Robinson+Cole

KENNETH C. BALDWIN

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Also admitted in Massachusetts

August 15, 2018

*Via Electronic Mail and Federal Express*

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

Re: **Installation of a Temporary Cell of Wheels ("COW") at Durham Fairgrounds, 24 Town House Road, Durham, Connecticut**

Dear Ms. Bachman:

Pursuant to the provisions of the Regulations of Connecticut State Agencies ("R.C.S.A.") § 16-50j-72(2), Cellco Partnership d/b/a Verizon Wireless ("Cellco") seeks Siting Council authorization to install a truck-mounted telecommunications tower and associated radio equipment (a/k/a "Cell on Wheels" or "COW") for use prior to and during this year's Durham Fair scheduled for September 27-30, 2018. Included in Attachment 1, is a letter from the President of the Durham Agricultural Fair Association authorizing the filing of this notice.

The COW that Cellco intends to install at the Durham Fair is a trailer-mounted wireless facility with a retractable 30-foot mast. (*See* Attachment 2 Exhibits). Cellco will attach two (2) panel antennas to the top of the mast at a centerline height of approximately 33 feet above ground level. The temporary facility will provide wireless services in Cellco's 1900 MHz and AWS (2100 MHz) frequency ranges.

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 temporary 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 September 12, 2018, and will be removed on or before October 15, 2018.

Robinson+Cole



The operation of the antennas on the COW will not result in a total radio frequency (RF) emissions that exceed the Federal Communications Commission (FCC) adopted safety standard. The "worst-case" calculation of RF emissions for all antennas mounted at 33- feet above ground level at this temporary facility would be below the FCC standard. (*See* Far Field Approximation tables included in Attachment 3).

Pursuant to R.C.S.A. § 16-50j-73, notice of this filing has been sent to Durham Agricultural Fair Association, the owner of the Property, Durham First Selectman Laura L. Francis and Durham Town Planner and Zoning Enforcement Officer, Geoffrey Colegrove.

Please contact me if you have any questions.

Sincerely,

Kenneth C. Baldwin

Attachments
Copy to:
Durham Agricultural Fair Association
Laura L. Francis, First Selectman
Geoffrey Colegrove, Town Planner and Zoning Enforcement Officer
Hollis Redding

# ATTACHMENT 1

July 25, 2018

Verizon Wireless
Hollis M. Redding
Real Estate Consultant
20 Alexander Drive, 2nd Floor
Wallingford, CT 06492

RE: Proposed Verizon Wireless Telecommunication Facility at the
Durham Fairgrounds, 24 Town House Road, Durham, CT 06422 (the "Property")

I, Daniel Miramant, as President of the Durham Agricultural Fair Association hereby authorize Cellco Partnership d/b/a Verizon Wireless and/or its agents to apply for and obtain all necessary federal, state or local permits and approvals for the proposed wireless telecommunication facility at the Property.

Please contact me if you should have any questions.

Sincerely,

Daniel Miramant
President
Durham Agricultural Fair Association

# ATTACHMENT 2


## VICINITY MAP

SCALE: N.T.S.

| | | |
|---|---|---|
| APPROXIMATE COW TOWER COORDINATES: | LAT: | N41° 28' 06.15" |
| | LONG: | W72° 40' 55.32" |

**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.

## LEGEND

| | |
|---|---|
| COW | CELLULAR COMMUNICATIONS ON WHEELS |
| OHW | OVERHEAD WIRE |
| | PROPERTY LINE |
| | UTILITY POLE |


13°42'
MAGNETIC NORTH
TRUE NORTH

**PARTIAL SITE PLAN** (2 / L-1)

22x34 SCALE: 1"=20'-0"
11x17 SCALE: 1"=40'-0"

GRAPHIC SCALE
0 10 20 40 60 FEET


13°42'
MAGNETIC NORTH
TRUE NORTH

**SITE PLAN** (1 / L-1)

22x34 SCALE: 1"=40'-0"
11x17 SCALE: 1"=80'-0"

GRAPHIC SCALE
0 20 40 80 120 FEET

**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: DJC

SUBMITTALS

| REV. | DATE | DESCRIPTION | BY |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| 0 | 07/16/18 | ISSUED FOR REVIEW | JS |

SITE NAME:

DURHAM FAIRGROUNDS COW

SITE ADDRESS:

24 TOWN HOUSE ROAD
DURHAM, CT 06422

SHEET TITLE

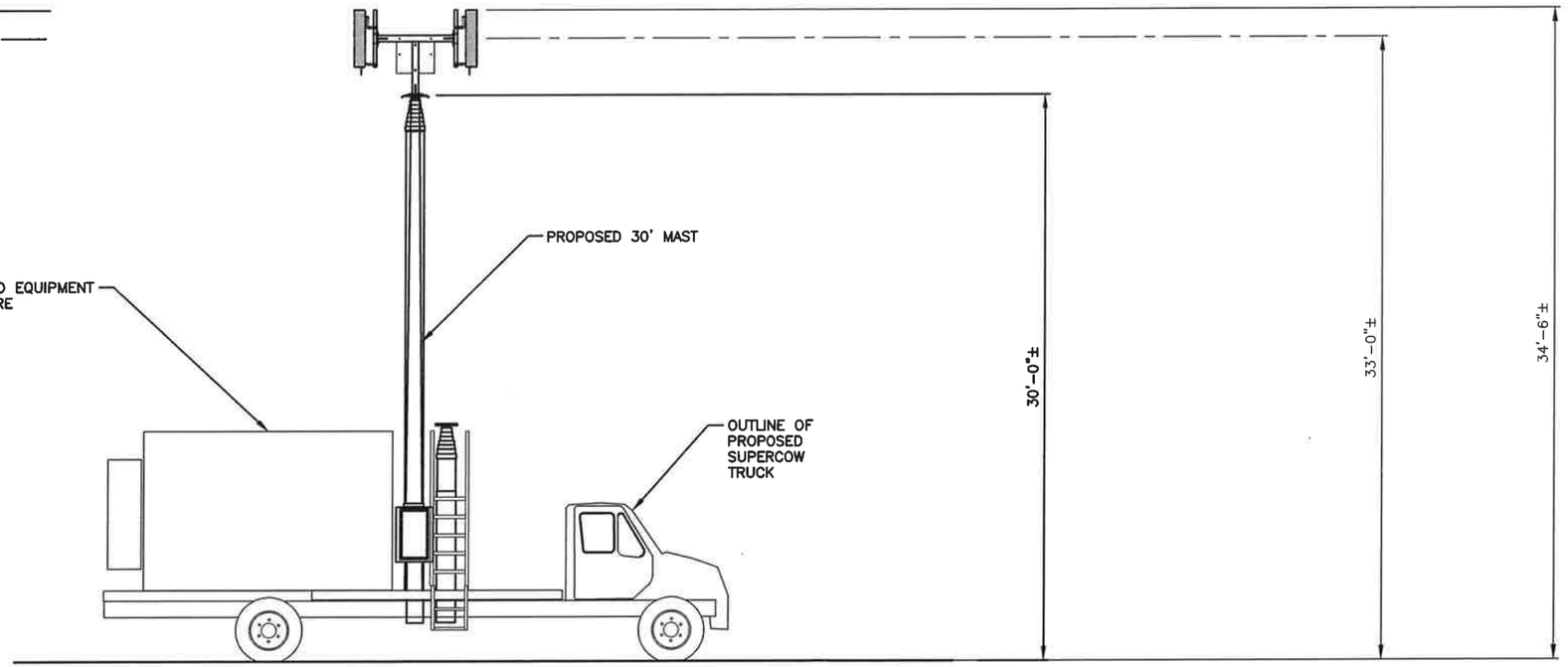
PARTIAL SITE PLAN

SHEET NUMBER

L-1

℄ OF PROPOSED ANTENNAS
ELEV. = 34'-6"± (AGL)
ELEV. = 206'-6"± (AMSL)

℄ OF PROPOSED ANTENNAS
ELEV. = 33'-0"± (AGL)
ELEV. = 205'-0"± (AMSL)




EXISTING GRADE
ELEV. = 0'-0"± (AGL)
ELEV. = 172'-0"± (AMSL)

**SUPERCOW ELEVATION** (1 / L-2)
SCALE: N.T.S

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: DJC

SUBMITTALS

| REV. | DATE | DESCRIPTION | BY |
|---|---|---|---|
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| | | | |
| 0 | 07/16/18 | ISSUED FOR REVIEW | JS |

SITE NAME:
DURHAM FAIRGROUNDS COW

SITE ADDRESS:
24 TOWN HOUSE ROAD
DURHAM, CT 06422

SHEET TITLE
ELEVATION

SHEET NUMBER
L-2

# ATTACHMENT 3

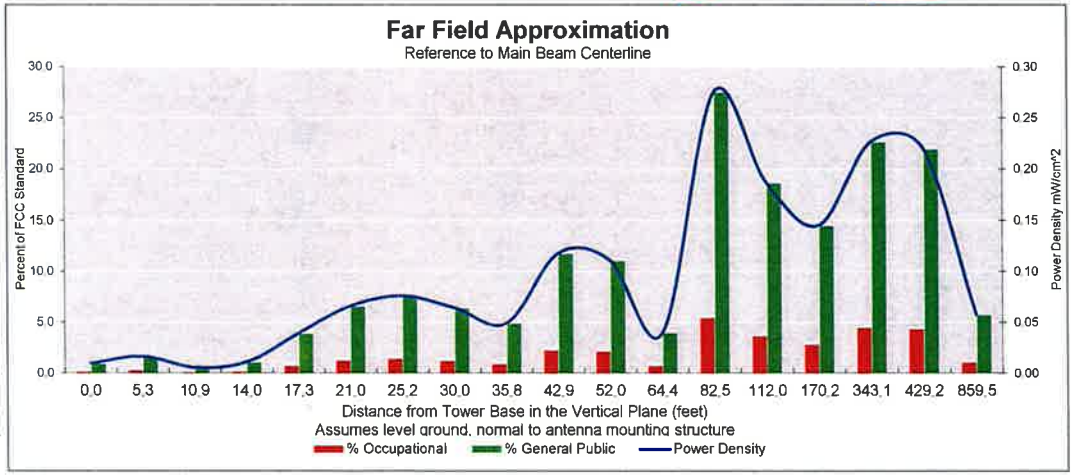
Far Field Approximation
with downtilt variation

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

verizonwireless

| | |
|---|---|
| Location: | **DURHAM FAIR COW CT** |
| Site #: | 2-0399 |
| Date: | 08/15/18 |
| Name: | Jaime Laredo |
| File Name: | |

| | |
|---|---|
| Operating Freq. (MHz): | **1970.0** |
| Antenna Height (ft): | **33.0** |
| Antenna Gain (dBi): | **20.8** |
| Antenna Size (in.): | **36.0** |
| Downtilt (degrees): | **0.0** |
| Feedline Loss (dB): | **0.0** |
| ERP (W): | **1615.0** |
| 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 | 30.0 | 30.5 | 31.9 | 33.1 | 34.7 | 36.6 | 39.2 | 42.4 | 46.7 | 52.3 | 60.0 | 71.0 | 87.8 | 116.0 | 172.8 | 344.4 | 430.3 | 860.0 |
| Distance from Antenna Structure Base in Horizontal plane | 0.0 | 5.3 | 10.9 | 14.0 | 17.3 | 21.0 | 25.2 | 30.0 | 35.8 | 42.9 | 52.0 | 64.4 | 82.5 | 112.0 | 170.2 | 343.1 | 429.2 | 859.5 |
| Angle from Main Beam (reference to horizontal plane) | 90 | 80 | 70 | 65 | 60 | 55 | 50 | 45 | 40 | 35 | 30 | 25 | 20 | 15 | 10 | 5 | 4 | 2 |
| dB down from centerline (referenced to centerline) | 36.76 | 34.35 | 38.52 | 35.34 | 29.54 | 26.8 | 25.59 | 25.63 | 25.99 | 21.21 | 20.29 | 23.24 | 13.03 | 12.3 | 9.92 | 2 | 0.2 | 0 |
| Reflection Coefficient (1 to 4, 2.56 typical) | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 |
| Power Density (mW/cm^2) | 0.01 | 0.02 | 0.01 | 0.01 | 0.04 | 0.07 | 0.08 | 0.06 | 0.05 | 0.12 | 0.11 | 0.04 | 0.28 | 0.19 | 0.15 | 0.23 | 0.22 | 0.06 |
| Percent of Occupational Standard | 0.2 | 0.3 | 0.1 | 0.2 | 0.8 | 1.3 | 1.5 | 1.3 | 1.0 | 2.4 | 2.2 | 0.8 | 5.5 | 3.7 | 2.9 | 4.5 | 4.4 | 1.2 |
| Percent of General Population Standard | 1.0 | 1.7 | 0.6 | 1.1 | 3.9 | 6.6 | 7.7 | 6.5 | 4.9 | 11.8 | 11.1 | 4.0 | 27.5 | 18.7 | 14.5 | 22.7 | 22.0 | 5.8 |

Antenna Type: **XAP-TB-322**

Max%: **27.53%**

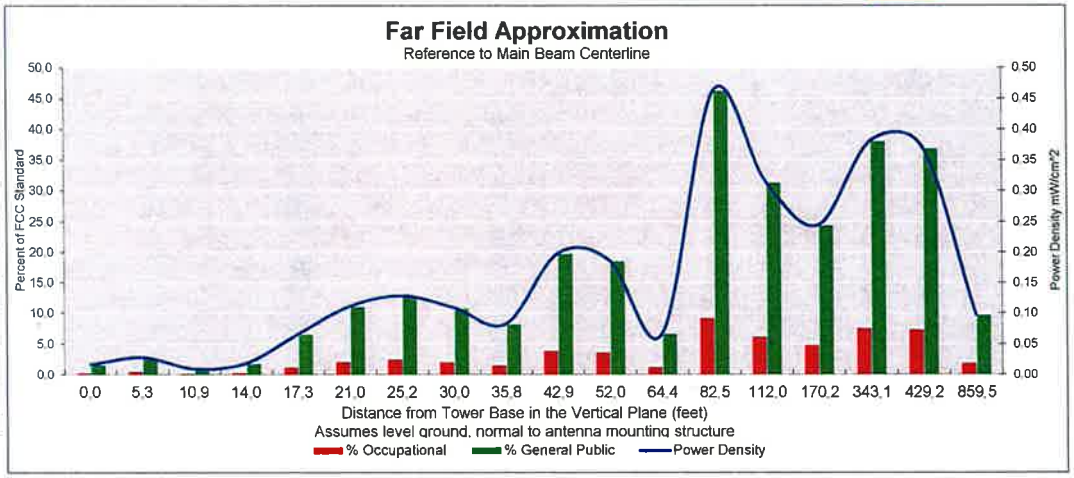
Far Field Approximation
with downtilt variation

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

verizonwireless

| | |
|---|---|
| Location: | **DURHAM FAIR COW CT** |
| Site #: | 2-0399 |
| Date: | 08/15/18 |
| Name: | Jaime Laredo |
| File Name: | |

| | |
|---|---|
| Operating Freq. (MHz): | **2145.0** |
| Antenna Height (ft): | **33.0** |
| Antenna Gain (dBi): | **21.0** |
| Antenna Size (in.): | **36.0** |
| Downtilt (degrees): | **0.0** |
| Feedline Loss (dB): | **0.0** |
| ERP (W): | **2596.0** |
| 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 | 30.0 | 30.5 | 31.9 | 33.1 | 34.7 | 36.6 | 39.2 | 42.4 | 46.7 | 52.3 | 60.0 | 71.0 | 87.8 | 116.0 | 172.8 | 344.4 | 430.3 | 860.0 |
| Distance from Antenna Structure Base in Horizontal plane | 0.0 | 5.3 | 10.9 | 14.0 | 17.3 | 21.0 | 25.2 | 30.0 | 35.8 | 42.9 | 52.0 | 64.4 | 82.5 | 112.0 | 170.2 | 343.1 | 429.2 | 859.5 |
| Angle from Main Beam (reference to horizontal plane) | 90 | 80 | 70 | 65 | 60 | 55 | 50 | 45 | 40 | 35 | 30 | 25 | 20 | 15 | 10 | 5 | 4 | 2 |
| dB down from centerline (referenced to centerline) | 36.76 | 34.35 | 38.52 | 35.34 | 29.54 | 26.8 | 25.59 | 25.63 | 25.99 | 21.21 | 20.29 | 23.24 | 13.03 | 12.3 | 9.92 | 2 | 0.2 | 0 |
| Reflection Coefficient (1 to 4, 2.56 typical) | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 | 2.56 |
| Power Density (mW/cm^2) | 0.02 | 0.03 | 0.01 | 0.02 | 0.07 | 0.11 | 0.13 | 0.11 | 0.08 | 0.20 | 0.19 | 0.07 | 0.46 | 0.31 | 0.24 | 0.38 | 0.37 | 0.10 |
| Percent of Occupational Standard | 0.3 | 0.6 | 0.2 | 0.4 | 1.3 | 2.2 | 2.6 | 2.2 | 1.7 | 4.0 | 3.7 | 1.3 | 9.3 | 6.3 | 4.9 | 7.6 | 7.4 | 1.9 |
| Percent of General Population Standard | 1.7 | 2.8 | 1.0 | 1.9 | 6.6 | 11.2 | 12.9 | 10.9 | 8.3 | 19.8 | 18.6 | 6.7 | 46.3 | 31.4 | 24.4 | 38.1 | 37.0 | 9.7 |

Antenna Type: **XAP-TB-322**

Max%: **46.34%**