Robinson+Cole

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Also admitted in Massachusetts

April 9, 2015

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

Re: **Notice of Exempt Modification – Facility Modification**
Hospital Avenue, Danbury, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains a wireless telecommunications facility on the roof at Danbury Hospital, off Hospital Avenue in Danbury (the "Property"). The Council approved the establishment of this facility in 1987 (Docket No. 79) and maintains jurisdiction over this facility.

Cellco now intends to replace nine (9) of its existing antennas with three (3) model X7C-FRO-660-VR0, 700 MHz antennas; three (3) model HBXX-6516DS-VTM, 1900 MHz antennas; and three (3) model HBXX-6516DS-VTM, 2100 MHz antennas, all at the same locations on the roof. Cellco also intends to install six (6) remote radio heads ("RRHs") behind its 1900 MHz and 2100 MHz antennas and one (1) HYBRIFLEX™ antenna cable. Included in Attachment 1 are specifications for Cellco's replacement 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 Mark D. Boughton, Mayor for the City of Danbury and Danbury Hospital Inc., 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).

13609325-v1

1. The proposed modifications will not result in an increase in the height of the antennas or the building.

2. The proposed modifications will not involve a change to any associated 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) adopted safety standard. A Radio Frequency Exposure Report 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 roof and antenna support structures can support Cellco's proposed modifications. (*See* Structural Evaluation Letter 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

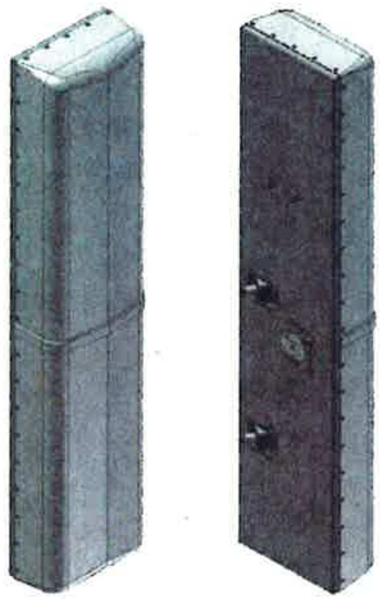
Enclosures
Copy to:
Mark D. Boughton, Danbury Mayor
Danbury Hospital Inc.
Tim Parks

ATTACHMENT 1

X7C-FRO-660-V

X-Pol Antenna, 698-896MHz, Fast-Roll-Off 60° H-Beam

RET/MET



- Designed to improve SNR
- Greatly increases LTE data rates
- Broadband radiator
- Macro Cell, high gain antenna
- Suitable for LTE/CDMA/UMTS/GSM
- AISG 2.0 RET or manual MET tilt control

Electrical Specifications

Frequency Band, MHz	**698-824**	**824-896**
Horizontal Beamwidth, 3dB points	62	58
Gain, dBi	15.9	16.0
Vertical Beamwidth, 3dB points	12.0	10.5
Front-to-Back at 180°, dB	>28	
Upper Sidelobe Suppression, Typical, dB	<-18	
Polarization	+/-45°	
Electrical Downtilt	0-10° or 4-14°	
VSWR/Return Loss, dB, Maximum	1.5:1/14.0	
Isolation Between Ports, dB, Mimimum	-28	
Intermodulation (2x20w), IM3, dBc, Maximum	-150	
Impedance, ohms	50	
Maximum Power Per Connector, CW	500	

www.cssantenna.com
410-612-0080
customerservice@cssantenna.com

X7C-FRO-660-V

X-Pol Antenna, 698-896MHz, Fast-Roll-Off 60° H-Beam

RET/MET

Mechanical Specifications

Dimensions, Length/Width/Depth	72.0/14.6/8.0 in (1829/372/204 mm)
Connector (Quantity) Type	(2) 7-16 DIN Female
Connector Torque	220-265 lbf-in (25-30 N-m)
Connector Location	Back
Antenna Weight	35.0 lbs
Bracket Weight	13.2 lbs (6.0 kg)
Standard Bracket Kit	CSS P/N 919011
Mechanical Downtilt Range	0-12°
Radome Material	Ultra High Strength Luran, UV Stabilized, ASTM D1925
Wind Survival	150 mph (241 km/h)
Front Wind Load	205.39 lbf (913.65 N) @100mph
Equivalent Flat Plate	4.09 sq-ft (c=2) @ 100mph

RET Information

Model	CSS-RET-200
Mounting Location	Rear of Antenna
Weight	1.2 lb (0.54 kg)
Communication Standard	AISG 2.0
Control System	CSS-PCU-220

Order Information

Model	*Description*
X7C-FRO-660-VR0	Antenna with manual RET adjust electrical downtilt 0-10°
X7C-FRO-660-VR4	Antenna with manual RET adjust electrical downtilt 4-14°
X7C-FRO-660-VM0	Antenna with remote MET adjust electrical downtilt 0-10°
X7C-FRO-660-VM4	Antenna with remote MET adjust electrical downtilt 4-14°

Optional Bracket Kit

919036	Bracket Kit, 2-Point, 12 deg D-tilt, For 4.5" OD Pole

Product Specifications

COMMSCOPE

POWERED BY ANDREW.

HBXX-6516DS-VTM

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

- Each DualPol® array can be independently adjusted for greater flexibility
- Excellent gain, VSWR, front-to-back ratio, and PIM specifications for robust network performance
- Ideal choice for site collocations and tough zoning restrictions
- Great solution to maximize network coverage and capacity
- The values presented on this datasheet have been calculated based on N-P-BASTA White Paper version 9.6 by the NGMN Alliance

Electrical Specifications

Frequency Band, MHz	**1710–1880**	**1850–1990**	**1920–2180**
Gain by all Beam Tilts, average, dBi	17.2	17.2	17.5
Gain by all Beam Tilts Tolerance, dB	±0.3	±0.3	±0.5
Gain by Beam Tilt, average, dBi	0 ° | 17.0 5 ° | 17.3 10 ° | 17.0	0 ° | 17.1 5 ° | 17.4 10 ° | 17.0	0 ° | 17.4 5 ° | 17.7 10 ° | 17.2
Beamwidth, Horizontal, degrees	67	66	64
Beamwidth, Horizontal Tolerance, degrees	±2.7	±2.3	±3.5
Beamwidth, Vertical, degrees	7.5	7.0	6.6
Beamwidth, Vertical Tolerance, degrees	±0.5	±0.4	±0.4
Beam Tilt, degrees	0–10	0–10	0–10
USLS, dB	18	19	19
Front-to-Back Total Power at 180° ± 30°, dB	26	26	26
CPR at Boresight, dB	22	22	22
CPR at Sector, dB	9	9	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

General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol® single band, quad
Band	Single band
Brand	DualPol® | Teletilt®
Operating Frequency Band	1710 – 2180 MHz
Number of Ports, all types	4

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

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All specifications are subject to change. See www.commscope.com for the most current information. Revised: June 11, 2014

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

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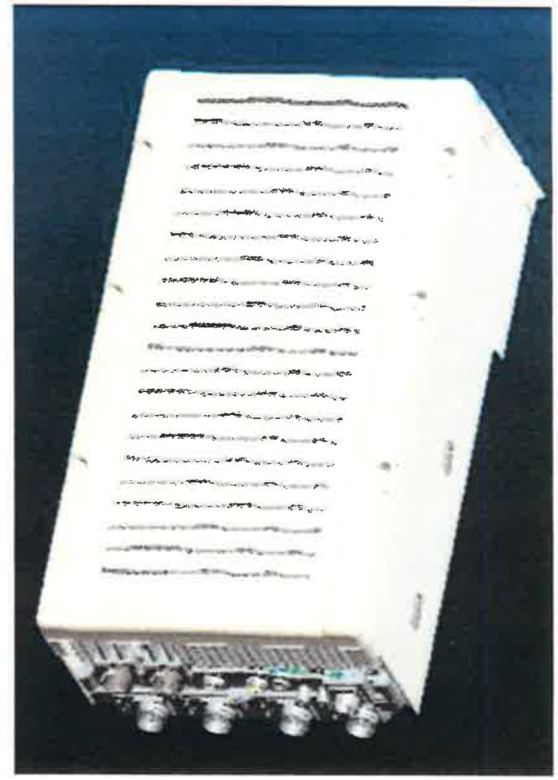
ALCATEL-LUCENT – CONFIDENTIAL – SOLELY FOR AUTHORIZED PERSONS HAVING A NEED TO KNOW – PROPRIETARY – USE PURSUANT TO COMPANY INSTRUCTION

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.)

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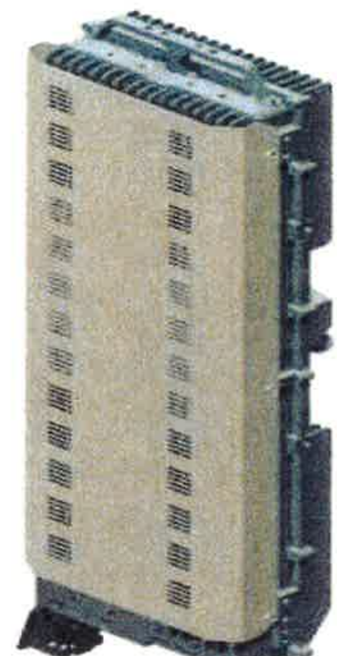
ALCATEL-LUCENT WIRELESS PRODUCT DATASHEET

RRH2X60-AWS FOR BAND 4 APPLICATIONS

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



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

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

SUPERIOR RF PERFORMANCE

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

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

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

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

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

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

OPTIMIZED TCO

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

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

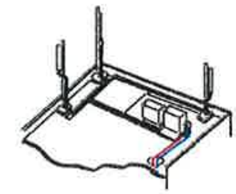
EASY INSTALLATION

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

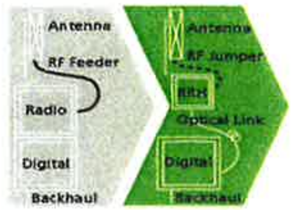
The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment. However, many of these sites can host an Alcatel-Lucent RRH2x60-AWS installation, providing more flexible site selection and improved network quality along with greatly reduced installation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

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

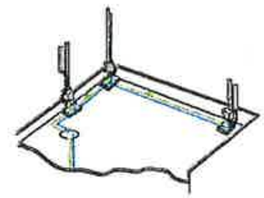
Installation can easily be done by a single person as the Alcatel–Lucent RRH2x60-AWS is compact and weighs about 20 kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day.



Macro



RRH for space-constrained cell sites



Distributed

FEATURES

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

BENEFITS

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

TECHNICAL SPECIFICATIONS

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

Dimensions and weights

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

Electrical Data

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

RF Characteristics

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

Connectivity

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

Environmental specifications

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

Safety and Regulatory Data

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

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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.

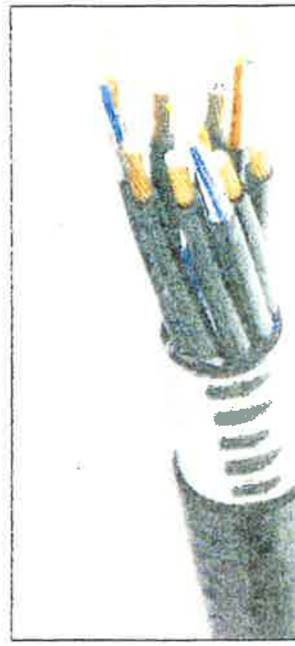


Figure 1: HYBRIFLEX Series

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)		[mm (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm (AWG)]	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		[mm (in)]	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-95-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
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

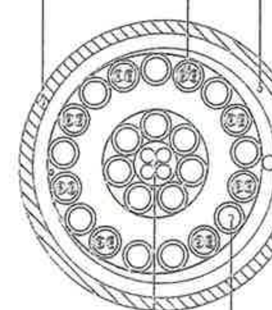


Figure 2: Construction Detail

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

ATTACHMENT 2

C Squared Systems, LLC
65 Dartmouth Drive
Auburn, NH 03032
Phone: (603) 644-2800
support@csquaredsystems.com

RADIO FREQUENCY EXPOSURE REPORT

DANBURY CT

24 HOSPITAL AVENUE
DANBURY, CT 06810

December 23, 2014

Table of Contents

List of Tables

List of Figures

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modifications to the existing Verizon Wireless antennas, mounted on the rooftop of Danbury Hospital, located at 24 Hospital Avenue in Danbury, CT. The coordinates of the building are 41° 24' 18.03" N, 73° 26' 46.33" W.

Verizon Wireless is proposing the following modifications:

1) Remove three existing 751MHz LTE antennas (one per sector);
2) Install three replacement 751MHz LTE antennas (one per sector);
3) Remove three existing 1900MHz CDMA/EVDO antennas (one per sector);
4) Install three 1900MHz LTE antennas (one per sector);
5) Install three 1900MHz LTE RRUs (one per sector);
6) Remove three existing 2100MHz LTE antennas (one per sector);
7) Install three replacement 2100MHz LTE antennas (one per sector);
8) Adjust the electrical/mechanical tilt of all 751/1900/2100MHz antennas.

Figure 1: View of Danbury Hospital

Site Address	24 Hospital Ave, Danbury, CT
Latitude	41° 24' 18.03" N
Longitude	73° 26' 46.33" W
Site Elevation AMSL	467'
Survey Engineer	Evan Thibodeau
Survey Date/Time	12/22/2014; 9:30AM – 11:30AM

Table 1: Site Specific Data

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment provided they are fully aware of the potential for exposure, and are able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels considered acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population / uncontrolled exposure and for occupational / controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. Measurement Procedure

Frequencies from 300 KHz to 50 GHz were measured using the Narda Probe EA 5091, E-Field, shaped, FCC probe in conjunction with the NBM550 survey meter. The EA 5091 probe is "shaped" such that in a mixed signal environment (i.e.: more than one frequency band is used in a particular location), it accurately measures the percent of MPE.

From FCC OET Bulletin No. 65 - Edition 97-01 – "A useful characteristic of broadband probes used in multiple-frequency RF environments is a frequency-dependent response that corresponds to the variation in MPE limits with frequency. Broadband probes having such a "shaped" response permit direct assessment of compliance at sites where RF fields result from antennas transmitting over a wide range of frequencies. Such probes can express the composite RF field as a percentage of the applicable MPEs".

Probe Description - As suggested in FCC OET Bulletin No. 65 - Edition 97-01, the response of the measurement instrument should be essentially isotropic, (i.e., independent of orientation or rotation angle of the probe). For this reason, the Narda EA 5091 probe was used for these measurements.

Sampling Description - At each measurement location, a spatially averaged measurement is collected over the height of an average human body. The NBM550 survey meter performs a time average measurement while the user slowly moves the probe over a distance range of 20 cm to 200 cm (about 6 feet) above ground level. The results recorded at each measurement location include average values over the spatial distance.

Instrumentation Information - A summary of specifications for the equipment used is provided in the table below.

<table>
<tr><td>Manufacturer</td><td colspan="4">Narda Microwave</td></tr>
<tr><td>Probe</td><td colspan="4">EA 5091, Serial# 01059</td></tr>
<tr><td>Calibration Date</td><td colspan="4">February 2013</td></tr>
<tr><td>Calibration Interval</td><td colspan="4">24 Months</td></tr>
<tr><td>Meter</td><td colspan="4">NBM550, Serial# B-0495</td></tr>
<tr><td>Calibration Date</td><td colspan="4">January 2013</td></tr>
<tr><td>Calibration Interval</td><td colspan="4">24 Months</td></tr>
<tr><td rowspan="2">Probe Specifications</td><td>Frequency Range</td><td>Field Measured</td><td>Standard</td><td>Measurement Range</td></tr>
<tr><td>300 KHz-50 GHz</td><td>Electric Field</td><td>U.S. FCC 1997 Occupational/Controlled</td><td>0.2 – 600 % of Standard</td></tr>
</table>

Table 2: Instrumentation Information

Instrument Measurement Uncertainty - The total measurement uncertainty of the NARDA measurement probe and meter is no greater than ±3 dB (0.5% to 6%), ±1 dB (6% to 100%), ±2 dB (100% to 600%). The factors which contribute to this include the probe's frequency response deviation, calibration uncertainty, ellipse ratio, and isotropic response[1]. Every effort is taken to reduce the overall uncertainty during measurement collection including pointing the probe directly at the likely highest source of emissions.

[1] For further details, please refer to Narda Safety Test Solutions NBM550 Probe Specifications, pg. 64 http://www.narda-sts.us/pdf_files/DataSheets/NBM-Probes_DataSheet.pdf

4. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{1.6^2 \times EIRP}{4\pi \times R^2} \right) \times OffBeamLoss$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna patterns

These calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the final site configuration.

5. Proposed Antenna Configuration

Table 3 below lists the specifications of the proposed Verizon Wireless antennas.

Operator	Sector	TX Freq. (MHz)	Power at Antenna (Watts)	Ant Gain (dBd)	Power ERP (Watts)	Antenna Model	Beam Width	Mech. Downtilt	Length (ft)	Antenna Centerline Height (ft)
Verizon	Alpha	875	119	14.5	3357	BXA-80063/6BF_0	63	0	6	156.0
		2100	120	15.9	4669	HBXX-6516DS-A2M_2	64	2	4	156.0
		751	80	13.8	1919	X7C-FRO-660-VR6	62	0	6	156.0
		1900	120	15.9	4669	HBXX-6516DS-A2M_2	66	2	4	156.0
	Beta	875	119	14.5	3357	BXA-80063/6BF_0	63	0	6	156.0
		2100	120	15.9	4669	HBXX-6516DS-A2M_4	64	2	4	156.0
		751	80	13.8	1919	X7C-FRO-660-VR6	62	2	6	156.0
		1900	120	15.9	4669	HBXX-6516DS-A2M_4	66	2	4	156.0
	Gamma	875	119	14.5	3357	BXA-80063/6BF_0	63	0	6	156.0
		2100	120	15.9	4669	HBXX-6516DS-A2M_2	64	2	4	156.0
		751	80	13.8	1919	X7C-FRO-660-VR2	62	0	6	156.0
		1900	120	15.9	4669	HBXX-6516DS-A2M_2	66	2	4	156.0

Table 3: Proposed Antenna Configuration[2]

[2] Transmit power assumes 0 dB of cable loss, except for the 875 MHz ERP value, which is based on the existing CT Siting Council filing. No modifications are proposed by Verizon Wireless to the equipment associated with this frequency.

6. Measured Results

Measurements were recorded at ground level and on the top level of two parking garages located in close proximity to the hospital to establish a baseline %MPE value for the existing facility. The measured results, and a description of each survey location, are detailed in Table 4 below. The table consists of the 25 measurements recorded on December 22, 2014 between 9:30AM and 11:30AM in these publicly accessible areas around the hospital.

The highest spatially averaged measurement was **5.30%** (Average Uncontrolled/General Population MPE) and was recorded at Location 10, near the eastern end of the Duracell Center parking lot.

Meas. Location	Location Description	Latitude	Longitude	Dist. From Closest VZW Sector (feet)	Measured % MPE (Uncontrolled / General)
1	Rizzo Parking Garage - Top Level	41.406318	-73.445006	507	< 1.00
2	Rizzo Parking Garage - Top Level	41.406084	-73.445878	365	< 1.00
3	Rizzo Parking Garage - Top Level	41.405727	-73.445639	242	< 1.00
4	Rizzo Parking Garage - Top Level	41.406007	-73.444826	439	< 1.00
5	Rizzo Parking Garage - Top Level	41.406140	-73.444247	585	< 1.00
6	Rizzo Parking Garage - Top Level	41.406546	-73.444504	649	< 1.00
7	Hospital Emergency Entrance	41.406724	-73.444286	737	< 1.00
8	Ambulance Entrance	41.405932	-73.443994	596	< 1.00
9	Corner of Emergency Department	41.405659	-73.444658	389	< 1.00
10	**Duracell Center - Rear of Parking Lot**	**41.405144**	**-73.443006**	**780**	**5.30**
11	Duracell Center - North of Main Entrance	41.405265	-73.444441	392	1.46
12	Hospital Ave & Forest Ave	41.406661	-73.445060	616	1.02
13	Hospital Ave & Edgewood Dr	41.406299	-73.446079	448	< 1.00
14	Danbury Hospital - Western Entrance	41.405376	-73.446338	146	< 1.00
15	Hospital Ave & Tamarack Ave	41.405712	-73.447777	427	< 1.00
16	Hospital Ave & Locust Ave	41.404718	-73.447321	240	< 1.00
17	90 Locust Ave	41.404555	-73.446551	165	< 1.00
18	Red Parking Garage - Top Level	41.404800	-73.443918	536	< 1.00
19	Red Parking Garage - Top Level	41.404665	-73.443394	684	< 1.00
20	Red Parking Garage - Top Level	41.404378	-73.443541	665	< 1.00
21	Red Parking Garage - Top Level	41.404119	-73.443640	673	< 1.00
22	Red Parking Garage - Top Level	41.404205	-73.444154	533	< 1.00
23	Red Parking Garage - Top Level	41.404542	-73.444000	528	< 1.00
24	Danbury Hospital - Valet Parking	41.404334	-73.444592	405	< 1.00
25	Danbury Hospital - Main Entrance	41.404512	-73.445577	159	< 1.00

Table 4: Measurement Results[3]

[3] Due to measurement uncertainty at low levels (See Table 2), any readings outside the measurement range of the probe (< 1.00 % FCC General Population/Uncontrolled MPE) are noted as such.

Figure 2 below is an aerial view of the facility location and the surrounding area. Labeled points indicate the locations of the measurements recorded on December 22, 2014, as listed above in Table 4.

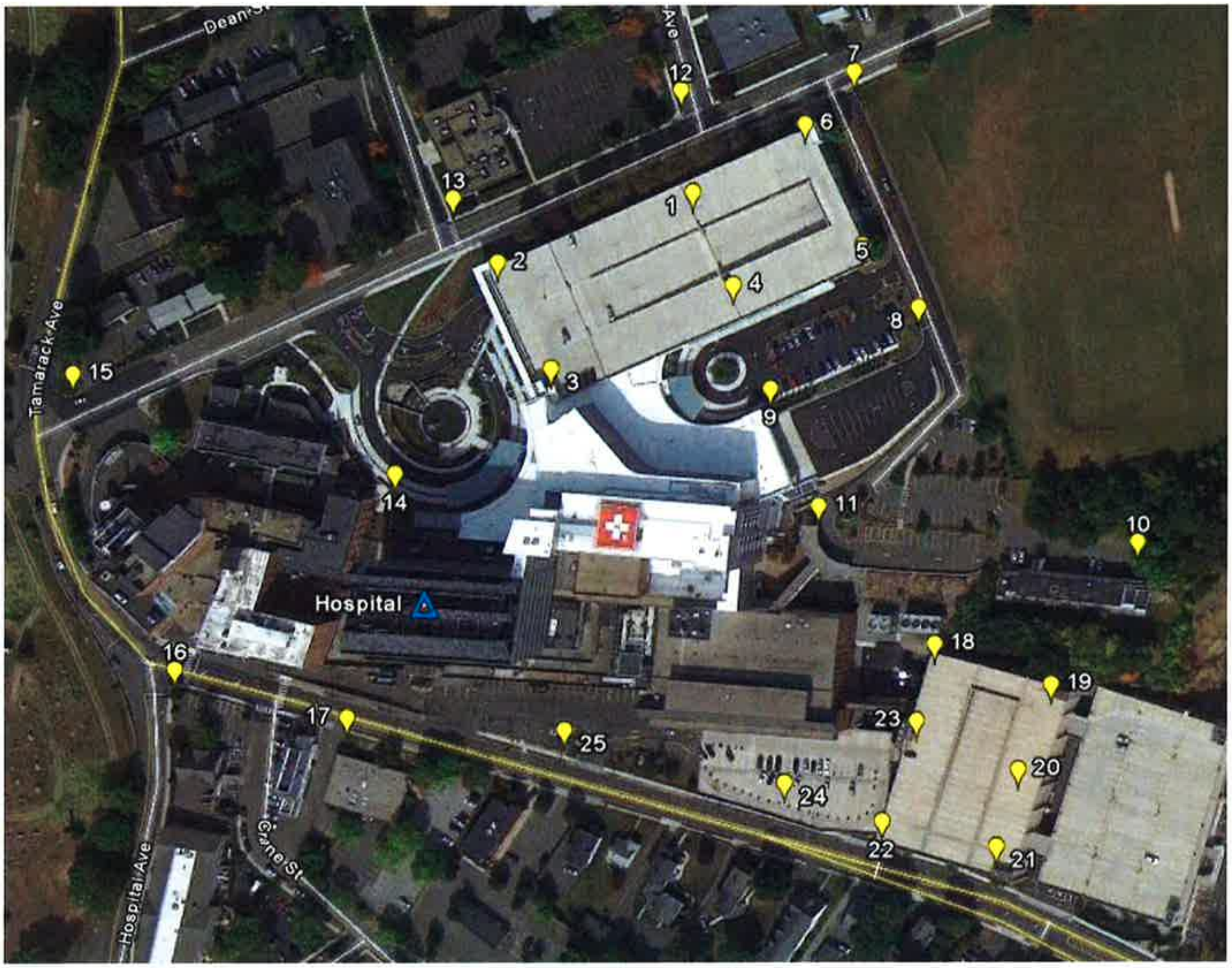


Figure 2: Aerial View of Facility & All Measurement Locations

7. Calculated Results

Table 5 below outlines the existing and proposed power density information for the site. Due to the directional nature of Verizon Wireless' existing and proposed panel antennas, the majority of the RF power will be focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the building. Please refer to Attachments C and D for the vertical patterns of Verizon Wireless' existing and proposed panel antennas. All values shown in Table 5 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antenna.

	Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	%MPE
Existing Configuration	Verizon PCS	156	1970	3	387	0.0017	1.0000	0.17%
	Verizon Cellular	156	869	9	373	0.0050	0.5793	0.86%
	Verizon LTE	156	757	1	649	0.0010	0.5047	0.19%
	Verizon AWS	156	2100	1	2711	0.0040	1.0000	0.40%
							Total	**1.62%**
Proposed Configuration	Verizon LTE	156	751	1	1919	0.0028	0.5007	0.57%
	Verizon LTE	156	1900	1	4669	0.0069	1.0000	0.69%
	Verizon LTE	156	2100	1	4669	0.0069	1.0000	0.69%
	Verizon CDMA/EVDO	156	869	9	373	0.0050	0.5793	0.86%
							Total	**2.80%**
							Net Change	**1.18%**

Table 5: Carrier Information[4 5 6]

[4] The existing CSC filing for Verizon should be replaced with the "Proposed Configuration" values, as listed in Table 5.

[5] Antennas heights for Verizon are based on the Verizon Wireless Antenna Recommendation, dated 11/5/2014.

[6] Please note that %MPE values listed are rounded to two decimal points. The total %MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table.

8. Summary of Findings

A number of publicly accessible areas at ground level and on the parking garage decks in the vicinity of Danbury Hospital in Danbury, CT, were surveyed and found to be well within the mandated General Population/Uncontrolled limits for Maximum Permissible Exposure, as delineated in the Federal Communications Commission's Radio Frequency exposure rules published in 47 CFR 1.1307(b)(1)-(b)(3).

The highest spatially averaged %MPE measurement of all surveyed points based on the 1997 FCC standard for exposure to the general population is **5.30%** MPE. This measurement was recorded at Location 10, near the eastern end of the Duracell Center parking lot.

Power density values were calculated for the proposed Verizon Wireless antenna configuration and compared against the values currently listed in the CT Siting Council database. This comparison shows a net increase of 1.18% MPE at the base of the hospital after the antenna modifications are complete. This value was then added to the maximum measured %MPE value. The highest composite (measured + calculated) power density is **6.48% of the FCC General Population MPE limit**. Please note that the maximum measured % MPE occurs 780' from the hospital, whereas the net % MPE increase from Verizon Wireless' proposed modifications is calculated at the base of the hospital, yielding a worst-case value (measured + calculated). The net % MPE increase calculated would decrease further from the base of the hospital, based on the analytical methods employed.

The above analysis verifies that exposure levels in the areas surrounding the hospital; both currently and after the proposed modifications, are well below the Maximum Permissible Exposure levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01.

9. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The field measurements and calculated results were obtained with properly calibrated equipment using techniques and guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std C95.1, and FCC OET Bulletin 65 Edition 97-01.

Evan Thibodeau

Report Prepared By: Evan Thibodeau
RF Engineer
C Squared Systems, LLC

December 23, 2014
Date

Keith Vellante

Reviewed/Approved By: Keith Vellante
RF Manager
C Squared Systems, LLC

December 24, 2014
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz. IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave. IEEE-SA Standards Board

IEEE Std C95.7-2005, IEEE Recommended Practice for Radio Frequency Safety Programs, 3 kHz to 300 GHz. IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[7]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	$(900/f^2)$*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[8]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	$(180/f^2)$*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 6: FCC Limits for Maximum Permissible Exposure

[7] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

[8] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

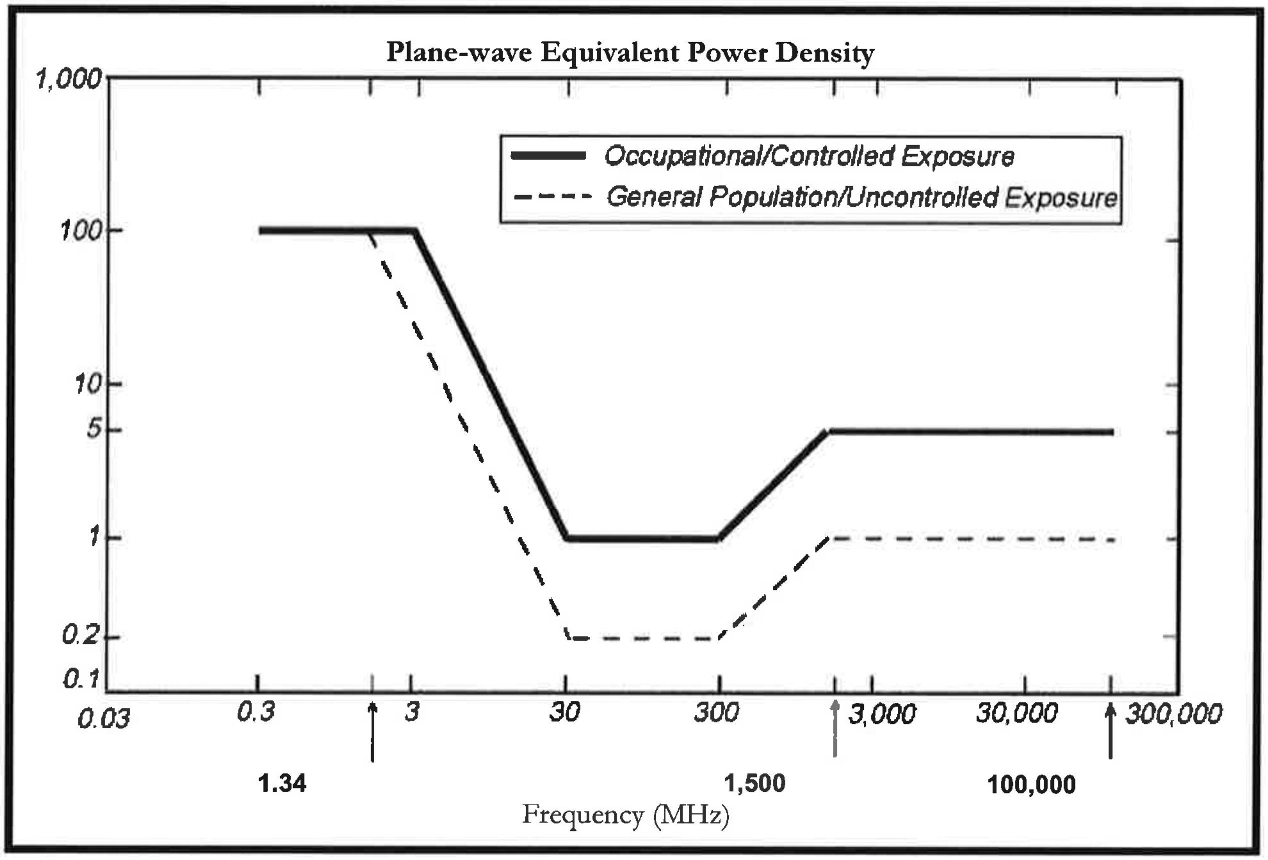
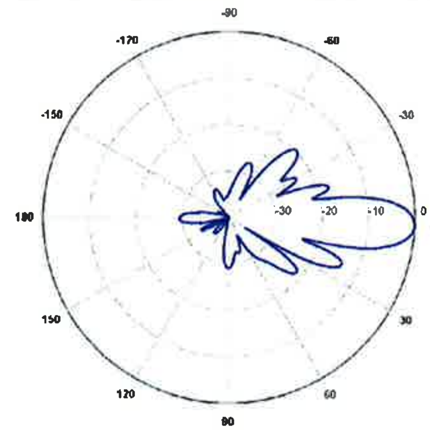


Figure 3: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: Verizon Wireless Existing Antenna Model Data Sheets and Patterns

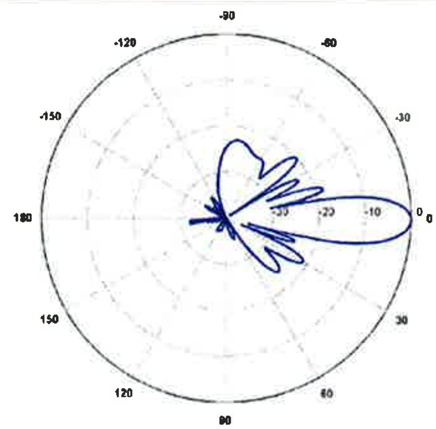
751 MHz

Manufacturer:	Amphenol
Model #:	BXA-70063/6CF_2
Frequency Band:	696-806 MHz
Gain:	14.0 dBd
Vertical Beamwidth:	13°
Horizontal Beamwidth:	65°
Polarization:	±45°
Size L x W x D:	71.0" x 11.2" x 5.2"



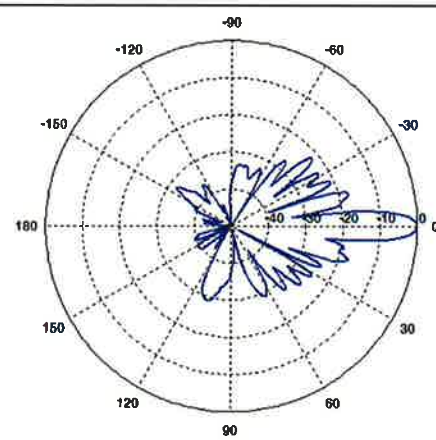
869 MHz

Manufacturer:	Amphenol
Model #:	BXA-80063/6BF_0
Frequency Band:	806-900 MHz
Gain:	14.5 dBd
Vertical Beamwidth:	11°
Horizontal Beamwidth:	63°
Polarization:	±45°
Size L x W x D:	68.6" x 11.2" x 5.3"



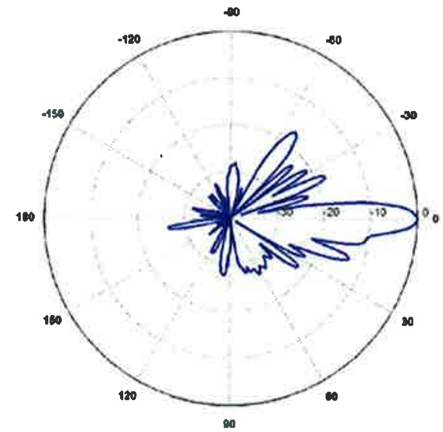
1900 MHz

Manufacturer:	Rymsa
Model #:	MGD3-800T0
Frequency Band:	1850-1990 MHz
Gain:	15.9 dBd
Vertical Beamwidth:	6.6°
Horizontal Beamwidth:	65°
Polarization:	±45°
Size L x W x D:	53.0" x 6.0" x 4.0"



2100 MHz

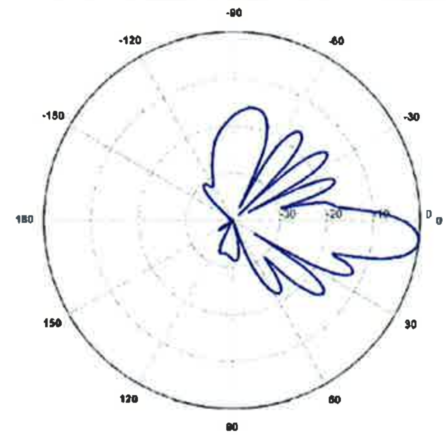
Manufacturer:	Amphenol
Model #:	BXA-171063/8BF_0
Frequency Band:	1920-2170 MHz
Gain:	15.3 dBd
Vertical Beamwidth:	7°
Horizontal Beamwidth:	60°
Polarization:	±45°
Size L x W x D:	48.2" x 6.1" x 4.1"



Attachment D: Verizon Wireless Proposed Antenna Model Data Sheets and Patterns

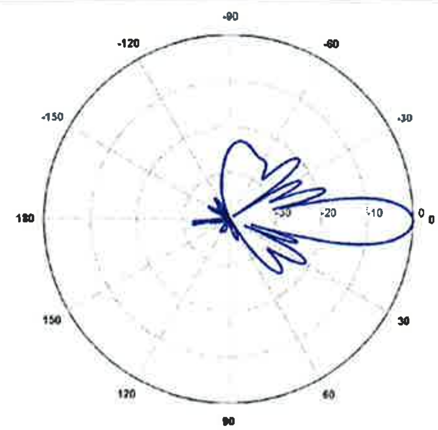
751 MHz

Manufacturer:	JMA Wireless
Model #:	X7C-FRO-660-VR6
Frequency Band:	698-824 MHz
Gain:	13.8 dBd
Vertical Beamwidth:	12°
Horizontal Beamwidth:	62°
Polarization:	±45°
Size L x W x D:	72.0" x 14.6" x 8.0"



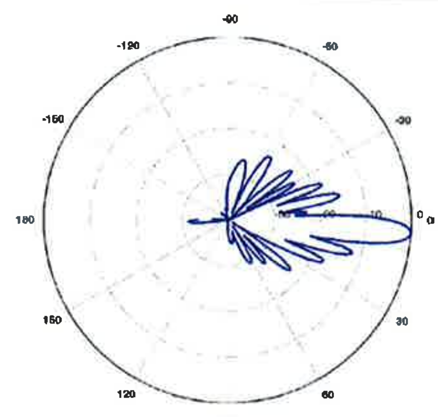
869 MHz

Manufacturer:	Amphenol
Model #:	BXA-80063/6BF_0
Frequency Band:	806-900 MHz
Gain:	14.5 dBd
Vertical Beamwidth:	11°
Horizontal Beamwidth:	63°
Polarization:	±45°
Size L x W x D:	68.6" x 11.2" x 5.3"



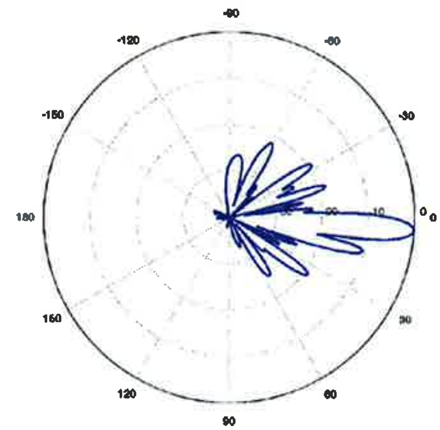
1900 MHz

Manufacturer:	Commscope
Model #:	HBXX-6516DS-A2M_4
Frequency Band:	1850-1990 MHz
Gain:	15.9 dBd
Vertical Beamwidth:	7°
Horizontal Beamwidth:	66°
Polarization:	±45°
Size L x W x D:	50.9" x 12.0" x 6.5"



2100 MHz

Manufacturer:	Commscope
Model #:	HBXX-6516DS-A2M_4
Frequency Band:	1920-2180 MHz
Gain:	15.9 dBd
Vertical Beamwidth:	6.6°
Horizontal Beamwidth:	64°
Polarization:	±45°
Size L x W x D:	50.9" x 12.0" x 6.5"



ATTACHMENT 3

CENTEK engineering
Centered on Solutions℠

December 9, 2014

Mr. Tom Nolan
Verizon Wireless
99 East River Drive
East Hartford, CT 06108

Re: Structural Evaluation Letter ~ Antenna Upgrade
Verizon Wireless Site Ref ~ Danbury
24 Hospital Avenue
Danbury, CT 06810

Centek Project No. 14309.003

Dear Mr. Nolan,

Centek Engineering, Inc. has reviewed the proposed Verizon Wireless antenna upgrade at the above referenced site. The purpose of the review is to determine the structural adequacy of the existing eight (8) story, 152-ft +/- tall host building to support the proposed modified antenna configuration. The existing antenna installation consists of four (4) independent steel antenna support frames connected to the roof top mounted steel support structure of the host building. The review considered the effects of wind load, dead load, ice load and seismic forces in accordance with the 2005 Connecticut State Building Code as amended by the 2009 Connecticut State Supplement.

The existing, proposed, and future Verizon Wireless loads considered in this analysis consist of the following:

- Verizon (Existing to Remain):
  Antennas: Two (2) Antel BXA-80063-6BF panel antennas, one (1) Antel BXA-80080-6CF panel antenna, three (3) Alcatel-Lucent RRH2x40-07-U Remote Radio Heads and three (3) RFS DB-E1-3B-8AB-0Z sector distribution boxes located on roof mounted structural steel antenna support frames with a RAD center elevation of 156-ft +/- AGL..
  Equipment: One (1) RFS DB-T1-6Z-8AB-0Z main distribution box mounted to the solar panel steel framing.
  Coax: Eighteen (18) 1-5/8" dia. coaxial cables routed from the Verizon equipment room to the antenna sectors. One (1) 1-5/8" dia. main Hybriflex Fiber with power cable routed from the Verizon equipment room to the main distribution box. Three (3) 1-1/4" dia. Fiber jumper cables routed from the main distribution box to the sector distribution boxes.

- Verizon (Existing to Remove):
  Antennas: Three (3) Antel BXA-70063-6CF panel antennas, three (3) RYMSA MG D3-800T0 panel antennas, three (3) Antel BXA-171063-8BF panel antennas and three (3) Alcatel-Lucent RRH2x40-AWS Remote Radio Heads located on roof mounted structural steel antenna support frames with a RAD center elevation of 156-ft +/- AGL.

- **<u>Verizon (Proposed):</u>**
  <u>Antennas:</u> Six (6) Andrew HBXX-6516DS panel antennas, three (3) CSS X7C-FRO-660-VR0 panel antennas, three (3) Alcatel-Lucent RRH2x60-AWS Remote Radio Heads, three (3) Alcatel-Lucent RRH2x60-PCS Remote Radio Heads and three (3) RFS DB-E1-3B-8AB-0Z distribution boxes located on roof mounted structural steel antenna support frames with a RAD center elevation of 156-ft +/- AGL.
  <u>Equipment:</u> One (1) RFS DB-T1-6Z-8AB-0Z main distribution box mounted to the solar panel steel framing.
  <u>Cables:</u> One (1) 1-5/8" dia. main Hybriflex Fiber with power cable routed from the Verizon Wireless equipment room to the main distribution box. Three (3) 1-1/4" dia. Fiber jumper cables routed from the main distribution box to the sector distribution boxes.

The proposed antenna installation meets the requirements of the 2005 Connecticut State Building Code considering the basic wind speed (3-second gust) of 95 mph as required in Appendix K of the Connecticut supplement per Table 1609.3.1 considering Exposure Category C. Our findings are based on the assumption that the hosting structure, all structural members and appurtenances were properly designed, detailed, fabricated, installed and have been properly maintained since erection.

In conclusion, the proposed Verizon antenna upgrade will not negatively impact the structural integrity of the existing antenna support structure or host building. If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

STATE OF CONNECTICUT
TIMOTHY J. LYNN
No. 29336
LICENSED
PROFESSIONAL ENGINEER

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