Robinson+Cole

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Also admitted in Massachusetts

November 16, 2016

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

Re: **Notice of Exempt Modification – Facility Modification**
411 West Putnam Avenue, Greenwich, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains a roof-top wireless telecommunications facility at 411 West Putnam Avenue in Greenwich, Connecticut (the "Property"). By virtue of its 1992 approval of an AT&T facility at the Property, the Council maintains jurisdiction over this non-tower (roof-top) facility. The building and the Property are owned by West Putnam Owner LLC. Cellco's facility consists of fifteen (15) panel antennas on the roof of the building at a centerline height of approximately 52 feet above ground level. Cellco now intends to modify its facility by replacing nine (9) of its antennas with three (3) model SBJAHH-1D65B, 700 MHz antennas; three (3) model SBJAHH-1D65B, 1900 MHz antennas; and three (3) model SBJAHH-1D65B, 2100 MHz antennas, all at the same level and location on the roof. Cellco also intends to install six (6) remote radio heads ("RRHs") behind its 700 and 1900 MHz antennas. Included in Attachment 1 are specifications for Cellco's new 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 Peter Tesei, First Selectman for the Town of Greenwich and Katie DeLuca, Director of Planning and Zoning. A copy of this letter is also being sent to West Putnam Owner LLC, the owner of the Property.

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

1. The proposed modifications will not result in an increase in the height of the existing antenna structures. The new antennas and RRHs will be located at the same height as the existing antennas.

2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not involve 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. 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 roof of the building at the Property can support Cellco's proposed modifications. *See* the attached Structural Evaluation Letter included in Attachment 3.

A copy of the Town Assessor's Parcel Map and property owner information is included in Attachment 4.

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:
Peter Tesei, Greenwich First Selectman
Katie DeLuca, Director of Planning and Zoning
West Putnam Owner LLC
Tim Parks

ATTACHMENT 1

Product Specifications

COMMSCOPE®

SBJAHH-1D65B-DL

Multiband Antenna, 698–787, 824-894 and 2x 1695–2360 MHz, 65° horizontal beamwidth, internal RETs and low bands have diplexers

- Interleaved dipole technology providing for attractive, low wind load mechanical package
- Independent tilt for high bands and single tilt for low bands

Electrical Specifications

Frequency Band, MHz	698–787	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.5	14.3	17.7	18.1	18.7	18.6
Beamwidth, Horizontal, degrees	68	65	70	66	62	57
Beamwidth, Vertical, degrees	12.1	10.6	5.6	5.2	4.9	4.5
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS (First Lobe), dB	13	13	17	16	17	15
Front-to-Back Ratio at 180°, dB	27	28	30	28	30	31
CPR at Boresight, dB	23	21	20	19	19	21
CPR at Sector, dB	14	10	14	11	10	2
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR | Return Loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	250	250	300	300	300	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	698–787	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.2	13.7	17.3	17.9	18.2	18.4
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.8	±0.4	±0.3	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0 ° | 14.2	0 ° | 13.9	0 ° | 17.3	0 ° | 17.8	0 ° | 18.1	0 ° | 18.2
	7 ° | 14.3	7 ° | 13.9	3 ° | 17.4	3 ° | 17.9	3 ° | 18.3	3 ° | 18.6
	14 ° | 13.8	14 ° | 13.2	7 ° | 17.2	7 ° | 17.9	7 ° | 18.2	7 ° | 18.5
Beamwidth, Horizontal Tolerance, degrees	±2.1	±2.4	±2.5	±4.4	±4.6	±3.4
Beamwidth, Vertical Tolerance, degrees	±1.7	±0.7	±0.3	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	21	20	15	15	16	14
Front-to-Back Total Power at 180° ± 30°, dB	24	24	28	27	27	26
CPR at Boresight, dB	23	21	20	19	19	21
CPR at Sector, dB	14	10	14	11	10	2

* 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 Type	Sector with internal RET
Band	Multiband
Brand	DualPol®
Operating Frequency Band	1695 – 2360 MHz | 698 – 787 MHz | 824 – 894 MHz
Performance Note	Outdoor usage

Mechanical Specifications

Product Specifications

SBJAHH-1D65B-DL

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Copper | Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	8
Wind Loading, maximum	618.0 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Speed, maximum	241 km/h | 150 mph

Dimensions

Depth	180.5 mm | 7.1 in
Length	1850.7 mm | 72.9 in
Width	301.0 mm | 11.9 in
Net Weight, without mounting kit	21.4 kg | 47.2 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal RET	High band (2) | Low band (1)
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Multi-RET)
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	1 female | 1 male

Packed Dimensions

Depth	299.0 mm | 11.8 in
Length	1970.0 mm | 77.6 in
Width	409.0 mm | 16.1 in
Shipping Weight	34.0 kg | 75.0 lb

Regulatory Compliance/Certifications

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

Included Products

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

scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

ALCATEL-LUCENT B13 RRH4X30-4R

Alcatel-Lucent B13 Remote Radio Head 4x30-4R is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B13 RRH4x30-4R allows operators to have a compact radio solution to deploy LTE in the 700U band (700 MHz, 3GPP band 13), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B13 RRH4x30-4R product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity and up to 10MHz instantaneous bandwidth.

The Alcatel-Lucent B13 RRH4x30-4R is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

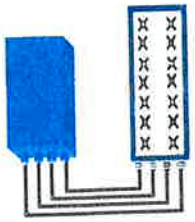
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

FEATURES

- Supporting LTE in 700 MHz band (700U, 3GPP band 13)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- 10MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in 700U band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through MIMO4
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



4x30W with 4T4R
or
2x60W with 2T4R

Can be switched between modes via SW w/o site visit

Alcatel·Lucent

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	U700 (C) (3GPP bands 13): DL: 746 - 756 MHz / UL: 777 - 787 MHz
Instantaneous bandwidth - #carriers	10MHz – 1 LTE carrier (in 10MHz occupied bandwidth)
LTE carrier bandwidth	10 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure – RX Diversity scheme	2 dB typ. (<2.5 dB max) – 2 or 4 way Rx diversity
Sizes (HxWxD) in mm (in.) Volume in L Weight in kg (lb) (w/o mounting HW)	550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield) 38 (with solar shield) 26 (57.2) (with solar shield)
DC voltage range DC power consumption	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 550W typical @100% RF load (in 2Tx or 4TX mode)
Environmental conditions Wind load (@150km/h or 93mph)	-40°C (-40°F) /+55°C (+131°F) IP65 Frontal:<200N / Lateral :<150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate7, 9.8 Gbps) SFP single mode dual fiber
AISG interfaces	1 AISG2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) – 4 RF Tx & 4 RF Rx monitor ports - 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

ALCATEL-LUCENT B25 RRH4X30

Alcatel-Lucent Band 25 Remote Radio Head 4x30W is the new addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B25 RRH4x30 allows operators to have a compact radio solution to deploy LTE in the PCS band (1.9 GHz, 3GPP band 25), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B25 RRH4x30 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity, LTE carriers from 3 MHz up to 20 MHz and up to 65 MHz instantaneous bandwidth.

The Alcatel-Lucent B25 RRH4x30 is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

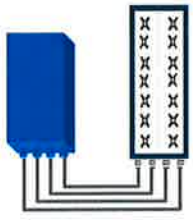
Its compactness and slim design makes the Alcatel-Lucent B25 RRH4x30 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 1.9 GHz band (PCS, 3GPP band 2 & 25)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- Ready for 3, 5, 10, 15 or 20MHz LTE carrier operation with 4Rx Diversity
- Ready to support up to 4 carriers anywhere in 65MHz instantaneous bandwidth
- Convection-cooled (fan-less)
- Supports AISG 2.0 devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in PCS band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Full flexibility for multiple carriers operation over entire PCS spectrum
- Improves downlink spectral efficiency and cell edge throughput through MIMO4
- Increases LTE coverage thanks to 4-way Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options (Pole or Wall)



4x30W with 4T4R
or
2x60W with 2T4R

Can be switched between modes via SW w/o site visit

Alcatel·Lucent

TECHNICAL SPECIFICATIONS

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	3GPP bands 2 & 25 (PCS-G) DL: 1930 - 1995 MHz UL: 1850 - 1915 MHz
Instantaneous bandwidth - #carriers	65MHz – Up to 4 LTE carriers (in 40MHz occupied bandwidth)
LTE carrier bandwidth	3, 5, 10, 15 or 20 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure (3GPP band 2) RX Diversity scheme	2.0 dB typ. (<2.5 dB max) 2 or 4 way Rx diversity
Sizes (HxWxD)(w/ solar shield) in mm (in.) Volume (w/ solar shield) in L Weight (w/ solar shield) in kg (lb)	538 x 304 x 182 (21.2" x 12.0" x 7.2") 30 24 (53)
DC voltage range DC power consumption	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 580W typical @100% RF load
Environmental conditions Wind load (@150km/h or 93mph)	-40°C (-40°F) /+55°C (+131°F) IP65 Frontal:<200N / Lateral :<150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5 (> 14dB)
CPRI ports	2 CPRI ports (HW ready for Rate7 / 9.8 Gbps)
AISG interfaces	1 AISG2.0 output (RS485), +24V/2A DC power Integrated Smart Bias Tees (x2)
Misc. Interfaces	1 external alarms connector (4 alarms) 4 RF Tx & 4 RF Rx monitor ports 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

ATTACHMENT 2

Far Field Approximation
with downtilt variation

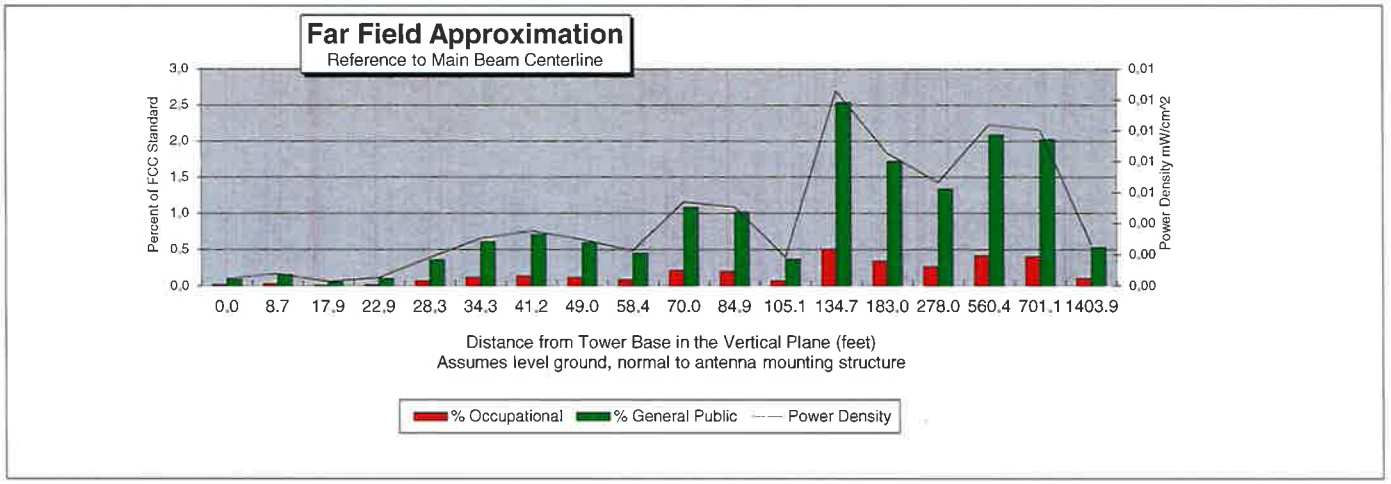
Estimated Radiated Emission

Single Emitter Far Field Model

Dipole / Wire/ Yagi Antenna Types

Location:	Greenwich SW, CT
Site #:	5-0092
Date:	11/07/16
Name:	Ryan Ulanday
File Name:	Greenwich SW, CT - FF Power

Operating Freq. (MHz)	**746.0**
Antenna Height (ft):	**52.0**
Antenna Gain (dBi):	**14.4**
Antenna Size (in.):	**73.0**
Downtilt (degrees):	**0.0**
Feedline Loss (dB):	**0.0**
Power @ J4 (w):	**869.0**
Number of Channels:	**2**



This approximation is only valid in the far field, which begins at: 66.2 Feet

Enter Main Beam Distance in feet below:

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	49.0	49.8	52.2	54.1	56.6	59.8	64.0	69.3	76.3	85.5	98.0	116.0	143.3	189.4	282.3	562.5	702.8	1404.7	
Distance from Antenna Structure Base in Horizontal plane	0.0	8.7	17.9	22.9	28.3	34.3	41.2	49.0	58.4	70.0	84.9	105.1	134.7	183.0	278.0	560.4	701.1	1403.9	#NUM!
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	0
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	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	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.00	#NUM!
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.5	0.3	0.3	0.4	0.4	0.1	#NUM!
Percent of General Population Standard	0.1	0.2	0.1	0.1	0.4	0.6	0.7	0.6	0.5	1.1	1.0	0.4	2.5	1.7	1.3	2.1	2.0	0.5	#NUM!

Antenna Type SBJAHH-1D65B
Max% 2.53%

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 Pow
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

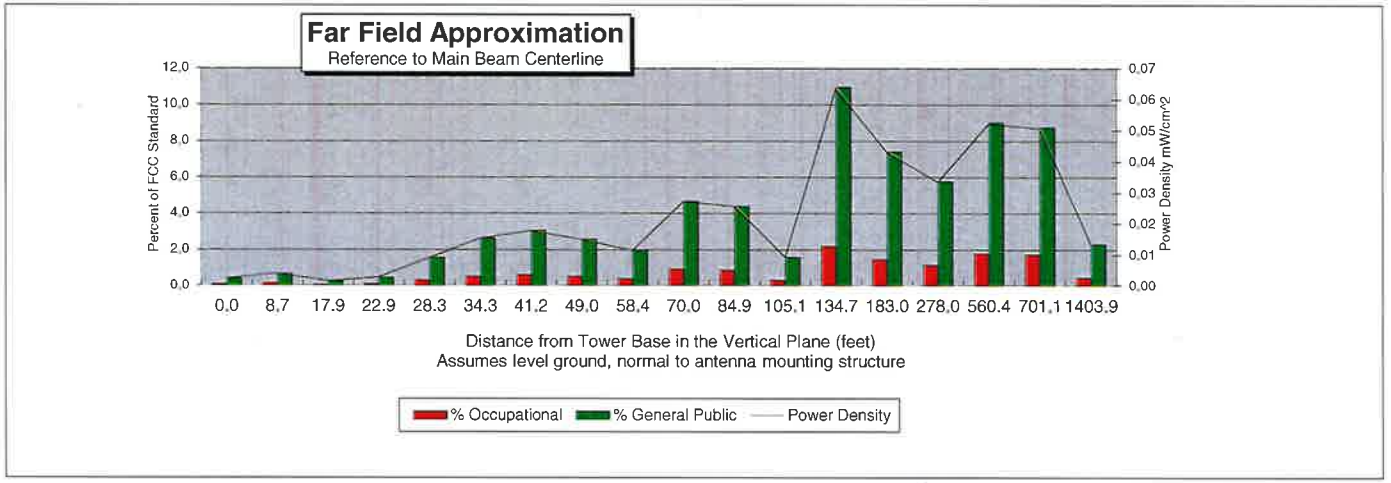
Estimated Radiated Emission

Single Emitter Far Field Model

Dipole / Wire/ Yagi Antenna Types

Location:	Greenwich SW, CT
Site #:	5-0092
Date:	11/7/2016
Name:	Ryan Ulanday
File Name:	Greenwich SW, CT - FF Power

Operating Freq. (MHz)	**869.0**
Antenna Height (ft):	**52.0**
Antenna Gain (dBi):	**15.7**
Antenna Size (in.):	**48.0**
Downtilt (degrees):	**0.0**
Feedline Loss (dB):	**0.0**
Power @ J4 (w):	**3249.0**
Number of Channels:	**9**



This approximation is only valid in the far field, which begins at: 28.7 Feet

Enter Main Beam Distance in feet below:

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	49.0	49.8	52.2	54.1	56.6	59.8	64.0	69.3	76.3	85.5	98.0	116.0	143.3	189.4	282.3	562.5	702.8	1404.7	
Distance from Antenna Structure Base in Horizontal plane	0.0	8.7	17.9	22.9	28.3	34.3	41.2	49.0	58.4	70.0	84.9	105.1	134.7	183.0	278.0	560.4	701.1	1403.9	#NUM!
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	0
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	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	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.01	0.03	0.03	0.01	0.06	0.04	0.03	0.05	0.05	0.01	#NUM!
Percent of Occupational Standard	0.1	0.1	0.0	0.1	0.3	0.5	0.6	0.5	0.4	0.9	0.9	0.3	2.2	1.5	1.2	1.8	1.7	0.5	#NUM!
Percent of General Population Standard	0.4	0.7	0.2	0.5	1.6	2.6	3.0	2.6	2.0	4.7	4.4	1.6	10.9	7.4	5.8	9.0	8.7	2.3	#NUM!

Antenna Type DB844G65ZAXY
Max% 10.95%

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 Pow
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

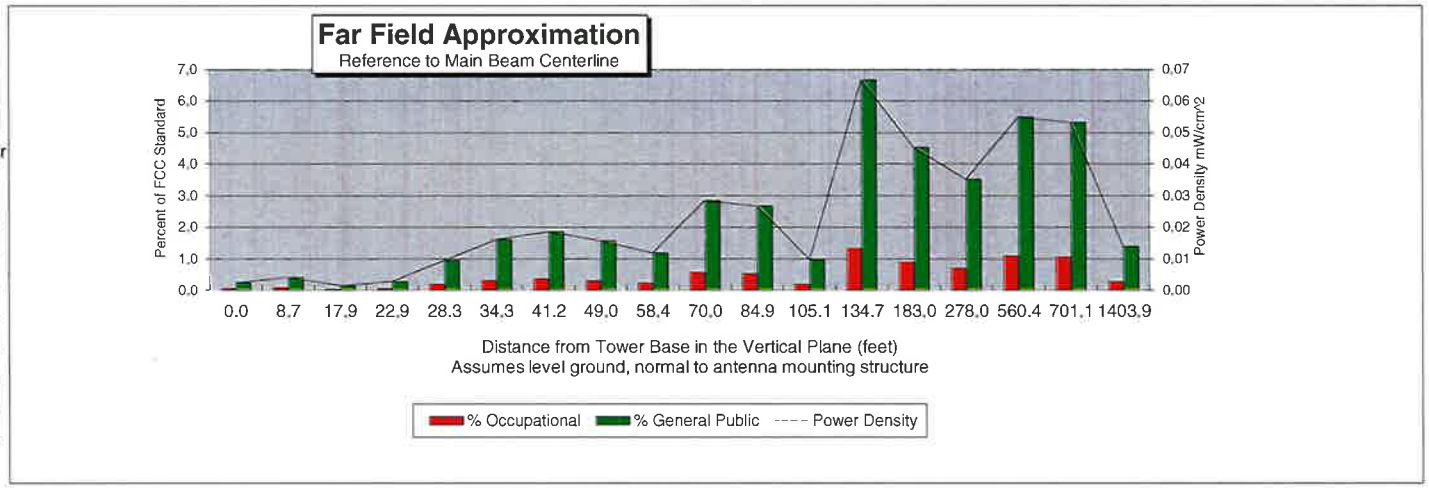
Single Emitter Far Field Model

Dipole / Wire/ Yagi Antenna Types

verizonwireless

Location:	Site Name, CT
Site #:	5-0092
Date:	11/07/16
Name:	Ryan Ulanday
File Name:	Greenwich SW, CT - FF Power

Operating Freq. (MHz)	1971.0
Antenna Height (ft):	52.0
Antenna Gain (dBi):	18.0
Antenna Size (in.):	73.0
Downtilt (degrees):	0.0
Feedline Loss (dB):	0.0
Power @ J4 (w):	1987.0
Number of Channels:	2



This approximation is only valid in the far field, which begins at: 66.2 Feet

Enter Main Beam Distance in feet below:

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	49.0	49.8	52.2	54.1	56.6	59.8	64.0	69.3	76.3	85.5	98.0	116.0	143.3	189.4	282.3	562.5	702.8	1404.7	
Distance from Antenna Structure Base in Horizontal plane	0.0	8.7	17.9	22.9	28.3	34.3	41.2	49.0	58.4	70.0	84.9	105.1	134.7	183.0	278.0	560.4	701.1	1403.9	#NUM!
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	0
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	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	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.01	0.03	0.03	0.01	0.07	0.05	0.04	0.05	0.05	0.01	#NUM!
Percent of Occupational Standard	0.0	0.1	0.0	0.1	0.2	0.3	0.4	0.3	0.2	0.6	0.5	0.2	1.3	0.9	0.7	1.1	1.1	0.3	#NUM!
Percent of General Population Standard	0.2	0.4	0.1	0.3	1.0	1.6	1.9	1.6	1.2	2.8	2.7	1.0	6.7	4.5	3.5	5.5	5.3	1.4	#NUM!

Antenna Type SBJAHH-1D65B
Max% 6.66%

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 Pc
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

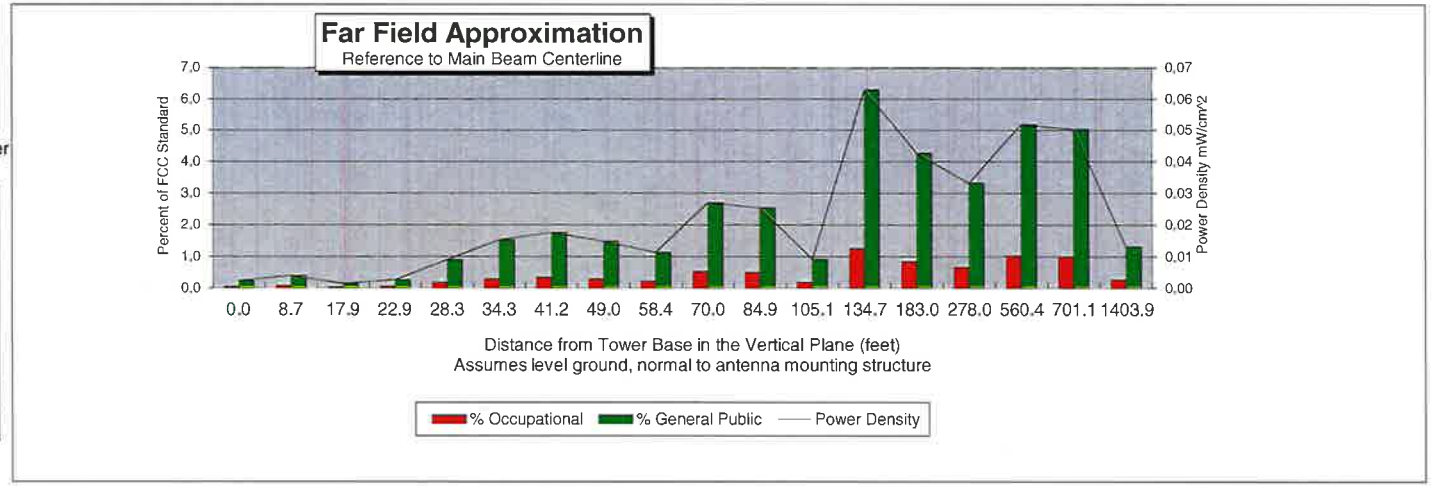
Estimated Radiated Emission

Single Emitter Far Field Model

Dipole / Wire/ Yagi Antenna Types

Location:	Greenwich SW, CT
Site #:	5-0092
Date:	11/07/16
Name:	Ryan Ulanday
File Name:	Greenwich SW, CT - FF Power

Operating Freq. (MHz)	**2110.0**
Antenna Height (ft):	**52.0**
Antenna Gain (dBi):	**18.3**
Antenna Size (in.):	**73.0**
Downtilt (degrees):	**0.0**
Feedline Loss (dB):	**0.0**
Power @ J4 (w):	**1750.0**
Number of Channels:	**3**



This approximation is only valid in the far field, which begins at: 66.2 Feet

Enter Main Beam Distance in feet below:

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	49.0	49.8	52.2	54.1	56.6	59.8	64.0	69.3	76.3	85.5	98.0	116.0	143.3	189.4	282.3	562.5	702.8	1404.7	
Distance from Antenna Structure Base in Horizontal plane	0.0	8.7	17.9	22.9	28.3	34.3	41.2	49.0	58.4	70.0	84.9	105.1	134.7	183.0	278.0	560.4	701.1	1403.9	#NUM!
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	0
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	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	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.01	0.03	0.03	0.01	0.06	0.04	0.03	0.05	0.05	0.01	#NUM!
Percent of Occupational Standard	0.0	0.1	0.0	0.1	0.2	0.3	0.4	0.3	0.2	0.5	0.5	0.2	1.3	0.9	0.7	1.0	1.0	0.3	#NUM!
Percent of General Population Standard	0.2	0.4	0.1	0.3	0.9	1.5	1.8	1.5	1.1	2.7	2.5	0.9	6.3	4.3	3.3	5.2	5.0	1.3	#NUM!

Antenna Type SBJAHH-1D65B
Max% 6.29%

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 Pc
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

CENTEK engineering

Centered on Solutions℠

November 7, 2016

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

Re: Structural Evaluation Letter ~ Antenna Upgrade
Verizon Wireless Site Ref ~ Greenwich SW
411 West Putnam Ave
Greenwich, CT 06830

Centek Project No. 16001.62

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 47-ft +/- tall host building to support the proposed modified antenna configuration. The existing installation consists of three (3) antenna sectors located on roof mounted ballast frames. The review considered the effects of wind load, dead load, ice load and seismic forces in accordance with the 2012 International Building Code as amended by the 2016 CT State Building Code.

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

- Verizon (Existing to Remain):
  Antennas: Six (6) Andrew DB844G65ZAXY panel antennas mounted on existing ballast frames with a RAD center elevation of 52-ft +/- AGL.
  Appurtenances: Three (3) RFS DB-E1-3B-8AB-0Z sector distribution boxes mounted on existing ballast frames. Additionally one (1) RFS DB-T1-6Z-8AB-0Z main distribution box mounted within the existing Verizon Wireless equipment room.
  Coax: Twelve (12) 1-5/8-in dia. coaxial cables and three (3) 1-1/4-in dia. fiber cables routed within the existing cable tray system.

- Verizon (Existing to Remove):
  Antennas: Six (6) RYMSA MG D3-800T0, two (2) Antel BXA-70063-6CF and one (1) Swedcom SLXW5514 panel antennas mounted on ballast frames with a RAD center elevation of 52-ft +/- AGL.
  Appurtenances: Three (3) Alcatel-Lucent RRH2x40-AWS Remote Radio Heads mounted on existing ballast frames.

- **Verizon (Proposed):**
  Antennas: Nine (9) Commscope SBJAHH-1D65B panel antennas mounted on existing ballast frames with a RAD center elevation of 52-ft +/- AGL.
  Appurtenances: Three (3) Nokia RRH4x45-AWS, three (3) Nokia RRH2x60-700U, three (3) Nokia RRH2x60-PCS Remote Radio Heads and three (3) Commscope RC2DC-3315-PF-48 distribution boxes mounted on existing ballast frames.
  Cables: Three (3) 1-1/4-in dia. Hybriflex Fiber jumper cables to be routed within the existing cable tray system.

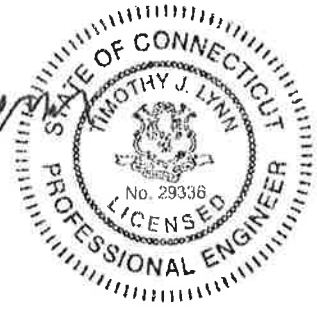
CENTEK engineering, INC.
Structural Evaluation Letter
Verizon Wireless ~ Greenwich SW
411 West Putnam Ave
Greenwich, CT 06830

The proposed antenna installation meets the requirements of 2012 International Building Code as amended by the 2016 CT State Building Code considering the ultimate design wind speed of 120 mph as required in Appendix N of the CSBC. 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.

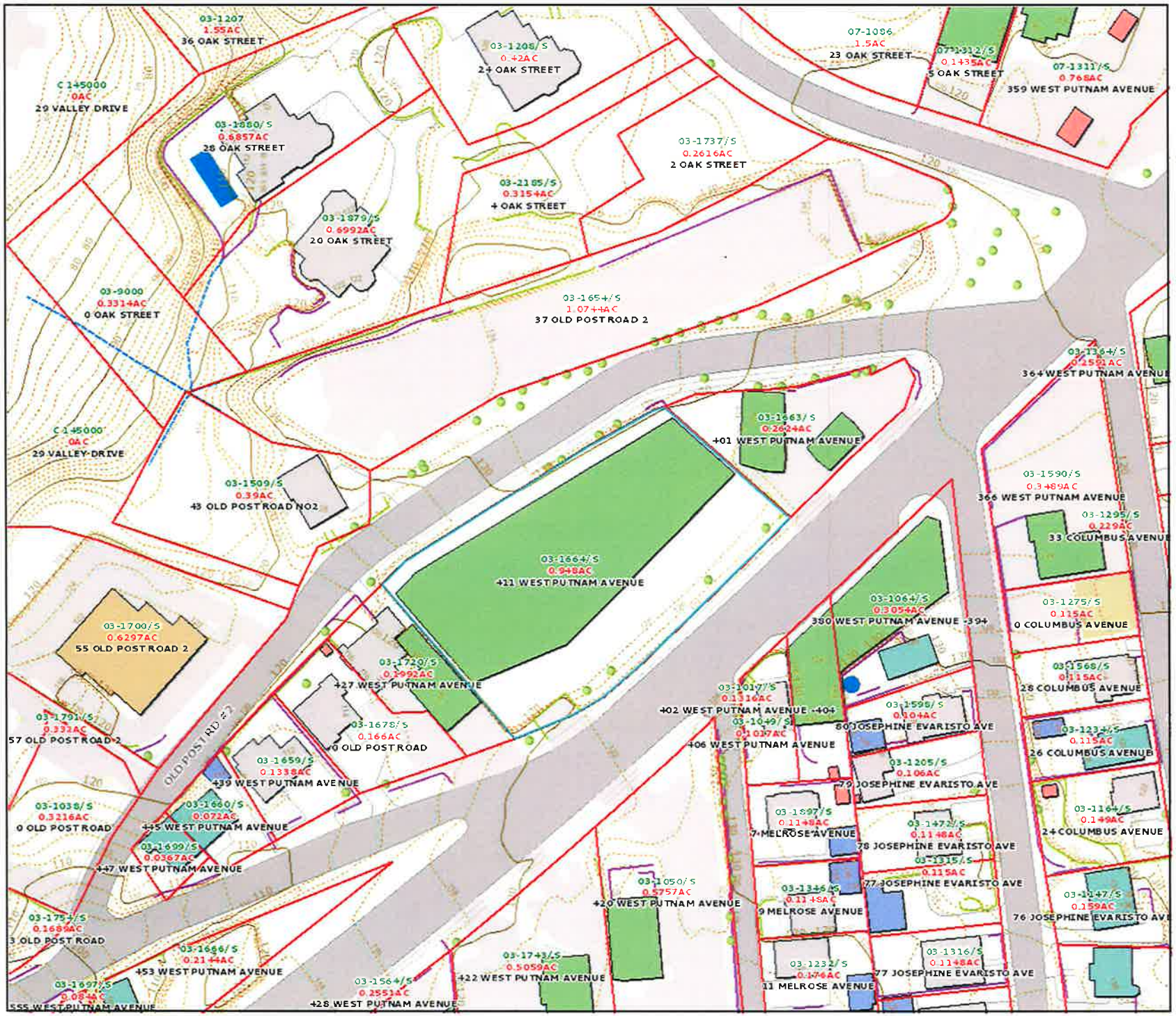
In conclusion, the proposed Verizon antenna upgrade will not negatively impact the structural integrity of the existing antenna support structure or host building. If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer



ATTACHMENT 4



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Tax ID 214/252 Printed 11/10/2016 Card No. 1 of 1

ADMINISTRATIVE INFORMATION

PARCEL NUMBER
03-1664/S

Parent Parcel Number

Property Address
WEST PUTNAM AVENUE 0411

Neighborhood
2200 WEST PUTNAM

Property Class
212 General Office

TAXING DISTRICT INFORMATION

Jurisdiction	57	Greenwich, CT
Area	001	
Corporation	057	
District	03	
Section & Plat	103	
Routing Number	9073N0043	

Site Description

Topography:

Public Utilities:
Sewer, Electric

Street or Road:

Neighborhood:

Zoning:
GB General Business

Legal Acres:
0.9480

OWNERSHIP

WEST PUTNAM OWNER LLC
216 E 45TH ST STE 1200
NEW YORK, NY 10017

LOT NO 32 & 33 WEST PUTNAM AVE N-43

COMMERCIAL

TRANSFER OF OWNERSHIP

Date		
06/24/2016	411 PROPERTIES LLC	Bk/Pg: 7086, 288 $51500000
04/22/2005	FLORIDA SHERWOOD FOREST LTD	Bk/Pg: 4902, 307 $32257000
03/15/2002	SOFI IV 411 PUTNAM LLC	Bk/Pg: 3810, 325 $23494750
09/08/1997	WEST PUTNAM ASSOC	Bk/Pg: 2966, 220 $17250000
07/16/1991	WEST PUTNAM ASSOC	Bk/Pg: 2144, 140 $233500

VALUATION RECORD

Assessment Year		10/01/2007	10/01/2008	10/01/2009	10/01/2010	10/01/2015	10/01/2015	
Reason for Change		2007 List	2008 List	2009 List	2010 Reval	2015 Prelim	2015 Final	Worksheet
VALUATION	L	5666500	5666500	5666500	4891500	3347000	3347000	3347000
Market	B	28249100	25165900	29899100	40700400	48274800	48274800	48274800
	T	33915600	30832400	35565600	45591900	51621800	51621800	51621800
VALUATION	L	3966550	3966550	3966550	3424050	2342900	2342900	2342900
70% Assessed	B	19774370	17616130	20929370	28490280	33792360	33792360	33792360
	T	23740920	21582680	24895920	31914330	36135260	36135260	36135260

LAND DATA AND CALCULATIONS

Land Type	Rating Soil ID -or- Actual Frontage	Measured Acreage -or- Effective Frontage	Table Effective Depth	Prod. Factor -or- Depth Factor -or- Square Feet	Base Rate	Adjusted Rate	Extended Value	Influence Factor	Value
1 Primary Commercial				41294.88	81.05	81.05	3347000		3347000

APS: 03-1654/S
BP11: 10-3125 Clear Wireless tele equip PP. 10-1848 Int part., hvac, elec., and cosm upgrds (Wexford Cap) w/in exstg ofc spc 1st & 2nd flrs cmplt (Permit $195k) LH.
BP15: 15-0978; Tenant: Contrian Capital, $188,000
DBA: Wexford Plaza
GEN: Supported by parking deck and garage on 03-1654/s.
SALE: 3/15/02 vol 3810 pg 325 sale includes 03-1654/s. Recorded sp of $23,494,750 reflects reduction for specific liability. Effective sp = $23,607,000. Verified arm's length. 4/05 sale w/ 03-1654/s cmfrmd arm's length w/ tot sp = $32,257,000. Indicated sp is allocated value (88%).

Permit Number Type	FilingDate	Est. Cost Est. SqFt	Field Visit

Supplemental Cards

TRUE TAX VALUE 3347000

Supplemental Cards
TOTAL LAND VALUE 3347000

IMPROVEMENT DATA

PHYSICAL CHARACTERISTICS

ROOFING

Built-up

WALLS

	B	1	2	U
Frame		Yes	Yes	Yes
Brick	Yes			
Metal				
Guard				

FRAMING

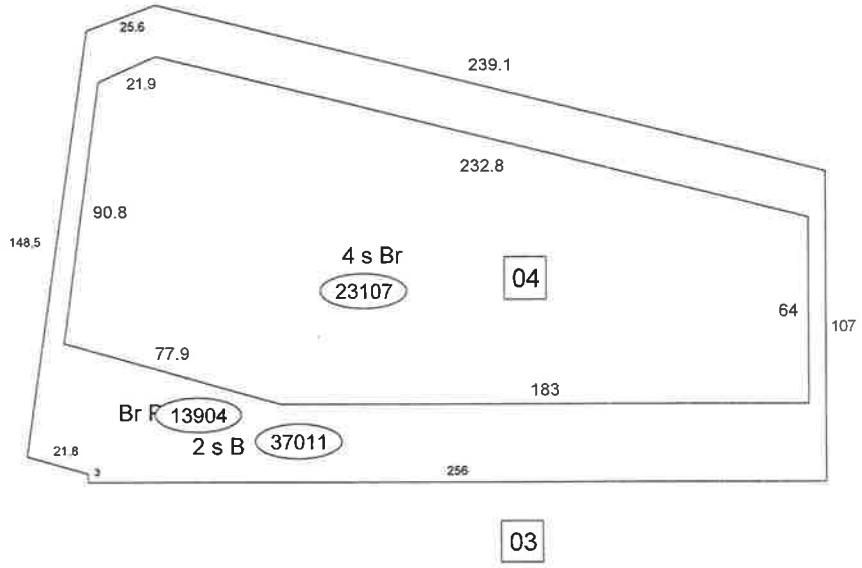
	B	1	2	U
R Conc	3701	0	0	0
F Prf	70321	23107	23107	46214

FINISH

	UF	SF	FO	FD
B	74022	0	0	0
1	23107	0	0	0
2	23107	0	0	0
U	46214	0	0	0
Total	166450	0	0	0

HEATING AND AIR CONDITIONING

	B	1	2	U
Heat	74022	4621	4621	9242
Sprink	74022	4621	4621	9242



(LCM: 150.00)

SPECIAL FEATURES

Description	Value
C : Remod 2009	

SUMMARY OF IMPROVEMENTS

ID	Use	Stry Hgt	Const Type	Grade	Year Const	Eff Year	Cond	Base Rate	Feat-ures	Adj Rate	Size or Area	Computed Value	Phys Depr	Obsol Depr	Market Adj	% Comp	Value
C	GENOFF	0.00		Exe	1973	2000	VG	0.00	N	0.00	23107	0	0	0	150	100	46575500
03	PENTMECH	0.00	1	Avg	1971	1995	GD	70.00	N	105.00	2940	308700	0	0	100	100	308700
04	ELEVCOM	6.00	2E	Avg+	1973	2000	VG	169000	N	304200	2@ 0	608400	0	0	100	100	608400
05	BRP	0.00		Exe	2009	2009	AV	0.00	N	0.00	0	806360	3	0	100	0	782200

Data Collector/Date	Appraiser/Date	Neighborhood	Supplemental Cards
bd 03/15/2011	MVS 10/01/2010	Neigh 2200 AV	TOTAL IMPROVEMENT VALUE 48274800