Robinson+Cole

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Also admitted in Massachusetts

June 22, 2015

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

Re: **Notice of Exempt Modification – Facility Modification**
Newgate Road, East Granby, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) antennas at the top of the existing 75-foot tower off Newgate Road in East Granby, Connecticut (the "Property"). The tower and underlying property are owned by State of Connecticut Department of Transportation. Cellco's use of the tower was approved by the Council in 2001. Cellco now intends to modify its facility by replacing all of its existing antennas with three (3) model LNX-6514DS-VTM, 700 MHz antennas; three (3) model LNX-6514DS-VTM, 850 MHz antennas; three (3) model HBXX-6517DS-VTM, 1900 MHz antennas; and three (3) model HBXX-6517DS-VTM, 2100 MHz antennas, all at the same level on the tower. Cellco also intends to install six (6) new remote radio heads ("RRHs"), one (1) each behind its 1900 MHz and 2100 MHz antennas and two (2) HYBRIFLEX™ antenna cables. Included in Attachment 1 are specifications for Cellco's replacement antennas, RRHs and HYBRIFLEX™ cables.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to James M. Hayden, First Selectman of the Town of East Granby.

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. The replacement antennas and RRHs will be located at the top level on the 75-foot tower.

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

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

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. Far Field Approximation tables for each of Cellco's operating frequencies are included behind Attachment 2. The Far Field calculations demonstrate that Cellco's modified facility will operate well within the RF emissions limits 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 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:
James M. Hayden, East Granby First Selectman
Tim Parks

ATTACHMENT 1

Product Specifications

COMMSCOPE®

POWERED BY ANDREW.

LNX-6514DS-VTM

Andrew® Antenna, 698–896 MHz, 65° horizontal beamwidth, RET compatible

- Great solution to maximize network coverage and capacity
- Excellent gain, VSWR, front-to-back ratio, and PIM specifications for robust network performance
- Ideal choice for site collocations and tough zoning restrictions
- Excellent solution for site sharing and maximizing capacity
- Fully compatible with Andrew remote electrical tilt system for greater OpEx savings
- The RF connectors are designed for IP67 rating and the radome for IP56 rating

Electrical Specifications

Frequency Band, MHz	**698–806**	**806–896**
Gain, dBi	15.8	15.9
Beamwidth, Horizontal, degrees	65	64
Beamwidth, Vertical, degrees	12.4	11.2
Beam Tilt, degrees	0–10	0–10
USLS, dB	17	18
Front-to-Back Ratio at 180°, dB	32	30
CPR at Boresight, dB	23	23
CPR at Sector, dB	12	10
Isolation, dB	30	30
VSWR | Return Loss, dB	1.4 | 15.6	1.4 | 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153
Input Power per Port, maximum, watts	400	400
Polarization	±45°	±45°
Impedance	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	**698–806**	**806–896**
Gain by all Beam Tilts, average, dBi	15.6	15.7
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.5
Gain by Beam Tilt, average, dBi	0 ° | 15.7 5 ° | 15.7 10 ° | 15.3	0 ° | 15.9 5 ° | 15.8 10 ° | 15.3
Beamwidth, Horizontal Tolerance, degrees	±0.9	±1.4
Beamwidth, Vertical Tolerance, degrees	±0.8	±0.6
USLS, dB	18	20
Front-to-Back Total Power at 180° ± 30°, dB	25	23
CPR at Boresight, dB	25	24
CPR at Sector, dB	15	12

* 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®
Band	Single band
Brand	DualPol® | Teletilt®

Product Specifications

LNX-6514DS-VTM

Operating Frequency Band	698 – 896 MHz
Performance Note	Outdoor usage

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Aluminum
Radome Material	Fiberglass, UV resistant
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	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	180.5 mm | 7.1 in
Length	1851.0 mm | 72.9 in
Width	301.0 mm | 11.9 in
Net Weight	14.2 kg | 31.3 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 2.0 Actuator	LNX-6514DS-A1M
RET System	Teletilt®

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

DB380 — Pipe Mounting Kit for 2.4"-4.5" (60-115mm) OD round members on wide panel antennas. Includes 2 clamp sets and double nuts.

DB5083 — Downtilt Mounting Kit for 2.4"-4.5" (60 - 115 mm) OD round members. Includes a heavy-duty, galvanized steel downtilt mounting bracket assembly and associated hardware. This kit is compatible with the DB380 pipe mount kit for panel antennas that are equipped with two mounting brackets.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

Product Specifications

COMMSCOPE®

POWERED BY ANDREW.

HBXX-6517DS-VTM

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

- Superior azimuth tracking and pattern symmetry with excellent passive intermodulation suppression

Electrical Specifications

Frequency Band, MHz	1710–1880	1850–1990	1920–2180
Gain, dBi	19.0	19.1	19.2
Beamwidth, Horizontal, degrees	67	66	65
Beamwidth, Vertical, degrees	5.0	4.7	4.4
Beam Tilt, degrees	0–6	0–6	0–6
USLS, dB	18	18	18
Front-to-Back Ratio at 180°, dB	30	30	30
CPR at Boresight, dB	21	22	21
CPR at Sector, dB	10	11	9
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°
Impedance	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	1710–1880	1850–1990	1920–2180
Gain by all Beam Tilts, average, dBi	18.5	18.6	18.8
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.3	±0.4
Gain by Beam Tilt, average, dBi	0 ° | 18.4	0 ° | 18.4	0 ° | 18.7
	3 ° | 18.7	3 ° | 18.7	3 ° | 18.9
	6 ° | 18.4	6 ° | 18.5	6 ° | 18.6
Beamwidth, Horizontal Tolerance, degrees	±2.4	±1.7	±2.9
Beamwidth, Vertical Tolerance, degrees	±0.3	±0.3	±0.3
USLS, dB	18	19	19
Front-to-Back Total Power at 180° ± 30°, dB	25	26	26
CPR at Boresight, dB	22	23	22
CPR at Sector, dB	10	10	9

* 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® quad
Band	Single band
Brand	DualPol® | Teletilt®
Operating Frequency Band	1710 – 2180 MHz

Product Specifications

HBXX-6517DS-VTM

Performance Note	Outdoor usage

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Low loss circuit board
Radome Material	PVC, UV resistant
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	4
Wind Loading, maximum	668.0 N @ 150 km/h 150.2 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h | 149.8 mph

Dimensions

Depth	166.0 mm | 6.5 in
Length	1903.0 mm | 74.9 in
Width	305.0 mm | 12.0 in
Net Weight	19.5 kg | 43.0 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 2.0 Actuator	HBXX-6517DS-A2M
RET System	Teletilt®

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

600899A-2 — 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

PCS RF MODULES

RRH1900 2X60 - HW CHARACTERISTICS

LA6.0.1/13.3

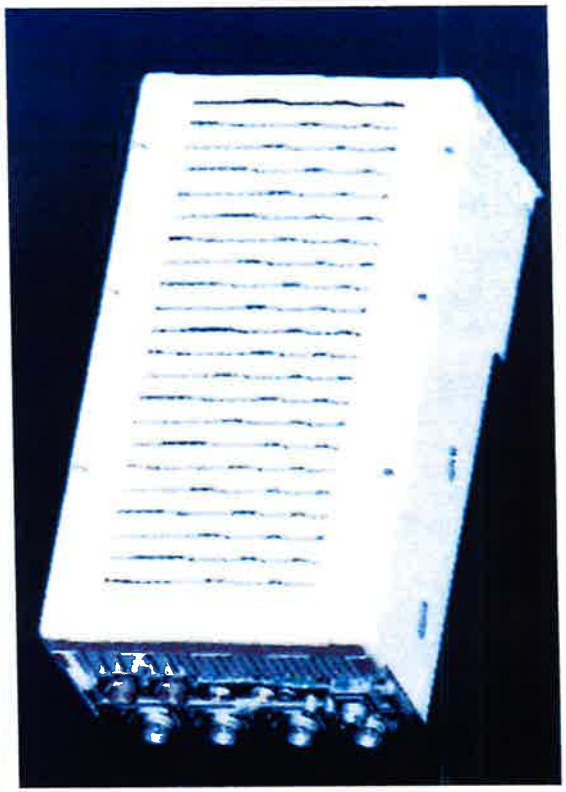
	RRH2x60
RF Output Power	2x60W
Instantaneous Bandwidth	20MHz
Transmitter	2 TX
Receiver 1900 HW version 1900A HW version	2 Branch RX – LA6.0.1 4 Branch RX – LR13.3
Features	AISG 2.0 for RET/TMA
	Internal Smart Bias-T
Power	-48VDC
CPRI Ports	2 CPRI Rate 3 Ports
External Alarms	4 External User Alarms
Monitor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

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.

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.

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).

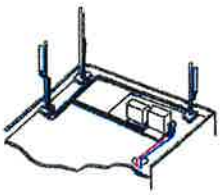
The Alcatel-Lucent RRH2x60-AWS is a very cost-effective solution to deploy LTE MIMO.

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.

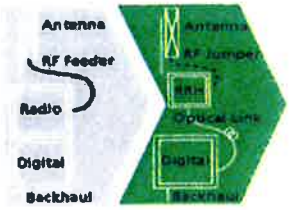
The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment. However, many of these sites can host an Alcatel-Lucent RRH2x60-AWS installation, providing more flexible site selection and improved network quality along with greatly reduced installation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

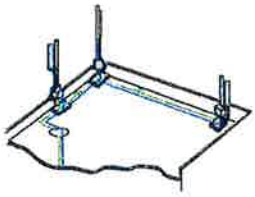
Installation can easily be done by a single person as the Alcatel-Lucent RRH2x60-AWS is compact and weighs about 20 kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day.



Macro



RRH for space-constrained cell sites



Distributed

- 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
- 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.

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-95-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

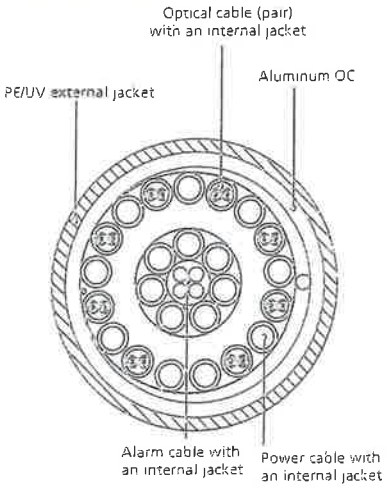


Figure 2: Construction Detail

* This data is provisional and subject to change

ATTACHMENT 2

Far Field Approximation
with downtilt variation

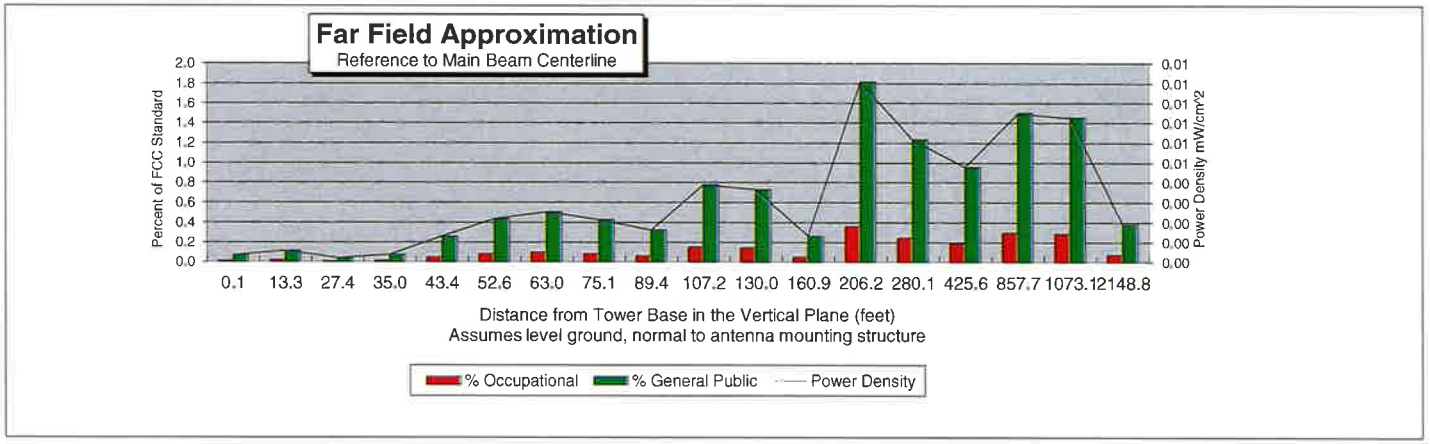
Estimated Radiated Emission

Single Emitter Far Field Model

Dipole / Wire/ Yagi Antenna Types

Location:	E Granby, CT
Site #:	
Date:	05/11/15
Name:	Mark Brauer
File Name:	E Granby, CT - FF Power

Operating Freq. (MHz)	**746.0**
Antenna Height (ft):	**78.0**
Antenna Gain (dBi):	**15.8**
Antenna Size (in.):	**72.7**
Downtilt (degrees):	**0.0**
Feedline Loss (dB):	**0.0**
ERP (w):	**1050.0**
Number 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	75.0	76.2	79.8	82.8	86.6	91.6	97.9	106.1	116.7	130.8	150.1	177.5	219.4	289.9	432.1	861.0	1075.7	2150.1	
Distance from Antenna Structure Base in Horizontal plane	0.1	13.3	27.4	35.0	43.4	52.6	63.0	75.1	89.4	107.2	130.0	160.9	206.2	280.1	425.6	857.7	1073.1	2148.8	
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	0.00	0.00	0.00	0.01	0.01	0.00	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	0.1	0.1	0.4	0.2	0.2	0.3	0.3	0.1	
Percent of General Population Standard	0.1	0.1	0.0	0.1	0.3	0.4	0.5	0.4	0.3	0.8	0.7	0.3	1.8	1.2	1.0	1.5	1.5	0.4	

Antenna Type LNX-6514DS
Max% 1.82%

Instructions:

1) Fill in Site Location, Site number, Date, Name of Person Responsible for Date, and enter File Name to ba saved as.
2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBd to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Po
4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
7) An odd distance may be entered in the rightmost column of the lower table.

Far Field Approximation
with downtilt variation

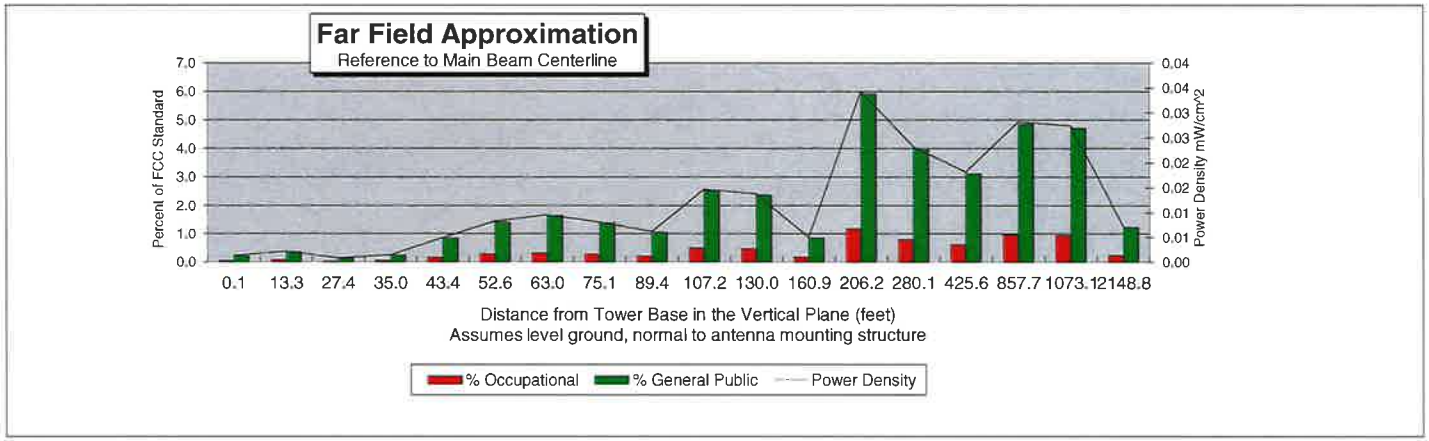
Estimated Radiated Emission

Single Emitter Far Field Model

Dipole / Wire/ Yagi Antenna Types

Location:	E Granby, CT
Site #:	
Date:	05/11/15
Name:	Mark Brauer
File Name:	E Granby, CT - FF Power

Operating Freq. (MHz)	**869.0**
Antenna Height (ft):	**78.0**
Antenna Gain (dBi):	**15.9**
Antenna Size (in.):	**72.7**
Downtilt (degrees):	**0.0**
Feedline Loss (dB):	**0.0**
ERP (w):	**3864.0**
Number 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	75.0	76.2	79.8	82.8	86.6	91.6	97.9	106.1	116.7	130.8	150.1	177.5	219.4	289.9	432.1	861.0	1075.7	2150.1
Distance from Antenna Structure Base in Horizontal plane	0.1	13.3	27.4	35.0	43.4	52.6	63.0	75.1	89.4	107.2	130.0	160.9	206.2	280.1	425.6	857.7	1073.1	2148.8
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	0.1	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	1.1	2.5	2.4	0.9	5.9	4.0	3.1	4.9	4.7	1.2

Antenna Type LNX-6514DS
Max% 5.91%

Instructions:

1) Fill in Site Location, Site number, Date, Name of Person Responsible for Date, and enter File Name to ba saved as.
2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBd to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Po
4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
7) An odd distance may be entered in the rightmost column of the lower table.

Far Field Approximation
with downtilt variation

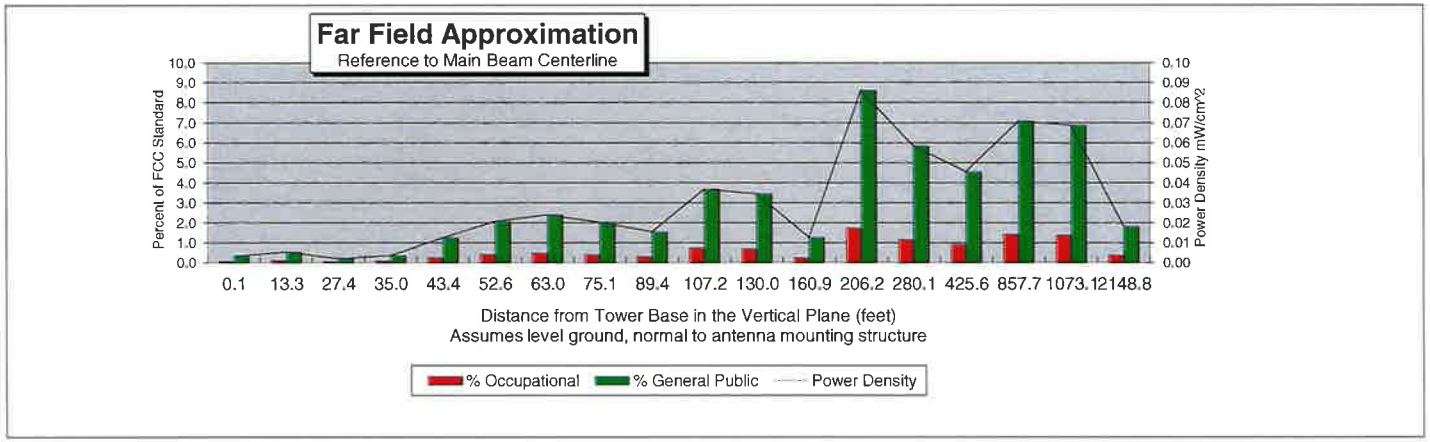
Estimated Radiated Emission

Single Emitter Far Field Model

Dipole / Wire/ Yagi Antenna Types

Location:	E Granby, CT
Site #:	
Date:	05/11/15
Name:	Mark Brauer
File Name:	E Granby, CT - FF Power

Operating Freq. (MHz)	**1970.0**
Antenna Height (ft):	**78.0**
Antenna Gain (dBi):	**18.5**
Antenna Size (in.):	**74.9**
Downtilt (degrees):	**0.0**
Feedline Loss (dB):	**0.0**
ERP (w):	**5321.0**
Number of Channels	**11**



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	75.0	76.2	79.8	82.8	86.6	91.6	97.9	106.1	116.7	130.8	150.1	177.5	219.4	289.9	432.1	861.0	1075.7	2150.1
Distance from Antenna Structure Base in Horizontal plane	0.1	13.3	27.4	35.0	43.4	52.6	63.0	75.1	89.4	107.2	130.0	160.9	206.2	280.1	425.6	857.7	1073.1	2148.8
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	0.01	0.00	0.00	0.01	0.02	0.02	0.02	0.02	0.04	0.03	0.01	0.09	0.06	0.05	0.07	0.07	0.02
Percent of Occupational Standard	0.1	0.1	0.0	0.1	0.2	0.4	0.5	0.4	0.3	0.7	0.7	0.3	1.7	1.2	0.9	1.4	1.4	0.4
Percent of General Population Standard	0.3	0.5	0.2	0.4	1.2	2.1	2.4	2.0	1.5	3.7	3.5	1.3	8.6	5.8	4.5	7.1	6.9	1.8

Antenna Type HBXX-6517DS
Max% 8.61%

Instructions:

1) Fill in Site Location, Site number, Date, Name of Person Responsible for Date, and enter File Name to ba saved as.
2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBd to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Po
4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
7) An odd distance may be entered in the rightmost column of the lower table.

Far Field Approximation
with downtilt variation

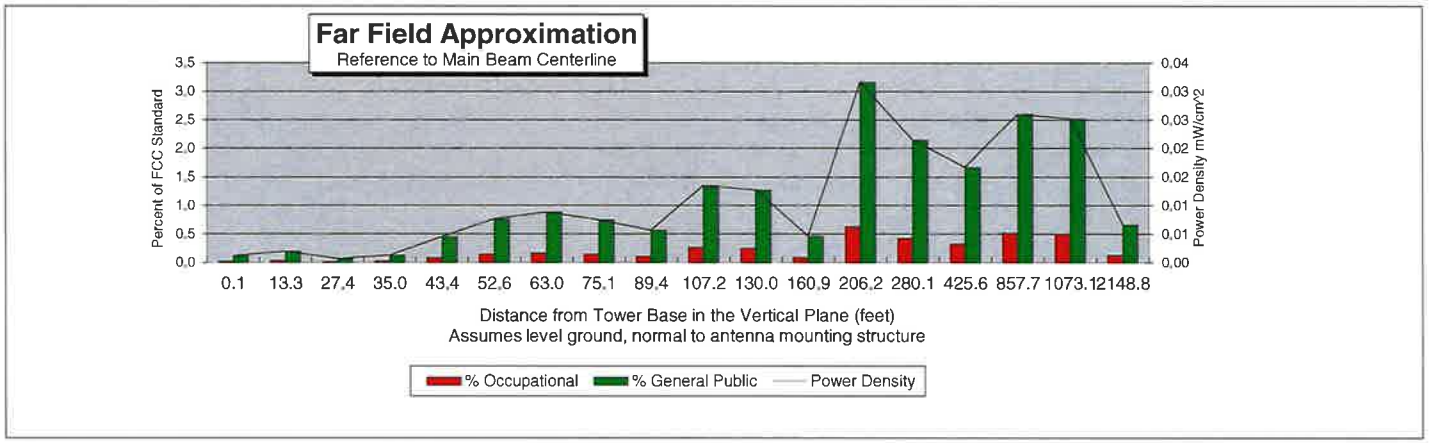
Estimated Radiated Emission

Single Emitter Far Field Model

Dipole / Wire/ Yagi Antenna Types

Location:	E Granby, CT
Site #:	
Date:	05/11/15
Name:	Mark Brauer
File Name:	E Granby, CT - FF Power

Operating Freq. (MHz)	**2145.0**
Antenna Height (ft):	**78.0**
Antenna Gain (dBi):	**19.0**
Antenna Size (in.):	**74.9**
Downtilt (degrees):	**0.0**
Feedline Loss (dB):	**0.0**
ERP (w):	**1750.0**
Number 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	75.0	76.2	79.8	82.8	86.6	91.6	97.9	106.1	116.7	130.8	150.1	177.5	219.4	289.9	432.1	861.0	1075.7	2150.1	
Distance from Antenna Structure Base in Horizontal plane	0.1	13.3	27.4	35.0	43.4	52.6	63.0	75.1	89.4	107.2	130.0	160.9	206.2	280.1	425.6	857.7	1073.1	2148.8	
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	1.4	1.3	0.5	3.2	2.1	1.7	2.6	2.5	0.7	

Antenna Type HBXX-6517DS
Max% 3.16%

Instructions:

1) Fill in Site Location, Site number, Date, Name of Person Responsible for Date, and enter File Name to ba saved as.
2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBd to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Po
4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
7) An odd distance may be entered in the rightmost column of the lower table.

ATTACHMENT 3

ALL-POINTS
TECHNOLOGY CORPORATION

STRUCTURAL ANALYSIS REPORT
75' MONOPOLE TOWER
EAST GRANBY, CONNECTICUT

Prepared for
Verizon Wireless

Verizon Site: East Granby

February 24, 2015

APT Project #CT141572

□ 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
75' MONOPOLE TOWER
EAST GRANBY, CONNECTICUT
prepared for
Verizon Wireless

EXECUTIVE SUMMARY:

All-Points Technology Corporation, P.C. (APT) performed a structural analysis of this 75-foot monopole tower located in East Granby, Connecticut. The analysis was performed for Verizon Wireless's proposed replacement of their twelve existing panel antennas at 75' with twelve new panels, six remote radio heads (RRHs) and two power/fiber distribution boxes (D-boxes). The existing eighteen 1-5/8" lines will remain, and two hybrid power/fiber cables will be installed.

Our analysis indicates the tower meets the requirements of the Connecticut State Building Code with the proposed antennas. The existing foundation could not be evaluated, as information on its design or construction was not available to APT.

INTRODUCTION:

A structural analysis of this communications tower was performed by APT for Verizon Wireless. The tower is located off Newgate Road in East Granby, Connecticut.

APT did not visit the tower site. This analysis relied on information provided by Verizon Wireless, which included a structural analysis report by L&W Engineering dated June 25, 2001, and existing and proposed antenna specifications.

The structure is a 75-foot galvanized steel, 18-sided tapered monopole manufactured by Summit Manufacturing, Inc. The analysis was conducted for the following antenna inventory (proposed changes shown in **bold** text):

Antenna	Elev.	Mount	Coax.
Ground rod	75'	Banded to pole	N.A.
Beacon	75'	Top plate	7/8"
(6) LNX-6514DS, (6) HBXX-6517DS panels, (6) RRH2x60-AWS RRHs, (2) DB-T1-6Z-8AB-0Z D-boxes [1]	75'	14' platform	(18) 1-5/8", **(2) hybrid**

All-Points Technology Corporation

116 Grandview Road
Conway, NH 03818
(603) 496-5853

3 Saddlebrook Drive
Killingworth, CT 06419
(860) 663-1697

[1] Six LPA-80063/4, three BXA-70063/4, one BXA-171085/8 and two BXA-171063/8 panel antennas with eighteen lines currently installed.

STRUCTURAL ANALYSIS:

Methodology:

The structural analysis was done in accordance with TIA/EIA-222-F (EIA), 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 wind speed of 85 miles per hour and one-half inch of radial ice over the entire structure and all appurtenances. The TIA/EIA Standard requires a minimum of 80-mph wind load for Hartford County, Connecticut.

EIA requires two loading conditions to be evaluated to determine the tower's capacity. The higher stresses resulting from the two cases is used to calculate the tower capacity:

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

EIA 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 in computing the load capacity values indicated herein.

ANALYSIS RESULTS:

Our analysis determined the tower will support the proposed antenna array. The following table summarizes the capacity of the tower based on combined axial and bending stresses:

Elevation	Capacity
50'-75'	72%
24'-50'	86%
0'-24'	100%
Base Plate	98%

The capability of the existing foundation to support the proposed changes could not be evaluated, as information on its design or construction was not available to APT.

Base reactions imposed with the proposed equipment changes were calculated as follows:

Compression:	9.2 kips
Total Shear:	4.9 kips
Overturning Moment:	325.4 ft-kips

CONCLUSIONS AND SUGGESTIONS:

Our analysis indicates that the existing 75' Summit monopole tower in East Granby, Connecticut meets the requirements of the Connecticut State Building Code with Verizon Wireless's proposed equipment changes.

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 bolts are in place and are properly tightened.
4. Tower is in plumb condition.

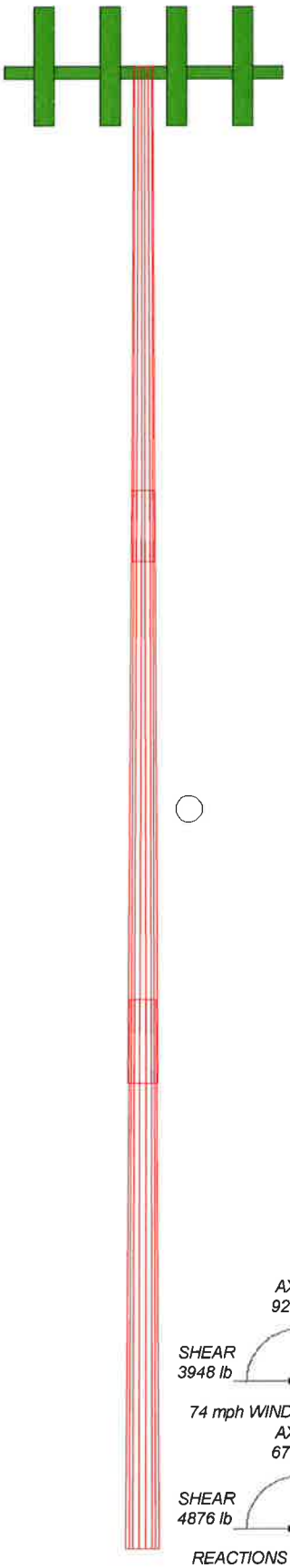
All-Points Technology Corporation, P.C. (APT) is not responsible for any modifications completed prior to or hereafter which APT is not or was not directly involved. Modifications include but are not limited to:

1. Adding or relocating antennas.
2. Installing antenna mounting gates or side arms.
3. 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 conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or 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



Section	1	2	3
Length (ft)	25.00	30.00	27.81
Number of Sides	18	18	18
Thickness (in)	0.1875	0.2500	0.2500
Socket Length (ft)	3.58	4.23	
Top Dia (in)	11.5000	13.8025	16.5236
Bot Dia (in)	14.6250	17.5525	20.0000
Grade		A572-65	
Weight (lb)	651.8	1249.7	1352.6

Total Weight: 3254.1

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) HBXX-6517DS	75	(2) ALU RRH2x60-AWS w/bracket	75
(2) HBXX-6517DS	75	(2) ALU RRH2x60-AWS w/bracket	75
(2) HBXX-6517DS	75	RFS DB-T1-6Z-8AB-0Z D-box	75
(2) LNX-6514DS-VTM	75	RFS DB-T1-6Z-8AB-0Z D-box	75
(2) LNX-6514DS-VTM	75	14' low-profile platform	75
(2) LNX-6514DS-VTM	75	Flash Beacon Lighting	75
(2) ALU RRH2x60-AWS w/bracket	75	Generic Lightning Rod 4' copper	75

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

All-Points Technology Corporation
116 Grandview Road
Conway, NH 03818
Phone: (603) 496-5853
FAX: (603) 447-2124

Job: *75' Summit Monopole*			
Project: *CT141572 East Granby*			
Client: Verizon Wireless	Drawn by: Rob Adair	App'd:	
Code: TIA/EIA-222-F	Date: 02/24/15	Scale: N	
Path: C:\Users\Rob Adair\Documents\Jobs\2 Verizon LTE\CT141570 East Granby\CT141572 East Granby.eri		Dwg No.	

Appendix B

Calculations

tnxTower	Job	Page
	75' Summit Monopole	1 of 3
All-Points Technology Corporation 116 Grandview Road Conway, NH 03818 Phone: (603) 496-5853 FAX: (603) 447-2124	**Project** CT141572 East Granby	**Date** 15:27:51 02/24/15
	Client Verizon Wireless	**Designed by** Rob Adair

Tower Input Data

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.
User specified elevation for calculation of G_h is 75.00 ft.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	75.00-50.00	25.00	3.58	18	11.5000	14.6250	0.1875	0.7500	A572-65 (65 ksi)
L2	50.00-23.58	30.00	4.23	18	13.8025	17.5525	0.2500	1.0000	A572-65 (65 ksi)
L3	23.58-0.00	27.81		18	16.5236	20.0000	0.2500	1.0000	A572-65 (65 ksi)

Monopole Base Plate Data

Base Plate Data	
Base plate is square	√
Anchor bolt grade	A354-BC
Anchor bolt size	2.6250 in
Number of bolts	16
Embedment length	72.0000 in
f'_c	4 ksi
Grout space	2.0000 in
Base plate grade	A633-60
Base plate thickness	3.0000 in
Bolt circle diameter	66.0000 in
Outer diameter	64.0000 in
Inner diameter	46.0000 in
Corner clipped	12.0000 in
Base plate type	Plain Plate

Feed Line/Linear Appurtenances

Description	*Face or Leg*	*Allow Shield*	*Component Type*	*Placement*	*Total Number*		C_AA_A	*Weight*
				ft			*ft²/ft*	*plf*
1 5/8	C	No	Inside Pole	75.00 - 6.00	18	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
1.57" Hybrid fiber-power cable	C	No	Inside Pole	75.00 - 6.00	2	No Ice	0.00	0.66
						1/2" Ice	0.00	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
(2) HBXX-6517DS	A	From Face	4.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice	8.74 9.31	5.24 5.71	45.00 95.49
(2) HBXX-6517DS	B	From Face	4.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice	8.74 9.31	5.24 5.71	45.00 95.49
(2) HBXX-6517DS	C	From Face	4.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice	8.74 9.31	5.24 5.71	45.00 95.49
(2) LNX-6514DS-VTM	A	From Face	4.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice	8.41 8.96	4.17 4.61	30.00 74.68
(2) LNX-6514DS-VTM	B	From Face	4.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice	8.41 8.96	4.17 4.61	30.00 74.68
(2) LNX-6514DS-VTM	C	From Face	4.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice	8.41 8.96	4.17 4.61	30.00 74.68
(2) ALU RRH2x60-AWS w/bracket	A	From Face	2.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice	3.96 4.27	2.16 2.44	60.00 84.31
(2) ALU RRH2x60-AWS w/bracket	B	From Face	2.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice	3.96 4.27	2.16 2.44	60.00 84.31
(2) ALU RRH2x60-AWS w/bracket	C	From Face	2.00 0.00 0.00	0.0000	75.00	No Ice 1/2" Ice	3.96 4.27	2.16 2.44	60.00 84.31
RFS DB-T1-6Z-8AB-0Z D-box	A	None		0.0000	75.00	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	B	None		0.0000	75.00	No Ice 1/2" Ice	5.60 5.92	2.33 2.56	45.00 81.13
14' low-profile platform	A	None		0.0000	75.00	No Ice 1/2" Ice	9.80 10.93	8.49 9.47	1200.00 2063.51
Flash Beacon Lighting	A	None		0.0000	75.00	No Ice 1/2" Ice	2.70 3.10	2.70 3.10	50.00 70.00
Generic Lightning Rod 4' copper	C	None		0.0000	75.00	No Ice 1/2" Ice	0.50 1.00	0.50 1.00	0.00 0.00

Solution Summary

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	75 - 50	23.552	9	2.6333	0.0000
L2	53.58 - 23.58	12.599	9	2.1097	0.0000
L3	27.8113 - 0	3.571	9	1.1528	0.0000

tnxTower	Job	Page
	75' Summit Monopole	3 of 3
All-Points Technology Corporation 116 Grandview Road Conway, NH 03818 Phone: (603) 496-5853 FAX: (603) 447-2124	**Project** CT141572 East Granby	**Date** 15:27:51 02/24/15
	Client Verizon Wireless	**Designed by** Rob Adair

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
75.00	(2) HBXX-6517DS	9	23.552	2.6333	0.0000	7039

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	75 - 50	Pole	TP14.625x11.5x0.1875	1	-2722.28	50467.78	72.1	Pass
L2	50 - 23.58	Pole	TP17.5525x13.8025x0.25	2	-4551.52	115978.60	85.7	Pass
L3	23.58 - 0	Pole	TP20x16.5236x0.25	3	-6780.39	189321.98	100.4	Pass
							Summary	
						Pole (L3)	100.4	Pass
						Base Plate	98.3	Pass
						RATING =	**100.4**	**Pass**