



June 3, 2024

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

Re: Notice of Exempt Modification New Cingular Wireless PCS LLC ("AT&T") Site CT2301  
24 Town House Road, Durham, CT 06 (the "Property")  
Latitude: 41.70150 N Longitude: -72.681682 W

Dear Ms. Bachman:

AT&T intends to place a temporary wireless communication facility, a/k/a Cell on Light Truck or 'COLT', during the 2024 Durham Agricultural Fair in September. Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies ("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 to R.C.S.A §16-50j-73, a copy of this letter is being sent to the Mr. Brendan Rea, First Selectman, Town of Durham, as elected official, Mr. Joseph Carta, Deputy Zoning Enforcement Officer, Town of Durham, and the Durham Agricultural Fair Assoc, the property owner.

The proposed temporary installation meets the criteria for R.C.S.A §16-50j-72(d) for temporary cellular service for events of statewide significance. The COLT is necessary to provide additional system capacity to accommodate the increased communication needs during the 2024 Durham Fair. This temporary installation may include B2, B5, B17, B14, B29, B30, B66 & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

The 2024 Durham Agricultural Fair takes place from September 26-29 at the Durham Fairgrounds on Town House Road, Durham. The COLT will be placed on the Durham Fairgrounds property as shown in the attached photo, the same location as 2023. The COLT will be deployed on or about September 2<sup>nd</sup> and decommissioned by October 2<sup>nd</sup>, 2024.

AT&T's temporary cell site includes cellular equipment placed within a self-contained Super COLT vehicle. The COLT carries three integrated pneumatic masts, two of which can be extended to a height of 38 ft above ground level, while the third can be extended to a height of 59 ft above ground level. Guy lines will stabilize and support the antenna masts when extended. Power and telephone connections will be provided from the existing utility services at the

Fairgrounds. The proposed temporary cell site will not increase noise levels by six decibels or more.

The COLT will be fitted with three (3) Kathrein 840-10520 antennas at 50± feet, three (3) Ericsson AIR6449 B77D antennas at 45± feet, one (1) Galtronics GP2406-06670 antenna, & one (1) CCI MBA10-6F-BU-H3 antenna at 40± feet, and one (1) Matsing MS-6.3DB90 antenna at 39± feet.

AT&T's temporary cell site will not result in a total radio frequency electromagnetic radiation power density, measured at six feet above ground level at the temporary tower location, at or above State or Federal standards. Please see attached Radio Frequency Emissions Report. The report shows that AT&T's temporary transmissions from the temporary cell site will result in a maximum cumulative percent of MPE that is calculated to be 72.08% of the FCC limit for general population / uncontrolled environments.

For the foregoing reasons, AT&T respectfully submits the proposed modifications to the above referenced telecommunication facility constitute an exempt modification pursuant to R.C.S.A §16-50j-72(b)(2).

Sincerely,

*Hollis M. Redding*

Hollis M. Redding  
SAI Communications, LLC  
12 Industrial Way  
Salem, NH 03079  
Mobile: 860-834-6964  
[hredding@saigrp.com](mailto:hredding@saigrp.com)

Enclosures

Cc: Mr. Brendan Rea, First Selectman, Town of Durham, chief elected official  
Mr. Joseph Carta, Deputy Zoning Enforcement Officer, Town of Durham  
Durham Agricultural Fair Assoc, the property owner



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

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## Calculated Radio Frequency Emissions Report



CT2301  
24 Town House Road, Durham, CT

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May 15, 2024

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## 1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed temporary deployment for Durham Fair of AT&T antenna arrays on top of the Mini Super COLT (Cell On Light Truck) at 40', 45' and 50' AGL located at 24 Town House Road in Durham, CT. The coordinates of Super Colt are 41° 28' 12.51" N, 72° 40' 54.55" W.

AT&T is proposing the following:

- 1) Temporarily deploy multi-band antennas on its Mini Super Colt to support its commercial LTE network and the FirstNet National Public Safety Broadband Network ("NPSBN") during the Durham Fair celebration in Durham, CT.

This report considers the planned antenna configuration for AT&T<sup>1</sup> to derive the resulting % Maximum Permissible Exposure of its proposed temporary deployment.

## 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<sup>2</sup>). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment C 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 and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment C 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.

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<sup>1</sup> As referenced to AT&T's Radio Frequency Design Sheet updated 04/18/2024.

### 3. 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:

$$\text{Power Density} = \left( \frac{GRF \times 1.64 \times ERP}{4\pi \times R^2} \right) \times \text{Off Beam Loss}$$

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

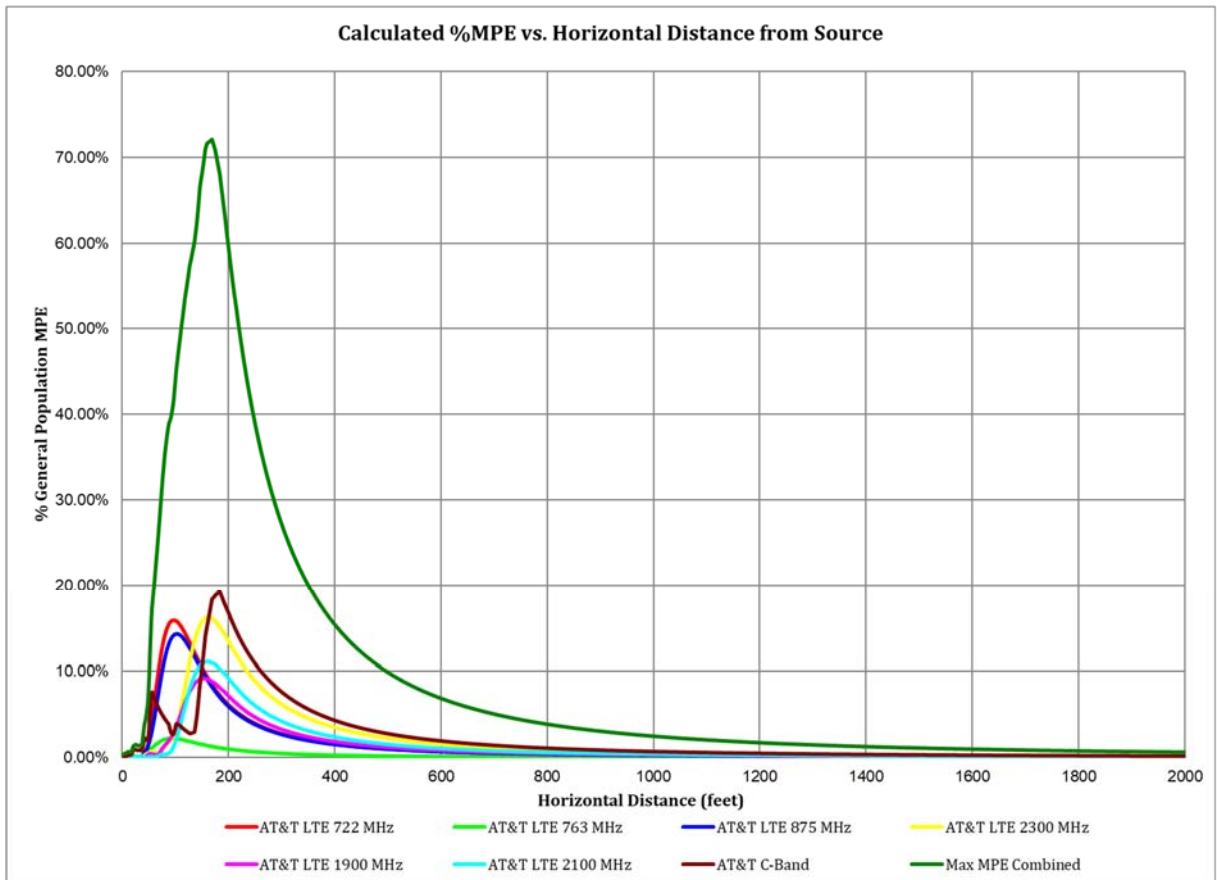
Off Beam Loss is determined by the selected antenna patterns

Ground reflection factor of 1.6

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. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the final installations.

#### 4. Calculation Results

The calculated power density results are shown in Figure 1 below. For completeness, the calculations for this analysis range from 0 feet horizontal distance (directly below the antennas) to a value of 3,000 feet horizontal distance from the site. In addition to the other worst-case scenario considerations that were previously mentioned, the power density calculations to each horizontal distance point away from the antennas was completed using a local maximum off beam antenna gain (within  $\pm 5$  degrees of the true mathematical angle) to incorporate a realistic worst-case scenario.



**Figure 1: Graph of General Population % MPE vs. Distance**

The highest percent of MPE (72.08% of the General Population limit) is calculated to occur at a horizontal distance of 169 feet from antennas. Please note that the percent of MPE calculations close to the site take into account off beam loss, which is determined from the vertical pattern of the antennas used. Therefore, RF power density levels may increase as the distance from the site increases. At distances of approximately 1500 feet and beyond, one would now be in the main beam of the antenna pattern and off beam loss is no longer considered. Beyond this point, RF levels become calculated solely on distance from the site and the percent of MPE decreases significantly as distance from the site increases.

Table 1 below lists percent of MPE values as well as the associated parameters that were included in the calculations. The highest percent of MPE value was calculated to occur at a horizontal distance of 169 feet from the site (reference Figure 1).

As stated in Section 3, all 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. Obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. In addition, a six-foot height offset was considered in this analysis to account for average human height. As a result, the predicted signal levels are significantly higher than the actual signal levels will be from the final configuration. The results presented in Figure 1 and Table 1 assume level ground elevation from the base of the tower out to the horizontal distances calculated.

Carrier	Number of Transmitters	Power out of Base Station Per Transmitter (Watts)	Antenna Height (Feet)	Distance to the Base of Antennas (Feet)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	% MPE
AT&T C-Band	1	86.5	45.0	169	0.183313	1.000	18.33%
AT&T LTE 1900 MHz	1	80.0	40.0	169	0.088121	1.000	8.81%
AT&T LTE 2100 MHz	1	80.0	40.0	169	0.109447	1.000	10.94%
AT&T LTE 2300 MHz	1	100.0	40.0	169	0.160459	1.000	16.05%
AT&T LTE 722 MHz	1	80.0	40.0	169	0.040734	0.481	8.46%
AT&T LTE 763 MHz	1	80.0	50.0	169	0.006515	0.509	1.28%
AT&T LTE 875 MHz	1	80.0	40.0	169	0.047859	0.583	8.20%
						<b>Total</b>	<b>72.08%</b>

**Table 1: Maximum Percent of General Population Exposure Values**



## 5. Conclusion

The above analysis verifies that RF exposure levels from the site with AT&T's proposed antenna configuration will be well below the maximum permissible levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using the conservative calculation methods and parameters detailed above, the maximum cumulative percent of MPE in consideration of all transmitters is calculated to be **72.08% of the FCC limit (General Population/Uncontrolled)**. This maximum cumulative percent of MPE value is calculated to occur 169 feet away from the site.

## 6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.



Report Prepared By:

\_\_\_\_\_  
Ram Acharya  
RF Engineer 1  
C Squared Systems, LLC

May 14, 2024

Date



Reviewed/Approved By:

\_\_\_\_\_  
Martin J. Lavin  
Senior RF Engineer  
C Squared Systems, LLC

May 15, 2024

Date

## **Attachment A: References**

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

IEEE C95.1-2019, IEEE Standard Safety Levels With Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz IEEE-SA Standards Board

IEEE C95.3-2021, IEEE Recommended Practice for Measurements and Computations of Electric, Magnetic, and Electromagnetic Fields with Respect to Human Exposure to Such Fields, 0 Hz-300 GHz IEEE-SA Standards Board

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

<b>(A) Limits for Occupational/Controlled Exposure<sup>2</sup></b>				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f <sup>2</sup> )*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure<sup>3</sup></b>				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	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 2: FCC Limits for Maximum Permissible Exposure**

<sup>2</sup> 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.

<sup>3</sup> 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.

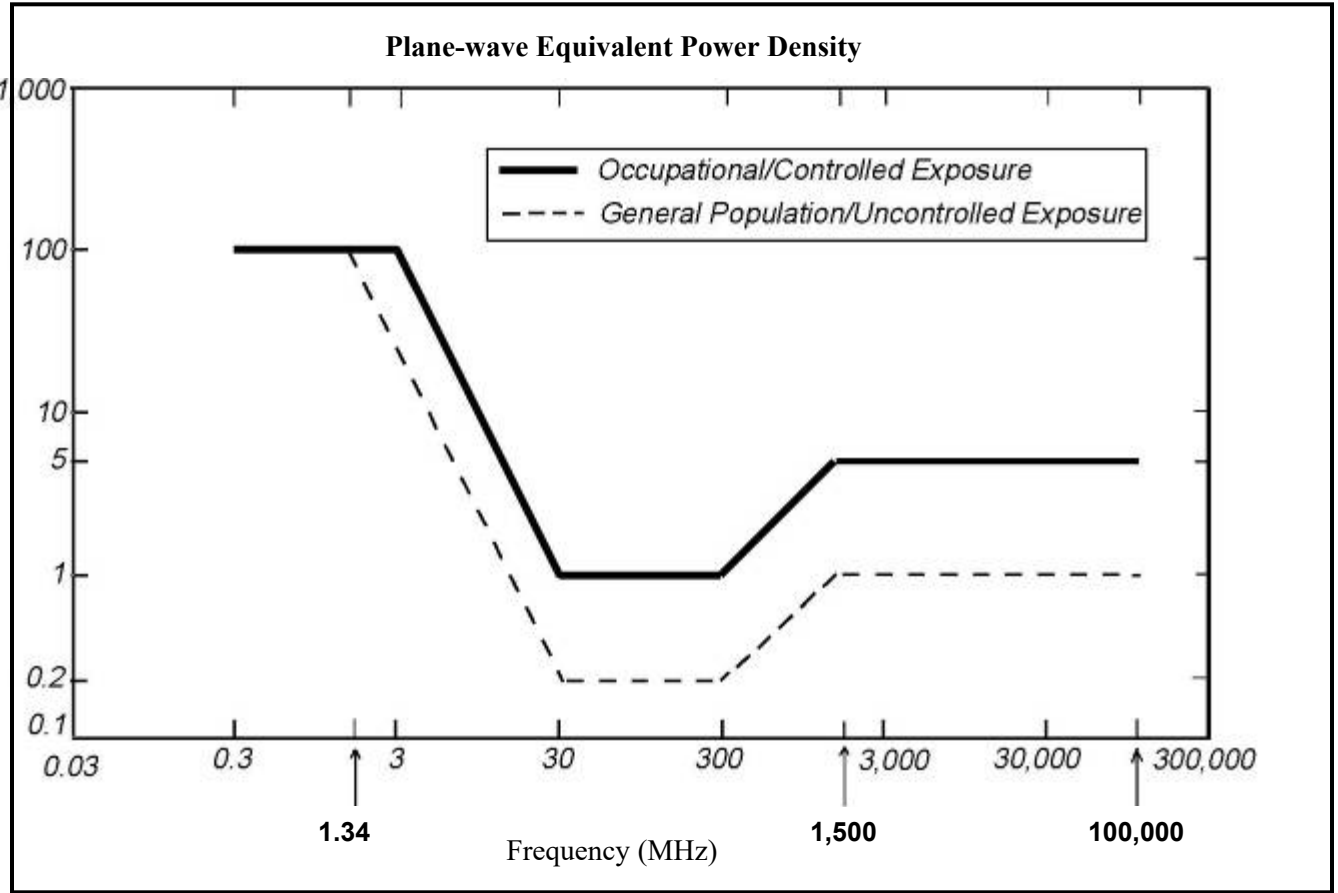
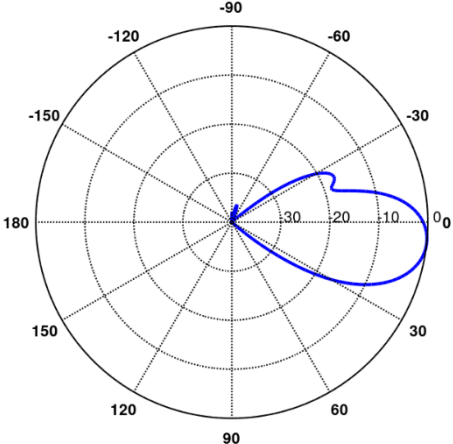
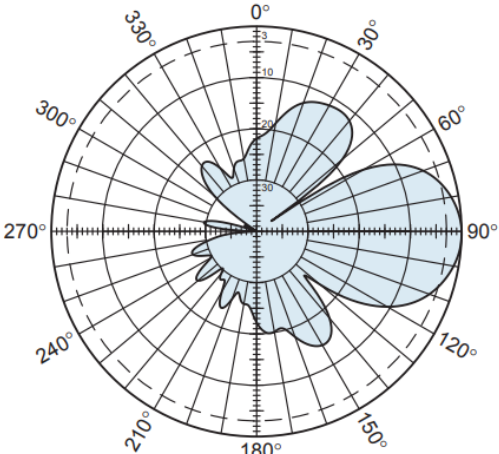
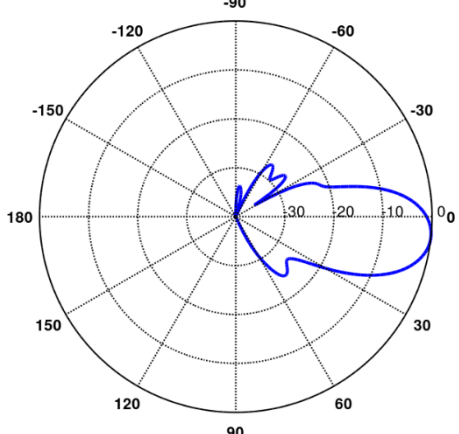
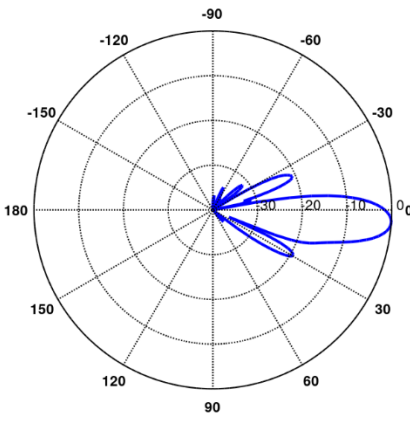
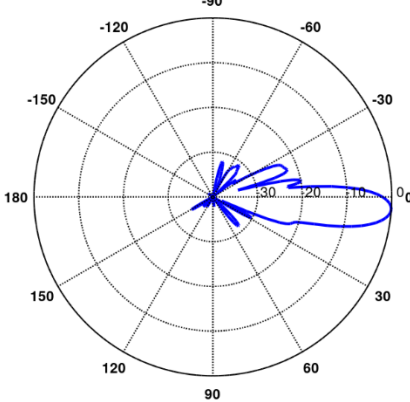
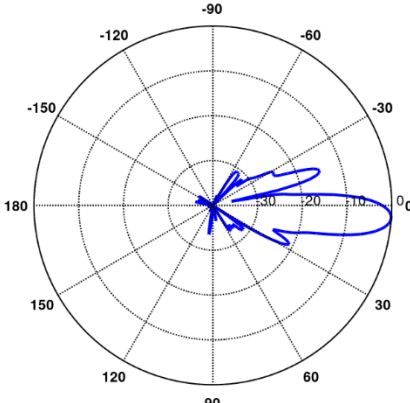


Figure 2: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

### Attachment C: AT&T Mobility Antenna Model Data Sheets and Electrical Patterns

<p><b>700 MHz</b></p> <p>Manufacturer: CCI            Model #: MBA10-6F-BU-H3            Frequency Band: 698-806 MHz            Gain: 19 dBi            Vertical Beamwidth: <math>5 \times 11.6^\circ</math>            Horizontal Beamwidth: <math>22.2^\circ</math>            Polarization: Dual Linear <math>\pm 45^\circ</math>            Size L x W x D: 40.8" x 83" x 11.3"</p>	
<p><b>700 MHz</b></p> <p>Manufacturer: Katherin            Model #: 840-10520            Frequency Band: 698-894 MHz            Gain: 10.8 dBi            Vertical Beamwidth: <math>36^\circ</math>            Horizontal Beamwidth: <math>72^\circ</math>            Polarization: <math>\pm 45^\circ</math>            Size L x W x D: 23.5" x 10.3" x 5.9"</p>	
<p><b>850 MHz</b></p> <p>Manufacturer: CCI            Model #: MBA10-6F-BU-H3            Frequency Band: 824-896 MHz            Gain: 19.7 dBi            Vertical Beamwidth: <math>5 \times 9.9^\circ</math>            Horizontal Beamwidth: <math>19.7^\circ</math>            Polarization: Dual Linear <math>\pm 45^\circ</math>            Size L x W x D: 40.8" x 83" x 11.3"</p>	

<p><b>1850-1990 MHz</b></p> <p>Manufacturer: CCI            Model #: MBA10-6F-BU-H3            Frequency Band: 1850-1990 MHz            Gain: 23.9 dBi            Vertical Beamwidth: 10 x 5.3°            Horizontal Beamwidth: 11.4°            Polarization: Dual Linear 45°            Size L x W x D: 40.8" x 83.0" x 11.3"</p>	
<p><b>2110-2180 MHz</b></p> <p>Manufacturer: CCI            Model #: MBA10-6F-BU-H3            Frequency Band: 2110-2180 MHz            Gain: 24.4 dBi            Vertical Beamwidth: 10 x 4.6°            Horizontal Beamwidth: 10.3°            Polarization: Dual Linear 45°            Size L x W x D: 40.8" x 83.0" x 11.3"</p>	
<p><b>2305-2360 MHz</b></p> <p>Manufacturer: CCI            Model #: MBA10-6F-BU-H3            Frequency Band: 2305-2360 MHz            Gain: 24.5 dBi            Vertical Beamwidth: 10 x 4.2°            Horizontal Beamwidth: 9.6°            Polarization: Dual Linear 45°            Size L x W x D: 40.8" x 83.0" x 11.3"</p>	

2024

# Proposed AT&T Supercolt

to be fine tuned with Daniel on day of deployment.

## Legend



43' Cable yellow jacket for power and fiber

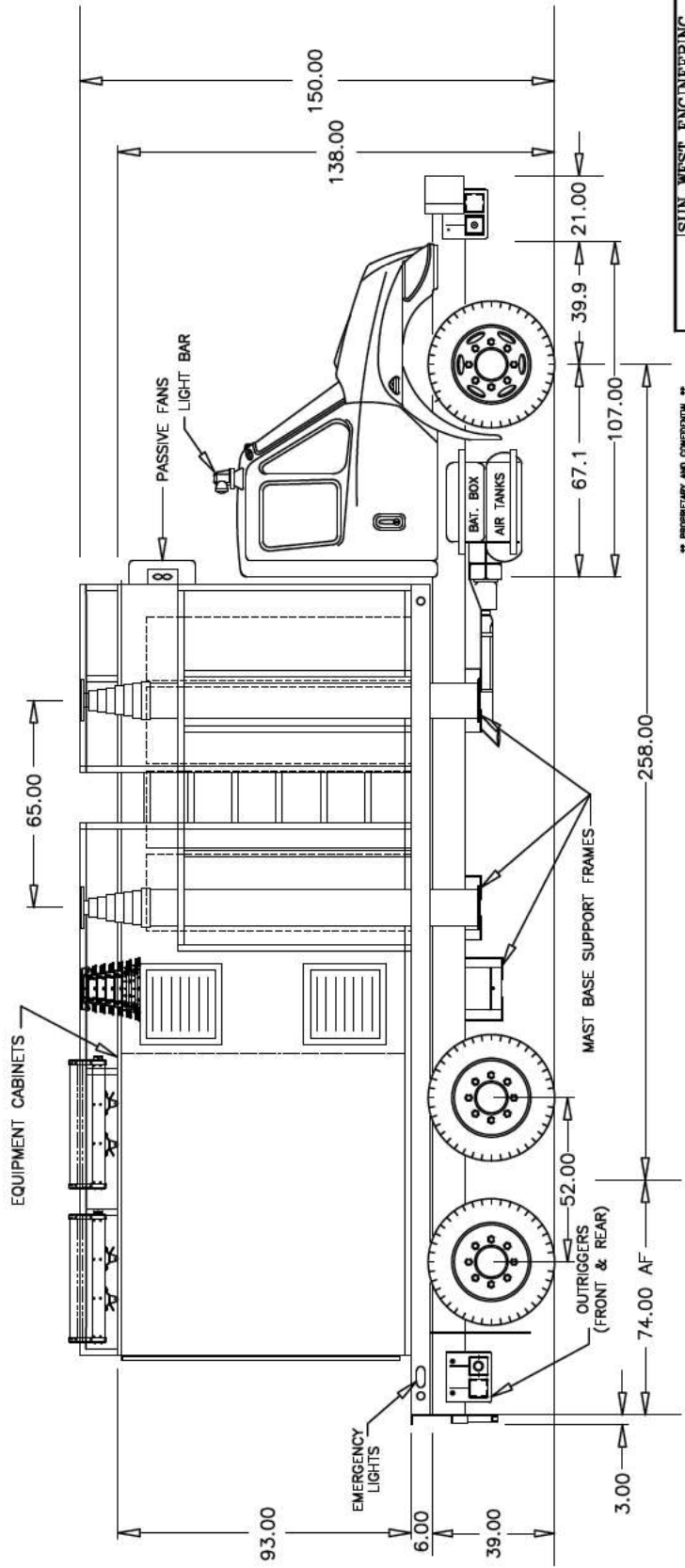
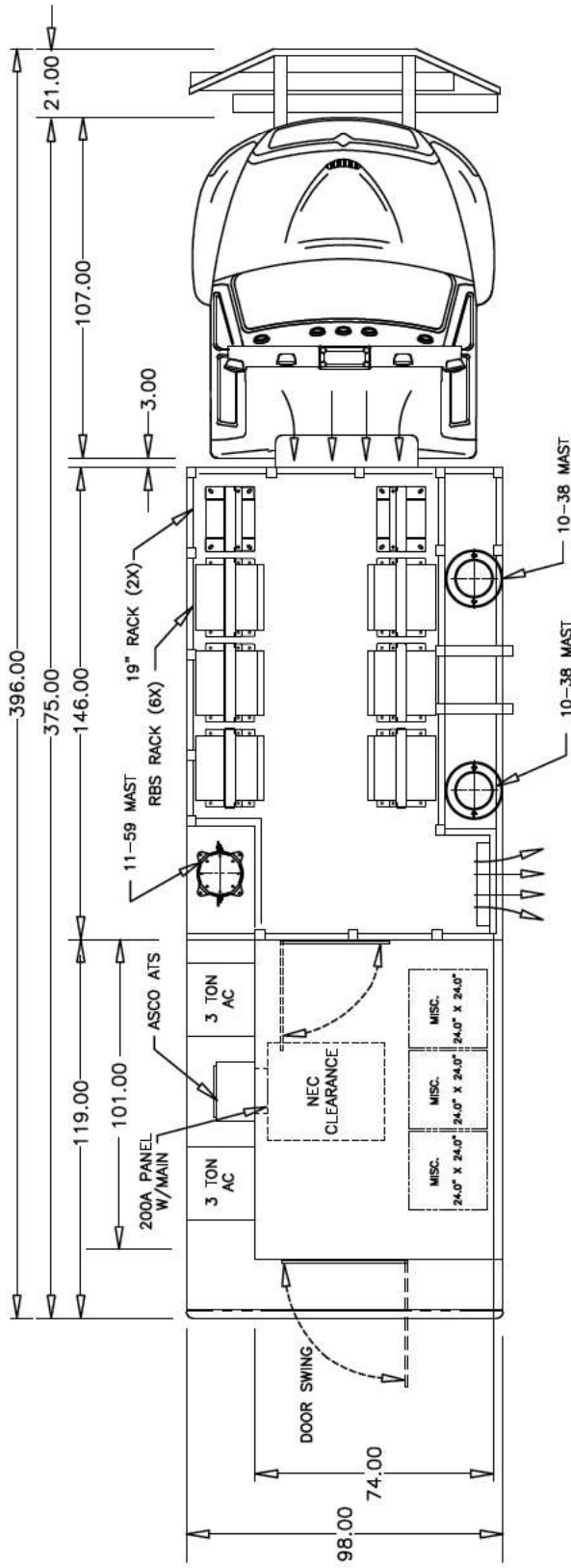


Supercolt outline









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**SUN WEST ENGINEERING, INC.**  
TITLE: INTERNATIONAL (MODEL 4300)  
TRUCK "COW W/ EQUIPMENT"  
CABINET

PLOT SCALE: 3000=1  
DRAWN BY: JZJ/M  
DATE DRAWN: 3-3-16  
REVISED: 3-18-16  
DWG. No. SW-5343R3

SHEET: 1 of 1





**Property Card: 24 TOWN HOUSE RD**  
Town of Durham, CT

NO PHOTO  
AVAILABLE

**Parcel ID:** 48-2+58  
**Account #:** D0079000

**Owner:** DURHAM AGRICULTURAL FAIR  
ASSOC

**Mailing Address:**  
PO BOX 225

DURHAM, CT 06422

**Land:**  
**Building:** \$1918000  
**Total:** \$2515900  
\$4433900

**Building Details**

**Card Number:**  
**Land Use Code:** 950  
**Year Built:**  
**Style:**  
**Units:** 1  
**SFLA:** 3162

**Exterior Wall:**  
**Bedrooms:**  
**Baths:**  
**Half Baths:**  
**Heating:**  
**Heating System:**  
**Fuel:**

**Card Number:**  
**Land Use Code:** 950  
**Year Built:**  
**Style:**  
**Units:** 1  
**SFLA:** 400

**Exterior Wall:**  
**Bedrooms:**  
**Baths:**  
**Half Baths:**  
**Heating:**  
**Heating System:**  
**Fuel:**



[www.cai-tech.com](http://www.cai-tech.com)

This information is believed to be correct but is subject to change and is not warranted.



**From:** auto-reply@usps.com  
**Sent:** Monday, June 3, 2024 5:18 PM  
**To:** Hollis Redding  
**Subject:** USPS® Expected Delivery by Thursday, June 6, 2024 arriving by 9:00pm 9405503699300691663941

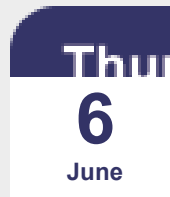


Hello **HOLLIS M REDDING**,

USPS is now in possession of your item as of 5:01 pm on June 3, 2024 in MERIDEN, CT 06450.

Tracking Number: [9405503699300691663941](#)

**Expected Delivery By**



**By 9:00pm**



**From:** auto-reply@usps.com  
**Sent:** Monday, June 3, 2024 5:18 PM  
**To:** Hollis Redding  
**Subject:** USPS® Expected Delivery by Thursday, June 6, 2024 arriving by 9:00pm 9405503699300691663958

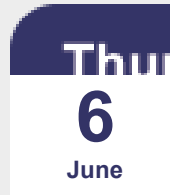


Hello **HOLLIS M REDDING**,

USPS is now in possession of your item as of 5:01 pm on June 3, 2024 in MERIDEN, CT 06450.

Tracking Number: [9405503699300691663958](#)

**Expected Delivery By**



**By 9:00pm**





UNITED STATES  
POSTAL SERVICE®

**Click-N-Ship®**

usps.com 9405 5036 9930 0691 6639 4 1 0098 5000 0020 6422

**\$9.85**

**US POSTAGE**

Flat Rate Env

**U.S. POSTAGE PAID**

Click-N-Ship®



06/03/2024

Mailed from 03079 986735531038833

**P**

**PRIORITY MAIL®**

HOLLIS M REDDING

SAI GROUP

12 INDUSTRIAL WAY

SALEM NH 03079-2837

Expected Delivery Date: 06/05/24

Ref#: CT2301COLT

**0003**

**R003**

BRENDAN REA 1ST SELECTMAN JOSEPH

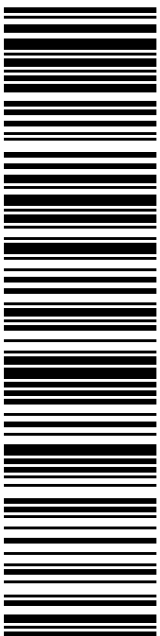
DURHAM TOWN HALL

30 TOWN HOUSE RD

DURHAM CT 06422-2118



**USPS TRACKING #**



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Electronic Rate Approved #038555749



UNITED STATES  
POSTAL SERVICE®

**Click-N-Ship®**

usps.com 9405 5036 9930 0691 6639 58 0098 5000 0020 6422

**\$9.85**

**US POSTAGE**

Flat Rate Env

**U.S. POSTAGE PAID**

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06/03/2024

Mailed from 03079 986735531038075

**P**

**PRIORITY MAIL®**

HOLLIS M REDDING

SAI GROUP

12 INDUSTRIAL WAY

SALEM NH 03079-2837

Expected Delivery Date: 06/05/24

Ref#: CT2301COLT

**0003**

**B002**

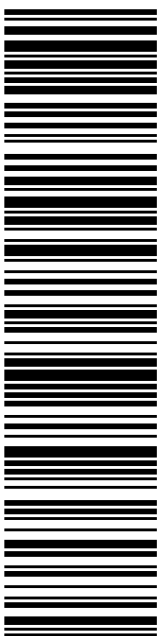
MR. DAN MIRAMANT  
DURHAM AGRICULTURAL FAIR ASSOC

PO BOX 225

DURHAM CT 06422-0225



**USPS TRACKING #**



**9405 5036 9930 0691 6639 58**

Electronic Rate Approved #038555749



Cut on dotted line.





UNITED STATES  
POSTAL SERVICE®

Click-N-Ship®

usps.com 9405 5036 9930 0691 6639 65 0101 5000 0020 6051

US POSTAGE

Legal Flat Rate®

U.S. POSTAGE PAID

Click-N-Ship®



06/03/2024

Mailed from 03079 986735531037280

**P**

**PRIORITY MAIL®**

HOLLIS M REDDING

SAI GROUP

12 INDUSTRIAL WAY

SALEM NH 03079-2837

Expected Delivery Date: 06/05/24

Ref#: CT2301COLT

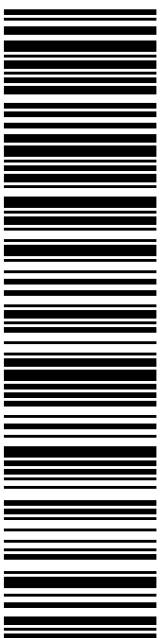
**0003**

**C006**



MELANIE BACHMAN EXECUTIVE DIRECTOR  
CT SITING COUNCIL  
10 FRANKLIN SQ  
NEW BRITAIN CT 06051-2655

**USPS TRACKING #**



**9405 5036 9930 0691 6639 65**

Electronic Rate Approved #038555749



Cut on dotted line.

