ROBINSON & COLE LLP

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts

March 17, 2014

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

Re: **Notice of Exempt Modification – Revised Antenna Configuration**
37 Peach Orchard Road, Prospect, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") received Connecticut Siting Council (the "Council") approval to share the existing wireless telecommunications tower at 37 Peach Orchard Road in Prospect (the "Property") on November 5, 2013 (TS-VER-115-131009). The Council approved the installation of twelve (12) antennas at the 155-foot level on the tower; three (3) remote radio heads ("RRHs"); eighteen (18) coaxial cables; and one (1) HYBRIFLEX™ antenna cable. Cellco has not yet constructed its facility but expects to do so shortly.

Cellco has recently decided to modify its antenna configuration at this site and now intends to install three (3) model LNX-6514DS-T4M, 850 MHz antennas; three (3) model HBX-6517DS-VTM, 1900 MHz antennas; three (3) model LNX-6514D-T4M, 700 MHz antennas; and three (3) model HBX-6517DS-VTM, 2100 MHz antennas on the tower at the previously approved 155-foot level on the tower. Cellco also intends to install a total of six (6) remote radio heads ("RRHs") behind its antennas; twelve (12) coaxial cables and one (1) HYBRIFLEX™ cable on the monopole tower. Included in Attachment 1 are the specifications for the new antennas, RRHs and HYBRIFLEX™ cable.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Prospect Mayor, Robert J. Chatfield and Counterpoint Communications, the owner of the Property.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and RRHs will be located at the 155-foot level of the 200-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 modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative General Power Density table for Cellco's modified facility is included in Attachment 2.

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

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

For the foregoing reasons, Cellco respectfully submits that the revised antenna configuration at 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 J. Chatfield, Prospect Mayor
Counterpoint Communications, Inc.
Sandy M. Carter

ATTACHMENT 1

Product Specifications

ANDREW®
A CommScope Company

LNX-6514DS-T4M

DualPol® Antenna, 698–896 MHz, 65° horizontal beamwidth, fixed electrical tilt

- Broadband, providing future-ready single antenna for application in 700 MHz and existing 850 MHz cellular operation
- Air dielectric design provides superior PIM performance with repeatable antenna-to-antenna gain and pattern consistency
- Single piece radome provides long term mechanical stability
- Proven core design technology, with over 1,000,000 similar antennas deployed
- Exceptional USLS pattern shaping for optimizing coverage and interference mitigation for LTE applications
- Specifically designed to have physical dimensions similar to most existing cellular antennas

CHARACTERISTICS

General Specifications

Antenna Type	DualPol®
Brand	DualPol®
Operating Frequency Band	698 – 896 MHz

Electrical Specifications

Frequency Band, MHz	**698–806**	**806–896**
Beamwidth, Horizontal, degrees	66	64
Gain, dBd	13.8	14.5
Gain, dBi	15.9	16.6
Beamwidth, Vertical, degrees	12.0	11.0
Beam Tilt, degrees	4	4
Upper Sidelobe Suppression (USLS), typical, dB	18	18
Front-to-Back Ratio at 180°, dB	33	33
Isolation, dB	30	30
VSWR | Return Loss, db	1.35:1 | 16.5	1.35:1 | 16.5
Intermodulation Products, 3rd Order, 2 x 20 W, dBc	-150	-150
Input Power, maximum, watts	500	500
Polarization	±45°	±45°
Impedance, ohms	50	50
Lightning Protection	dc Ground	dc Ground

Product Specifications

LNX-6514DS-T4M

ANDREW®
A CommScope Company

Mechanical Specifications

Color	Light gray
Connector Interface	7-16 DIN Female
Connector Location	Bottom
Connector Quantity	2
Wind Loading, maximum	617.7 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h | 149.8 mph

Dimensions

Depth	181.0 mm | 7.1 in
Length	1847.0 mm | 72.7 in
Width	301.0 mm | 11.9 in
Net Weight	17.4 kg | 38.4 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2002/95/EC	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)

INCLUDED PRODUCTS

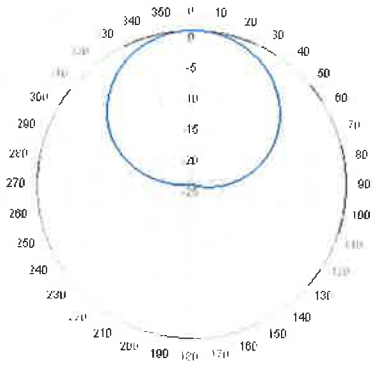
MTG-L-STD
Downtilt Mounting Kit for panel Antennas

Product Specifications

LNX-6514DS-T4M

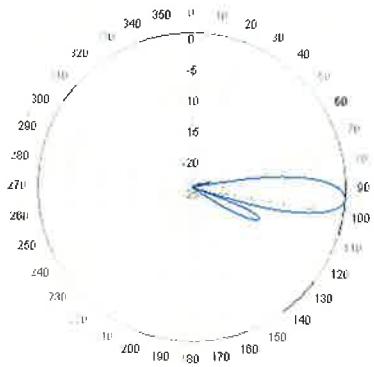
ANDREW®
A CommScope Company

Horizontal Pattern

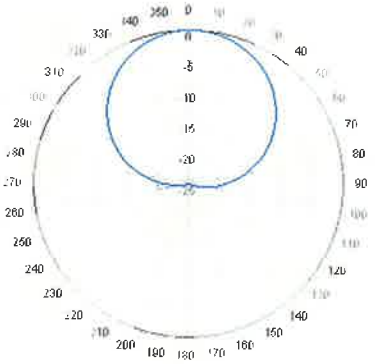


Freq: 750, Tilt 0

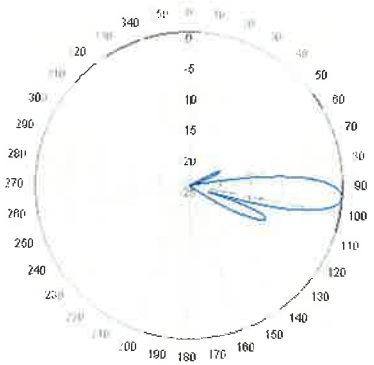
Vertical Pattern



Freq: 750, Tilt 0



Freq: 850, Tilt 0



Freq: 850, Tilt 0

Product Specifications

COMMSCOPE®

HBX-6517DS-VTM

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

POWERED BY ANDREW.

Electrical Specifications

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

Mechanical Specifications

Color | Radome Material	Light gray | PVC, UV resistant
Connector Interface | Location | Quantity	7-16 DIN Female | Bottom | 2
Wind Loading, maximum	393.2 N @ 150 km/h 88.4 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h | 149.8 mph
Antenna Dimensions, L x W x D	1902.0 mm x 166.0 mm x 83.0 mm | 74.9 in x 6.5 in x 3.3 in
Net Weight	6.2 kg | 13.7 lb
Model with factory installed AISG 2.0 RET	HBX-6517DS-A1M

Alcatel-Lucent RRH2x40-07-U

REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-07-U is a high-power, small form-factor Remote Radio Head (RRH) operating in the North American Digital Dividend / 700MHz frequency band (3GPP Band 13). The Alcatel-Lucent RRH2x40-07-U is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.

A distributed eNodeB expands 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 an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent RRH2x40-07-U 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. The Alcatel-Lucent RRH2x40-07-U has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to two-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 10 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-07-U is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH2x40-07-U installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

Fast, low-cost installation and deployment

The Alcatel-Lucent RRH2x40-07-U is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent RRH2x40-07-U is compact and weights less than 23 kg (50 lb), 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 — a fraction of the time required for a traditional BTS.

Excellent RF performance

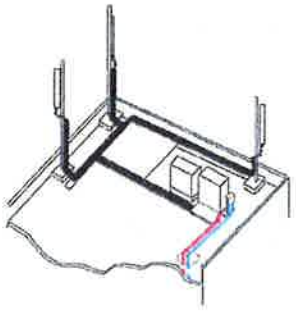
Because of its small size and weight, the Alcatel-Lucent RRH2x40-07-U can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-07-U where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced. The Alcatel-Lucent RRH2x40-07-U provides more RF power while at the same time consuming less electricity.

Features

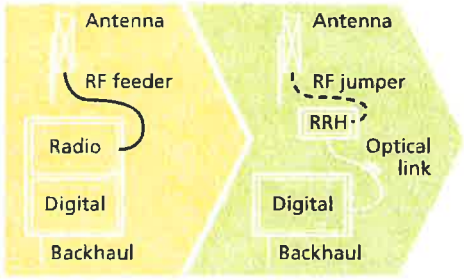
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless), noise-free, and heaterless unit
- Best-in-class power efficiency, with significantly reduced energy consumption

Benefits

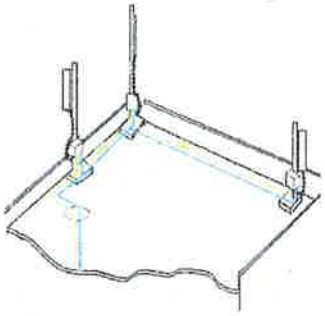
- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning



Macro



RRH for space-constrained cell sites



Distributed

Technical specifications

Physical dimensions

- Height: 390 mm (15.4 in.)
- Width: 380 mm (15 in.)
- Depth: 210 mm (8.2 in.)
- Weight (without mounting kit): less than 23 kg (50 lb)

Power

- Power supply: -48V

Operating environment

- Outdoor temperature range:
  - ¬ With solar load: -40°C to +50°C (-40°F to +122°F)
  - ¬ Without solar load: -40°C to +55°C (-40°F to +131°F)
- Passive convection cooling (no fans)
- Enclosure protection
  - ¬ IP65 (International Protection rating)

RF characteristics

- Frequency band: 700 MHz; 3GPP Band 13
- Bandwidth: up to 10 MHz
- RF output power at antenna port:
  - ¬ 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way
- Noise figure: below 2.5 dB typical
- ALD features
  - ¬ TMA
  - ¬ Remote electrical tilt (RET) support (AISG v2.0)

Optical characteristics

Type/number of fibers

- Up to 3.12 Gb/s line bit rate
- Single-mode variant
  - ¬ One SM fiber (9/125 µm) per RRH2x, carrying UL and DL using CWDM (at 1550/1310 nm)
- Multi-mode variant
  - ¬ Two MM fibers (50/125 µm) per RRH2x: one carrying UL, the other carrying DL (at 850 nm)

Optical fiber length

- Up to 500 m (0.31 mi), using MM fiber
- Up to 20 km (12.43 mi), using SM fiber

Alarms and ports

- Six external alarms
- Two optical ports to support daisy-chaining

CPG2809100913 (09)

Alcatel·Lucent

Alcatel·Lucent

Alcatel-Lucent RRH2x40-AWS

REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-AWS is a high-power, small form-factor Remote Radio Head (RRH) operating in the AWS frequency band (1700/2100MHz - 3GPP Band 4). The Alcatel-Lucent RRH2x40-AWS is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.

A distributed eNodeB expands 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 an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent RRH2x40-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. The Alcatel-Lucent RRH2x40-AWS has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to four-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 20 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-AWS is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH2x40-AWS installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

Fast, low-cost installation and deployment

The Alcatel-Lucent RRH2x40-AWS is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent RRH2x40-AWS is compact and weighs less than 20 kg (44 lb), 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 — a fraction of the time required for a traditional BTS.

Excellent RF performance

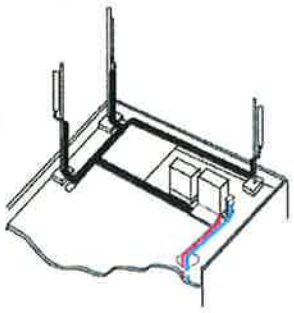
Because of its small size and weight, the Alcatel-Lucent RRH2x40-AWS can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-AWS where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced. The Alcatel-Lucent RRH2x40-AWS provides more RF power while at the same time consuming less electricity.

Features

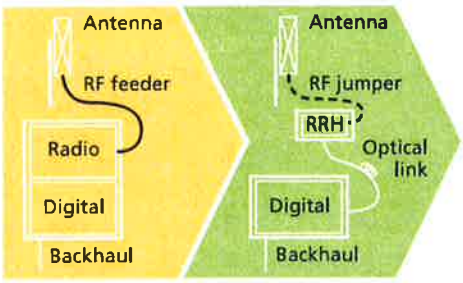
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless)
- Noise-free
- Best-in-class power efficiency, with significantly reduced energy consumption

Benefits

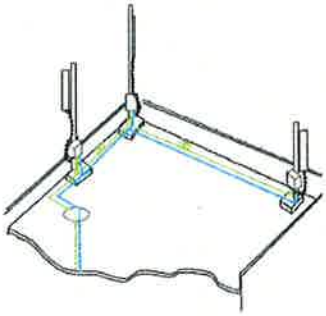
- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning



Macro



RRH for space-constrained cell sites



Distributed

Technical specifications

Physical dimensions

- Height: 620 mm (24.4 in.)
- Width: 270 mm (10.63 in.)
- Depth: 170m (6.7 in.)
- Weight (without mounting kit): less than 20 kg (44 lb)

Power

- Power supply: -48VDC

Operating environment

- Outdoor temperature range:
  - ¬ With solar load: -40°C to +50°C (-40°F to +122°F)
  - ¬ Without solar load: -40°C to +55°C (-40°F to +131°F)
- Passive convection cooling (no fans)
- Enclosure protection
  - ¬ IP65 (International Protection rating)

RF characteristics

- Frequency band: 1700/2100 MHz (AWS); 3GPP Band 4
- Bandwidth: up to 20 MHz
- RF output power at antenna port: 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way with optional Rx Diversity module
- Noise figure: below 2.0 dB typical
- Antenna Line Device features
  - ¬ TMA and Remote electrical tilt (RET) support via AISG v2.0

Optical characteristics

Type/number of fibers

- Single-mode variant
  - ¬ One Single Mode Single Fiber per RRH2x, carrying UL and DL using CWDM
  - ¬ Single mode dual fiber (SM/DF)
- Multi-mode variant
  - ¬ Two Multi-mode fibers per RRH2x: one carrying UL, the other carrying DL

Optical fiber length

- Up to 500 m (0.31 mi), using MM fiber
- Up to 20 km (12.43 mi), using SM fiber

Digital Ports and Alarms

- Two optical ports to support daisy-chaining
- Six external alarms

CPG2809100912 (09)

Alcatel·Lucent

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
Mechanical Properties			
Weight, Approximate		[kg/m (lb/ft)]	1.9 (1.30)
Minimum Bending Radius, Single Bending		[mm (in)]	200 (8)
Minimum Bending Radius, Repeated Bending		[mm (in)]	500 (20)
Recommended/Maximum Clamp Spacing		[m (ft)]	1.0 / 1.2 (3.25 / 4.0)
Electrical Properties			
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)
Fiber Optic Properties			
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
DC Power Cable Properties			
Size (Power)		[mm² (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm² (AWG)]	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		[mm (in)]	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-95-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Environmental			
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

* This data is provisional and subject to change

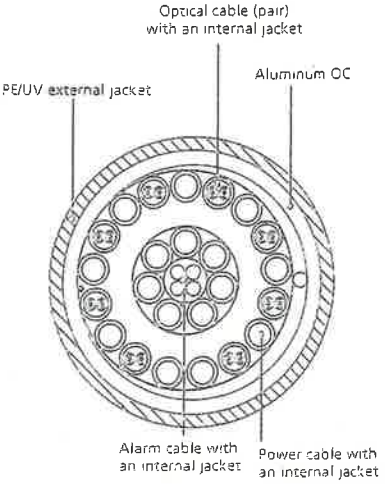


Figure 2: Construction Detail

ATTACHMENT 2

	General	Power	Density					
Site Name: Naugatuck Relo								
Tower Height: Verizon @ 155ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*Clearwire	2	153	180	0.0034	2496	1.0000	0.34%	
*Clearwire	1	211	185	0.0022	11 GHz	1.0000	0.22%	
*MetroPCS	3	727	170	0.0271	2140	1.0000	2.71%	
*ORTV	1	100	200	0.0009	88.9	0.2000	0.45%	
*ORTV	1	250	200	0.0022	944.5	0.6297	0.36%	
Verizon PCS	**7**	**448**	**155**	**0.0469**	**1970**	**1.0000**	**4.69%**	
Verizon Cellular	**9**	**355**	**155**	**0.0478**	**869**	**0.5793**	**8.25%**	
Verizon AWS	**1**	**1915**	**155**	**0.0287**	**2145**	**1.0000**	**2.87%**	
Verizon 700	**1**	**644**	**155**	**0.0096**	**698**	**0.4653**	**2.07%**	
								21.97%
* Source: Siting Council								

ATTACHMENT 3

ALL-POINTS TECHNOLOGY CORPORATION, P.C.

STRUCTURAL ANALYSIS REPORT
200' GUYED TOWER
PROSPECT, CONNECTICUT

Prepared for
Verizon Wireless

Verizon Site: Naugatuck Relo

March 11, 2014

APT Project #CT1414261

□ 3 SADDLEBROOK DRIVE · KILLINGWORTH, CT 06419 · PHONE 860-663-1697 · FAX 860-663-0935
⊗ 116 GRANDVIEW ROAD · CONWAY, NH 03818 · PHONE 603-496-5853 · FAX 603-447-2124

STRUCTURAL ANALYSIS REPORT
200' GUYED TOWER
PROSPECT, CONNECTICUT
prepared for
Verizon Wireless

EXECUTIVE SUMMARY:

All-Points Technology Corporation, P.C. (APT) performed a structural analysis of the 200-foot guyed tower located in Prospect, Connecticut. The analysis was performed for Verizon Wireless's proposed installation of twelve panel antennas, six remote radio heads (RRHs) and two fiber/power distribution boxes (D-boxes) on three 14' sector mounts at 155', fed by one 1-5/8" hybrid and twelve 1-5/8" feed lines, assumed to be installed in a 6-wide by 2-deep stacked arrangement.

Our analysis indicates the tower meets the requirements of the Connecticut State Building Code and TIA-222 with Verizon Wireless's proposed equipment. Evaluation of the existing base foundation and guy anchors could not be performed, as information on their design or construction was not available to APT. Since the tower has additional available capacity the foundation and anchors are likely to be adequate.

INTRODUCTION:

A structural analysis was performed on the above-mentioned communications tower by APT for Verizon Wireless The tower is located at 37 Peach Orchard Road in Prospect, Connecticut. APT previously visited the tower site on October 11, 2011 and climbed the tower in its entirety to compile data necessary to perform the analysis. The structure is a 200-foot guyed tower of unknown manufacturer.

The analysis was performed in accordance with TIA-222 using the following equipment inventory (proposed equipment shown in **bold** text):

Antenna	Elev.	Mount	Coax.
Beacon, lightning rod	200'	Top plates	1" conduit
2' high performance dish	198'	6' x 2 ⅜" pipe	1/2"
Scala Paraflector grid	193'	Leg	1-¼"
(3) 2' high performance dishes, TMA	187'	On sector mounts below	(2) 2 ¼"
(3) LLPX310R panels, (3) Samsung DAP heads	182'	(3) 7' x 3 ½" pipes	(6) 1/2"
(6) HBX-6516DS panels, (6) RETs	170'	(3) 12' sector mounts	(12) 1-5/8", 3/8"
(6) LNX-6514DS, (6) HBX-6517DS panels, (6) RRHs, (2) D-boxes	**155'**	**(3) 14' sector mounts**	**(12) 1-5/8", (1) hybrid**
(2) obstruction lights	108'	Conduit across legs	1" conduit

STRUCTURAL ANALYSIS:

Methodology:

The structural analysis was done in accordance with the Connecticut State Building Code and TIA/EIA-222, Revision F (TIA), Structural Standards for Steel Antenna Towers and Antenna Supporting Structures; and the American Institute of Steel Construction (AISC), Manual of Steel Construction, Allowable Stress Design, Ninth Edition.

The analysis was conducted using a fastest mile wind speed of 85-mph (equivalent to 100-mph 3-second gust) and ½" of radial ice over the structure and associated appurtenances. The TIA Standard requires a basic wind speed of 85-mph for New Haven County, Connecticut.

Two loading conditions were evaluated in accordance with TIA/EIA-222-F to determine tower capacity. The more demanding of the two cases is used to calculate tower capacity:

- Case 1 = Wind Load (without ice) + Tower Dead Load
- Case 2 = 0.75 Wind Load (with ice) + Ice Load + Tower Dead Load

The TIA/EIA standard permits a one-third increase in allowable stresses for towers less than 700-feet tall. Allowable stresses of tower members were increased by one-third when computing the tower capacity values shown below.

Analysis Results:

The following table summarizes the results of the analysis based on stresses of individual leg and bracing members:

Elevation	Leg Capacity	Bracing Capacity
180'-200'	60%	25%
160'-180'	62%	22%
140'-160'	49%	47%
120'-140'	45%	24%
100'-120'	92%	35%
80'-100'	92%	55%
60'-80'	66%	16%
40'-60'	62%	47%
20'-40'	64%	18%
0'-20'	64%	40%

Splice Bolts:

Connection bolts were evaluated under the proposed loading. All bolts were found to be adequately sized to support the proposed loads.

Base Reactions:

Base reactions imposed with the antenna changes were calculated as follows:

Location	Vertical	Horizontal
Base:	94.3 kips	0.7 kips
Guy Anchor:	-35.3 kips	-40.4 kips

CONCLUSIONS AND RECOMMENDATIONS:

Our structural analysis indicates the 200-foot guyed tower located at 37 Peach Orchard Road in Prospect, Connecticut meets the requirements of the Connecticut State Building Code and TIA-222 with Verizon Wireless's proposed equipment.

Evaluation of the existing base foundation and guy anchors could not be performed, as information on their design or construction was not available to APT. Since the tower has additional available capacity the foundation and anchors are likely to be adequate.

LIMITATIONS:

This report is based on the following:

1. Tower is properly installed and maintained.
2. All members are in an undeteriorated condition.
3. All required members are in place.
4. All bolts are in place and are properly tightened.
5. Tower is in plumb condition.
6. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.

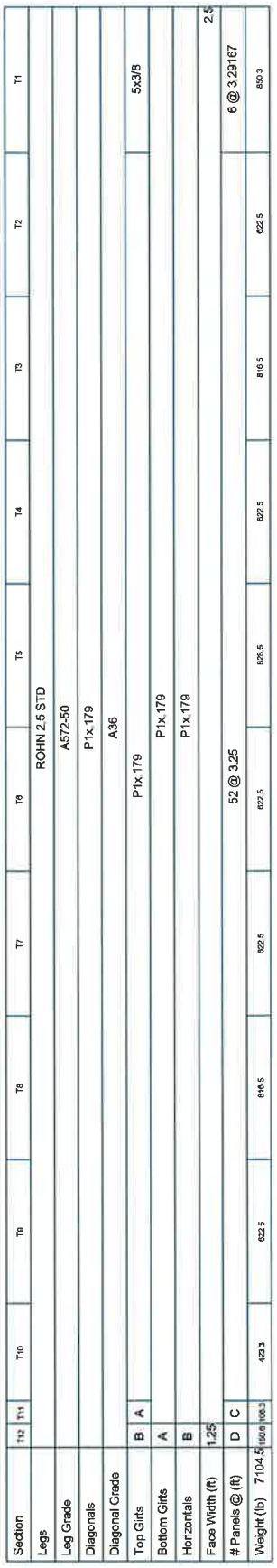
All-Points Technology Corporation, P.C. (APT) is not responsible for modifications completed prior to or hereafter which APT is not or was not directly involved. Modifications include but are not limited to:

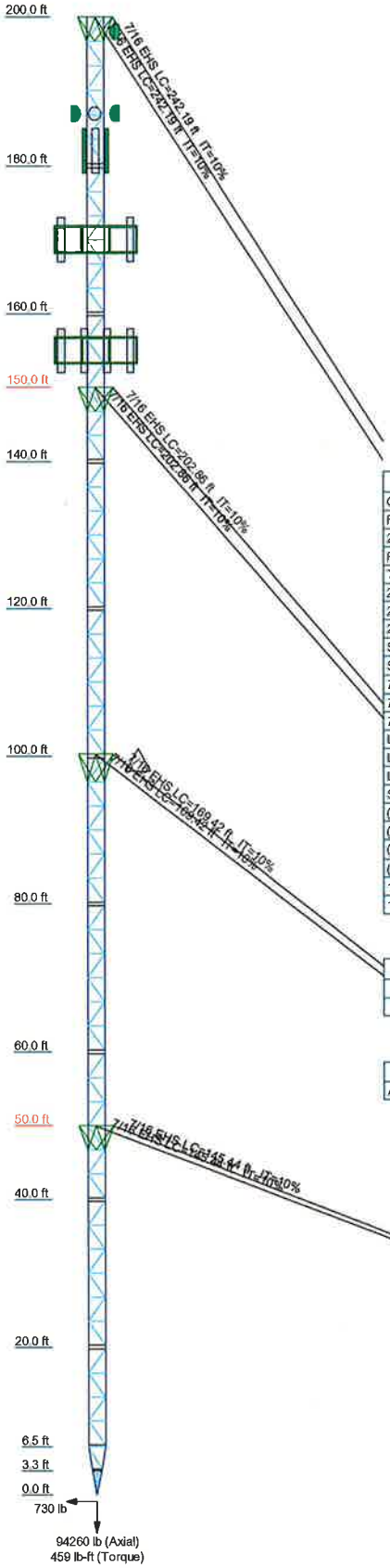
1. Replacing or strengthening bracing members.
2. Reinforcing vertical members in any manner.
3. Adding or relocating stabilizers.
4. Installing antenna mounting gates or side arms.
5. Extending tower.

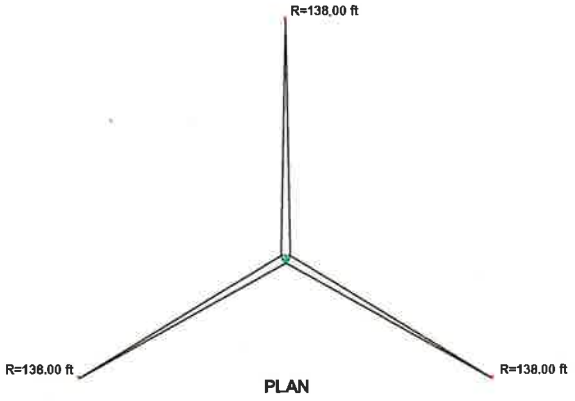
APT hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon the information contained and set forth herein. If you are aware of any information which is contrary to that which is contained herein, or you are aware of any defects arising from the original design, material, fabrication and erection deficiencies, you should disregard this report and immediately contact APT. APT disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

Appendix A

Tower Schematic







DESIGNED APPURTENANCE LOADING

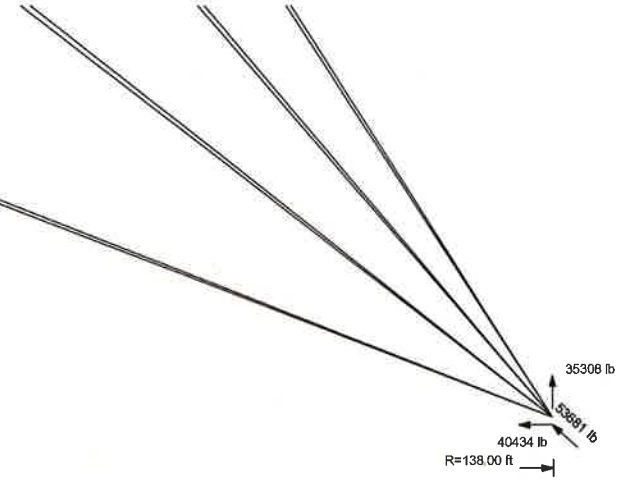
TYPE	ELEVATION	TYPE	ELEVATION
Generic Lightning Rod 4' copper	200	12' sector mount	170
Flash Beacon Lighting	200	(2) HBX-6516DS	170
2' HP dish	198	(2) HBX-6516DS	170
PR-900	193	(2) LNX-6514DS-VTM	155
TMA 18" x 24"	191	(2) HBX-6517DS	155
2' HP dish	187	(2) HBX-6517DS	155
2' HP dish	187	(2) HBX-6517DS	155
2' HP dish	187	ALU RRH2x40-AWS	155
Samsung U-RAS DAP unit	182	ALU RRH2x40-AWS	155
Samsung U-RAS DAP unit	182	ALU RRH2x40-AWS	155
7'x3 1/2" Pipe Mount	182	ALU RRH2x40-700U	155
7'x3 1/2" Pipe Mount	182	ALU RRH2x40-700U	155
7'x3 1/2" Pipe Mount	182	ALU RRH2x40-700U	155
LLPX310R panel	182	RFS DB-T1-6Z-8AB-0Z D-box	155
LLPX310R panel	182	RFS DB-T1-6Z-8AB-0Z D-box	155
LLPX310R panel	182	14' sector mount	155
Samsung U-RAS DAP unit	182	14' sector mount	155
(2) HBX-6516DS	170	14' sector mount	155
(2) ATM200-A20 RET	170	(2) LNX-6514DS-VTM	155
(2) ATM200-A20 RET	170	(2) LNX-6514DS-VTM	155
(2) ATM200-A20 RET	170	Obstruction light	108
12' sector mount	170	Obstruction light	108
12' sector mount	170		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	N.A.	C	1 @ 3
B	4x3/8	D	4 @ 0.8125

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi



All-Points Technology Corporation
P.O. Box 504
Conway, NH 03818
Phone: (603) 496-5853
FAX: (603) 447-2124

Job: *200' Guyed Tower*			
Project: *CT1414261 Naugatuck*			
Client: Verizon Wireless	Drawn by: Rob Adair		App'd:
Code: TIA/EIA-222-F	Date: 03/10/14		Scale: NTS
Path:			Dwg No. E-1

Appendix B

Calculations

tnxTower	Job: 200' Guyed Tower	Page: 1 of 6
All-Points Technology Corporation P.O. Box 504 Conway, NH 03818 Phone: (603) 496-5853 FAX: (603) 447-2124	Project: CT1414261 Naugatuck	Date: 15:27:41 03/10/14
	Client: Verizon Wireless	Designed by: Rob Adair

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 200.00 ft above the ground line.
The face width of the tower is 2.50 ft at the top and tapered at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Basic wind speed of 85 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 74 mph is used in combination with ice.
Deflections calculated using a wind speed of 50 mph.
Pressures are calculated at each section.
Safety factor used in guy design is 2.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Feed Line/Linear Appurtenances

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1" conduit	C	Yes	Ar (CfAe)	200.00 - 8.00	0.0000	0	1	1	1.0000	1.0000		0.50
1/2	B	Yes	Ar (CfAe)	182.00 - 8.00	0.0000	0.4	4	2	0.5800	0.5800		0.25
1/2	B	Yes	Ar (CfAe)	182.00 - 8.00	0.0000	-0.35	3	2	0.5800	0.5800		0.25
2" conduit	B	Yes	Ar (CfAe)	191.00 - 8.00	0.0000	0	2	2	0.5000	2.0000		2.00
1 1/4	B	Yes	Ar (CfAe)	193.00 - 8.00	0.0000	-0.5	1	1	0.0000	1.5500		0.66
1 5/8	C	Yes	Ar (CfAe)	170.00 - 8.00	0.0000	0.25	12	4	0.5000	1.9800		1.04
3/8	C	Yes	Ar (CfAe)	170.00 - 8.00	0.0000	0.29	1	1	0.4400	0.4400		0.08
1 5/8	A	Yes	Ar (CfAe)	155.00 - 8.00	3.0000	0.45	12	6	0.5000	1.9800		1.04
1.57" Hybrid fiber-power cable	A	Yes	Ar (CfAe)	155.00 - 8.00	0.0000	0.4	1	1	0.5000	1.5700		0.66

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Generic Lightning Rod 4' copper	A	None		0.0000	200.00	No Ice	0.50	0.50	0.00
						1/2" Ice	1.00	1.00	0.00
Flash Beacon Lighting	C	None		0.0000	200.00	No Ice	2.70	2.70	50.00
						1/2" Ice	3.10	3.10	70.00
PR-900	A	None		0.0000	193.00	No Ice	6.35	6.35	38.00
						1/2" Ice	11.43	11.43	49.40
TMA 18" x 24"	C	None		0.0000	191.00	No Ice	4.20	1.40	35.00
						1/2" Ice	4.48	1.60	58.75
LLPX310R panel	A	From Leg	0.50 0.00 0.00	0.0000	182.00	No Ice	4.84	1.96	28.60
						1/2" Ice	5.19	2.22	54.56
LLPX310R panel	B	From Leg	0.50 0.00 0.00	0.0000	182.00	No Ice	4.84	1.96	28.60
						1/2" Ice	5.19	2.22	54.56
LLPX310R panel	C	From Leg	0.50 0.00 0.00	0.0000	182.00	No Ice	4.84	1.96	28.60
						1/2" Ice	5.19	2.22	54.56

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Samsung U-RAS DAP unit	A	From Leg	0.50 0.00 0.00	0.0000	182.00	No Ice 1/2" Ice	1.82 2.01	0.83 0.97	15.00 26.95
Samsung U-RAS DAP unit	B	From Leg	0.50 0.00 0.00	0.0000	182.00	No Ice 1/2" Ice	1.82 2.01	0.83 0.97	15.00 26.95
Samsung U-RAS DAP unit	C	From Leg	0.50 0.00 0.00	0.0000	182.00	No Ice 1/2" Ice	1.82 2.01	0.83 0.97	15.00 26.95
7'x3 1/2" Pipe Mount	A	None		0.0000	182.00	No Ice 1/2" Ice	2.40 2.83	2.40 2.83	53.00 70.62
7'x3 1/2" Pipe Mount	B	None		0.0000	182.00	No Ice 1/2" Ice	2.40 2.83	2.40 2.83	53.00 70.62
7'x3 1/2" Pipe Mount	C	None		0.0000	182.00	No Ice 1/2" Ice	2.40 2.83	2.40 2.83	53.00 70.62
Obstruction light	B	None		0.0000	108.00	No Ice 1/2" Ice	0.18 0.25	0.18 0.25	8.00 10.47
Obstruction light	C	None		0.0000	108.00	No Ice 1/2" Ice	0.18 0.25	0.18 0.25	8.00 10.47
(2) HBX-6516DS	A	From Leg	3.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	3.32 3.65	1.99 2.30	15.00 34.04
(2) HBX-6516DS	B	From Leg	3.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	3.32 3.65	1.99 2.30	15.00 34.04
(2) HBX-6516DS	C	From Leg	3.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	3.32 3.65	1.99 2.30	15.00 34.04
(2) ATM200-A20 RET	A	From Leg	3.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	0.22 0.29	0.16 0.23	3.00 4.91
(2) ATM200-A20 RET	B	From Leg	3.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	0.22 0.29	0.16 0.23	3.00 4.91
(2) ATM200-A20 RET	C	From Leg	3.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	0.22 0.29	0.16 0.23	3.00 4.91
12' sector mount	A	None		0.0000	170.00	No Ice 1/2" Ice	8.90 13.80	4.45 6.90	225.00 320.00
12' sector mount	B	None		0.0000	170.00	No Ice 1/2" Ice	8.90 13.80	4.45 6.90	225.00 320.00
12' sector mount	C	None		0.0000	170.00	No Ice 1/2" Ice	8.90 13.80	4.45 6.90	225.00 320.00
(2) LNX-6514DS-VTM	A	From Leg	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice	8.41 8.96	4.17 4.61	30.00 74.68
(2) LNX-6514DS-VTM	B	From Leg	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice	8.41 8.96	4.17 4.61	30.00 74.68
(2) LNX-6514DS-VTM	C	From Leg	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice	8.41 8.96	4.17 4.61	30.00 74.68
(2) HBX-6517DS	A	From Leg	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice	5.24 5.71	3.30 3.75	20.00 47.26
(2) HBX-6517DS	B	From Leg	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice	5.24 5.71	3.30 3.75	20.00 47.26
(2) HBX-6517DS	C	From Leg	3.00	0.0000	155.00	No Ice	5.24	3.30	20.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral / Vert (ft)	Azimuth Adjustment (°)	Placement (ft)		C_AA_A Front (ft^2)	C_AA_A Side (ft^2)	Weight (lb)
			0.00 0.00			1/2" Ice	5.71	3.75	47.26
ALU RRH2x40-AWS	A	From Leg	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice	2.52 2.75	1.59 1.80	45.00 62.40
ALU RRH2x40-AWS	B	From Leg	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice	2.52 2.75	1.59 1.80	45.00 62.40
ALU RRH2x40-AWS	C	From Leg	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice	2.52 2.75	1.59 1.80	45.00 62.40
ALU RRH2x40-700U	A	From Leg	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice	2.52 2.75	1.59 1.80	45.00 62.40
ALU RRH2x40-700U	B	From Leg	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice	2.52 2.75	1.59 1.80	45.00 62.40
ALU RRH2x40-700U	C	From Leg	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice	2.52 2.75	1.59 1.80	45.00 62.40
RFS DB-T1-6Z-8AB-0Z D-box	A	From Leg	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice	5.60 5.92	2.33 2.56	45.00 81.13
RFS DB-T1-6Z-8AB-0Z D-box	C	From Leg	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice	5.60 5.92	2.33 2.56	45.00 81.13
14' sector mount	A	None		0.0000	155.00	No Ice 1/2" Ice	10.40 15.50	5.20 7.75	475.00 700.00
14' sector mount	B	None		0.0000	155.00	No Ice 1/2" Ice	10.40 15.50	5.20 7.75	475.00 700.00
14' sector mount	C	None		0.0000	155.00	No Ice 1/2" Ice	10.40 15.50	5.20 7.75	475.00 700.00

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral / Vert (ft)	Azimuth Adjustment (°)	3 dB Beam Width (°)	Elevation (ft)	Outside Diameter (ft)		Aperture Area (ft^2)	Weight (lb)
2' HP dish	B	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	0.0000		198.00	2.00	No Ice 1/2" Ice	3.14 3.41	50.00 67.50
2' HP dish	A	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	0.0000		187.00	2.00	No Ice 1/2" Ice	3.14 3.41	50.00 67.50
2' HP dish	B	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	0.0000		187.00	2.00	No Ice 1/2" Ice	3.14 3.41	50.00 67.50
2' HP dish	C	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	0.0000		187.00	2.00	No Ice 1/2" Ice	3.14 3.41	50.00 67.50

Solution Summary

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	200 - 180	1.994	11	0.1489	0.0522
T2	180 - 160	2.439	11	0.0671	0.0370
T3	160 - 140	2.361	11	0.0775	0.0469
T4	140 - 120	1.911	11	0.1162	0.0736
T5	120 - 100	1.354	11	0.1408	0.0775
T6	100 - 80	0.801	11	0.0960	0.0504
T7	80 - 60	0.541	11	0.0476	0.0847
T8	60 - 40	0.369	11	0.0352	0.0763
T9	40 - 20	0.272	11	0.0151	0.0629
T10	20 - 6.5	0.186	11	0.0325	0.0998
T11	6.5 - 3.25	0.069	11	0.0467	0.0952
T12	3.25 - 0	0.037	11	0.0502	0.1081

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
200.00	Guy	11	1.994	0.1489	0.0522	27629
198.00	2' HP dish	11	2.050	0.1390	0.0504	27629
193.00	PR-900	11	2.185	0.1150	0.0459	19735
191.00	TMA 18" x 24"	11	2.236	0.1060	0.0442	15349
187.00	2' HP dish	11	2.327	0.0893	0.0411	10626
182.00	LLPX310R panel	11	2.414	0.0724	0.0379	7788
170.00	(2) HBX-6516DS	11	2.466	0.0549	0.0443	8977
155.00	(2) LNX-6514DS-VTM	11	2.270	0.0883	0.0491	16410
150.00	Guy	11	2.162	0.0979	0.0578	22794
108.00	Obstruction light	11	0.997	0.1197	0.0654	19910
100.25	Guy	11	0.806	0.0968	0.0510	11337
50.00	Guy	11	0.312	0.0235	0.0369	69702

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	200	Leg	A325N	0.7500	4	5374.44	19437.40	0.277 ✔	1.333	Bolt Tension
T2	180	Leg	A325N	0.7500	4	4527.02	19435.20	0.233 ✔	1.333	Bolt Tension
T3	160	Leg	A325N	0.7500	4	0.00	19438.60	0.000 ✔	1.333	Bolt Tension
T4	140	Leg	A325N	0.7500	4	0.00	19434.90	0.000 ✔	1.333	Bolt Tension
T5	120	Leg	A325N	0.7500	4	1570.46	19435.50	0.081 ✔	1.333	Bolt Tension
T6	100	Leg	A325N	0.7500	4	0.00	19438.00	0.000 ✔	1.333	Bolt Tension
T7	80	Leg	A325N	0.7500	4	0.00	19438.10	0.000 ✔	1.333	Bolt Tension
T8	60	Leg	A325N	0.7500	4	0.00	19437.40	0.000 ✔	1.333	Bolt Tension
T9	40	Leg	A325N	0.7500	4	0.00	19438.50	0.000 ✔	1.333	Bolt Tension

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T10	20	Leg	A325N	0.7500	4	0.00	19420.70	0.000 ✔	1.333	Bolt Tension
T11	6.5	Leg	A325N	0.7500	4	0.00	19436.90	0.000 ✔	1.333	Bolt Tension

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	**200 - 180**	**Leg**	**ROHN 2.5 STD**	**3**	**-34380.40**	**57695.84**	**59.6**	**Pass**
		Diagonal	P1x.179	36	-3378.93	13337.73	25.3	Pass
		Horizontal	P1x.179	14	-595.49	15870.30	3.8	Pass
		Top Girt	5x3/8	6	-1821.90	12131.89	15.0	Pass
		Bottom Girt	P1x.179	9	497.74	18393.53	2.7	Pass
		Guy A@200	7/16	467	7960.66	10400.00	76.5	Pass
		Guy B@200	7/16	461	6720.56	10400.00	64.6	Pass
		Guy C@200	7/16	455	7646.24	10400.00	73.5	Pass
		Torque Arm Top@200	L3x3x1/4	462	5851.14	41461.63	14.1	Pass
		Torque Arm Bottom@200	L3x3x1/4	459	-9146.21	29523.82	31.0	Pass
T2	**180 - 160**	**Leg**	**ROHN 2.5 STD**	**45**	**-35655.60**	**57857.39**	**61.6**	**Pass**
		Diagonal	P1x.179	52	-2959.58	13395.05	22.1	Pass
		Horizontal	P1x.179	69	882.38	18393.53	4.8	Pass
		Top Girt	P1x.179	47	284.66	18393.53	1.5	Pass
		Bottom Girt	P1x.179	50	672.03	18393.53	3.7	Pass
T3	**160 - 140**	**Leg**	**ROHN 2.5 STD**	**87**	**-28005.60**	**57665.58**	**48.6**	**Pass**
		Diagonal	P1x.179	113	-6340.36	13395.05	47.3	Pass
		Horizontal	P1x.179	110	5325.92	18393.53	29.0	Pass
		Top Girt	P1x.179	89	750.37	18393.53	4.1	Pass
		Bottom Girt	P1x.179	92	329.50	18393.53	1.8	Pass
		Guy A@150	7/16	485	9078.24	10400.00	87.3	Pass
		Guy B@150	7/16	478	6991.03	10400.00	67.2	Pass
		Guy C@150	7/16	472	8633.93	10400.00	83.0	Pass
		Torque Arm Top@150	L3x3x1/4	475	7461.65	41461.63	18.0	Pass
		Torque Arm Bottom@150	L3x3x1/4	476	-8904.34	29659.78	30.0	Pass
T4	**140 - 120**	**Leg**	**ROHN 2.5 STD**	**127**	**-25788.80**	**56899.63**	**45.3**	**Pass**
		Diagonal	P1x.179	137	-3150.24	13395.05	23.5	Pass
		Horizontal	P1x.179	141	674.99	18393.53	3.7	Pass
		Top Girt	P1x.179	130	338.32	18393.53	1.8	Pass
		Bottom Girt	P1x.179	134	863.62	18393.53	4.7	Pass
T5	**120 - 100**	**Leg**	**ROHN 2.5 STD**	**171**	**-52665.20**	**57512.28**	**91.6**	**Pass**
		Diagonal	P1x.179	186	-4624.57	13395.05	34.5	Pass
		Horizontal	P1x.179	183	-912.19	15870.30	5.7	Pass
		Top Girt	P1x.179	174	743.99	18393.53	4.0	Pass
		Bottom Girt	P1x.179	175	-3064.71	15870.30	19.3	Pass
		Guy A@100.25	7/16	503	6358.69	10400.00	61.1	Pass
		Guy B@100.25	7/16	496	4975.05	10400.00	47.8	Pass
		Guy C@100.25	7/16	490	6093.70	10400.00	58.6	Pass
		Torque Arm Top@100.25	L3x3x1/4	499	6024.07	41461.63	14.5	Pass
		Torque Arm Bottom@100.25	L3x3x1/4	500	-4194.04	27948.61	15.0	Pass
T6	**100 - 80**	**Leg**	**ROHN 2.5 STD**	**213**	**-52670.10**	**57462.30**	**91.7**	**Pass**
		Diagonal	P1x.179	251	-7321.09	13395.05	54.7	Pass
		Horizontal	P1x.179	247	2066.04	18393.53	11.2	Pass

tnxTower	Job: 200' Guyed Tower	Page: 6 of 6
All-Points Technology Corporation P.O. Box 504 Conway, NH 03818 Phone: (603) 496-5853 FAX: (603) 447-2124	Project: CT1414261 Naugatuck	Date: 15:27:41 03/10/14
	Client: Verizon Wireless	Designed by: Rob Adair

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P_{allow} lb	% Capacity	Pass Fail
		Top Girt	P1x.179	215	2516.16	18393.53	13.7	Pass
		Bottom Girt	P1x.179	218	560.16	18393.53	3.0	Pass
T7	**80 - 60**	**Leg**	**ROHN 2.5 STD**	**255**	**-37566.40**	**56775.27**	**66.2**	**Pass**
		Diagonal	P1x.179	293	-2127.63	13395.05	15.9	Pass
		Horizontal	P1x.179	277	763.73	18393.53	4.2	Pass
		Top Girt	P1x.179	257	582.82	18393.53	3.2	Pass
		Bottom Girt	P1x.179	259	413.79	18393.53	2.2	Pass
T8	**60 - 40**	**Leg**	**ROHN 2.5 STD**	**297**	**-35262.70**	**56668.63**	**62.2**	**Pass**
		Diagonal	P1x.179	318	-6258.36	13395.05	46.7	Pass
		Horizontal	P1x.179	320	3355.27	18393.53	18.2	Pass
		Top Girt	P1x.179	300	495.26	18393.53	2.7	Pass
		Bottom Girt	P1x.179	303	742.02	18393.53	4.0	Pass
		Guy A@50	7/16	521	4580.82	10400.00	44.0	Pass
		Guy B@50	7/16	514	3852.24	10400.00	37.0	Pass
		Guy C@50	7/16	508	4437.39	10400.00	42.7	Pass
		Torque Arm Top@50	L3x3x1/4	522	4287.65	41461.63	10.3	Pass
		Torque Arm Bottom@50	L3x3x1/4	519	-3304.33	29659.78	11.1	Pass
T9	**40 - 20**	**Leg**	**ROHN 2.5 STD**	**339**	**-35802.60**	**56352.04**	**63.5**	**Pass**
		Diagonal	P1x.179	372	-2468.76	13395.05	18.4	Pass
		Horizontal	P1x.179	363	853.88	18393.53	4.6	Pass
		Top Girt	P1x.179	341	577.92	18393.53	3.1	Pass
		Bottom Girt	P1x.179	344	457.51	18393.53	2.5	Pass
T10	**20 - 6.5**	**Leg**	**ROHN 2.5 STD**	**381**	**-35807.00**	**56351.91**	**63.5**	**Pass**
		Diagonal	P1x.179	402	-1869.40	13395.05	14.0	Pass
		Horizontal	P1x.179	399	803.42	18393.53	4.4	Pass
		Top Girt	P1x.179	384	335.16	18393.53	1.8	Pass
		Bottom Girt	P1x.179	387	1484.86	18393.53	8.1	Pass
T11	**6.5 - 3.25**	**Leg**	**ROHN 2.5 STD**	**411**	**-34969.50**	**56414.42**	**62.0**	**Pass**
		Diagonal	P1x.179	419	-1186.94	14436.66	8.2	Pass
		Horizontal	P1x.179	414	3252.87	18393.53	17.7	Pass
		Bottom Girt	P1x.179	416	775.03	18393.53	4.2	Pass
T12	**3.25 - 0**	**Leg**	**ROHN 2.5 STD**	**423**	**-33991.30**	**58202.78**	**58.4**	**Pass**
		Diagonal	P1x.179	435	-7274.44	18094.67	40.2	Pass
		Horizontal	4x3/8	436	5745.66	43189.20	13.3	Pass
		Top Girt	4x3/8	426	1932.64	43189.20	4.5	Pass
							Summary	
						Leg (T6)	91.7	Pass
						Diagonal (T6)	54.7	Pass
						Horizontal (T3)	29.0	Pass
						Top Girt (T1)	15.0	Pass
						Bottom Girt (T5)	19.3	Pass
						Guy A (T3)	87.3	Pass
						Guy B (T3)	67.2	Pass
						Guy C (T3)	83.0	Pass
						Torque Arm Top (T3)	18.0	Pass
						Torque Arm Bottom (T1)	31.0	Pass
						Bolt Checks	20.7	Pass
						RATING =	**91.7**	**Pass**