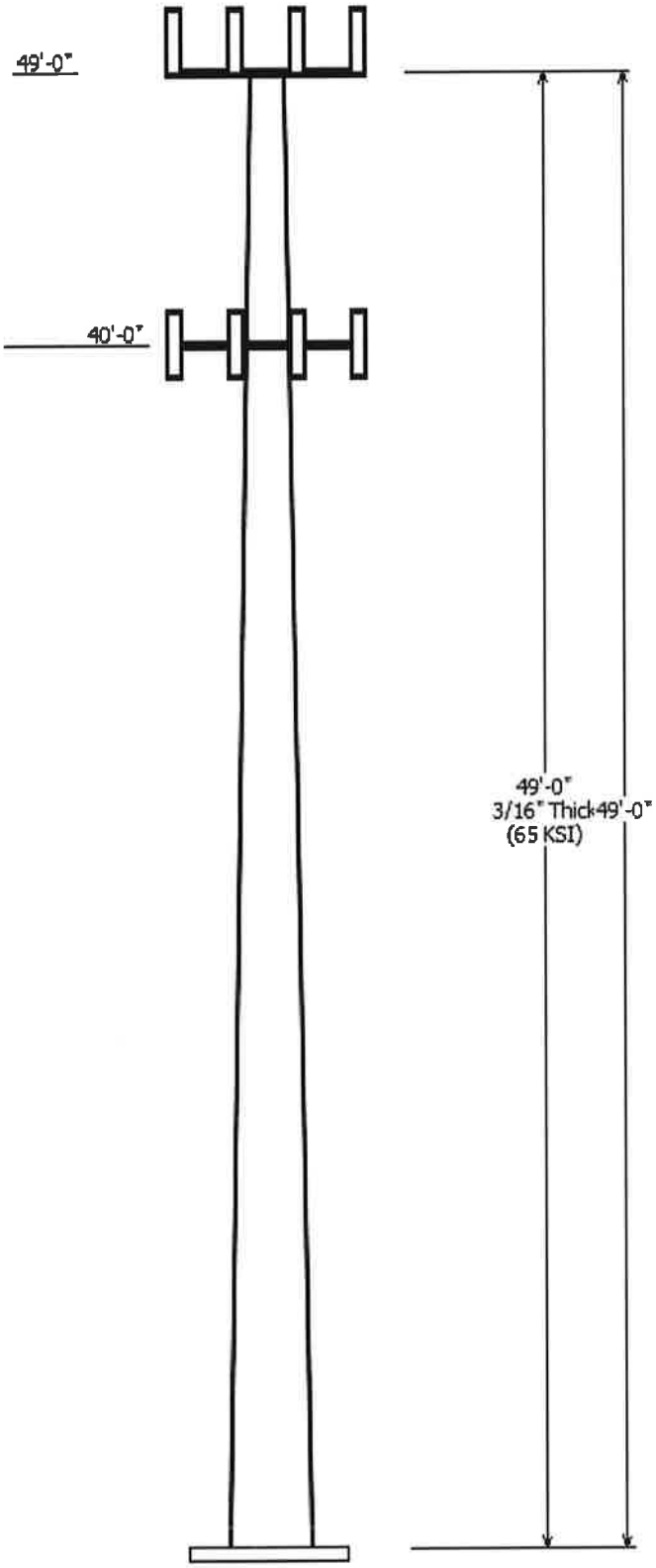
-- Information from drawings in the possession of Semaan Engineering Solutions, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Semaan Engineering Solutions Holdings 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 Semaan Engineering Solutions, 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. Semaan Engineering Solutions Holdings is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

SEMAAN ENGINEERING SOLUTIONS, LLC
1079 N 205th Street
Elkhorn, NE 68022
Phone: 402-289-1888
Fax: 402-289-1861



Job Information

Pole :	302526	Code: ANSI/TIA-222-G	
Description :	49' ⊟ Monopole		
Client :	Verizon Wireless	Struct Class :	II
Location :	Naugatuck (telephone Pole), CT		
Shape :	18 Sides	Exposure :	B
Height :	49.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.18370(in/ft)		

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	49.000	13.99	23.00	0.188		0.000	0.183700	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
49.000	52.000	4	CCI OPA-65R-LCUU-H6
49.000	52.000	2	Ericsson RRUS E2 B29
49.000	52.000	2	Ericsson RRUS 12
49.000	52.000	2	Ericsson RRUS 32 B30
49.000	52.000	2	Ericsson RRUS A2
49.000	52.000	4	Powerwave CM1007-DBPXBC-
49.000	52.000	2	Raycap DC6-48-60-18-8F
49.000	52.000	2	Powerwave Allgon 7770.00
49.000	52.000	6	CCI DTMABP7819VG12A
49.000	52.000	1	Raycap DC6-48-60-18-8F
49.000	52.000	4	Ericsson RRUS 11 (Band 12)
49.000	49.000	1	Flat Low Profile Platform
40.000	40.000	6	Commscope SBNHH-1D65B
40.000	40.000	2	RFS DB-T1-6Z-8AB-0Z
40.000	40.000	3	Alcatel-Lucent RRH2x60 700
40.000	40.000	3	Alcatel-Lucent RRH2x60-AWS
40.000	40.000	3	Alcatel-Lucent RRH2X60-1900
40.000	40.000	6	RFS FD9R6004/1C-3L
40.000	40.000	1	Flat Low Profile Platform
40.000	40.000	6	Decibel DB844H80E-XY

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	40.000	1 5/8" Coax	No
0.000	40.000	1 5/8" Hybriflex	Yes
0.000	49.000	0.51" Hybrid	No
0.000	49.000	0.78" 8 AWG 6	No
0.000	49.000	1 5/8" Coax	No
0.000	49.000	3" Conduit	No

Load Cases

1.2D + 1.6W	100.00 mph with No Ice
0.9D + 1.6W	100.00 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50.00 mph with 0.75 in Radial Ice
1.0D + 1.0W	60.00 mph Serviceability

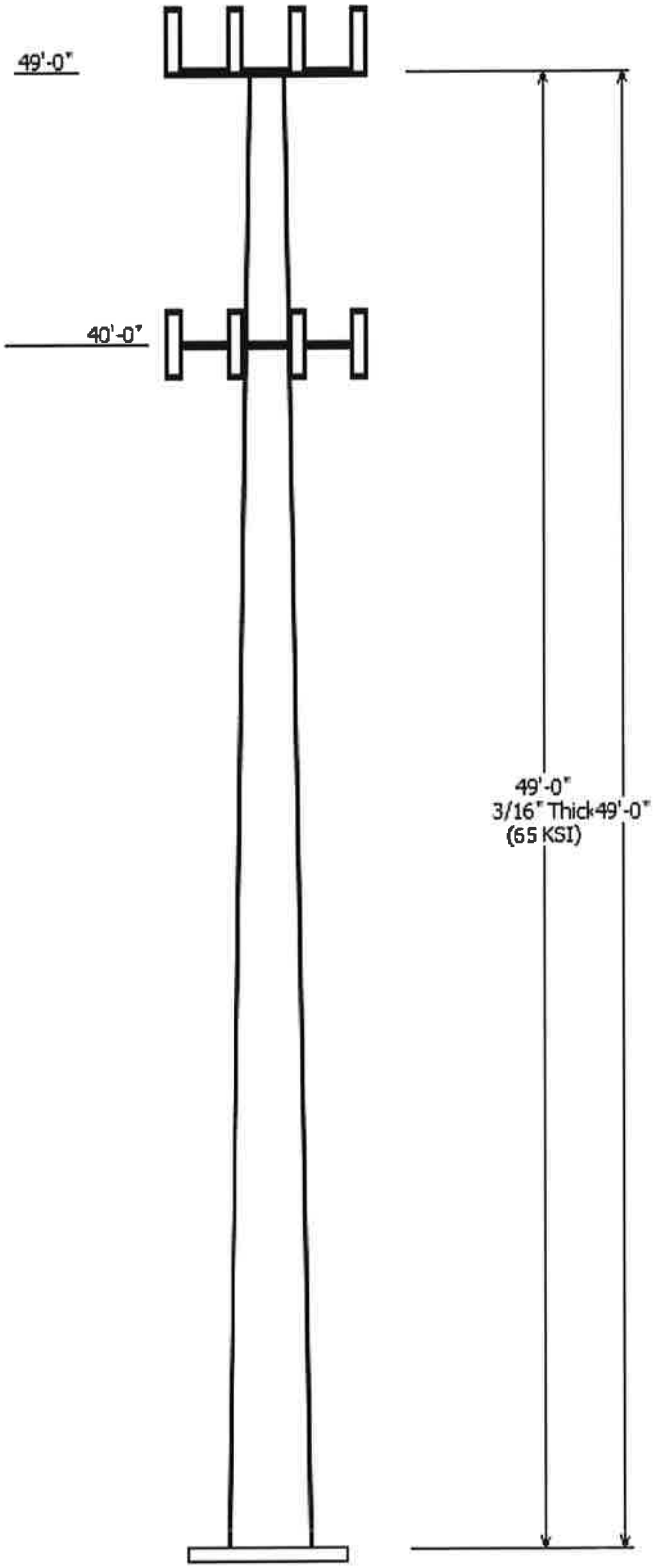
Reactions

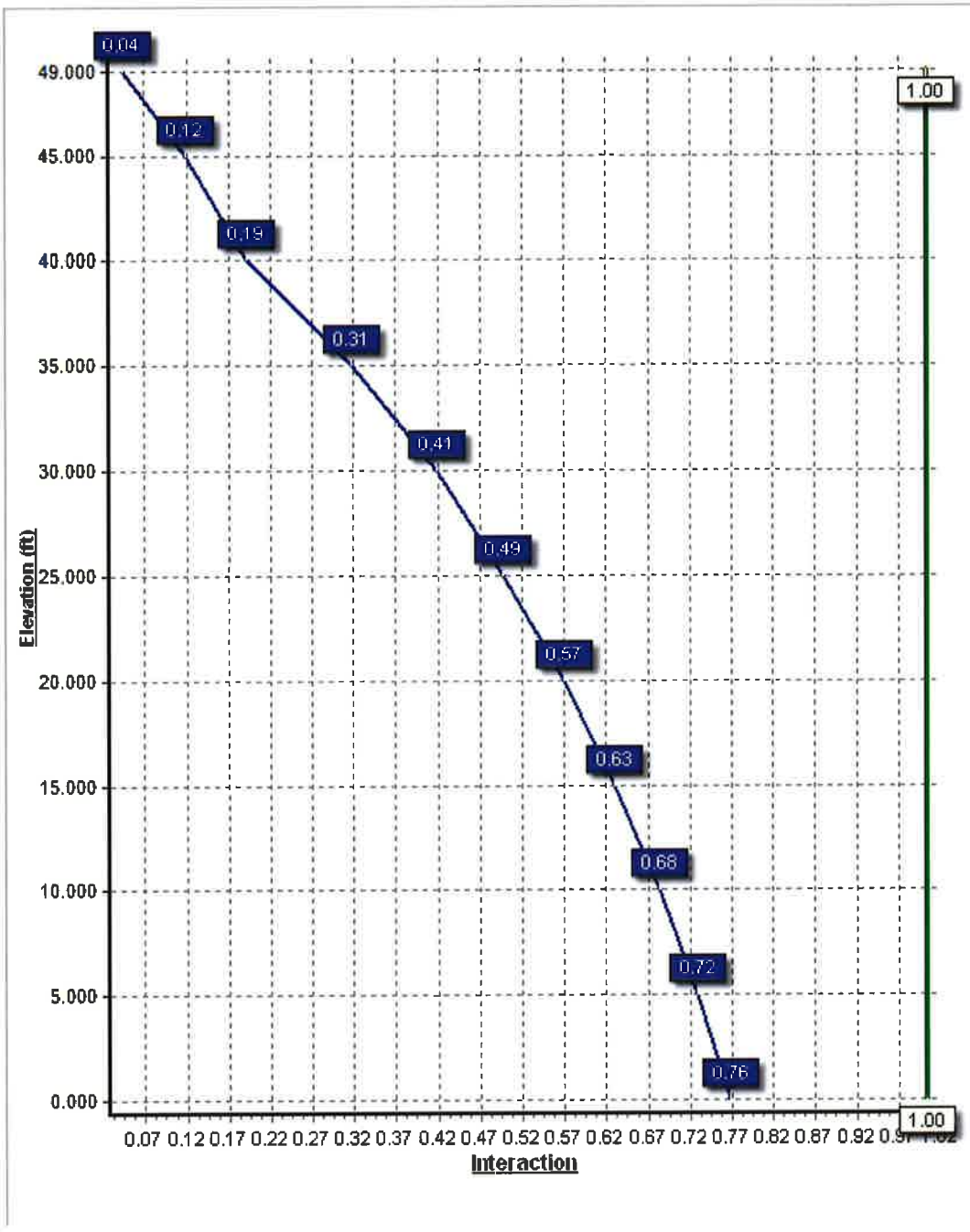
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	335.31	7.78	9.79
0.9D + 1.6W	331.42	7.74	7.33

1.2D + 1.0Di + 1.0Wi	89.69	2.03	17.05
1.0D + 1.0W	74.85	1.74	8.18

Dish Deflections

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

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0.12
0.19
0.31
0.41
0.49
0.57
0.63
0.68
0.72
0.76
1.00
1.00
49.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.07 0.12 0.17 0.22 0.27 0.32 0.37 0.42 0.47 0.52 0.57 0.62 0.67 0.72 0.77 0.82 0.87 0.92
Interaction

Site Number:	**302526**	**Code: ANSI/TIA-222-G**	
Site Name:	**Naugatuck (telephone Pole), CT**	**Engineering Number: 63584421**	**9/14/2015 10:24:02 AM**
Customer:	**Verizon Wireless**		

Analysis Parameters

Location:	**New Haven County, CT**		
Code:	**ANSI/TIA-222-G**	**Height (ft):**	**49**
Shape:	**18 Sides**	**Base Diameter (in):**	**23.00**
Pole Type:	**Taper**	**Top Diameter (in):**	**14.00**
Pole Manfacturer:	**EE**	**Taper (in/ft) :**	**0.184**

Ice & Wind Parameters

Structure Class:	**II**	**Design Wind Speed Without Ice:**	**100 mph**
Exposure Catagory:	**B**	**Design Wind Speed With Ice:**	**50 mph**
Topographic Catagory:	**1**	**Operational Wind Speed:**	**60 mph**
Crest Height:	**0.0 ft**	**Design Ice Thickness:**	**0.00 in**

Load Cases

1.2D + 1.6W	**100.00 mph with No Ice**
0.9D + 1.6W	**100.00 mph with No Ice (Reduced DL)**
1.2D + 1.0Di + 1.0Wi	**50.00 mph with 0.75 in Radial Ice**
1.0D + 1.0W	**60.00 mph Serviceability**

Site Number: 302526 Code: ANSI/TIA-222-G

Site Name: Naugatuck (telephone Pole), CT Engineering Number: 63584421 9/14/2015 10:24:02 AM

Customer: Verizon Wireless

Shaft Section Properties

							Bottom						Top						
Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Slip Joint Type	Slip Joint Len (in)	Weight (lb)	Dia (in)	Elev (ft)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	49.000	0.1875	65		0.00	1,817	23.00	0.00	13.58	892.6	20.22	122.67	13.99	49.00	8.22	198.1	11.75	74.66	0.183700
				Shaft Weight		1,817													

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)
49.00	CCI DTMABP7819VG12A	6	19.20	0.970	0.67	48.06	1.341	0.67	0.000	3.000
49.00	CCI OPA-65R-LCUU-H6	4	73.00	9.660	0.79	275.49	10.869	0.79	0.000	3.000
49.00	Ericsson RRUS 11 (Band 12)	4	55.00	2.520	0.71	124.73	3.088	0.71	0.000	3.000
49.00	Ericsson RRUS 12	2	50.00	3.150	0.70	112.22	4.186	0.70	0.000	3.000
49.00	Ericsson RRUS 32 B30	2	60.00	2.690	0.78	127.62	3.620	0.78	0.000	3.000
49.00	Ericsson RRUS A2	2	15.00	1.600	0.62	47.39	2.346	0.62	0.000	3.000
49.00	Ericsson RRUS E2 B29	2	60.00	3.150	0.00	134.67	4.186	7.00	0.000	3.000
49.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	2,078.09	43.135	1.00	0.000	0.000
49.00	Powerwave Allgon 7770.00	2	35.00	5.510	0.77	152.30	6.437	0.77	0.000	3.000
49.00	Powerwave CM1007-	4	6.50	0.430	0.84	21.92	0.624	0.84	0.000	3.000
49.00	Raycap DC6-48-60-18-8F	2	31.80	2.200	1.00	112.54	2.776	1.00	0.000	3.000
49.00	Raycap DC6-48-60-18-8F	1	31.80	2.200	1.00	112.54	2.776	1.00	0.000	3.000
40.00	Alcatel-Lucent RRH2x60 700	3	56.70	2.150	0.67	125.37	2.687	0.67	0.000	0.000
40.00	Alcatel-Lucent RRH2X60-	3	43.00	1.880	0.67	99.58	2.390	0.67	0.000	0.000
40.00	Alcatel-Lucent RRH2x60-AWS	3	44.00	1.880	0.67	102.27	2.390	0.67	0.000	0.000
40.00	Commscope SBNHH-1D65B	6	50.70	8.170	0.83	223.43	9.299	0.83	0.000	0.000
40.00	Decibel DB844H80E-XY	6	14.00	3.610	0.92	107.27	3.801	0.92	0.000	0.000
40.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	2,065.18	42.755	1.00	0.000	0.000
40.00	RFS DB-T1-6Z-8AB-0Z	2	44.00	4.800	1.00	166.25	5.554	1.00	0.000	0.000
40.00	RFS FD9R6004/1C-3L	6	3.10	0.370	0.50	13.66	0.540	0.50	0.000	0.000
	Totals	62	5114.50			10,986.53			Number of Loadings :	20

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Protected Width (in)	Exposed To Wind	Carrier
0.00	49.00	1	0.51" Hybrid	0.51	0.14	N	0.00	N	AT&T Mobility
0.00	49.00	2	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	49.00	8	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T Mobility
0.00	49.00	1	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility
0.00	40.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon Wireless
0.00	40.00	2	1 5/8" Hybriflex	1.98	1.30	N	1.98	Y	Verizon Wireless

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)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.1875	23.000	13.576	892.6	20.22	122.67	77.6	76.4	0.0	0.0
5.00		0.1875	22.081	13.029	789.1	19.36	117.77	78.6	70.4	0.0	226.3
10.00		0.1875	21.163	12.483	693.9	18.49	112.87	79.7	64.6	0.0	217.0
15.00		0.1875	20.244	11.936	606.7	17.63	107.97	80.7	59.0	0.0	207.7
20.00		0.1875	19.326	11.389	527.1	16.76	103.07	81.7	53.7	0.0	198.4
25.00		0.1875	18.407	10.843	454.8	15.90	98.17	82.6	48.7	0.0	189.1
30.00		0.1875	17.489	10.296	389.4	15.04	93.27	82.6	43.9	0.0	179.8
35.00		0.1875	16.570	9.750	330.6	14.17	88.38	82.6	39.3	0.0	170.5
40.00		0.1875	15.652	9.203	278.1	13.31	83.48	82.6	35.0	0.0	161.2
45.00		0.1875	14.734	8.656	231.4	12.44	78.58	82.6	30.9	0.0	151.9
49.00		0.1875	13.999	8.219	198.1	11.75	74.66	82.6	27.9	0.0	114.8
											1,817.0

Site Number: 302526 Code: ANSI/TIA-222-G

Site Name: Naugatuck (telephone Pole), CT Engineering Number: 63584421 9/14/2015 10:24:02 AM

Customer: Verizon Wireless

Load Case: 1.2D + 1.6W 100.00 mph with No Ice 17 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

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		92.9	0.0					0.0	0.0	92.9	0.0	0.0	0.0
5.00		182.0	271.6					0.0	167.4	182.0	439.0	0.0	0.0
10.00		174.4	260.4					0.0	167.4	174.4	427.8	0.0	0.0
15.00		166.8	249.3					0.0	167.4	166.8	416.7	0.0	0.0
20.00		160.0	238.1					0.0	167.4	160.0	405.5	0.0	0.0
25.00		154.4	227.0					0.0	167.4	154.4	394.3	0.0	0.0
30.00		150.8	215.8					0.0	167.4	150.8	383.2	0.0	0.0
35.00		150.2	204.6					0.0	167.4	150.2	372.0	0.0	0.0
40.00	Appertunance(s)	144.5	193.5	3,016.8	0.0	0.0	2,911.1	0.0	167.4	3,161.2	3,271.9	0.0	0.0
45.00		123.1	182.3					0.0	92.8	123.1	275.1	0.0	0.0
49.00	Appertunance(s)	53.9	137.8	3,255.5	0.0	7,065.1	3,226.3	0.0	74.2	3,309.3	3,438.3	0.0	0.0
								Totals:		7,825.16	9,823.86	0.00	0.00

Load Case: 1.2D + 1.6W — 100.00 mph with No Ice — 17 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.60
Wind Importance Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-9.79	-7.78	0.00	-335.31	0.00	335.31	948.37	474.19	888.66	444.99	0.00	0.00	0.764
5.00	-9.28	-7.67	0.00	-296.43	0.00	296.43	922.10	461.05	828.97	415.10	0.27	-0.50	0.724
10.00	-8.79	-7.57	0.00	-258.06	0.00	258.06	894.83	447.42	770.42	385.78	1.07	-1.00	0.679
15.00	-8.32	-7.46	0.00	-220.21	0.00	220.21	866.56	433.28	713.12	357.09	2.38	-1.49	0.627
20.00	-7.86	-7.36	0.00	-182.88	0.00	182.88	837.29	418.65	657.19	329.08	4.21	-1.97	0.565
25.00	-7.42	-7.24	0.00	-146.10	0.00	146.10	805.56	402.78	601.65	301.27	6.51	-2.41	0.494
30.00	-7.00	-7.12	0.00	-109.90	0.00	109.90	764.96	382.48	542.22	271.51	9.25	-2.81	0.414
35.00	-6.60	-6.98	0.00	-74.31	0.00	74.31	724.35	362.17	485.89	243.30	12.39	-3.15	0.315
40.00	-3.50	-3.65	0.00	-39.39	0.00	39.39	683.74	341.87	432.64	216.64	15.82	-3.39	0.187
45.00	-3.22	-3.52	0.00	-21.14	0.00	21.14	643.13	321.56	382.49	191.53	19.46	-3.55	0.115
49.00	0.00	-3.31	0.00	-7.07	0.00	7.07	610.64	305.32	344.59	172.55	22.47	-3.62	0.041

Site Number: 302526 Code: ANSI/TIA-222-G

Site Name: Naugatuck (telephone Pole), CT Engineering Number: 63584421 9/14/2015 10:24:03 AM

Customer: Verizon Wireless

Load Case: 0.9D + 1.6W 100.00 mph with No Ice (Reduced DL) 17 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60

Wind Importance 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		92.9	0.0					0.0	0.0	92.9	0.0	0.0	0.0
5.00		182.0	203.7					0.0	125.5	182.0	329.2	0.0	0.0
10.00		174.4	195.3					0.0	125.5	174.4	320.9	0.0	0.0
15.00		166.8	187.0					0.0	125.5	166.8	312.5	0.0	0.0
20.00		159.2	178.6					0.0	125.5	159.2	304.1	0.0	0.0
25.00		151.7	170.2					0.0	125.5	151.7	295.8	0.0	0.0
30.00		145.8	161.8					0.0	125.5	145.8	287.4	0.0	0.0
35.00		142.7	153.5					0.0	125.5	142.7	279.0	0.0	0.0
40.00	Appertunance(s)	140.0	145.1	3,016.8	0.0	0.0	2,183.3	0.0	125.5	3,156.8	2,454.0	0.0	0.0
45.00		123.1	136.7					0.0	69.6	123.1	206.3	0.0	0.0
49.00	Appertunance(s)	53.9	103.4	3,255.5	0.0	7,065.1	2,419.7	0.0	55.7	3,309.3	2,578.8	0.0	0.0
								Totals:		7,804.58	7,367.90	0.00	0.00

Site Number: 302526 Code: ANSI/TIA-222-G

Site Name: Naugatuck (telephone Pole), CT Engineering Number: 63584421 9/14/2015 10:24:03 AM

Customer: Verizon Wireless

Load Case: 0.9D + 1.6W 100.00 mph with No Ice (Reduced DL) 17 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 0.90

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-7.33	-7.74	0.00	-331.42	0.00	331.42	948.37	474.19	888.66	444.99	0.00	0.00	0.753
5.00	-6.94	-7.62	0.00	-292.70	0.00	292.70	922.10	461.05	828.97	415.10	0.27	-0.50	0.713
10.00	-6.56	-7.50	0.00	-254.60	0.00	254.60	894.83	447.42	770.42	385.78	1.06	-0.99	0.668
15.00	-6.19	-7.38	0.00	-217.10	0.00	217.10	866.56	433.28	713.12	357.09	2.36	-1.47	0.615
20.00	-5.83	-7.26	0.00	-180.22	0.00	180.22	837.29	418.65	657.19	329.08	4.15	-1.94	0.555
25.00	-5.49	-7.13	0.00	-143.94	0.00	143.94	805.56	402.78	601.65	301.27	6.42	-2.38	0.485
30.00	-5.16	-7.01	0.00	-108.28	0.00	108.28	764.96	382.48	542.22	271.51	9.13	-2.77	0.406
35.00	-4.86	-6.87	0.00	-73.25	0.00	73.25	724.35	362.17	485.89	243.30	12.22	-3.10	0.308
40.00	-2.57	-3.59	0.00	-38.88	0.00	38.88	683.74	341.87	432.64	216.64	15.61	-3.34	0.183
45.00	-2.37	-3.46	0.00	-20.91	0.00	20.91	643.13	321.56	382.49	191.53	19.20	-3.50	0.113
49.00	0.00	-3.31	0.00	-7.07	0.00	7.07	610.64	305.32	344.59	172.55	22.16	-3.57	0.041

Site Number: 302526 Code: ANSI/TIA-222-G

Site Name: Naugatuck (telephone Pole), CT Engineering Number: 63584421 9/14/2015 10:24:03 AM

Customer: Verizon Wireless

Load Case: 1.2D + 1.0Di + 1.0Wi 50.00 mph with 0.75 in Radial Ice 16 Iterations

Gust Response Factor : 1.10 Ice Dead Load Factor : 1.00 Wind Importance Factor : 1.00

Dead Load Factor : 1.20 Ice Importance Factor : 1.00

Wind Load Factor : 1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		29.5	0.0					0.0	0.0	29.5	0.0	0.0	0.0
5.00		58.2	440.2					0.0	196.7	58.2	637.0	0.0	0.0
10.00		56.5	442.3					0.0	200.8	56.5	643.1	0.0	0.0
15.00		54.6	433.4					0.0	202.9	54.6	636.3	0.0	0.0
20.00		52.6	420.8					0.0	204.4	52.6	625.3	0.0	0.0
25.00		50.6	406.3					0.0	205.6	50.6	612.0	0.0	0.0
30.00		49.1	390.6					0.0	206.6	49.1	597.2	0.0	0.0
35.00		48.5	374.0					0.0	207.4	48.5	581.4	0.0	0.0
40.00	Appertunance(s)	48.2	356.7	604.2	0.0	0.0	5,730.7	0.0	208.2	652.4	6,295.6	0.0	0.0
45.00		42.8	339.0					0.0	92.8	42.8	431.7	0.0	0.0
49.00	Appertunance(s)	18.9	258.8	929.6	0.0	2,091.2	5,663.3	0.0	74.2	948.4	5,996.3	0.0	0.0
								Totals:		2,043.28	17,055.9	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi 50.00 mph with 0.75 in Radial Ice 16 Iterations

Gust Response Factor : 1.10 Ice Dead Load Factor : 1.00 Wind Importance Factor : 1.00
Dead Load Factor : 1.20 Ice Importance Factor : 1.00
Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-17.05	-2.03	0.00	-89.69	0.00	89.69	948.37	474.19	888.66	444.99	0.00	0.00	0.220
5.00	-16.41	-2.01	0.00	-79.52	0.00	79.52	922.10	461.05	828.97	415.10	0.07	-0.13	0.209
10.00	-15.76	-1.99	0.00	-69.45	0.00	69.45	894.83	447.42	770.42	385.78	0.29	-0.27	0.198
15.00	-15.12	-1.97	0.00	-59.50	0.00	59.50	866.56	433.28	713.12	357.09	0.64	-0.40	0.184
20.00	-14.49	-1.94	0.00	-49.66	0.00	49.66	837.29	418.65	657.19	329.08	1.13	-0.53	0.168
25.00	-13.88	-1.91	0.00	-39.95	0.00	39.95	805.56	402.78	601.65	301.27	1.75	-0.65	0.150
30.00	-13.28	-1.88	0.00	-30.39	0.00	30.39	764.96	382.48	542.22	271.51	2.49	-0.76	0.129
35.00	-12.70	-1.84	0.00	-20.99	0.00	20.99	724.35	362.17	485.89	243.30	3.34	-0.85	0.104
40.00	-6.41	-1.10	0.00	-11.78	0.00	11.78	683.74	341.87	432.64	216.64	4.28	-0.92	0.064
45.00	-5.98	-1.05	0.00	-6.30	0.00	6.30	643.13	321.56	382.49	191.53	5.27	-0.97	0.042
49.00	0.00	-0.95	0.00	-2.09	0.00	2.09	610.64	305.32	344.59	172.55	6.10	-0.99	0.012

Site Number: 302526 Code: ANSI/TIA-222-G

Site Name: Naugatuck (telephone Pole), CT Engineering Number: 63584421 9/14/2015 10:24:03 AM

Customer: Verizon Wireless

Load Case: 1.0D + 1.0W 60.00 mph Serviceability 16 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

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		20.9	0.0					0.0	0.0	20.9	0.0	0.0	0.0
5.00		40.9	226.3					0.0	139.5	40.9	365.8	0.0	0.0
10.00		39.2	217.0					0.0	139.5	39.2	356.5	0.0	0.0
15.00		37.5	207.7					0.0	139.5	37.5	347.2	0.0	0.0
20.00		35.8	198.4					0.0	139.5	35.8	337.9	0.0	0.0
25.00		34.1	189.1					0.0	139.5	34.1	328.6	0.0	0.0
30.00		32.8	179.8					0.0	139.5	32.8	319.3	0.0	0.0
35.00		32.1	170.5					0.0	139.5	32.1	310.0	0.0	0.0
40.00	Appertunance(s)	31.5	161.2	678.8	0.0	0.0	2,425.9	0.0	139.5	710.3	2,726.6	0.0	0.0
45.00		27.7	151.9					0.0	77.3	27.7	229.2	0.0	0.0
49.00	Appertunance(s)	12.1	114.8	732.5	0.0	1,589.6	2,688.6	0.0	61.8	744.6	2,865.3	0.0	0.0
								Totals:		1,756.03	8,186.55	0.00	0.00

Site Number: 302526 Code: ANSI/TIA-222-G

Site Name: Naugatuck (telephone Pole), CT Engineering Number: 63584421 9/14/2015 10:24:03 AM

Customer: Verizon Wireless

Load Case: 1.0D + 1.0W 60.00 mph Serviceability 16 Iterations

Gust Response Factor : 1.10 Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-8.18	-1.74	0.00	-74.85	0.00	74.85	948.37	474.19	888.66	444.99	0.00	0.00	0.177
5.00	-7.82	-1.72	0.00	-66.14	0.00	66.14	922.10	461.05	828.97	415.10	0.06	-0.11	0.168
10.00	-7.46	-1.69	0.00	-57.55	0.00	57.55	894.83	447.42	770.42	385.78	0.24	-0.22	0.158
15.00	-7.11	-1.67	0.00	-49.10	0.00	49.10	866.56	433.28	713.12	357.09	0.53	-0.33	0.146
20.00	-6.77	-1.64	0.00	-40.77	0.00	40.77	837.29	418.65	657.19	329.08	0.94	-0.44	0.132
25.00	-6.43	-1.61	0.00	-32.57	0.00	32.57	805.56	402.78	601.65	301.27	1.45	-0.54	0.116
30.00	-6.11	-1.59	0.00	-24.51	0.00	24.51	764.96	382.48	542.22	271.51	2.06	-0.63	0.098
35.00	-5.80	-1.56	0.00	-16.58	0.00	16.58	724.35	362.17	485.89	243.30	2.76	-0.70	0.076
40.00	-3.08	-0.81	0.00	-8.80	0.00	8.80	683.74	341.87	432.64	216.64	3.53	-0.76	0.045
45.00	-2.85	-0.78	0.00	-4.73	0.00	4.73	643.13	321.56	382.49	191.53	4.34	-0.79	0.029
49.00	0.00	-0.74	0.00	-1.59	0.00	1.59	610.64	305.32	344.59	172.55	5.01	-0.81	0.009

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	7.78	0.00	9.79	0.00	0.00	335.31	0.00	0.76
0.9D + 1.6W	7.74	0.00	7.33	0.00	0.00	331.42	0.00	0.75
1.2D + 1.0Di + 1.0Wi	2.03	0.00	17.05	0.00	0.00	89.69	0.00	0.22
1.0D + 1.0W	1.74	0.00	8.18	0.00	0.00	74.85	0.00	0.18

Base Summary

Reactions

Original Design			Analysis			
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment Design %
288.50	6.70	7.00	335.31	17.05	7.78	86.09

Base Plate

Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Mu (kip-in)	Phi Mn (kip-in)	Ratio
60.0	1.500	37.000	Round	0	0.00	23.907	536.24	726.18	0.74

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
31.00	04	2.25" 18J	2.25	75.00	100.00	Radial	0.00	45.0	134.06	260.00	0.53	125.53	260.00	0.50

Site Number:	**302526**
Site Name:	**Naugatuck (Telephone Pole)**
Job Number:	**63584421**
Engineer:	**KTK**
Date:	**9/14/2015**

Base Plate and Bolt Analysis

Moment:	334.6	k-ft
Shear/Leg:	7.8	k
Compression/Leg:	16.8	k

TIA-222 Code Revision (F/G):	G	
Anchor Bolt Arrangement:	Round	
Monopole Shaft Diameter (Across Flats):	23.0	in
Lower Monopole Thickness:	0.188	in
# of Sides of Pole:	18	
Monopole Shaft Yield Strength:	65	ksi
Baseplate Diameter / Length:	37.00	
Base Plate Thickness:	1.50	in
Base Plate Yield Strength:	60	ksi
Baseplate Detail Type:	D	
Include Plate Thickness Beyond Bolt Circle:	Y	
Stress Increase:	1.00	
Fillet Weld Size:	0.375	in
Weld Type (CJP or F/F):	CJP	
Weld Strength:	70	ksi

Anchor Bolts

Anchor Bolt Yield Strength:	75	ksi
Anchor Bolt Ultimate Strength:	100	ksi
Anchor Bolt Diameter:	2.25	in
Anchor Bolt Circle:	31.00	in
# of Anchor Bolts:	4	
Minimum Anchor Bolt Separation:	6.00	in
Additional Anchor Bolts Installed:	N	

	Baseplate Flexural Capacity					Baseplate Shear Capacity			
Failure Mode:	Effective Width (in)	Moment (k-in)	S/Z (in^3)	Capacity (k-in)	Usage	Shear (k)	Area (in^2)	Capacity (k)	Usage
AA	23.78	533.8	13.4	722.5	0.74	133.4	35.7	1155.9	0.12
AB	23.78	533.8	13.4	722.5	0.74	133.4	35.7	1155.9	0.12
BA	23.39	510.1	13.2	710.3	0.72	133.4	35.1	1136.5	0.12
BB	23.39	510.1	13.2	710.3	0.72	133.4	35.1	1136.5	0.12

Anchor Bolt Capacity

Area of Bolt:	3.25	in^2
Inertia of Bolt:	0.84	in^4
Total Bolt Inertia:	1563.9	in^4
Maximum Bolt Tension:	125.1	k
Maximum Bolt Compression:	133.4	k
Bolt Shear:	1.9	k
Tensile Bolt Capacity:	259.8	k
Compressive Bolt Capacity:	259.8	k
Shear Bolt Capacity:	140.3	k
Interaction Equation:	0.53	Result: OK

Base Weld Capacity

Force / Weld:	7.7	k/in
Weld Capacity:	21.0	k/in
Interaction Equation:	0.37	Result: OK

SES Base Plate Design Moment:	533.8	k-in
Design Stress:	52.5	ksi
SES Base Plate Allowable Stress / Moment Capacity:	548.7	ksi / k-in
Usage:	0.97	
Moment Factor:	1.00	
Length Factor:	1.32	