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Also admitted in Massachusetts

June 19, 2014

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

Re: **Notice of Exempt Modification – Antenna Swap  
886 Main Street, East Hartford, Connecticut**

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) wireless telecommunications antennas on the roof of the building at 886 Main Street in East Hartford, Connecticut (the “Property”). Cellco’s existing wireless facility was approved by the Council in Petition No. 324 on August 9, 1994. The Council, therefore, maintains jurisdiction over this roof-top cell site. Cellco now intends to remove three (3) of its existing antennas, replacing them with three (3) model LNX-6514DS-VTM, 700 MHz antennas, at the same location and height on the roof. Cellco also intends to install three (3) remote radio heads (“RRHs”) behind its 700 MHz antennas. Included in Attachment 1 are specifications for the replacement antennas and RRHs.

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 Marcia A. Leclerc, Mayor of the Town of East Hartford. A copy of this letter is also being sent to Hartford East Elderly Apartments LP, the owner of the Property.

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



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# ROBINSON & COLE<sub>LLP</sub>

Melanie A. Bachman  
June 19, 2014  
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1. The proposed modifications will not result in an increase in the height of the existing structure. Cellco's replacement antennas and RRHs will be located at the same location and level on the roof as the existing antennas.
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 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 of the existing building 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:

Marcia A. Leclerc, East Hartford Mayor  
Hartford East Elderly Apartments LP  
Sandy M. Carter



# **ATTACHMENT 1**

# Product Specifications

COMMSCOPE®

POWERED BY



## 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	15.7	16.3
Beamwidth, Horizontal, degrees	65	65
Beamwidth, Horizontal Tolerance, degrees	±3	±3
Beamwidth, Vertical, degrees	12.5	11.2
Beam Tilt, degrees	0–10	0–10
USLS, typical, dB	17	18
Front-to-Back Ratio at 180°, dB	32	30
CPR at Boresight, dB	20	20
CPR at Sector, dB	10	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

### General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol®
Band	Single band
Brand	DualPol®   Teletilt®
Operating Frequency Band	698 – 896 MHz

### 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

# Product Specifications

COMMSCOPE®

LNx-6514DS-VTM

POWERED BY



## Dimensions

Depth	181.0 mm   7.1 in
Length	1847.0 mm   72.7 in
Width	301.0 mm   11.9 in
Net Weight	17.6 kg   38.8 lb

## Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 1.1 Actuator LNX-6514DS-R2M

Model with Factory Installed AISG 2.0 Actuator LNX-6514DS-A1M

RET System Teletilt®

## Regulatory Compliance/Certifications

### Agency

RoHS 2011/65/EU  
China RoHS SJ/T 11364-2006  
ISO 9001:2008

### Classification

Compliant by Exemption  
Above Maximum Concentration Value (MCV)  
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.

## 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

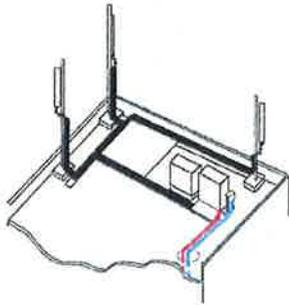
capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent 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 weighs 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

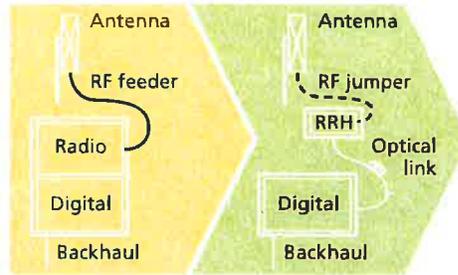
Because of its small size and weight, the Alcatel-Lucent RRH2x40-07-U can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-07-U where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and 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.



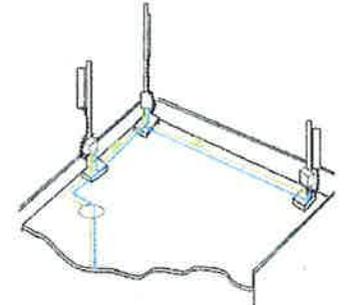
Macro

## 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



RRH for space-constrained cell sites



Distributed

## 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

## 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

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# **ATTACHMENT 2**

General Power Density

Site Name: E Hartford W, CT  
 Cumulative Power Density

Operator	Operating Frequency (MHz)	Number of Trans.	ERP Per Trans. (watts)	Total ERP (watts)	Distance to Target (feet)	Calculated Power Density (mW/cm <sup>2</sup> )	Maximum Permissible Exposure* (mW/cm <sup>2</sup> )	Fraction of MPE (%)
VZW PCS	1970	11	456	5017.099	103	0.1701	1.0	17.01%
VZW Cellular	869	9	414	3723.09	103	0.1262	0.5793333333	21.78%
VZW AWS	2145	1	1750	1750	103	0.0593	1.0	5.93%
VZW 700	746	1	1050	1050	103	0.0356	0.4973333333	7.16%

**Total Percentage of Maximum Permissible Exposure**

51.88%

\*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz

mW/cm<sup>2</sup> = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used.

# **ATTACHMENT 3**

June 4, 2014

Mr. Alexsey Tyurin  
Verizon Wireless  
99 East River Drive  
East Hartford, CT 06108

*Re: Structural Evaluation Letter ~ Antenna Upgrade  
Verizon Wireless Site Ref ~ East Hartford West  
886 Main Street  
East Hartford, CT 06108*

*Centek Project No. 14067.016*

Dear Mr. Tyurin,

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 98-ft +/- tall host building to support the proposed modified antenna configuration. The existing antenna installation consists of three (3) antenna sectors with a total of twelve (12) panel antennas; one (1) antenna sector mounted on a steel frame to the roof of the building penthouse, one (1) antenna sector mounted to the façade of the penthouse, and one (1) antenna sector mounted to the façade of the 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 – Alpha Sector):**  
**Antennas:** Two (2) Antel BXA-171063-8BF panel antennas, one (1) Antel BXA-70063-4CF panel antenna, one (1) Acatel-Lucent RH\_2x40-AWS Remote Radio Head, and one (1) RFS DB-E1-3B-8AB-OZ sector distribution box mounted on the existing steel antenna frame to the roof of the penthouse with a RAD center elevation of 117-ft +/- AGL.  
**Coax:** Two (2) 1-1/4-in dia. Hybriflex fiber jumper cables routed within existing roof mounted cable tray.
- **Verizon (Existing to Remove – Alpha Sector):**  
**Antennas:** One (1) Antel BXA-171063-6CF panel antenna mounted on the existing steel antenna frame to the roof of the penthouse with a RAD center elevation of 117-ft +/- AGL.
- **Verizon (Proposed – Alpha Sector):**  
**Antennas: One (1) Andrew LNX-4514DS-VTM panel antenna, and one (1) Alcatel-Lucent RH\_2x40-700 Remote Radio Head mounted on the existing steel antenna frame to the roof of the penthouse with a RAD center elevation of 117-ft +/- AGL.**
- **Verizon (Existing to Remain – Beta Sector):**  
**Antennas:** Two (2) Antel BXA-171063-8BF panel antennas, one (1) Antel BXA-70063-4CF panel antenna, one (1) Acatel-Lucent RH\_2x40-AWS Remote Radio Head, and one (1) RFS DB-E1-3B-8AB-OZ sector distribution box mounted to the façade of the penthouse with a RAD center elevation of 115-ft +/- AGL.  
**Coax:** Two (2) 1-1/4-in dia. Hybriflex fiber jumper cables routed within existing roof mounted cable tray.

CENTEK engineering, INC.  
Structural Evaluation Letter  
Verizon Wireless ~ East Hartford West  
886 Main Street  
East Hartford, CT 06108

- **Verizon (Existing to Remove – Beta Sector):**  
**Antennas:** One (1) Antel BXA-171063-6CF panel antenna mounted to the façade of the penthouse with a RAD center elevation of 115-ft +/- AGL.
- **Verizon (Proposed – Beta Sector):**  
**Antennas:** One (1) Andrew LNX-4514DS-VTM panel antenna, and one (1) Alcatel-Lucent RH\_2x40-700 Remote Radio Head mounted to the façade of the penthouse with a RAD center elevation of 115-ft +/- AGL.
- **Verizon (Existing to Remain – Gamma Sector):**  
**Antennas:** Two (2) Antel BXA-171063-8BF panel antennas, one (1) Antel BXA-70063-4CF panel antenna, one (1) Alcatel-Lucent RH\_2x40-AWS Remote Radio Head, and one (1) RFS DB-E1-3B-8AB-OZ sector distribution box mounted to the façade of the building with a RAD center elevation of 103-ft +/- AGL.  
**Coax:** Two (2) 1-1/4-in dia. Hybriflex fiber jumper cables routed within existing roof mounted cable tray.
- **Verizon (Existing to Remove – Gamma Sector):**  
**Antennas:** One (1) Antel BXA-171063-6CF panel antenna mounted to the façade of the building with a RAD center elevation of 103-ft +/- AGL.
- **Verizon (Proposed – Gamma Sector):**  
**Antennas:** One (1) Andrew LNX-4514DS-VTM panel antenna, and one (1) Alcatel-Lucent RH\_2x40-700 Remote Radio Head mounted to the façade of the building with a RAD center elevation of 103-ft +/- AGL.
- **Verizon (Existing to Remain):**  
**Misc. Equipment:** One (1) RFS DB-E1-3B-8AB-OZ main distribution box mounted on ballast frame to the roof of the host building.  
**Cables:** One (1) 1-5/8-in dia. Hybriflex fiber feeder cable routed within existing roof mounted cable tray from the existing Verizon Wireless equipment room to the main distribution box.

**CEN TEK** engineering, INC.  
Structural Evaluation Letter  
Verizon Wireless ~ East Hartford West  
886 Main Street  
East Hartford, CT 06108

The proposed antenna installation meets the requirements of the 2005 Connecticut State Building Code considering the basic wind speed (3-second gust) of 105 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:

  
Carlo F. Centore, PE  
Principal ~ Structural Engineer

