Robinson+Cole

KENNETH C. BALDWIN

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Hartford, CT 06103-3597
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Fax (860) 275-8299
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Direct (860) 275-8345

Also admitted in Massachusetts

October 9, 2019

Via Federal Express

Melanie A. Bachman, Esq.
Executive Director/Staff Attorney
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification**
Yale Bowl – Temporary Telecommunications Facility
New Haven, Connecticut

Dear Ms. Bachman:

Pursuant to R.C.S.A. Section 16-50j-72(d), this letter will serve as notice that Cellco Partnership d/b/a Verizon Wireless ("Cellco") intends to install a temporary wireless telecommunications facility (a/k/a "Cell on Wheels" or "COW") for use prior to and during this year's Yale vs. Harvard football game scheduled for November 23, 2019, at the Yale Bowl in New Haven, Connecticut. Included in Attachment 1 is a letter from Yale University authorizing the filing of this notice. Included in Attachment 2 is a Partial Site Plan and elevation drawing for the proposed COW to be located off Yale Avenue adjacent to the Yale Bowl. In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the New Haven Mayor, Toni N. Harp and Yale University, the owner of the Property.

The COW that Cellco intends to install at the Yale Bowl is a trailer-mounted wireless facility with a retractable 60 foot mast. (*See* Sheet L-2 Attachment 2). Cellco will attach one (1) Model MS-6.3DB90 multi beam Spherical Lens antenna to the mast at a centerline height of approximately 61.5 feet above ground level. The temporary facility will provide wireless services in Cellco's cellular (850 MHz), PCS (1900 MHz), LTE (700 MHz) and AWS (2100 MHz) frequency ranges. A copy of the MS-6.3DB90 antenna specification sheet is included in Attachment 3.

The proposed temporary telecommunications facility satisfies the criteria set forth in R.C.S.A. Section 16-50j-72(d), as a facility that will provide temporary wireless service for an event of State-wide significance. This facility will provide additional network capacity to accommodate increased wireless voice and data needs specifically associated with the event. Cellco expects that the COW will be brought to the site on or about November 15, 2019, and will be removed on or before November 30, 2019.

The operation of the antennas on the COW will not result in a total radio frequency (RF) power density level at or above the Federal Communications Commission (FCC) adopted safety standard. The cumulative "worst-case" calculation of RF emissions for the antenna mounted at a height of 61.5 feet above ground level at this temporary facility would not exceed the FCC standard. (*See* Cellco's Far Field Approximation tables included in Attachment 4). Actual RF emissions levels from this temporary facility will be substantially lower than these worst-case approximations.

A Certificate of Mailing verifying that this filing was sent to municipal officials and the Property owner is included in Attachment 5.

Based on the foregoing, Cellco respectfully requests approval of the temporary wireless facility installation at the Yale Bowl in New Haven, Connecticut. Please feel free to contact me if you have any questions or need any additional information.

Sincerely,

Kenneth C. Baldwin

KCB/kmd
Attachments
Copy to:
Toni N. Harp, Mayor
Deborah A. Armitage, Yale University
Ziad Cheiban, RF Engineer
Aleksey Tyurin

ATTACHMENT 1

October 8, 2019

Verizon WirelessAlex Tyurin
Real Estate Consultant
20 Alexander Dr 2nd Fl
Wallingford, CT 06492

Re: Proposed Temporary Telecommunication Facility located at 81 Central Ave, New Haven, CT

Dear Mr. Tyurin,

Yale University is the owner of the above referenced property. Yale University and Cellco Partnership have executed an Agreement providing Cellco with a nonexclusive license to use a portion of this property for a temporary communications facility consisting of a cell on wheels pursuant to the terms of the agreement.

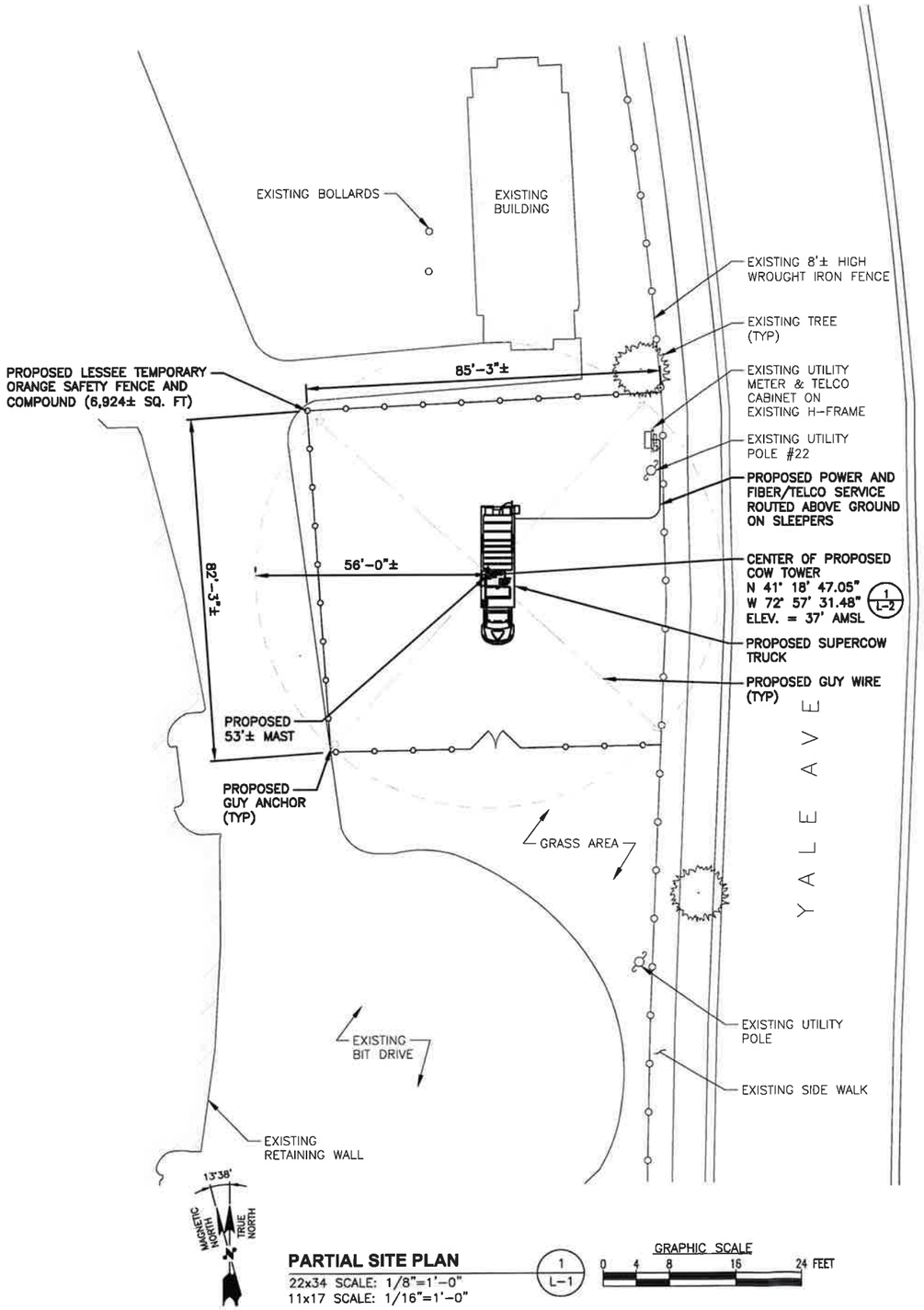
Best Regards,

Yale University

Signature: Deborah A. Armitage
Print Name: Armitage
Title: _____

Digitally signed by Deborah A. Armitage
DN: c=US, st=CT, l=New Haven, o=Yale University, ou=Associate Controller, cn=Deborah A. Armitage, email=deborah.armitage@yale.edu
Date: 2019.10.08 15:03:24 -04'00'

ATTACHMENT 2



PARTIAL SITE PLAN
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

1
L-1

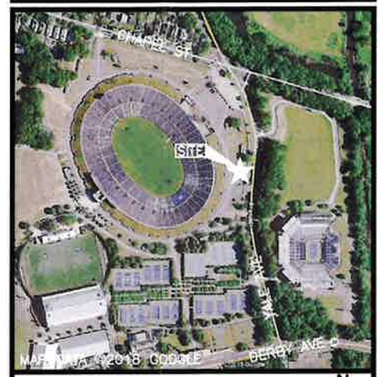
GRAPHIC SCALE
0 4 8 16 24 FEET

NOTE:

THIS IS A "NO DIG" SITE. NO EXCAVATIONS ARE PERMITTED.

LEASE EXHIBIT:
THIS LEASE PLAN IS DIAGRAMMATIC IN NATURE AND IS INTENDED TO PROVIDE GENERAL INFORMATION REGARDING THE LOCATION AND SIZE OF THE PROPOSED WIRELESS COMMUNICATION FACILITY. THE SITE LAYOUT WILL BE FINALIZED UPON COMPLETION OF SITE SURVEY AND FACILITY DESIGN.

APPROXIMATE COORDINATES:	LATITUDE:	41° 18' 47.05"
	LONGITUDE:	72° 57' 31.48"



VICINITY MAP

LEASE EXHIBIT

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.

verizon

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

CHECKED BY: DJR

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
0	08/16/19	ISSUED FOR REVIEW	GA

SITE NAME:
YALE BOWL COW CT

SITE ADDRESS:
50 YALE AVENUE
NEW HAVEN, CT 06615

SHEET TITLE
PARTIAL SITE PLAN

SHEET NUMBER
L-1

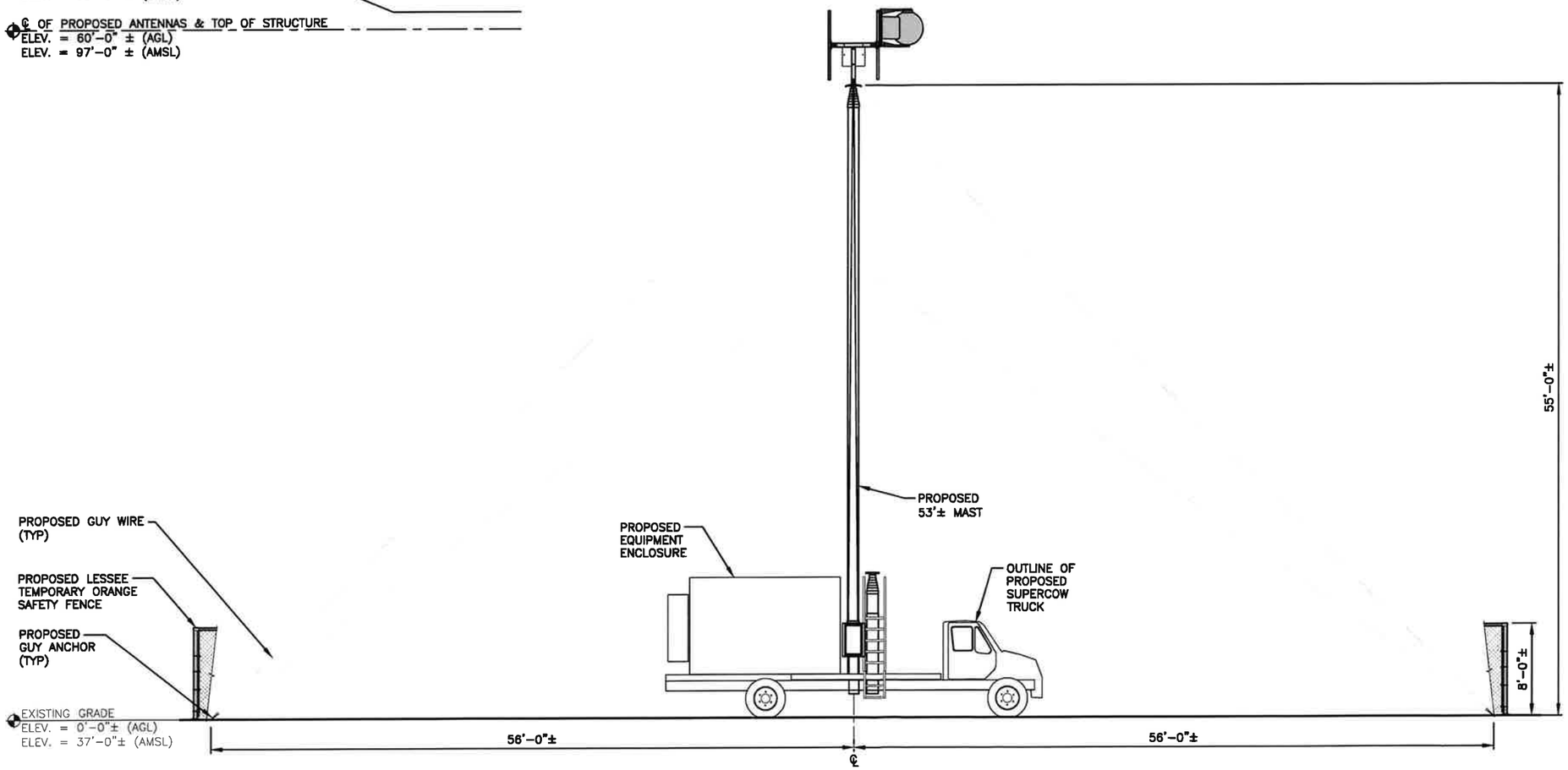
NOTE:

THIS IS A "NO DIG" SITE. NO EXCAVATIONS ARE PERMITTED.

LEASE EXHIBIT:
THIS LEASE PLAN IS DIAGRAMMATIC IN NATURE AND IS INTENDED TO PROVIDE GENERAL INFORMATION REGARDING THE LOCATION AND SIZE OF THE PROPOSED WIRELESS COMMUNICATION FACILITY. THE SITE LAYOUT WILL BE FINALIZED UPON COMPLETION OF SITE SURVEY AND FACILITY DESIGN.

APPROXIMATE COORDINATES:	LATITUDE:	41° 18' 47.05"
	LONGITUDE:	72° 57' 31.48"

LEASE EXHIBIT



ELEVATION
22x34 SCALE: 1/4"=1'-0"
11x17 SCALE: 1/8"=1'-0"

2 / L-2

GRAPHIC SCALE
0 2 4 8 12 FEET

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.

verizon

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
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SUBMITTALS

REV.	DATE	DESCRIPTION	BY
0	08/16/19	ISSUED FOR REVIEW	GA

SITE NAME:
YALE BOWL COW CT

SITE ADDRESS:
50 YALE AVENUE
NEW HAVEN, CT 06615

SHEET TITLE
ELEVATION

SHEET NUMBER
L-2

ATTACHMENT 3

MATSING
RF Lens Technologies

MS-6.3DB90-A

Multi-Beam Dual Band Spherical Lens Antenna: 3 independent low frequency (698-896MHz-A, 790-960MHz-B) cross-polarized beams and 6 independent high-frequency (1710-2690MHz) cross-polarized beams, with 0-15° tilt for each 40° sector and 2X2 MIMO support per beam. Sector consists of 1 low-band beam and 2 high-band beams.

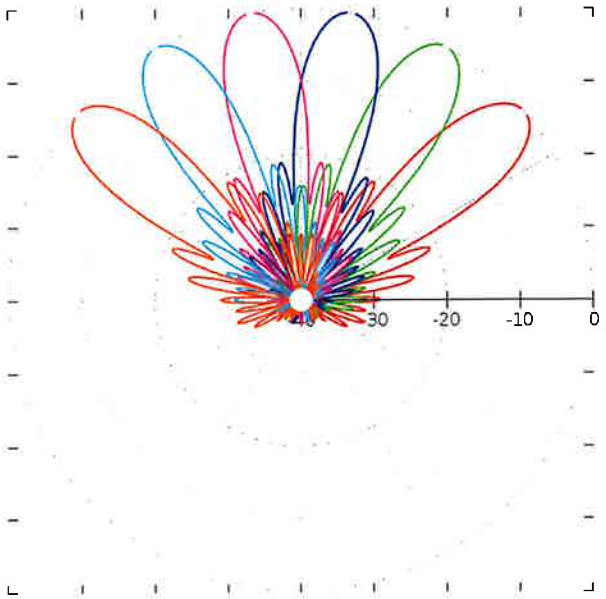
*Optional Packages:

a) **MS-6.3DB90-RET**
AISG 2.0 Remote Electrical Tilt

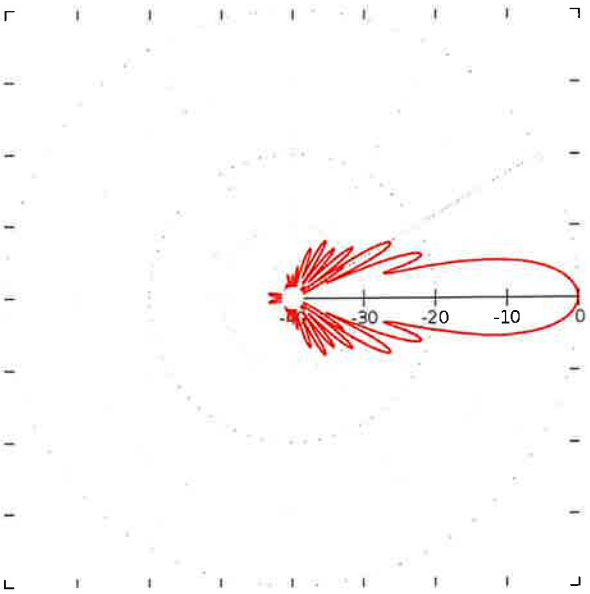
b) **MS-6.3DB90-B**
Low Band Frequency Range (800-960MHz)

PATTERN RESULTS:

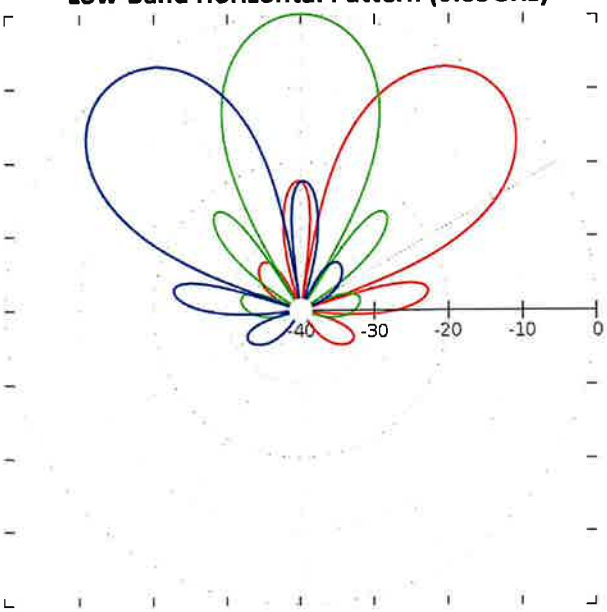
High-Band Horizontal Pattern (1.80GHz)



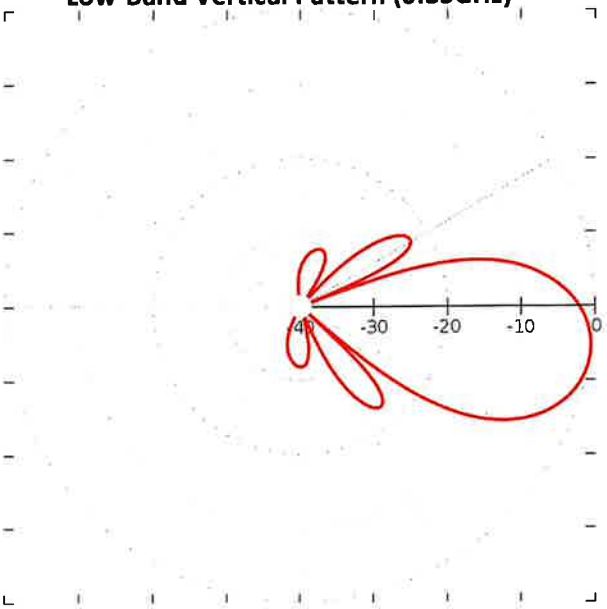
High-Band Vertical pattern (1.80GHz)



Low-Band Horizontal Pattern (0.85GHz)



Low-Band Vertical Pattern (0.85GHz)



MATSING
RF Lens Technologies

ESTIMATED TECHINCAL SPECIFICATIONS PER BEAM

Frequency	698-896 MHz	1710-2690 MHz
Gain	16.5dBi	24dBi
Return Loss	>15dB	>15dB
Polarization	Dual Slant ±45	Dual Slant ±45
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB level)	40° ± 4°	20° ± 2°
Vertical Beamwidth (10dB level)	42°	21°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	3	6
Manual Adjustable Tilt per 20° Sector (each sector having 2 high-band beams and 1 low-band beam)	10° to 25°	0° to 15°
First Sidelobe Level	<-18dB	<-18dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port -Polarization	>28dB	>28dB
Isolation Port to Port – Beam	>28dB	>28dB
Power Rating	400W per port	300W per port
Intermodulation	<-150dBc	<-150dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	6 7/16 DIN female	12 7/16 DIN female

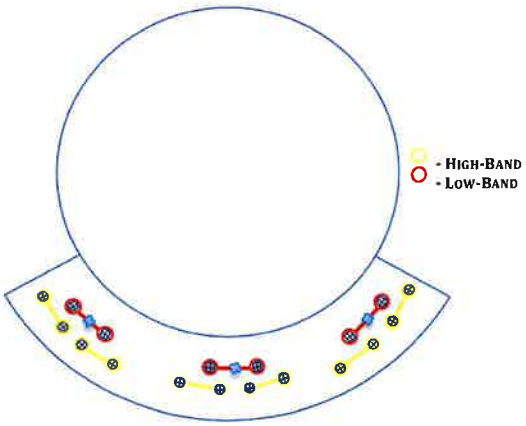
ESTIMATED MECHINCAL DATA

Dimensions (H x W x D)	Spherical Lens diameter: 90cm/35inch Antenna dimensions: 100 x 110 x 120 cm 39 x 43 x 47 inch
Antenna Weight	60kg 132lbs
Radome Material	Fibre Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ESTIMATED ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load (Front)	754 N @ 151 km/hr 170 lbf @ 151 km/hr

Connector Layout



ATTACHMENT 4

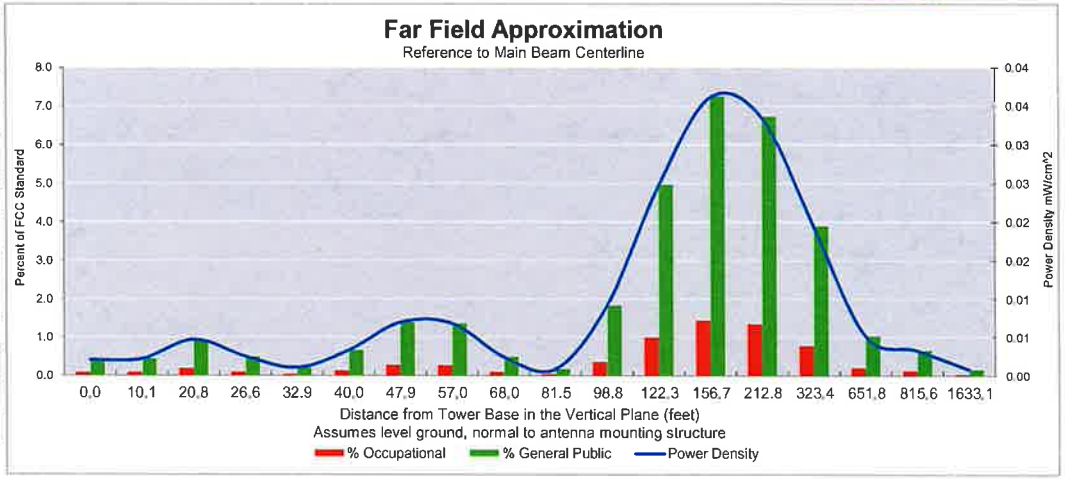
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole/Wire/Yagi Antenna Types

verizonwireless

Location:	YALE BOWL COW CT
Site #:	2-0516
Date:	10/01/19
Name:	Ziad Cheiban
File Name:	

Operating Freq. (MHz):	**746.0**
Antenna Height (ft):	**60.0**
Antenna Gain (dBi):	**18.0**
Antenna Size (in.):	**36.0**
Downtilt (degrees):	**0.0**
Feedline Loss (dB):	**0.0**
Tx Power (W):	**160.0**
No. of Channels:	**1**



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	57.0	57.9	60.7	62.9	65.8	69.6	74.4	80.6	88.7	99.4	114.1	134.9	166.7	220.3	328.4	654.3	817.5	1634.1
Distance from Antenna Structure Base in Horizontal plane	0.0	10.1	20.8	26.6	32.9	40.0	47.9	57.0	68.0	81.5	98.8	122.3	156.7	212.8	323.4	651.8	815.6	1633.1
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	25.31	24.82	21.1	23.51	26.83	21.41	17.6	17	20.66	24.18	12.69	6.92	3.44	1.34	0.24	0.02	0.08	0.3
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.02	0.04	0.03	0.02	0.01	0.00	0.00
Percent of Occupational Standard	0.1	0.1	0.2	0.1	0.0	0.1	0.3	0.3	0.1	0.0	0.4	1.0	1.5	1.3	0.8	0.2	0.1	0.0
Percent of General Population Standard	0.4	0.4	0.9	0.5	0.2	0.7	1.4	1.4	0.5	0.2	1.8	5.0	7.3	6.7	3.9	1.0	0.7	0.2

Antenna Type: **MS-6.3DB90-A**

Max%: **7.25%**

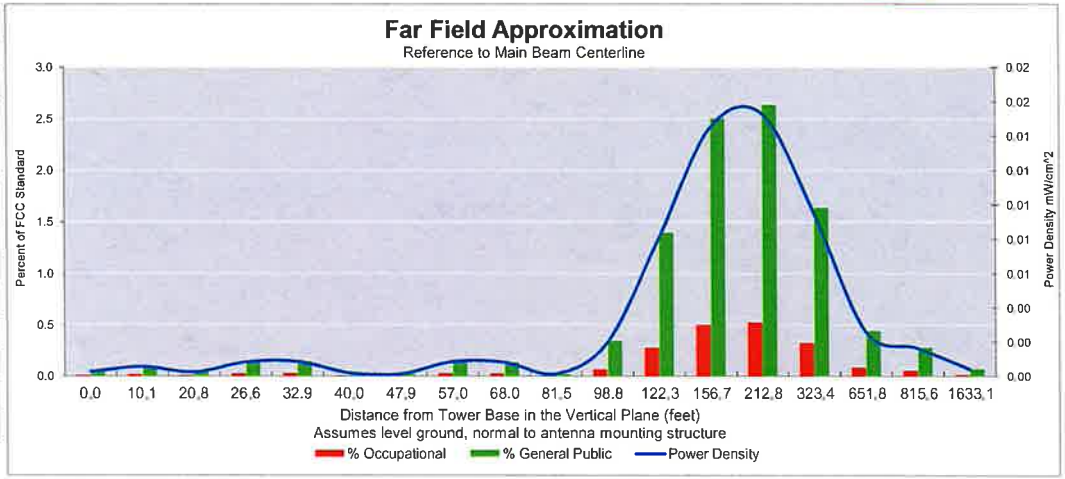
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole/Wire/Yagi Antenna Types

verizonwireless

Location:	YALE BOWL COW CT
Site #:	2-0516
Date:	10/01/19
Name:	Ziad Cheiban
File Name:	

Operating Freq. (MHz):	869.0
Antenna Height (ft):	60.0
Antenna Gain (dBi):	18.0
Antenna Size (in.):	36.0
Downtilt (degrees):	0.0
Feedline Loss (dB):	0.0
Tx Power (W):	80.0
No. of Channels:	1



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	57.0	57.9	60.7	62.9	65.8	69.6	74.4	80.6	88.7	99.4	114.1	134.9	166.7	220.3	328.4	654.3	817.5	1634.1
Distance from Antenna Structure Base in Horizontal plane	0.0	10.1	20.8	26.6	32.9	40.0	47.9	57.0	68.0	81.5	98.8	122.3	156.7	212.8	323.4	651.8	815.6	1633.1
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	31.28	27.81	31.08	25.31	24.78	30.98	32.16	23.02	22.42	29.33	16.28	8.75	4.38	1.73	0.34	0.02	0.08	0.31
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.01	0.00	0.00	0.00
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.5	0.5	0.3	0.1	0.1	0.0
Percent of General Population Standard	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.3	1.4	2.5	2.6	1.6	0.4	0.3	0.1

Antenna Type: **MS-6.3DB90-A**

Max%: **2.64%**

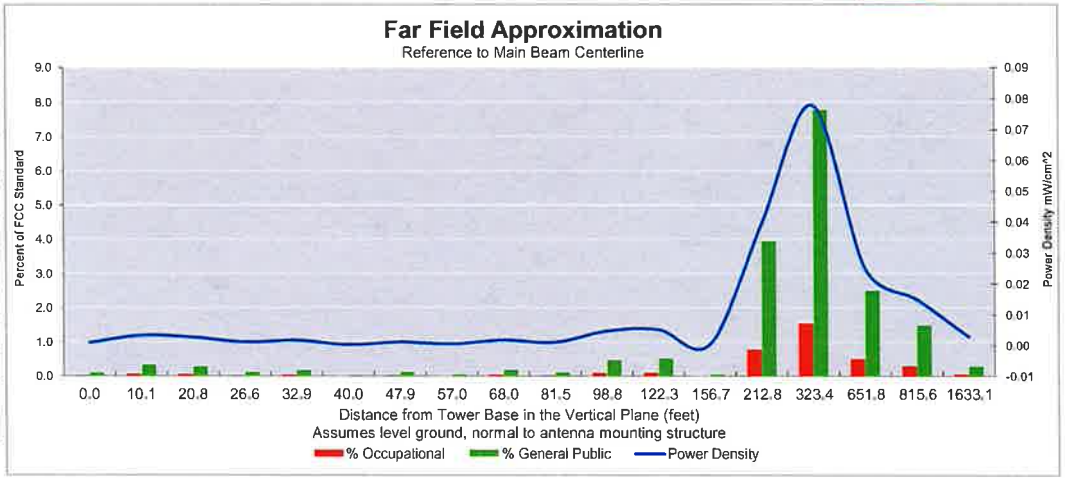
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole/Wire/Yagi Antenna Types

verizonwireless

Location:	YALE BOWL COW CT
Site #:	2-0516
Date:	10/01/19
Name:	Ziad Cheiban
File Name:	

Operating Freq. (MHz):	**1970.0**
Antenna Height (ft):	**60.0**
Antenna Gain (dBi):	**25.0**
Antenna Size (in.):	**36.0**
Downtilt (degrees):	**0.0**
Feedline Loss (dB):	**0.0**
Tx Power (W):	**160.0**
No. of Channels:	**1**



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	57.0	57.9	60.7	62.9	65.8	69.6	74.4	80.6	88.7	99.4	114.1	134.9	166.7	220.3	328.4	654.3	817.5	1634.1
Distance from Antenna Structure Base in Horizontal plane	0.0	10.1	20.8	26.6	32.9	40.0	47.9	57.0	68.0	81.5	98.8	122.3	156.7	212.8	323.4	651.8	815.6	1633.1
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	35.66	29.99	30.49	34.05	31.86	40.05	32.68	35.43	29.13	30.54	22.58	20.7	30.11	7.63	1.21	0.15	0.48	1.7
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.08	0.03	0.01	0.00
Percent of Occupational Standard	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.8	1.6	0.5	0.3	0.1
Percent of General Population Standard	0.1	0.3	0.3	0.1	0.2	0.0	0.1	0.0	0.2	0.1	0.5	0.5	0.0	3.9	7.8	2.5	1.5	0.3

Antenna Type: **MS-6.3DB90-A**

Max%: **7.79%**

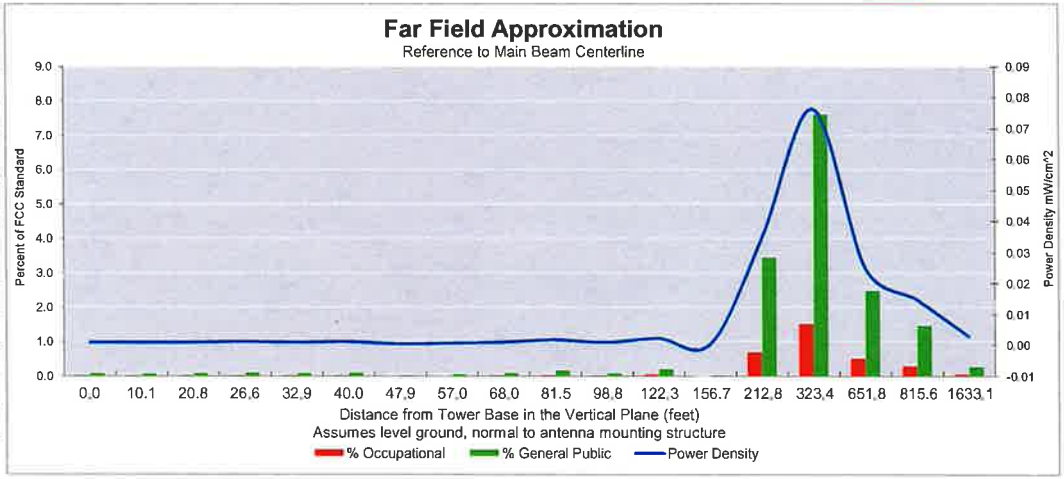
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole/Wire/Yagi Antenna Types

verizonwireless

Location:	YALE BOWL COW CT
Site #:	2-0516
Date:	10/01/19
Name:	Ziad Cheiban
File Name:	

Operating Freq. (MHz):	2145.0
Antenna Height (ft):	60.0
Antenna Gain (dBi):	25.0
Antenna Size (in.):	36.0
Downtilt (degrees):	0.0
Feedline Loss (dB):	0.0
Tx Power (W):	160.0
No. of Channels:	1



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	57.0	57.9	60.7	62.9	65.8	69.6	74.4	80.6	88.7	99.4	114.1	134.9	166.7	220.3	328.4	654.3	817.5	1634.1
Distance from Antenna Structure Base in Horizontal plane	0.0	10.1	20.8	26.6	32.9	40.0	47.9	57.0	68.0	81.5	98.8	122.3	156.7	212.8	323.4	651.8	815.6	1633.1
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	36.47	36.55	35.57	34.36	34.96	33.5	38.29	34.8	32.02	28.34	30.25	24.68	31.42	8.19	1.3	0.17	0.53	1.88
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.08	0.02	0.01	0.00
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.5	0.5	0.3	0.1
Percent of General Population Standard	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.2	0.0	3.5	7.6	2.5	1.5	0.3

Antenna Type: **MS-6.3DB90-A**

Max%: **7.63%**

ATTACHMENT 5

UNITED STATES POSTAL SERVICE®

Certificate of Mailing — Firm

Name and Address of Sender

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103

TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™
2	2

Postmaster, per *(name of receiving employee)*

Affix Stamp Here
Postmark with Date of Receipt.

neopost
10/09/2019
US POSTAGE $002.79⁰

OLD STATE HOUSE STATION 06103
OCT - 9 2019
USPS

USPS® Tracking Number / Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	Toni N. Harp, Mayor City of New Haven 165 Church Street New Haven, CT 06510				
2.	Deborah A. Armitage Yale University Controller's Office FR&A P.O. Box 208372 New Haven, CT 06520-8372				
3.					
4.					
5.					
6.					