



Jesse A. Langer  
(t) 203.786.8317  
(f) 203.772.2037  
jlanger@uks.com

March 12, 2019

***VIA FEDERAL EXPRESS AND  
ELECTRONIC MAIL***

*Melanie.bachman@ct.gov*  
*Siting.council@ct.gov*

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

**Re: Petition of T-Mobile Northeast, LLC for a Declaratory Ruling that a  
Certificate of Environmental Compatibility and Public Need is not Required  
for the Modification of an Existing Rooftop Telecommunications Facility.**

Dear Attorney Bachman:

This office represents T-Mobile Northeast, LLC ("T-Mobile"). On behalf of T-Mobile, I have enclosed an original and fifteen (15) copies of the above-mentioned Petition for Declaratory Ruling as well as the filing fee related thereto.

Please do not hesitate to contact me with any questions.

Very truly yours,

Jesse A. Langer

Enclosures

**STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL**

**RE: PETITION OF T-MOBILE NORTHEAST, LLC FOR A  
DECLARATORY RULING THAT A CERTIFICATE OF  
ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED  
IS NOT REQUIRED FOR THE MODIFICATION OF AN EXISTING  
ROOFTOP TELECOMMUNICATIONS FACILITY**

**PETITION FOR DECLARATORY RULING**

**MARCH 12, 2019**

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## **ATTACHMENTS**

Attachment A – Site Plan

Attachment B – Antenna Specifications

Attachment C – Structural Analysis

Attachment D – Service List of Abutters and Sample Letter to Abutters

Attachment E – Service List of Municipal Officials and Government Agencies, with Letter to Host Municipality

Attachment F – Visual Assessment and Photo-Simulations

Attachment G – EME

Attachment H – FAA Compliance Report



**STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL**

PETITION OF T-MOBILE	:	MARCH 12, 2019
NORTHEAST, LLC FOR A	:	
DECLARATORY RULING THAT A	:	
CERTIFICATE OF ENVIRONMENTAL	:	
COMPATIBILITY AND PUBLIC NEED	:	
IS NOT REQUIRED FOR THE	:	
MODIFICATION OF AN EXISTING	:	
ROOFTOP TELECOMMUNICATIONS	:	
FACILITY	:	

**PETITION FOR DECLARATORY RULING**

In accordance with General Statutes § 4-176 (a), § 16-50k (a) and Regs., Conn. State Agencies § 16-50j-38 *et seq.*, T-Mobile Northeast, LLC (“T-Mobile”) respectfully seeks a declaratory ruling from the Connecticut Siting Council (“Council”) that a Certificate of Environmental Compatibility and Public Need is not required for the modification of an existing rooftop telecommunications facility (“Rooftop Facility”) presently located on the roof of the Connecticut Post Mall (“Mall”), located at 1201 Boston Post Road, Milford, Connecticut (“Property”).

**I. AUTHORITY FOR REQUESTED RELIEF**

General Statutes § 4-176 (a) provides that “[a]ny person may petition an agency . . . for a declaratory ruling as to the validity of any regulation, or the applicability to specified circumstances of a provision of the general statutes, a regulation, or a final decision on a matter within the jurisdiction of the agency.”<sup>1</sup> *Bingham v. Dept. of Public Works*, 286 Conn. 698, 706, 945 A.2d 927 (2008). The Council may approve a proposal concerning a telecommunications facility, or a modification to such a facility, by declaratory ruling if it determines that the

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<sup>1</sup> General Statutes § 4-166 (9) defines “person” to mean “any individual, partnership, corporation, limited liability company, association, governmental subdivision, agency or public or private organization of any character, but does not include the agency conducting the proceeding.”

proposal does not have a substantial adverse environmental effect in the State. General Statutes § 16-50k (a).

## **II. CONTACT INFORMATION**

T-Mobile is a limited liability company organized under the laws of the State of Delaware, and is duly registered with the State of Connecticut. All correspondence or communications may be addressed to T-Mobile's legal counsel as follows:

Jesse A. Langer  
Updike, Kelly & Spellacy, P.C.  
8 Frontage Road  
East Haven, CT 06512  
(203) 786-8317  
jlanger@uks.com

## **III. BACKGROUND**

### **A. The Property**

The Property is an existing commercial shopping mall, which is located off exit 39B of I-95 south. The Mall is situated on an approximate seventy-five (75) acre parcel in between Route 1 and I-95.

The Property is located in the City of Milford ("City") within a Shopping Center Design (SCD) District. An SCD District allows by special use a plethora of commercial, mixed use and multi-family dwelling units. Milford Zoning Regs., Art. III, § 3.9. The City's Plan of Conservation and Development ("POCD") characterizes the area surrounding the Mall as a "clearly established . . . regional commercial area. [The Mall] and numerous national retailers make this area a destination within the region." Milford POCD, p. 95 (December 2012). The POCD further states that the "future land use policy for this area should be to strengthen its regional development focus and to promote a mix of goods, services and amenities to continue

its strong market draw.” *Id.* The POCD also states that the City has a host of major utility facilities, which it should continue to support, and indicates further that the City hosts some cell and wireless services. *Id.*, p. 114.

The land uses immediately adjacent to the Property are incident to the existing heavy regional commercial corridor, with Route 1 serving as a primary artery for these commercial uses. There are residential areas beyond the immediate commercial corridor. Please see T-Mobile’s Site Plan, specifically Sheet C-1, which is appended hereto as Attachment A.

**B. The Existing Rooftop Facility**

The existing Rooftop Facility consists of six (6) panel antennas located on the lower roof of the Mall facing southeast and in the area above the Dave and Buster’s Restaurant, which is on the side of the Mall facing southeast in the approximate center of the Property. Three (3) of panel antennas are located on an existing pipe mast, along with three remote radio heads on the lower roof of the Mall (“Mast Installation”). These antennas extend to an approximate height of 18’-8” above the rooftop, approximately forty-five (45) feet above ground level (“AGL”). Three (3) more panel antennas are located on a frame slightly to the west on the lower roof (“Frame Installation”). These antennas extend twenty-five (25) feet above the rooftop, approximately forty-five (45) feet AGL. There is also one (1) flush mounted panel antenna to the side of the upper roof to the west of the Frame Installation and the Mast Installation. The flush mounted antenna is approximately forty-one (41) feet AGL. The associated equipment servicing these installations is situated in between the Frame Installation and the Mast Installation, with cabling routed to the flush mounted antenna. Please see Attachment A.

### **C. The Proposed Modification to the Existing Rooftop Facility**

As a wireless carrier licensed by the Federal Communications Commission (“FCC”), T-Mobile seeks out wireless sites that will meet its coverage and capacity objectives so that T-Mobile may provide reliable coverage throughout its network. T-Mobile has identified a need to modify the existing rooftop installation to address such coverage and capacity objectives in the area of the City proximate to the Property.

The proposed modification to the Rooftop Facility would include a total of twelve (12) panel antennas and four (4) remote radio units split over four (4) sectors on the roof of the Mall. All of the rooftop mounted antennas and associated appurtenances would be installed at roof level of the Mall, with the highest point of the antennas at approximately 52’4” feet AGL. The existing twenty-five (25) foot pipe mast for the Mast Installation would be replaced with a new twelve standard thirty (30) foot pipe mast and base frame. Please see Attachment A, Sheet S-1. The antennas would be flush mounted to the new pipe mast. Please see the antenna specifications appended hereto as Attachment B.

Utilities would be routed through the existing building via conduits within existing utility chases. The existing equipment would accommodate the additional antennas and radio heads. The modification to the existing Rooftop Facility would also fall well within the loading limits of the Mall and, accordingly, the proposal would be structurally sound. Please see the Structural Analysis appended hereto as Attachment C.

### **IV. NOTICE TO ABUTTERS, OFFICIALS AND AGENCIES**

In accordance with § 16-50j-40 of the Regulations of Connecticut State Agencies, on March 12, 2019, T-Mobile sent a notice of its intent to file this Petition, via certified mail, return receipt requested and regular mail, to each person appearing as a record owner of the properties



which abut the Property, each person appearing as the record owner of the properties on which the existing Rooftop Facility is located and the appropriate municipal officials and government agencies. A service list of abutters and a sample letter to the abutters are appended hereto as Attachment D. The service list of municipal officials and government agencies, as well as a copy of the letter sent to the host municipality, are appended hereto as Attachment E.

## **V. NO SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT**

The proposed modification to the Rooftop Facility would not have a substantial adverse environmental effect.

### **A. Environmental Effects**

The proposed modification to the existing Rooftop Facility would be located on the roof of the Mall, located in the City, in between Route 1 and I-95. As set forth in Part III.A, *supra*, the immediately surrounding area is a heavily developed regional commercial corridor and T-Mobile has submitted a proposal so as not to have a substantial adverse environmental effect.

### **B. Visual Effects**

The proposed modifications to the existing Rooftop Facility would not have any adverse visual effects. The proposed antennas would be flush mounted to the new pipe mast. The pipe mast would be painted a non-contrasting color. T-Mobile has proposed a wireless site which is visually responsible and takes into account the aesthetic of the surrounding area. Please see the visual assessment and photo-simulations, which are appended hereto as Attachment F.

### **C. Compliance with the FCC**

The proposed modification to the existing Rooftop Facility would comply with the limits for maximum permissible exposure (“MPE”) as promulgated by the FCC. Please see the Radio Frequency – Electromagnetic Energy Compliance Report appended hereto as Attachment G. As

the Report demonstrates, the proposed modification to the existing Rooftop Facility would be well below the MPE limits set by the FCC.

**D. Compliance with the Federal Aviation Authority**

The proposed modification to the Existing Rooftop Facility would not constitute a hazard to air navigation and otherwise require any additional measures or authorizations from the Federal Aviation Authority ("FAA"). Please see the FAA Compliance Report appended hereto as Attachment H.

**VI. CONCLUSION**

This Petition and the appended attachments demonstrate that the proposed modification to the existing Rooftop Facility would not have a substantial adverse environmental effect. Therefore, a Certificate of Environmental Compatibility and Public Need is not required in accordance with the General Statutes § 16-50k.

Respectfully submitted by,

T-MOBILE NORTHEAST LLC

By: 

Jesse A. Langer  
UPDIKE, KELLY & SPELLACY, P.C.  
8 Frontage Road  
East Haven, CT 06512  
(203) 786-8310  
Email: jllanger@uks.com

**ATTACHMENT A**

**SITE PLAN**

...T...Mobile...

## WIRELESS COMMUNICATIONS FACILITY

MILFORD / I-95 /1  
SITE ID: CT11002A  
1201 BOSTON POST ROAD  
MILFORD, CT 06460

### GENERAL NOTES

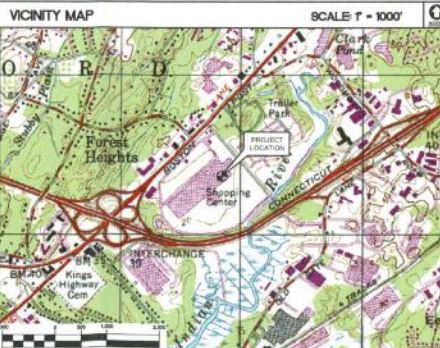
- ALL WORK SHALL BE IN ACCORDANCE WITH THE 2012 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2016 CONNECTICUT SUPPLEMENT, INCLUDING THE "A-10-222" DESIGN TO "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES". 2016 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
- CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
- CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
- CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
- CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
- CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
- LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
- THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WATERWAY SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
- DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
- ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
- ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONFLICTS PER NFPA'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
- ANY AND ALL ERRORS, DISCREPANCIES, AND "MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE T-MOBILE CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO "EXTRA" WILL BE ALLOWED FOR MISSED ITEMS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
- CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
- THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
- COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4435. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
- CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

### SITE DIRECTIONS

FROM: 35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002

TO: 1201 BOSTON POST ROAD  
MILFORD, CT 06460

- HEAD NORTH ON GRIFFIN ROAD S. TOWARD HARTMAN RD.
- TAKE THE 2ND RIGHT ONTO DAY HILL RD.
- MERGE ONTO I-91 S TOWARD HARTFORD
- KEEP RIGHT TOWARD NY CITY
- MERGE ONTO I-95 S TOWARD NY CITY/NY CITY
- MERGE ONTO BOSTON POST RD/US-1 N via EXIT 39B
- 1201 BOSTON POST ROAD IS ON THE RIGHT



### T-MOBILE RF CONFIGURATION

4Sec-792MEE\_3xAIR

### PROJECT SUMMARY

- THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNARMED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
  - RELOCATE (3) EXISTING PANEL ANTENNAS TO THE PROPOSED PIPE MAST ATTACHED TO THE EQUIPMENT STEEL DRAINAGE FRAME
  - INSTALL (3) PROPOSED PANEL ANTENNAS ON THE PROPOSED PIPE MAST ATTACHED TO THE EQUIPMENT STEEL DRAINAGE FRAME
  - REPLACE (1) PANEL ANTENNA (DELTA SECTION)
  - INSTALL (1) PANEL ANTENNA ON A PROPOSED PIPE MAST ATTACHED TO THE BUILDING FACADE (DELTA SECTION)
  - INSTALL (2) 8X12 HYBRID CABLES/ (1) TO PROPOSED PIPE MAST FOR (ALPHA/BETA/GAMMA) AND ONE (1) TO DELTA.

### PROJECT INFORMATION

SITE NAME: MILFORD / I-95 /1  
SITE ID: CT11002A  
SITE ADDRESS: 1201 BOSTON POST ROAD  
MILFORD, CT 06460  
APPLICANT: T-MOBILE NORTHEAST, LLC  
35 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002  
CONTACT PERSON: DAN RED (PROJECT MANAGER)  
TRANSCEND WIRELESS, LLC  
(203) 962-8291  
ENGINEER: CENTEX ENGINEERING, INC.  
63-2 NORTH BRANFORD RD.  
BRANFORD, CT 06408  
PROJECT COORDINATOR: LATITUDE: 41°-14'-11.80" N  
LONGITUDE: 73°-02'-02.58" W  
GROUND ELEVATION: 22.8' AMSL  
SITE COORDINATES AND GRADING ELEVATION  
RETAINED FROM GOOGLE EARTH.

### SHEET INDEX

SHT. NO.	DESCRIPTION	REV
T-1	TITLE SHEET	2
N-1	DESIGN BASIS AND SITE NOTES	2
C-1	SITE LOCATION PLAN	2
C-2	ROOF PLAN, ELEVATION AND ANTENNA MOUNTING CONF.	2
C-3	ANTENNA MOUNTING CONFIGURATION	2
S-1	ANTENNA MAINT DETAILS	2
E-1	TYPICAL ELECTRICAL DETAILS	2

DATE: 08/01/15	SCALE: AS NOTED	JOB NO.: 18127.08
TITLE SHEET		
T-1		
SHEET NO. 1 OF 1		

T-MOBILE NORTHEAST LLC  
WIRELESS COMMUNICATIONS FACILITY  
MILFORD / I-95 /1  
SITE ID: CT11002A  
1201 BOSTON POST ROAD (CT POST MALL)  
MILFORD, CT 06460

CENTEX ENGINEERING, INC.  
63-2 NORTH BRANFORD RD.  
BRANFORD, CT 06408  
www.centexeng.com

CONSTRUCTION DRAWINGS - REVIEWED FOR CLIENT COMMENTS  
DESIGN BASIS AND SITE NOTES - REVIEWED FOR CLIENT COMMENTS  
SITE LOCATION PLAN - REVIEWED FOR CLIENT COMMENTS  
ROOF PLAN, ELEVATION AND ANTENNA MOUNTING CONF. - REVIEWED FOR CLIENT COMMENTS  
ANTENNA MOUNTING CONFIGURATION - REVIEWED FOR CLIENT COMMENTS  
ANTENNA MAINT DETAILS - REVIEWED FOR CLIENT COMMENTS  
TYPICAL ELECTRICAL DETAILS - REVIEWED FOR CLIENT COMMENTS

PROFESSIONAL ENGINEER SEAL

PROFESSIONAL ENGINEER SEAL

PROFESSIONAL ENGINEER SEAL



COVERING CODE: 2012 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2016 CT STATE BUILDING CODE AND AMENDMENTS.

1. DESIGN CRITERIA:
  - WIND CATEGORY: II (BASED ON IRC TABLE 1604-5)
  - ULTIMATE DESIGN SPEED (OTHER STRUCTURES): 125 MPH (VAD) (EXPOSURE C/PROVIDED FACTOR 1.0 BASED ON ASCE 7-10) PER 2012 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2016 CONNECTICUT STATE BUILDING CODE
  - SEISMIC LOAD DOES NOT CONTROL: PER ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

1. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE

- [illegible]

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD).

- [illegible]



## BOSTON POST STREET:

- |   |  |
|---|--|
| A | 1354 BOSTON POST RD.<br>ALLIANCE ENERGY LLC<br>15 N. WORTHINGTON INDUSTRIAL<br>BRANDFORD, CT 06405                                     |
| B | 1338 BOSTON POST RD<br>HUNTER ROBERT JOHN<br>MA- 225 WOCCOUFFY RD<br>MILFORD, CT 06460   |
| C | 1330 BOSTON POST RD<br>MILFORD FOUR LLC<br>MA- 460 235 AV<br>EAST HAVEN, CT 06512  |
| D | 1308 BOSTON POST RD<br>MILFORD FOUR LLC<br>MA- 460 COE AV<br>EAST HAVEN, CT 06512  |
| E | 1282 BOSTON POST RD<br>BURGER KING CORPORATION<br>P O BOX 120783<br>MIAMI, FL 33102-0783   |
| F | 1371 BOSTON POST RD<br>CAPSTONE REE TRUSTEES OF THE<br>C/O HILLJL & ALBERCH P C<br>MA- P O BOX 4014<br>NEW HAVEN, CT 06525             |
| G | 1366 BOSTON POST RD<br>CAPSTONE REE TRUSTEES OF THE<br>C/O HILLJL & ALBERCH P C<br>MA- P O BOX 4014<br>NEW HAVEN, CT 06525             |
| H | 1250 BOSTON POST RD<br>1250 POST ROAD MILFORD LLC<br>C/O PHYLLIS ELLENBERGEN<br>MA- 411 WISSMUT CT<br>HENRIKOW, VA 23229               |
| I | 1212 BOSTON POST RD<br>1371 STATE MILFORD RD<br>C/O MATIONE ET AL<br>MA- 134-011 ZOTTA AV<br>COLLEGE POINT, NY 11358                   |
| J | 80 MILBURN AVE.<br>MILBURN HENRY S & JULIE & SUE<br>MA- 80 MILBURN AVE<br>MILBURN, CT 06460  |
| K | D BANNER DR<br>STATE OF CONNECTICUT<br>ACCOUNTS PAYABLE<br>MA- PO BOX 375648<br>BIRMINGHAM, CT 06131                                   |
| L | 1360 EAST TOWN RD<br>PECKED MILFORD LLC<br>C/O AFS LEASE ACCOUNTING<br>MA- P O BOX 6500<br>GARDEN, MA 01703-6500                       |
| M | 330 OLD GATE LN<br>TOTS R US PROPERTY COMPANY II<br>ATTN: TAC 0870<br>MA- 11 GIFFORD WAY<br>WATKIN, MA 02455                           |
| N | 0 OLD GATE LN<br>CONNECTICUT POST LIMITED PARTN<br>C/O HANFORD F POSEI & COMPANY<br>MA- 3520 PRESDONT RD NE STE 4<br>ATLANTA, GA 30305 |
| O | 0 OLD GATE LN<br>CONNECTICUT POST LTD PARTNERS<br>C/O HANFORD F POSEI & COMPANY<br>MA- 3520 PRESDONT RD NE STE 4<br>ATLANTA, GA 30305  |
| P | 0 OLD GATE LN<br>CITY OF MILFORD<br>MA- 120 WEST BROWN ST<br>MILFORD, CT 06460   |
| Q | 0 LEIGHTON RD.<br>0 LEIGHTON RD<br>SUNNY MANUFACTURING INC<br>MA- 1350 THERESAKE UNIT PH1<br>CHESHEDFORD, MA 03017                     |
| R | 42 HOME ACRES AVE<br>DORR P & LYNN L & SUE<br>MA- 42 HOME ACRES AVE<br>MILFORD, CT 06460   |
| S | 38 HOME ACRES AVE<br>DANIEL BRASSILL, SUE<br>MA- 38 HOME ACRES AVE<br>MILFORD, CT 06460  |
| T | 38 HOME ACRES AVE<br>EDUARDE J. SUTHERLAND & SONNY T<br>MA- 32 HOME ACRES AVE<br>MILFORD, CT 06460                                     |
| U | 28 HOME ACRES AVE<br>JOHN K RICHARDS & WINKENZA S<br>MA- 28 HOME ACRES AVE<br>MILFORD, CT 06460  |
| V | 1003 BOSTON POST RD.<br>MA- 132-119 METROPOLITAN AV<br>GARDEN, NY 11418  |

EDUCATIONAL QUALIFICATIONS

**T-Mobile**

[illegible]

800/777-5555

T-MODI E MODIFICAZIONI

WIRELESS COMMUNICATIONS FACILITY  
MILFORD / I-95 / 1

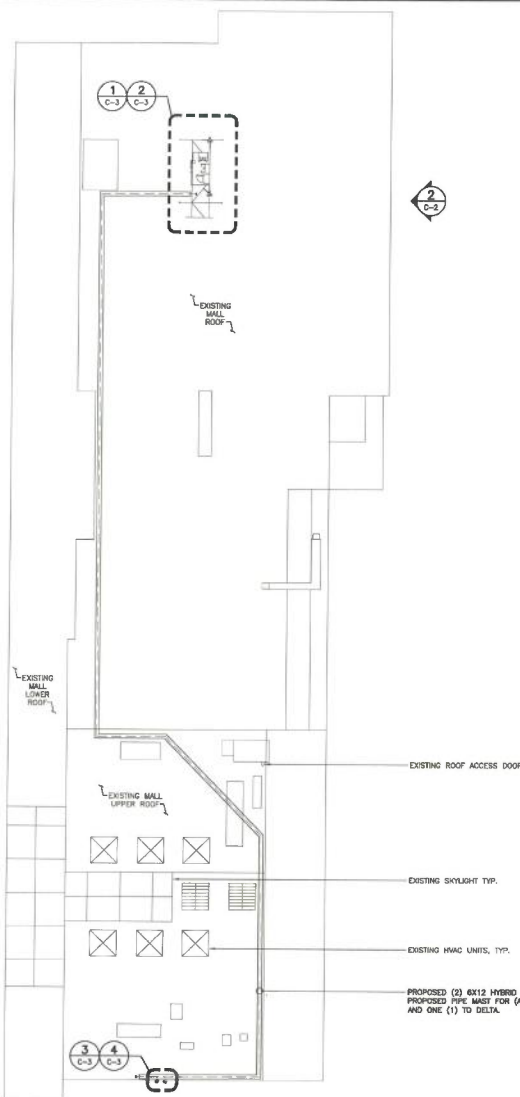
DATE:	06/01/18
SCALE:	AS NOTED
JOB NO.	18127.06

SITE LOCATION

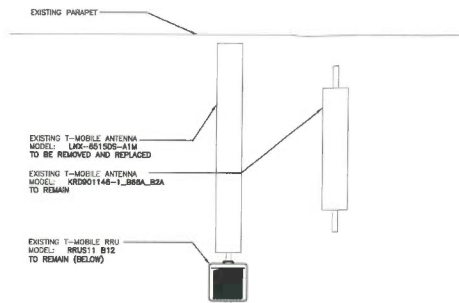
SITE LOCATION  
PLANSITE LOCATION  
PLAN

C-1

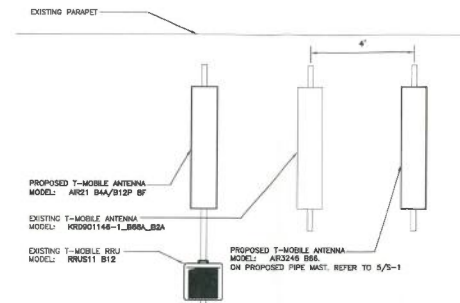
Sheet No. 3 of 7



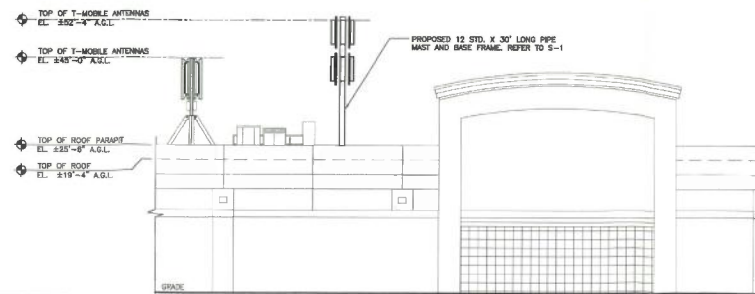
1 ROOF PLAN  
C-2  
SCALE: 1" = 25'



3 EXISTING ANTENNA MOUNTING ELEVATION  
C-2  
SCALE: 1/2" = 1'  
(DELTA SECTOR) 4T ELEVATION

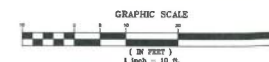


4 PROPOSED ANTENNA MOUNTING ELEVATION  
C-2  
SCALE: 1/2" = 1'  
(DELTA SECTOR) 4T ELEVATION



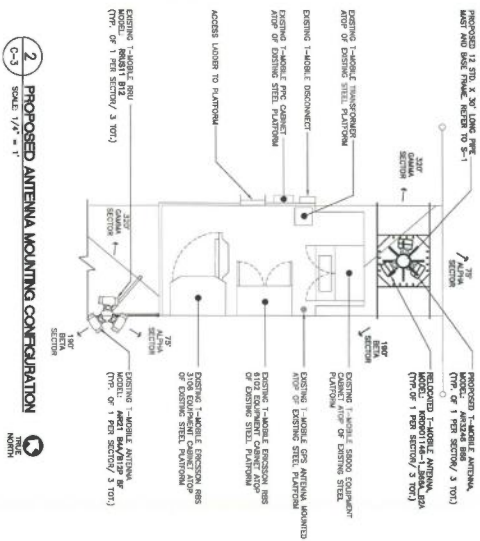
2 NORTHEAST ELEVATION  
C-2  
SCALE: 1" = 10'

STRUCTURAL NOTE:  
REFER TO STRUCTURAL ANALYSIS  
REPORT AS PREPARED BY CENTEK  
ENGINEERING INC.  
DATED: 08/10/18  
PROJECT NUMBER: 18127.08

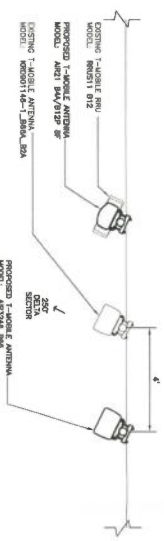


T-MOBILE NORTHEAST LLC WIRELESS COMMUNICATIONS FACILITY MILFORD / I-95 / 1 SITE ID: CT1002A 1201 BOSTON POST ROAD (CT POST MALL) MILFORD, CT 06460		DATE: 08/01/18 SCALE: AS NOTED JOB NO.: 18127.08 ROOF PLAN ELEVATION AND ANTENNA MOUNTING CONFIG
<p>CONSTRUCTION PACKAGE - REVIEWED FOR CLIENT COMMENTS</p> <p>PERMITS PACKAGE - REVIEWED FOR CLIENT COMMENTS</p> <p>ISSUED FOR CONSTRUCTION</p> <p>PREPARED FOR: T-MOBILE</p> <p>PREPARED BY: CENTEK ENGINEERING INC.</p> <p>DATE: 08/01/18</p> <p>SCALE: 1/2" = 1'</p> <p>PROJECT: 18127.08</p> <p>SHEET: 1 OF 2</p>		<p>PROFESSIONAL ENGINEER SEAL</p> <p>DATE: 08/01/18</p> <p>PROJECT: 18127.08</p> <p>SHEET: 1 OF 2</p>





2 PROPOSED ANTENNA MOUNTING CONFIGURATION  
C-3 SCALE 1/4" = 1'



4  
C-3

PROPOSED ANTENNA MOUNTING CONFIGURATION

SCALE: 1/2" = 1'

(DELTA SECTOR) AT ELEVATION

THREE NORTH

C-3

ANTENNA  
MOUNTING CONFIG

**T-MOBILE NORTHEAST LLC**

WIRELESS COMMUNICATIONS FACILITY

**MILFORD / I-95 / 1**

**SITE ID: CTH002A**

**1201 BOSTON POST ROAD (CT POST MALL)**

**MILFORD, CT 06460**

DATES: 06/17/10  
 DATES: 12/11/10  
 DATES: 06/10/10

7301 488-2500  
 300 488-8307 Fax  
 432 Northland Road  
 Norwalk, CT 06852  
[www.Centelisting.com](http://www.Centelisting.com)

Central ex Solutions™

PROFESSIONAL GAINED ROL

REV.	DATE	ISSUED BY	DESCRIPTION
1	02/19/11	LSK	CAS
2	12/11/10	KWJH	CAS
3	06/17/10	ABC	TAL
4	06/10/10	ABC	TAL

02/19/11

12/11/10

06/17/10

06/10/10

CAS

CAS

TAL

TAL

CAS

CAS

TAL

TAL

CONSTRUCTION SERVICES - ISSUED PER CLIENT COMMENTS

CONSTRUCTION SERVICES - ISSUED PER CLIENT COMMENTS

ISSUED FOR CONSTRUCTION

PRELIMINARY Cols - ISSUED FOR CLIENT REVIEW





**ATTACHMENT B**  
**ANTENNA SPECIFICATIONS**

# AIR 3246 update 12/18 - 17

Kenth Höglund – AIR3246 product manager  
Evangelos Paravalos – PjM RAN SW development Ottawa R&D

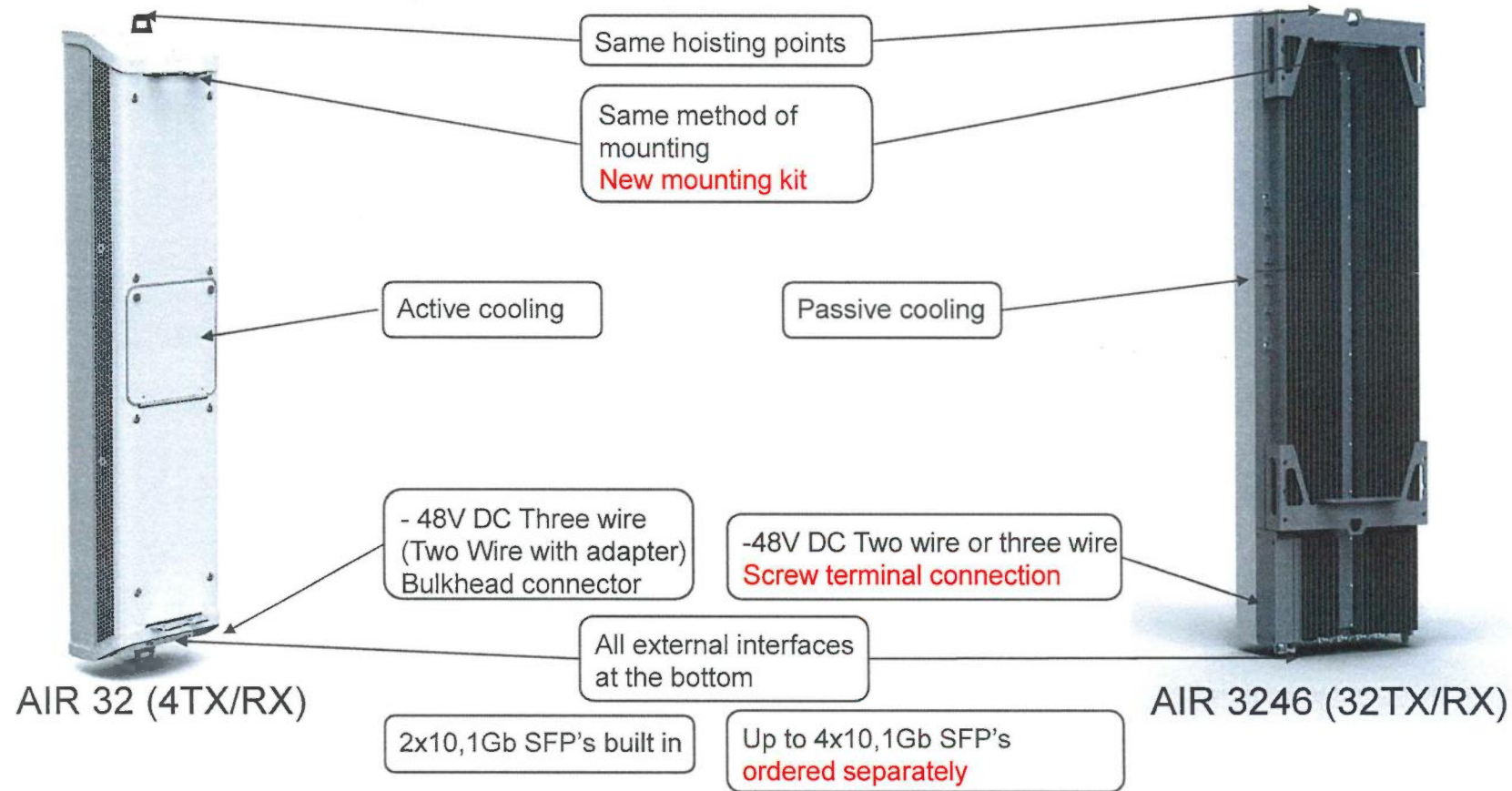


# Agenda



- › AIR3246 site considerations
- › AIR3246 specifications
- › FD-MIMO dual band

# Installation Comparison



# POWER SYSTEM ON RAIL

## POWER 6302 & BATTERY 6312/13

**Power:** AC input 172-275VAC, 50-60 Hz, 2.3 kW DC -48V output power

**Battery:** Capacity dimensioned for typical 10 and 50 minutes back-up time for 2kW user load

Lithium-Ion: Long battery lifetime

**All:**

O&M monitoring integrated

Ericsson Rail mounting

Convection cooled

IP 65

Battery  
on Rail





# POWER 6303

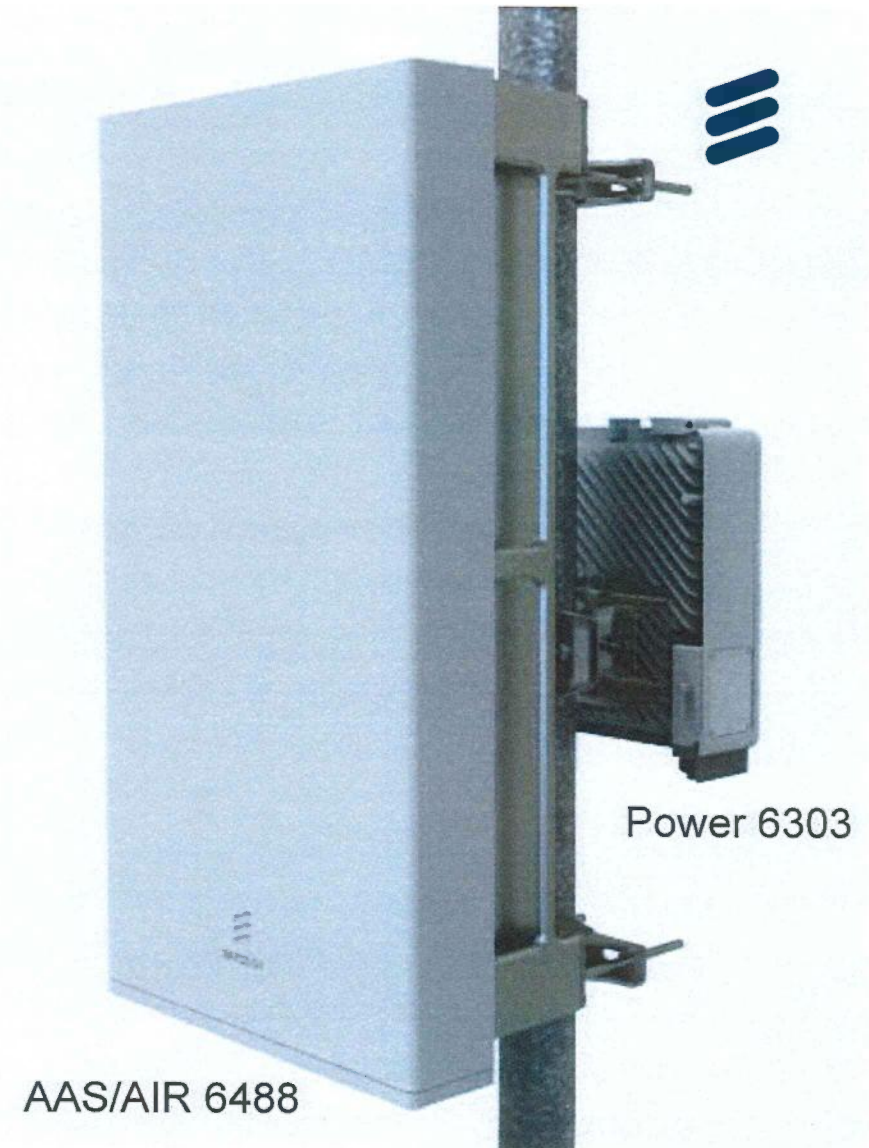
## - 2KW FOR ERS RADIOS

### › Rationale

- Enable AC/400 VDC feed to new Air radio units that do not have internal AC/DC conversion

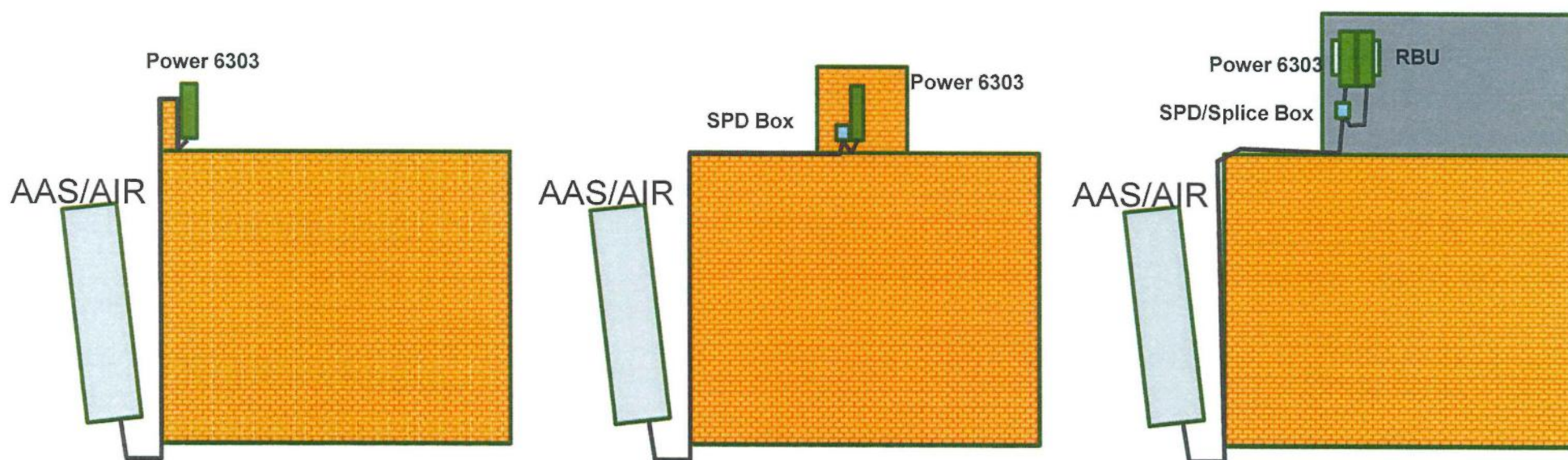
### › Product overview:

- 2 kW output power
- › One output with shielded 2x10mm<sup>2</sup> cable
- › Power input “connector”, hatch and screw terminal



# POWER 6303

## - INSTALLATION EXAMPLES WALL/ROOF



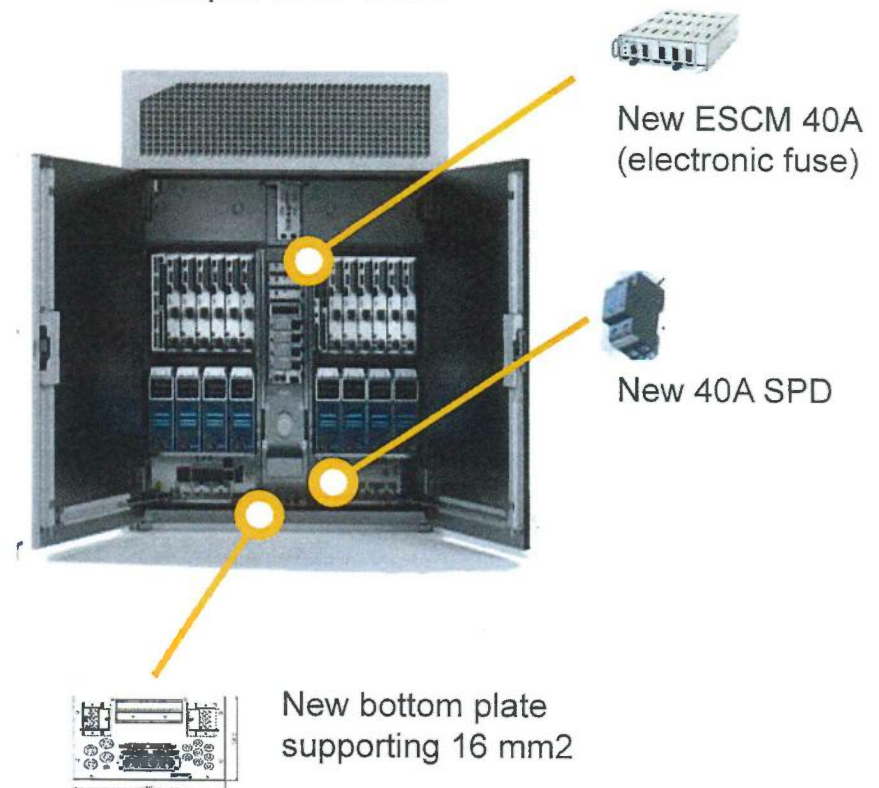


# 6K POWER EXPANSION FOR 5G RADIOS

- › Enable larger cables, new cable inlet components
- › New components for higher current, SPD and distribution unit
- › Allow a larger voltage drop over the distribution cable (reduce cost for installation material)



Example RBS 6102

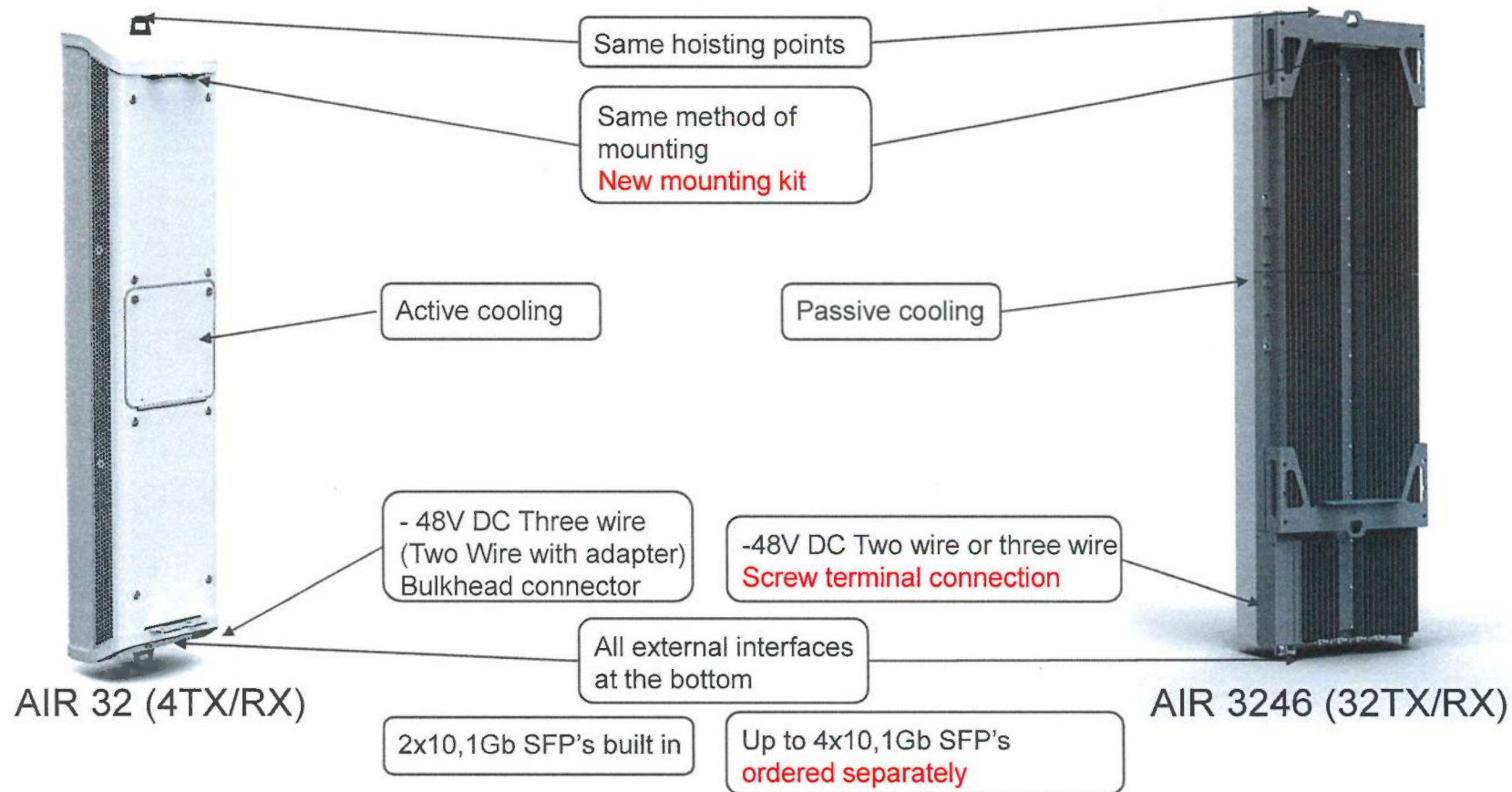


# Agenda



- › AIR3246 site considerations
- › AIR3246 specifications
- › FD-MIMO dual band

# Installation Comparison





# AIR 3246 BAND 66 (1/2)



## › Radio

- 32 TX/RX
- 90 MHz IBW
- 60 MHz LTE CBW
- Up to 3 carriers LTE
- 160 W total RF conducted power

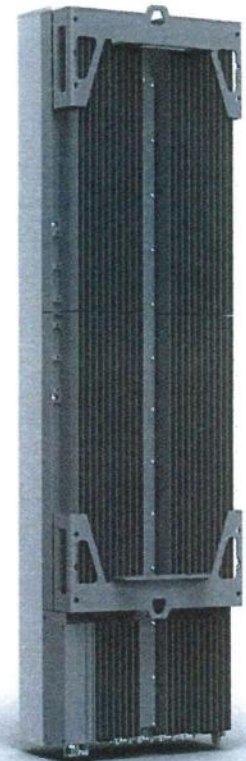
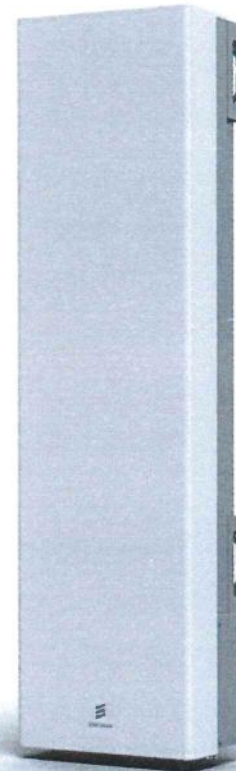
## › Baseband interface 4 x 10.1 Gbps CPRI

## › Mechanical properties

- Size (H x W x D): 1475x400x238 mm
- Weight : 81 Kg (estimated)

## › Power

- -48v DC, 3 wire or 2 wire
- Max Power consumption: < 1350 w (estimated)
- 120/230 VAC via supervised external PSU

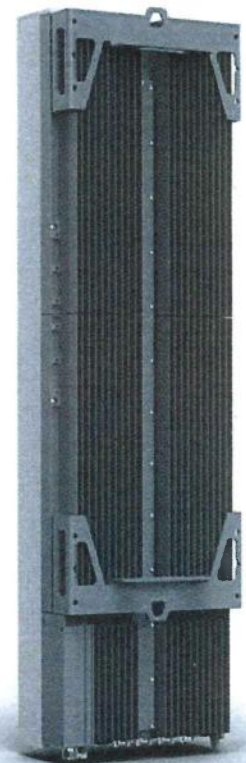
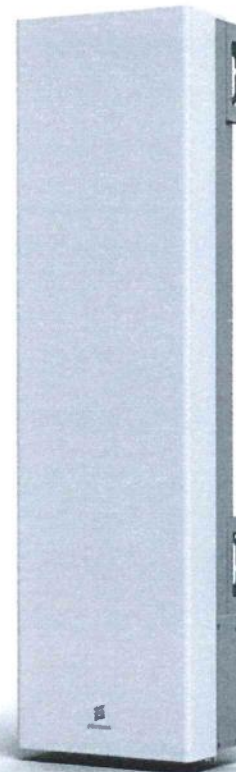


# AIR 3246 BAND 66 (2/2)



## › Antenna and beamforming properties

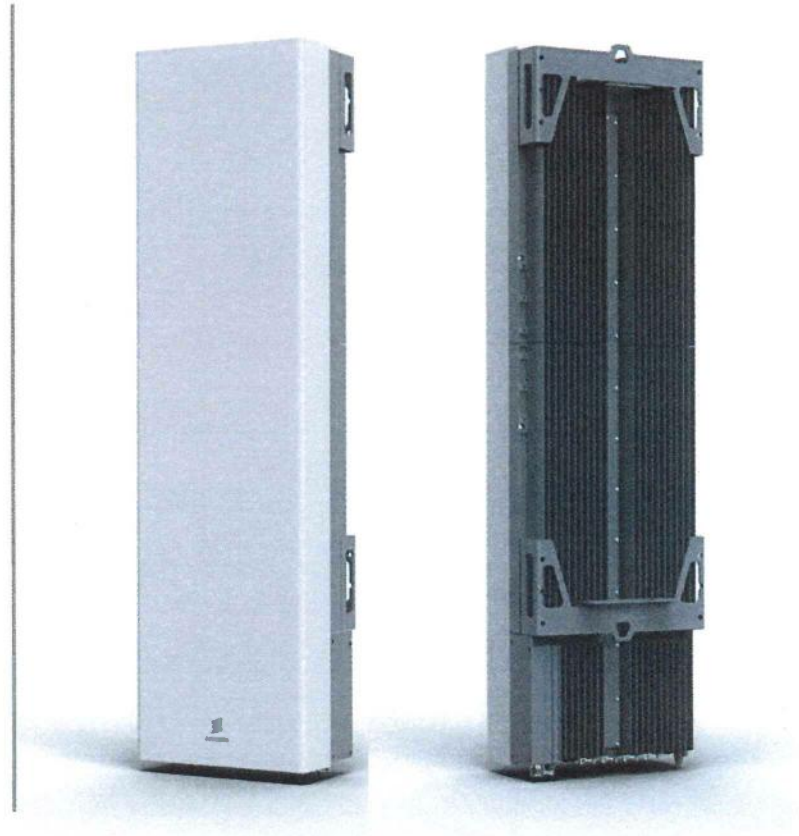
- 96 X-polarized elements split by..
  - 4 rows and 4 columns of subarrays
  - Subarrays 3x1 X-pol element.
- Beamforming capabilities. SW defined by baseband functionality.  
For legacy terminals with capability of reporting 4 CSI or less, static cell specific beamforming selectable from a range of predefined patterns.  
For terminals capable of reporting 8 or more, CSI precoder based user specific beamforming according to 3GPP up to Release 14.
- Broadcast beam, typical values
  - › Horiz. HPBW 65 degrees
  - › Vert. HPBW 6 degrees
  - › Gain 18 dBi
  - › Downtilt 2-12 degrees
- Traffic beams, typical values
  - › Horiz. HPBW 24 degrees
  - › Vert. HPBW 6 degrees
  - › Gain 23 dBi
  - › Horizontal pointing range +/-53 degrees
  - › Vertical pointing range: Up 5 deg, down 19 degrees



# AIR 3246 BAND 25



- › 32 TX/RX
- › 160 W total RF output power
- › EIRP CRS Beam 70dBm
- › 65 MHz IBW
- › 60 MHz LTE CBW
- › 4 x 10.1 Gbps CPRI
- › Size (H x W x D): 1475x400x238 mm
- › Weight : 81 Kg (estimated)
- › -48v DC, 3 wire or 2 wire
- › Max Power consumption: < 1440 w
- › 120/230 VAC via external PSU
- › Availability Q4-2018



# Supported Beams (Preliminary)



- › TM4 and common channels:
  - MACRO (default = DUALPOLARIZED65 which is EB)
  - MACRO2 (default = SECTORIZED1 which is MB6)
  - MACRO\_NARROW (default = NARROW which is narrow beam)
  - MACRO\_WIDE (default = BROAD which is broad beam)
  
- › TM9 and CSI-RS (not configurable)
  - Always default to broad beam

# Agenda



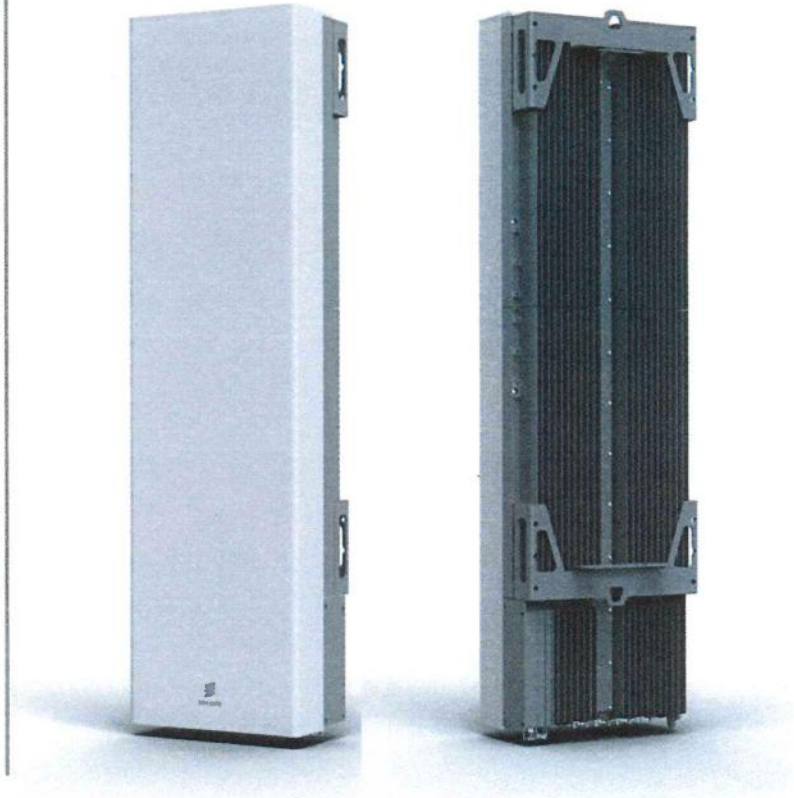
- › AIR3246 site considerations
- › AIR3246 specifications
- › FD-MIMO dual band



# AIR 3246 DUAL BAND



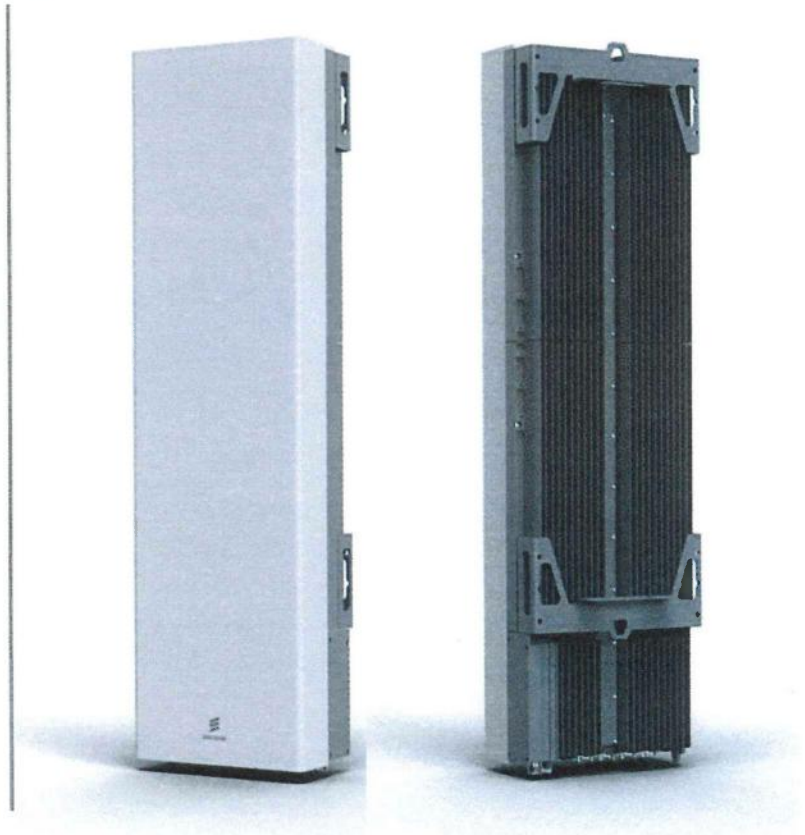
- › 32 TX/RX per band
- › Frequency bands: B66/B25
- › 320 W total RF output power
- › 90/65 MHz IBW
- › 60 MHz LTE CBW / Band
- › Interface: 4 x 25Gb CPRI
- › Size (H x W x D): 1475x400x300 mm (estimated)
- › Weight : TBD Kg
- › -48v DC, 3 wire or 2 wire
- › Optional 120/240 VAC
  
- › Target availability late Q4-2019



# AIR 88XX DUAL BAND



- › 8 TX/RX per band
- › Frequency bands: B66/B25
- › 320 W total RF output power
- › 90/65 MHz IBW
- › 60 MHz LTE CBW / Band
- › Interface: 4 x 10,1Gb CPRI
- › Size (H x W x D): 1475x400x238 mm (estimated)
- › Weight : TBD Kg
- › -48v DC, 3 wire or 2 wire
- › 120/230 VAC via external PSU
- › Target availability Q3-2019





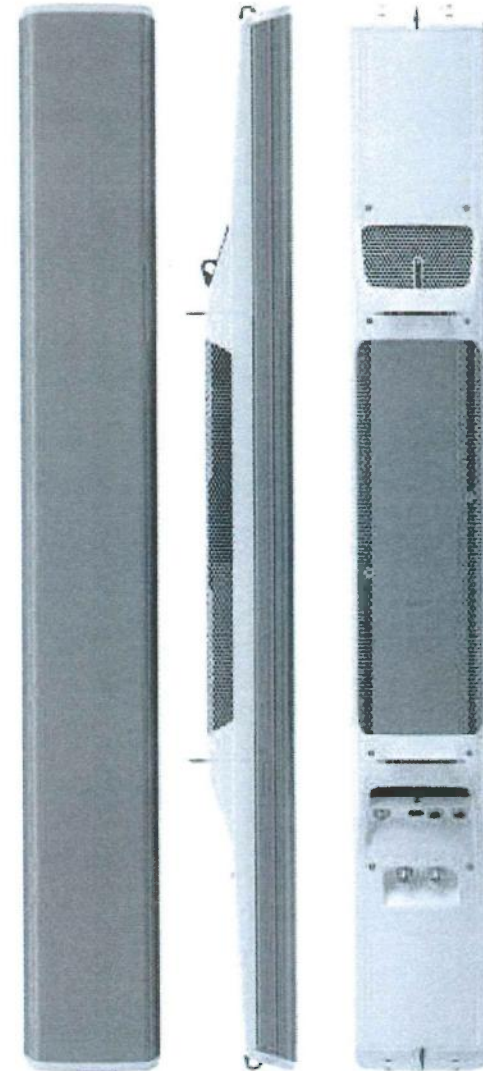
**ERICSSON**



# 8FT, AWS ACTIVE AIR 21 B4A/B12P-B5P, 8 FT (KRC 118 048/1)



- › Frequency bands:
  - AWS (1700/2100 MHz) active 2TX/4RX dual X-pol vert. stacked
  - 698 MHz - 894 MHz passive single X-pol.
- › IBW (active part) = 20 MHz
- › Gain (active/passive): 18/16 dB (15.7 on A block)
- › Horiz. beamwidth (active/passive): 61°/68°
- › Vertical beamwidth (active/passive): 7°/9°
- › Integrated RET (AISG 2.0)
- › Interfaces
  - Two optical fiber ports (CPRI) for active antenna/radio
  - One power connector, -48 V DC
  - Two 7/16 female connectors for passive antenna, with RET support
- › Dimensions (H x W x D): 8.0' x 12.1" x 8.7"
- › Weight: ~126 lbs
- › Wind load: 1370 N @ 94 miles/hr



**ATTACHMENT C**  
**STRUTURAL ANALYSIS**

**Structural Analysis Report**

*Antenna Pipe Mast*

*Proposed T-Mobile  
Antenna Upgrade*

*T-Mobile Site Ref: CT11002A*

*1201 Boston Post Road  
Milford, CT*

*CEN TEK Project No. 18127.08*

*Date: August 9, 2018*



**Prepared for:**

*T-Mobile USA  
35 Griffin Road  
Bloomfield, CT 06002*

## **Table of Contents**

### **SECTION 1 - REPORT**

- INTRODUCTION
- ANTENNA AND APPURTENANCE SUMMARY
- PRIMARY ASSUMPTIONS USED IN THE ANALYSIS
- ANALYSIS
- STRUCTURE LOADING
- RESULTS
- CONCLUSION

### **SECTION 2 – CONDITIONS & SOFTWARE**

- STANDARD ENGINEERING CONDITIONS
- GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

### **SECTION 3 – CALCULATIONS**

- WIND LOADING
- RISA3D – ANTENNA MOUNT MEMBER FRAMING
- RISA3D – ANTENNA MOUNT REPORT
- RISA3D – UNITY CHECK

### **SECTION 4 – REFERENCE MATERIAL**

- RF DATA SHEET
- ANTENNA CUT SHEETS

## Introduction

The purpose of this report is to summarize the results of the non-linear, P- $\Delta$  structural analysis of the antenna upgrade proposed by T-Mobile on the existing roof mounted antenna masts located in Milford, Connecticut.

The host structure is a roof mounted steel equipment platform with two (2) existing antenna pipe masts along with façade mounted pipe masts at the Delta sector.

## Antenna and Appurtenance Summary

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

- **T-Mobile (Existing to Remain – Alpha, Beta & Gamma Sectors):**  
**Antennas:** Three (3) AIR21 B4A/B12P (8-ft) panel antennas and three (3) Ericsson RRUS-11 B12 remote radio units mounted on one (1) existing pipe mast attached to the equipment platform steel dunnage frame with a RAD center elevation of +/- 41-ft AGL.
- **T-Mobile (Existing to Relocate – Alpha, Beta & Gamma Sectors):**  
**Antennas:** Three (3) Ericsson KRD901146 (AIR32) panel antennas to be relocated to the proposed pipe mast attached to the equipment platform steel dunnage frame with a RAD center elevation of +/- 50-ft AGL.
- **T-Mobile (Proposed – Alpha, Beta & Gamma Sectors):**  
**Antennas:** Three (3) Ericsson AIR3246 B66 panel antennas mounted on the proposed pipe mast attached to the equipment platform steel dunnage frame with a RAD center elevation of +/- 43-ft AGL.
- **T-Mobile (Existing to Remain – Delta Sector):**  
**Antennas:** One (1) Ericsson KRD901146 (AIR32) panel antenna and one (1) Ericsson RRUS-11 B12 remote radio mounted on an existing pipe mast attached to the building façade with a RAD center elevation of +/- 41-ft AGL.
- **T-Mobile (Existing to Remove – Delta Sector):**  
**Antennas:** One (1) Andrew LNX-6515DS panel antenna mounted on an existing pipe mast attached to the building façade with a RAD center elevation of +/- 41-ft AGL.
- **T-Mobile (Proposed – Delta Sector):**  
**Antennas:** One (1) AIR21 B4A/B12P (8-ft) panel antenna and one (1) Ericsson AIR3246 B66 mounted on one (1) existing and one (1) proposed pipe masts attached to the building façade with a RAD center elevation of +/- 41-ft AGL.



### Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents or reinforcement drawings.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- All coax cables to be installed as indicated in this report.

### Analysis

The existing antenna support mounts were analyzed using a comprehensive computer program titled Risa3D. The program analyzes the antenna mounts, considering the worst case loading condition. The antenna support mounts were considered to be loaded by concentric forces along the pipe masts, and the model assumes that the members are subjected to bending, axial, and shear forces.

**CEN TEK** Engineering, Inc.  
Structural Analysis – Structural Analysis  
T-Mobile Site Ref. ~ CT11002A  
Milford, CT  
August 9, 2018

## Structure Loading

Loading was determined per the requirements of the 2012 International Building Code as modified by the 2016 CT State Building Code and ASCE 7-10 "Minimum Design Loads for Buildings and Other Structures".

Wind Speed: Milford;  $v = 125$  mph (Risk Cat 2) [Appendix N of the 2016 CSBC]

## Results

Antenna mast stresses were calculated utilizing the structural analysis software Risa-3D.

- Calculated stresses were found to be within allowable limits.

Component	Stress Ratio (percentage of capacity)	Result
Proposed	39.7%	PASS


## Conclusion

This analysis shows that the subject antenna mast **is adequate** to support the proposed modified antenna configuration.

The analysis is based, in part, on the information provided to this office by T-Mobile. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:

  
Timothy J. Lynn, PE  
Structural Engineer



**CEN TEK** Engineering, Inc.  
Structural Analysis – Structural Analysis  
T-Mobile Site Ref. ~ CT11002A  
Milford, CT  
August 9, 2018

*Standard Conditions for Furnishing of  
Professional Engineering Services on  
Existing Structures*

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the "as new" condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Subject:

Wind Load on Equipment per ASCE 7-10

Location:

Milford, CT

Rev. 0: 8/9/18

Prepared by: T.J.L.; Checked by: C.F.C.  
 Job No. 18127.08

**Design Wind Load on Other Structures:**

(Based on IBC 2012, CSBC 2016 and ASCE 7-10)

Wind Speed =	V := 125	mph	(User Input)	(CSBC Appendix-N)
Risk Category =	BC := II		(User Input)	(IBC Table 1604.5)
Exposure Category =	Exp := C		(User Input)	
Height Above Grade =	Z := 50	ft	(User Input)	
Structure Height =	Height := 6	ft	(User Input)	
Horizontal Dimension of Structure =	Width := 1	ft	(User Input)	

Terrain Exposure Constants:

Nominal Height of the Atmospheric Boundary Layer =

$$z_g := \begin{cases} 1200 & \text{if } \text{Exp} = B = 900 \\ 900 & \text{if } \text{Exp} = C \\ 700 & \text{if } \text{Exp} = D \end{cases} \quad (\text{Table 26.9-1})$$

3-Sec Gust Speed Power Law Exponent =

$$\alpha := \begin{cases} 7 & \text{if } \text{Exp} = B = 9.5 \\ 9.5 & \text{if } \text{Exp} = C \\ 11.5 & \text{if } \text{Exp} = D \end{cases} \quad (\text{Table 26.9-1})$$

Integral Length Scale Factor =

$$I := \begin{cases} 320 & \text{if } \text{Exp} = B = 500 \\ 500 & \text{if } \text{Exp} = C \\ 650 & \text{if } \text{Exp} = D \end{cases} \quad (\text{Table 26.9-1})$$

Integral Length Scale Power Law Exponent =

$$E := \begin{cases} \frac{1}{3} & \text{if } \text{Exp} = B = 0.2 \\ \frac{1}{5} & \text{if } \text{Exp} = C \\ \frac{1}{8} & \text{if } \text{Exp} = D \end{cases} \quad (\text{Table 26.9-1})$$

Turbulence Intensity Factor =

$$c := \begin{cases} 0.3 & \text{if } \text{Exp} = B = 0.2 \\ 0.2 & \text{if } \text{Exp} = C \\ 0.15 & \text{if } \text{Exp} = D \end{cases} \quad (\text{Table 26.9-1})$$

Exposure Constant =

$$Z_{\min} := \begin{cases} 30 & \text{if } \text{Exp} = B = 15 \\ 15 & \text{if } \text{Exp} = C \\ 7 & \text{if } \text{Exp} = D \end{cases} \quad (\text{Table 26.9-1})$$

Exposure Coefficient =

$$K_z := \begin{cases} 2.01 \left( \frac{Z}{z_g} \right)^{\left( \frac{2}{\alpha} \right)} & \text{if } 15 \leq Z \leq z_g = 1.09 \\ 2.01 \left( \frac{15}{z_g} \right)^{\left( \frac{2}{\alpha} \right)} & \text{if } Z < 15 \end{cases} \quad (\text{Table 29.3-1})$$

Subject:

Wind Load on Equipment per ASCE 7-10

Location:

Milford, CT

Rev. 0: 8/9/18

Prepared by: T.J.L; Checked by: C.F.C.  
 Job No. 18127.08

Topographic Factor =  $K_{zt} := 1$  (Eq. 26.8-2)

Wind Directionality Factor =  $K_d := 0.85$  (Table 26.6-1)

Velocity Pressure =  $q_z := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V^2 = 37.19$  (Eq. 29.3-1)

Force Coefficient =  $(GC_r) := 1.9$  (Sec 29.5-1)

Wind Force =

$$F := q_z (GC_r) = 71$$

psf



**Development of Wind & Ice Load on Antennas**

Antenna Data:

Antenna Model =	Ericsson AIR21 B4A/B12P 8F
Antenna Shape =	Flat (User Input)
Antenna Height =	$L_{ant} := 96$ in (User Input)
Antenna Width =	$W_{ant} := 12.1$ in (User Input)
Antenna Thickness =	$T_{ant} := 8.7$ in (User Input)
Antenna Weight =	$WT_{ant} := 148$ lbs (User Input)
Number of Antennas =	$N_{ant} := 1$ (User Input)

**Wind Load (Front)**

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 8.1$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 8.1$	sf
<b>Total Antenna Wind Force =</b>	<b><math>F_{ant} := F \cdot A_{ant} = 570</math></b>	lbs

**Wind Load (Side)**

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 5.8$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 5.8$	sf
<b>Total Antenna Wind Force =</b>	<b><math>F_{ant} := F \cdot A_{ant} = 410</math></b>	lbs

**Gravity Load (without ice)**

<b>Weight of All Antennas =</b>	<b><math>WT_{ant} \cdot N_{ant} = 148</math></b>	lbs
---------------------------------	--	-----

**Development of Wind & Ice Load on Antennas****Antenna Data:**

Antenna Model =	EricssonAIR32	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 56.6$	in (User Input)
Antenna Width =	$W_{ant} := 12.9$	in (User Input)
Antenna Thickness =	$T_{ant} := 8.7$	in (User Input)
Antenna Weight =	$WT_{ant} := 132$	lbs (User Input)
Number of Antennas =	$N_{ant} := 1$	(User Input)

**Wind Load (Front)**

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5.1$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 5.1$	sf

<b>Total Antenna Wind Force =</b>	<b><math>F_{ant} := F \cdot A_{ant} = 358</math></b>	lbs
-----------------------------------	--	-----

**Wind Load (Side)**

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 3.4$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 3.4$	sf

<b>Total Antenna Wind Force =</b>	<b><math>F_{ant} := F \cdot A_{ant} = 242</math></b>	lbs
-----------------------------------	--	-----

**Gravity Load (without ice)**

<b>Weight of All Antennas =</b>	<b><math>WT_{ant} \cdot N_{ant} = 132</math></b>	lbs
---------------------------------	--	-----

Subject:

Wind Load on Equipment per ASCE 7-10

Location:

Milford, CT

Rev. 0: 8/9/18

Prepared by: T.J.L; Checked by: C.F.C.  
 Job No. 18127.08

#### Development of Wind & Ice Load on Antennas

##### Antenna Data:

Antenna Model =	Ericsson AIR3246 B66	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 58.1$	in (User Input)
Antenna Width =	$W_{ant} := 15.7$	in (User Input)
Antenna Thickness =	$T_{ant} := 9.4$	in (User Input)
Antenna Weight =	$WT_{ant} := 180$	lbs (User Input)
Number of Antennas =	$N_{ant} := 1$	(User Input)

##### Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} W_{ant}}{144} = 6.3$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} N_{ant} = 6.3$	sf
<b>Total Antenna Wind Force =</b>	<b><math>F_{ant} := F \cdot A_{ant} = 448</math></b>	lbs

##### Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} T_{ant}}{144} = 3.8$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} N_{ant} = 3.8$	sf
<b>Total Antenna Wind Force =</b>	<b><math>F_{ant} := F \cdot A_{ant} = 268</math></b>	lbs

##### Gravity Load (without ice)

<b>Weight of All Antennas =</b>	<b><math>WT_{ant} N_{ant} = 180</math></b>	lbs
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**Development of Wind & Ice Load on Antennas****Antenna Data:**

Antenna Model =	Andrew LNX6515DS	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 96.4$	in (User Input)
Antenna Width =	$W_{ant} := 11.9$	in (User Input)
Antenna Thickness =	$T_{ant} := 7.1$	in (User Input)
Antenna Weight =	$WT_{ant} := 50$	lbs (User Input)
Number of Antennas =	$N_{ant} := 1$	(User Input)

**Wind Load (Front)**

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 8$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 8$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 563$	lbs

**Wind Load (Side)**

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 4.8$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 4.8$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 336$	lbs

**Gravity Load (without ice)**

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 50$	lbs
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Subject:

Wind Load on Equipment per ASCE 7-10

Location:

Milford, CT

Rev. 0: 8/9/18

Prepared by: T.J.L.; Checked by: C.F.C.  
 Job No. 18127.08

#### Development of Wind & Ice Load on RRHs

##### RRH Data:

RRH Model =	Ericsson RRUS-11	
RRH Shape =	Flat	(User Input)
RRH Height =	$L_{RRH} := 17.8$	in (User Input)
RRH Width =	$W_{RRH} := 17.3$	in (User Input)
RRH Thickness =	$T_{RRH} := 7.2$	in (User Input)
RRH Weight =	$WT_{RRH} := 50$	lbs (User Input)
Number of RRHs =	$N_{RRH} := 1$	(User Input)

##### Wind Load (Front)

$$\text{Surface Area for One RRH} = SA_{RRH} := \frac{L_{RRH} \cdot W_{RRH}}{144} = 2.1 \quad sf$$

$$\text{RRH Projected Surface Area} = A_{RRH} := SA_{RRH} \cdot N_{RRH} = 2.1 \quad sf$$

$$\text{Total RRH Wind Force} = F_{RRH} := F \cdot A_{RRH} = 151 \quad lbs$$

##### Wind Load (Side)

$$\text{Surface Area for One RRH} = SA_{RRH} := \frac{L_{RRH} \cdot T_{RRH}}{144} = 0.9 \quad sf$$

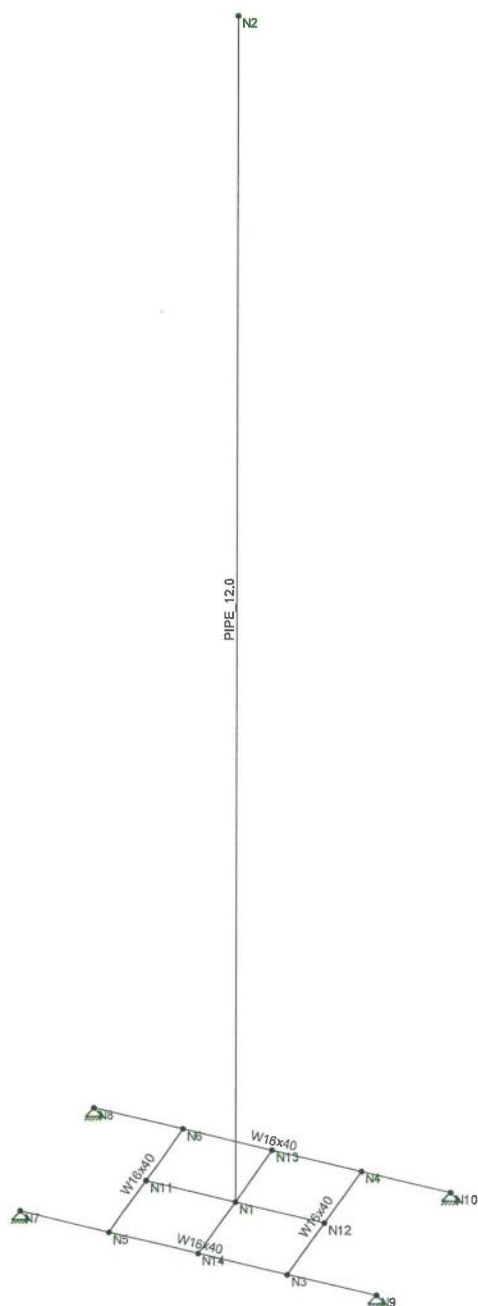
$$\text{RRH Projected Surface Area} = A_{RRH} := SA_{RRH} \cdot N_{RRH} = 0.9 \quad sf$$

$$\text{Total RRH Wind Force} = F_{RRH} := F \cdot A_{RRH} = 63 \quad lbs$$

##### Gravity Load (without ice)

$$\text{Weight of All RRHs} = WT_{RRH} \cdot N_{RRH} = 50 \quad lbs$$





Envelope Only Solution

Centek Engineering

TJL

18127.08

CT11002A - Antenna Mount (East)  
Member Framing

Aug 9, 2018 at 5:03 PM

Antenna Mount.r3d

### (Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-10: ASD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building AISC 14th(360-10): ASD

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

### (Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	150.001
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	2
Footing Bottom Bar	#3
Footing Bottom Bar Cover (in)	3.5
Pedestal Bar	#3
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#3

### Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	58	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Grade B	29000	11154	.3	.65	.49	35	1.5	58	1.2



### Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in <sup>2</sup> ]	I <sub>yy</sub> [in <sup>4</sup> ]	I <sub>zz</sub> [in <sup>4</sup> ]	J [in <sup>4</sup> ]
1	Pipe Mast	PIPE 12.0	Beam	Pipe	A53 Grade B	Typical	13.7	262	262	523
2	bEAM	W16x40	Beam	Pipe	A992	Typical	11.8	28.9	518	.794

### Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	L <sub>byy</sub> [ft]	L <sub>bzz</sub> [ft]	L <sub>comp top</sub> [ft]	L <sub>comp bot</sub> [ft]	L-torqu...	K <sub>yy</sub>	K <sub>zz</sub>	C <sub>b</sub>	Function
1	M1	Pipe Mast	30			L <sub>byy</sub>						Lateral
2	M2	bEAM	8			L <sub>byy</sub>						Lateral
3	M3	bEAM	8			L <sub>byy</sub>						Lateral
4	M4	bEAM	4			L <sub>byy</sub>						Lateral
5	M5	bEAM	4			L <sub>byy</sub>						Lateral

### Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...)	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N1	N2			Pipe Mast	Beam	Pipe	A53 Gra...	Typical
2	M2	N7	N9			bEAM	Beam	Pipe	A992	Typical
3	M3	N8	N10			bEAM	Beam	Pipe	A992	Typical
4	M4	N5	N6			bEAM	Beam	Pipe	A992	Typical
5	M5	N3	N4			bEAM	Beam	Pipe	A992	Typical
6	M10	N13	N1			RIGID	None	None	RIGID	Typical
7	M11	N1	N14			RIGID	None	None	RIGID	Typical
8	M8	N11	N12			RIGID	None	None	RIGID	Typical

### Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
1	N1	0	0	0	0	
2	N2	0	30	0	0	
3	N3	2	0	2	0	
4	N4	2	0	-2	0	
5	N5	-2	0	2	0	
6	N6	-2	0	-2	0	
7	N7	-4	0	2	0	
8	N8	-4	0	-2	0	
9	N9	4	0	2	0	
10	N10	4	0	-2	0	
11	N11	-2	0	0	0	
12	N12	2	0	0	0	
13	N13	0	0	-2	0	
14	N14	0	0	2	0	

### Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1						
2	N7	Reaction	Reaction	Reaction			
3	N8	Reaction	Reaction	Reaction			
4	N9	Reaction	Reaction	Reaction			



### Joint Boundary Conditions (Continued)

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
5	N10	Reaction	Reaction	Reaction			
6	N3						
7	N6						

### Member Point Loads (BLC 2 : Weight of Equipment)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	-.396	28
2	M1	Y	-.54	21
3	M1	Y	-.4	21
4	M1	Y	-.4	28

### Member Point Loads (BLC 3 : Wind X-Direction)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	X	.842	28
2	M1	X	.984	21
3	M1	X	.15	21
4	M1	X	.15	28

### Member Point Loads (BLC 4 : Wind Z-Direction)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Z	.842	28
2	M1	Z	.984	21
3	M1	Z	.15	21
4	M1	Z	.15	28

### Member Distributed Loads (BLC 3 : Wind X-Direction)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.051	.051	0	18

### Member Distributed Loads (BLC 4 : Wind Z-Direction)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.051	.051	0	18

### Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Self Weight	DL		-1						
2	Weight of Equipment	DL					4			
3	Wind X-Direction	WLX					4	1		
4	Wind Z-Direction	WLZ					4	1		

### Load Combinations

	Description	So...	P...	S...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...
1	IBC 16-8	Yes	Y		DL	1														
2	IBC 16-9	Yes	Y		DL	1	LL	1	LLS	1										



### Load Combinations (Continued)

	Description	So...	P...	S...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...
3	IBC 16-10 (a)	Yes	Y		DL	1	RLL	1										
4	IBC 16-10 (b)	Yes	Y		DL	1	SL	1	SLN	1								
5	IBC 16-10 (c)	Yes	Y		DL	1	RL	1										
6	IBC 16-11 (a)	Yes	Y		DL	1	LL	.75	LLS	.75	RLL	.75						
7	IBC 16-11 (b)	Yes	Y		DL	1	LL	.75	LLS	.75	SL	.75	SLN	.75				
8	IBC 16-11 (c)	Yes	Y		DL	1	LL	.75	LLS	.75	RL	.75						
9	IBC 16-12 (a)	Yes	Y		DL	1	W...	.6										
10	IBC 16-12 (a) (b)	Yes	Y		DL	1	W...	.6										
11	IBC 16-12 (a) (c)	Yes	Y		DL	1	W...	-.6										
12	IBC 16-12 (a) (d)	Yes	Y		DL	1	W...	-.6										
13	IBC 16-13 (a) (a)	Yes	Y		DL	1	W...	.45	LL	.75	LLS	.75	RLL	.75				
14	IBC 16-13 (a) (b)	Yes	Y		DL	1	W...	.45	LL	.75	LLS	.75	RLL	.75				
15	IBC 16-13 (a) (c)	Yes	Y		DL	1	W...	-.45	LL	.75	LLS	.75	RLL	.75				
16	IBC 16-13 (a) (d)	Yes	Y		DL	1	W...	-.45	LL	.75	LLS	.75	RLL	.75				
17	IBC 16-13 (b) (a)	Yes	Y		DL	1	W...	.45	LL	.75	LLS	.75	SL	.75	SLN	.75		
18	IBC 16-13 (b) (b)	Yes	Y		DL	1	W...	.45	LL	.75	LLS	.75	SL	.75	SLN	.75		
19	IBC 16-13 (b) (c)	Yes	Y		DL	1	W...	-.45	LL	.75	LLS	.75	SL	.75	SLN	.75		
20	IBC 16-13 (b) (d)	Yes	Y		DL	1	W...	-.45	LL	.75	LLS	.75	SL	.75	SLN	.75		
21	IBC 16-13 (c) (a)	Yes	Y		DL	1	W...	.45	LL	.75	LLS	.75	RL	.75				
22	IBC 16-13 (c) (b)	Yes	Y		DL	1	W...	.45	LL	.75	LLS	.75	RL	.75				
23	IBC 16-13 (c) (c)	Yes	Y		DL	1	W...	-.45	LL	.75	LLS	.75	RL	.75				
24	IBC 16-13 (c) (d)	Yes	Y		DL	1	W...	-.45	LL	.75	LLS	.75	RL	.75				
25	IBC 16-15 (a)	Yes	Y		DL	.6	W...	.6										
26	IBC 16-15 (b)	Yes	Y		DL	.6	W...	.6										
27	IBC 16-15 (c)	Yes	Y		DL	.6	W...	-.6										
28	IBC 16-15 (d)	Yes	Y		DL	.6	W...	-.6										

### Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N7	max	.457	11	5.587	10	.457	12	0	1	0	1	0	1
2		min	-.457	9	-3.918	28	-.457	10	0	1	0	1	0	1
3	N8	max	.457	11	5.587	12	.457	12	0	1	0	1	0	1
4		min	-.457	9	-3.918	26	-.457	10	0	1	0	1	0	1
5	N9	max	.457	11	5.587	10	.457	12	0	1	0	1	0	1
6		min	-.457	9	-3.918	28	-.457	10	0	1	0	1	0	1
7	N10	max	.457	11	5.587	12	.457	12	0	1	0	1	0	1
8		min	-.457	9	-3.918	26	-.457	10	0	1	0	1	0	1
9	Totals:	max	1.826	11	4.098	11	1.826	12						
10		min	-1.826	9	2.459	25	-1.826	10						

### Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...]	LC	Y Rotation [...]	LC	Z Rotation [...]	LC
1	N1	max	0	9	-.002	26	.005	10	5.277e-04	10	0	12	1.318e-04	11
2		min	0	11	-.003	11	-.005	12	-5.277e-04	12	0	26	-1.318e-04	9
3	N2	max	2.668	9	-.003	26	2.818	10	1.052e-02	10	0	12	1.012e-02	11
4		min	-2.668	11	-.005	11	-2.818	12	-1.052e-02	12	0	26	-1.012e-02	9
5	N3	max	0	9	.008	28	.005	10	4.236e-04	26	5.772e-05	26	2.809e-04	10
6		min	0	11	-.011	10	-.005	12	-4.558e-04	12	-5.772e-05	12	-2.011e-04	28
7	N4	max	0	9	.008	26	.005	10	4.558e-04	10	5.772e-05	10	2.809e-04	12

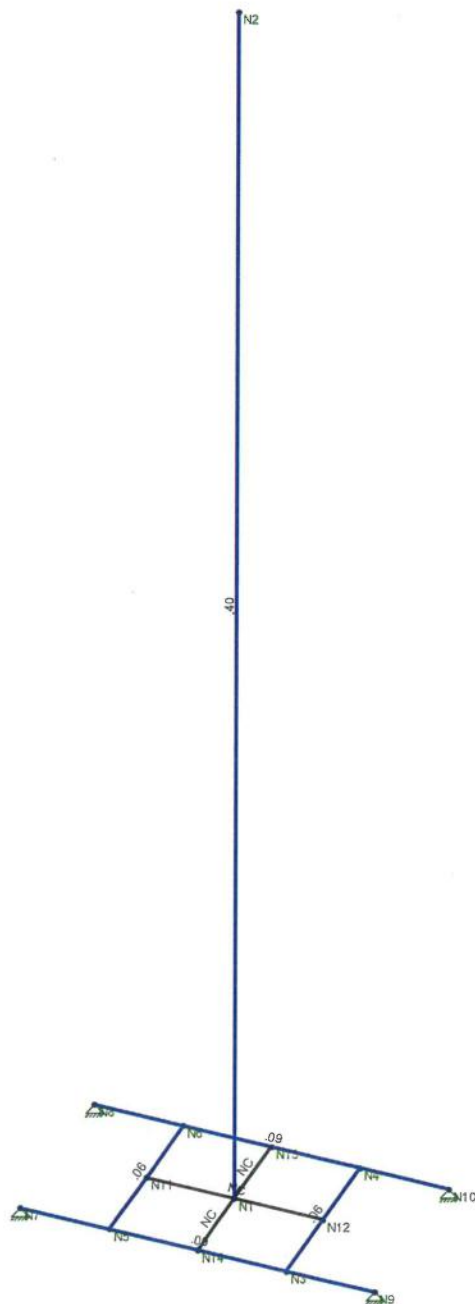
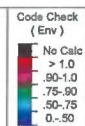


### Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...]	LC	Y Rotation [...]	LC	Z Rotation [...]	LC
8		min	0	11	-.011	12	-.005	12	-4.236e-04	28	-5.772e-05	28	-2.011e-04	26
9	N5	max	0	9	.008	28	.005	10	4.236e-04	26	5.772e-05	12	2.011e-04	28
10		min	0	11	-.011	10	-.005	12	-4.558e-04	12	-5.772e-05	10	-2.809e-04	10
11	N6	max	0	9	.008	26	.005	10	4.558e-04	10	5.772e-05	12	2.011e-04	26
12		min	0	11	-.011	12	-.005	12	-4.236e-04	28	-5.772e-05	10	-2.809e-04	12
13	N7	max	0	9	0	28	0	10	4.236e-04	26	2.538e-04	12	2.953e-04	28
14		min	0	11	0	10	0	12	-4.558e-04	12	-2.538e-04	10	-4.141e-04	10
15	N8	max	0	9	0	26	0	10	4.558e-04	10	2.538e-04	12	2.953e-04	26
16		min	0	11	0	12	0	12	-4.236e-04	28	-2.538e-04	10	-4.141e-04	12
17	N9	max	0	9	0	28	0	10	4.236e-04	26	2.538e-04	10	4.141e-04	10
18		min	0	11	0	10	0	12	-4.558e-04	12	-2.538e-04	12	-2.953e-04	28
19	N10	max	0	9	0	26	0	10	4.558e-04	10	2.538e-04	10	4.141e-04	12
20		min	0	11	0	12	0	12	-4.236e-04	28	-2.538e-04	12	-2.953e-04	26
21	N11	max	0	9	.002	25	.005	10	5.277e-04	10	0	28	1.318e-04	11
22		min	0	11	-.006	11	-.005	12	-5.277e-04	12	0	26	-1.318e-04	9
23	N12	max	0	9	.002	27	.005	10	5.277e-04	10	0	10	1.318e-04	11
24		min	0	11	-.006	9	-.005	12	-5.277e-04	12	0	12	-1.318e-04	9
25	N13	max	0	9	.011	26	.005	10	5.277e-04	10	0	9	1.318e-04	11
26		min	0	11	-.015	12	-.005	12	-5.277e-04	12	0	11	-1.318e-04	9
27	N14	max	0	9	.011	28	.005	10	5.277e-04	10	0	11	1.318e-04	11
28		min	0	11	-.015	10	-.005	12	-5.277e-04	12	0	9	-1.318e-04	9

### Envelope AISC 14th(360-10): ASD Steel Code Checks

	Member	Shape	Code Check	Loc...	LC	Shea...	Loc...	L...Pnc/o...	Pnt/o...	Mnyy/...	Mnzz/.....	Eqn			
1	M1	PIPE 12.0	.397	0	10	.021	0	10	202.972	287.126	93.787	93.787	1	H1-1b	
2	M2	W16x40	.095	2	10	.058	2	y	10	258.605	353.293	31.687	175.631	1	H1-1b
3	M3	W16x40	.095	2	12	.058	2	y	12	258.605	353.293	31.687	175.631	1	H1-1b
4	M4	W16x40	.057	2	10	.051	1.8...	y	10	306.581	353.293	31.687	182.136	1	H1-1b
5	M5	W16x40	.057	2	10	.051	1.8...	y	10	306.581	353.293	31.687	182.136	1	H1-1b



Member Code Checks Displayed (Enveloped)  
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CT11002A - Antenna Mount (East)

Unity Check

Aug 9, 2018 at 5:03 PM

Antenna Mount.r3d



**ATTACHMENT D**

**SERVICE LIST of ABUTTERS and SAMPLE LETTER to ABUTTERS**

## CERTIFICATION OF SERVICE

I hereby certify that on the 12th day of March, 2019, T-Mobile Northeast, LLC, provided notice of its Petition For A Declaratory Ruling That A Certificate of Environmental Compatibility And Public Need Is Not Required for the modification of an existing rooftop telecommunications facility presently located at 1201 Boston Post Road, Milford, Connecticut, to the following:

### **Abutters**

1354 Boston Post Road

Alliance Energy LLC  
15 Northeast Industrial Road  
Branford, CT 06405

1338 Boston Post Road

Robert J. Hunter  
225 Woodruff Road  
Milford, CT 06460

1330 Boston Post Road

Milford Four LLC  
460 Coe Avenue  
East Haven, CT 06512

1306 Boston Post Road

Milford Four LLC  
460 Coe Avenue  
East Haven, CT 06512

1292 Boston Post Road

Burger King Corporation  
P.O. Box 020783  
Miami, FL 33102-0783

1270 Boston Post Road

Iris Caplowe, Trustee  
c/o Hillel J. Auerbach PC  
P.O. Box 4014  
New Haven, CT 06525

1260 Boston Post Road

Iris Caplowe, Trustee  
c/o Hillel J. Auerbach PC  
P.O. Box 4014  
New Haven, CT 06525

1250 Boston Post Road

1250 Boston Post Road Milford LLC  
c/o Phyllis Ellenbogen  
411 Wishart Court  
Henrico, VA 23229

1212 Boston Post Road

217 State Milford LLC  
c/o Mattone, et al.  
134-01 20<sup>th</sup> Avenue  
College Point, NY 11356

60 Wilbar Avenue

Henry S. & Julie Williams  
60 Wilbar Avenue  
Milford, CT 06460

0 Banner Drive

State of Connecticut  
Attn: Accounts Payable  
P.O. Box 317546  
Newington, CT 06131

330 Old Gate Lane

Toys R US Property Company II LLC  
Attn: Tax Department  
1 Geoffrey Way  
Wayne, NJ 06470

0 Old Gate Lane

Mblu: 79/ 811/ 12/B /  
Connecticut Post Limited Partnership  
c/o Marvin F. Poer & Company  
3520 Piedmont Road N.E., Suite 410  
Atlanta, GA 30305

0 Leighton Road

Schick Manufacturing Inc.  
1350 Timberlake Manor Parkway,  
Suite 300  
Chesterfield, MO 63017

38 Home Acres Avenue

Daniel Brassell  
38 Home Acres Avenue  
Milford, CT 06460

28 Home Acres Avenue

John K. & Vincenza S. Richards  
28 Home Acres Avenue  
Milford, CT 06460

1360 East Town Road

Rehold Milford LLC  
c/o AFS Lease Accounting  
P.O. Box 6500  
Carlisle, PA 17013-6500

0 Old Gate Lane

Mblu: 79/ 811/ 12/A /  
Connecticut Post Limited Partnership  
c/o Marvin F. Poer & Company  
3520 Piedmont Road N.E., Suite 410  
Atlanta, GA 30305

0 Old Gate Lane

City of Milford  
70 West River Street  
Milford, CT 06460

42 Home Acres Avenue

Gary P. & Lynne J. Collucci  
42 Home Acres Avenue  
Milford, CT 06460

32 Home Acres Avenue

Atsaline L. & Sonny T. Sunthorn  
32 Home Acres Avenue  
Milford, CT 06460

1083 Boston Post Road

MIL LLC  
124-19 Metropolitan Avenue  
Kew Gardens, NY 11416

**Property Owner**

1201 Boston Post Road  
Connecticut Post Limited Partnership  
c/o Marvin F. Poer & Company  
3520 Piedmont Road N.E., Suite 410  
Atlanta, GA 30305

Respectfully submitted by,



Jesse A. Langer





Jesse A. Langer  
(t) 203.786.8317  
(f) 203.772.2037  
jlanger@uks.com

March 12, 2019

**VIA CERTIFIED MAIL**  
**AND REGULAR MAIL**

Alliance Energy LLC  
15 Northeast Industrial Road  
Branford, CT 06405

**RE: Proposed modification of existing rooftop telecommunications facility at 1201 Boston Post Road, Milford, Connecticut**

To Whom It May Concern:

I write on behalf of T-Mobile Northeast, LLC ("T-Mobile"). T-Mobile intends to file with the Connecticut Siting Council ("Council") a petition for declaratory ruling ("Petition") that a Certificate of Environmental Compatibility and Public Need is not required. The Petition addresses a proposed modification of an existing rooftop telecommunications facility ("Rooftop Facility") presently located on the roof of the Connecticut Post Mall ("Mall") located at 1201 Boston Post Road, Milford, Connecticut ("Property").

As a wireless carrier licensed by the Federal Communications Commission, T-Mobile seeks out wireless sites that will meet its coverage and capacity objectives so that T-Mobile may provide reliable coverage throughout its network. T-Mobile has identified a need to modify the existing Rooftop Facility to address such coverage and capacity objectives in the area proximate to the Property. The proposed modification to the Rooftop Facility would include a total of twelve (12) panel antennas and four (4) remote radio units split over four (4) sectors on the roof of the Mall.

This letter serves as notice to you as an abutting property owner pursuant to § 16-50j-40 of the Regulations of Connecticut State Agencies. T-Mobile will file the Petition on or about March 12, 2019, and will request that the Council place the Petition on some future agenda.

You may review the Petition at the office of the Council, which is located at 10 Franklin Square, New Britain, Connecticut, 06051, or at the City Hall for the City of Milford. If you have any questions or concerns regarding this matter, please contact the undersigned at (203) 786-8317, or the Council at (860) 827-2935.

Very truly yours,

Jesse A. Langer

**ATTACHMENT E**

**SERVICE LIST of MUNICIPAL OFFICIALS and GOVERNMENT AGENCIES**

## **CERTIFICATION OF SERVICE**

I hereby certify that on the 12th day of March, 2019, T-Mobile Northeast, LLC, provided notice of its Petition For A Declaratory Ruling That A Certificate of Environmental Compatibility And Public Need Is Not Required for the modification of an existing rooftop telecommunications facility presently located at 1201 Boston Post Road, Milford, Connecticut, to the following:

### **City of Milford**

City of Milford  
Benjamin G. Blake, Mayor  
City Hall  
110 River Street  
Milford, CT 06460

City of Milford  
Planning and Zoning Board  
David B. Sulkis, Executive Secretary  
70 West River Street  
Milford, CT 06460

City of Milford  
Joanne M. Rohrig, City Clerk  
70 West River Street  
Milford, CT 06460

City of Milford  
Zoning Board of Appeals  
Stephen H. Harris, Executive Secretary  
70 West River Street  
Milford, CT 06460

City of Milford  
Inland Wetland Agency  
MaryRose Palumbo, Officer  
70 West River Street  
Milford, CT 06460

City of Milford  
Conservation Commission  
70 West River Street  
Milford, CT 06460

### **State and Regional**

The Honorable William Tong  
Attorney General, State of Connecticut  
Office of the Attorney General  
55 Elm Street  
Hartford, CT 06106

Connecticut Department of Emergency  
Services and Public Protection  
Division of Emergency Management  
and Homeland Security  
c/o James C. Rovella, Commissioner  
1111 Country Club Road  
Middletown, CT 06457

Connecticut Department of Public Health  
c/o Raul Pino, MD, MPH, Commissioner  
410 Capital Avenue  
Hartford, CT 06106

Connecticut Public Utilities Regulatory  
Authority  
c/o John W. Betkoski III, Vice Chairman  
Ten Franklin Square  
New Britain, CT 06051

Connecticut Council on Environmental Quality  
*c/o* Susan D. Merrow, Chair  
79 Elm Street  
Hartford, CT 06106

Connecticut Department of Economic  
and Community Development  
*c/o* Catherine H. Smith, Commissioner  
450 Columbus Boulevard, Suite 5  
Hartford, CT 06103

Connecticut Department of Energy  
& Environmental Protection  
*c/o* Katie Dykes, Commissioner  
79 Elm Street  
Hartford, CT 06106

Connecticut Department of Agriculture  
*c/o* Steven K. Reviczky, Commissioner  
450 Columbus Boulevard, Suite 701  
Hartford, CT 06103

Connecticut Office of Policy and Management  
*c/o* Melissa McCaw, Secretary  
450 Capitol Avenue  
Hartford, CT 06106

Connecticut Department of Transportation  
*c/o* Joseph Giulietti, Commissioner  
2800 Berlin Turnpike  
Newington, CT 06131

Connecticut Department of Economic and  
Community Development  
Office of Tourism  
*c/o* Randy Fiveash, Director  
450 Columbus Boulevard, Suite 5  
Hartford, CT 06103

South Central Regional Council of  
Governments  
*c/o* James Cosgrove, Chairman  
127 Washington Avenue, 4<sup>th</sup> Fl. West  
North Haven, CT 06473

Connecticut Department of Economic and  
Community Development  
State Historic Preservation Office  
*c/o* Elizabeth Shapiro, Interim Director of  
Culture  
450 Columbus Boulevard, Suite 5  
Hartford, CT 06103

Kathleen Kennedy  
Connecticut State Representative; 119<sup>th</sup>  
District  
Legislative Office Building, Room 4200  
300 Capitol Avenue  
Hartford, CT 06106

James Maroney  
Connecticut State Senate; 14<sup>th</sup> District  
Legislative Office Building, Room 3300  
Hartford, CT 06106

### **Federal**

U.S. Department of Transportation  
Federal Aviation Administration  
*c/o* Dan Elwell, Acting Administrator  
800 Independence Avenue, SW  
Washington, DC 20591

U.S. Representative Rosa DeLauro  
Connecticut 3<sup>rd</sup> District  
59 Elm Street  
New Haven, CT 06510



U.S. Senator Christopher Murphy  
Colt Gateway, Suite 401  
120 Huyshope Avenue  
Hartford, CT 06106

U.S. Senator Richard Blumenthal  
90 State House Square, 10th Floor  
Hartford, CT 06103

Federal Communications Commission  
c/o Ajit Pai, Chairman  
445 12th Street SW  
Washington, DC 20554

Respectfully submitted by,

A handwritten signature in blue ink, appearing to read "Jesse A. Langer", with a stylized flourish at the end.

Jesse A. Langer

March 12, 2019

**VIA CERTIFIED MAIL**

City of Milford  
Benjamin G. Blake, Mayor  
City Hall  
110 River Street  
Milford, CT 06460

**RE: Proposed modification of existing rooftop telecommunications facility at 1201 Boston Post Road, Milford, Connecticut**

The Honorable Benjamin G. Blake:

I write on behalf of T-Mobile Northeast, LLC ("T-Mobile"). T-Mobile intends to file with the Connecticut Siting Council ("Council") a petition for declaratory ruling ("Petition") that a Certificate of Environmental Compatibility and Public Need is not required. The Petition addresses a proposed modification of an existing rooftop telecommunications facility ("Rooftop Facility") presently located on the roof of the Connecticut Post Mall ("Mall") located at 1201 Boston Post Road, Milford, Connecticut ("Property").

As a wireless carrier licensed by the Federal Communications Commission, T-Mobile seeks out wireless sites that will meet its coverage and capacity objectives so that T-Mobile may provide reliable coverage throughout its network. T-Mobile has identified a need to modify the existing Rooftop Facility to address such coverage and capacity objectives in the area proximate to the Property. The proposed modification to the Rooftop Facility would include a total of twelve (12) panel antennas and four (4) remote radio units split over four (4) sectors on the roof of the Mall.

This letter serves as notice to you as an "appropriate municipal official and government agenc[y]" as that term is defined under § 16-50j-40 of the Regulations of Connecticut State Agencies. T-Mobile will file the Petition on or about March 15, 2019, and will request that the Council place the Petition on some future agenda.

Attached please find a copy of the Petition. If you have any questions or concerns regarding this matter, please contact the undersigned at (203) 786-8317, or the Council at (860) 827-2935.

Very truly yours,



Jesse A. Langer

Enclosures

**ATTACHMENT F**  
**VISUAL ASSESSMENT and PHOTO- SIMULATIONS**

**Photographic Simulation Package**

**Milford/I-95/1 - CT11002A**

1201 Boston Post Road (CT Post Mall)  
Milford, CT 06460

**Centek Project No. 18127.08**

**Prepared For**  
**Transcend Wireless**  
**T-mobile**

**Prepared By**  
**Centek Engineering, Inc.**  
63 North Branford Road  
Branford, CT 06405  
T: 203.488.0580  
F: 203.488.8587  
[www.centekeng.com](http://www.centekeng.com)

**Date 01.10.2019**

**CEN TEK** engineering  
Centered on Solutions<sup>SM</sup>

**Transcend Wireless**

**T-Mobile**



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Simulation Photo 6.....13

At the request of Transcend Wireless, acting on behalf of T-Mobile Northeast, LLC (“T-Mobile”), CEN TEK Engineering, Inc. (“CEN TEK”) completed this visual assessment and prepared computer-generated photographic simulations depicting the proposed installation of a wireless telecommunications facility (“Facility”) located at 1201 Boston Post Road, Milford, Connecticut, which will be referred throughout this summary as “the host property.”

The host property is an existing commercial shopping mall commonly known as the Connecticut Post Mall (“Mall”), which is located in Milford, off exit 39B of I-95 south. The Mall is situated on an approximate seventy-five (75) acre parcel, and in between Route 1 and I-95. The proposed Facility would be located on the rooftop of the Mall. See *Figure 1 – Photolog Key Legend*. The host property is currently developed with multiple commercial structures. The immediately surrounding land use is commercial, with residential uses extended beyond the commercial corridor, with Route 1 serving as a primary artery for commercial uses.

The proposed Facility would include twelve (12) panel antennas and four (4) remote radio units split over Four (4) sectors on the roof above Dave & Buster’s located on the host property, which is on the side of the Mall facing southeast in the approximate center of the host property. All of the rooftop mounted antennas and associated appurtenances would be installed at roof level of the host property, with the top of the antennas at approximately fifty-two (52) feet Above Grade Level (“AGL”). The remote radio units would be just above the roof parapet elevation of approximately twenty-five (25) feet AGL. Utilities would be routed through the existing building via conduits within existing utility chases. The proposed Facility component locations are illustrated within construction drawings as prepared by CEN TEK dated December 11<sup>th</sup>, 2018.

On December 10<sup>th</sup>, 2018, CEN TEK personnel conducted a field visit to obtain photo-documentation of the existing conditions. At each photo location, the geographic coordinates were logged using global positioning system (“GPS”) technology. Photographs were taken with a Cannon Rebel EOS T5 digital camera body and Canon 75 to 300 millimeter (“mm”) zoom lens using a focal length of 75 mm for consistency.

Computer models were developed for the building and proposed telecommunications facility components within AutoCad and Revit. Photographic simulations were then created to depict to scale representations of the proposed installation. Using field data, site plan information and image editing software, the proposed Facility was scaled to the correct location and height, relative to the existing structure and surrounding area. A photo key map and copies of the existing conditions and photo-simulations are attached.

Six (6) photo-locations were simulated and represent potential views of the proposed installation(s) from various vantage points surrounding the Mall. The table below provides a description of each location, view orientation, and approximate distance between where the photo was taken and the proposed Facility.

View	Location	Orientation	Distance to Site A.Platform/B.Delta
1	Host Property	South	A.±800/B.900-ft
2	Host Property	West	A.±200/B.950-ft
3	Host Property	Southeast	A.±1150/B.750-ft
4	Host Property	North	A.±700/B.900-ft
5	Host Property	East	A.±1500/B.1050-ft
6	Host Property	Northeast	A.±510/B.1087-ft

(1) Refer to photo log key plan for additional information.

In conclusion, the affected views of the proposed Facility would be limited to locations on the host property within 1/8 of a mile of the proposed Facility as well as the immediate commercial properties to the north of the Mall.

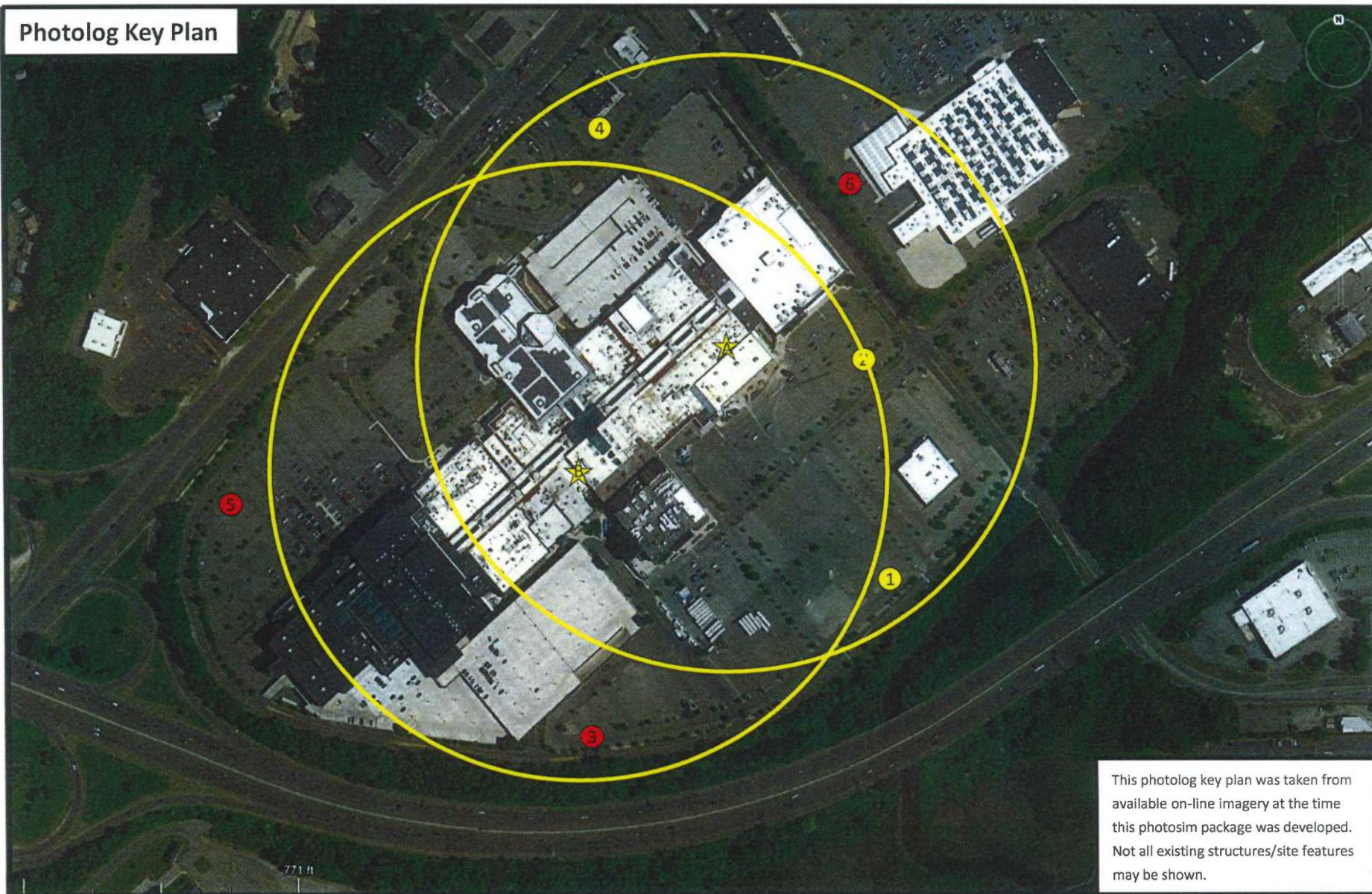
Based on the results of this assessment, it is our opinion that the proposed installation of the Facility would not have an adverse visual impact on existing views of the Mall or the character of the surrounding community.

### Assumptions

This photographic simulation package provides a representation of the Facility under similar conditions as those encountered during our field visit. This package is static in nature and does not necessarily fairly characterize the prevailing views from all locations within a given area. View of the Facility can change throughout the seasons and the time of day, and are dependent on weather and other atmospheric conditions (e.g., haze, fog, clouds, etc.); the location, angle and intensity of the sun; and the specific view location.



# Photolog Key Plan



T-Mobile Site -  
 Milford/I-95/1-CT11002A  
 Centek Project # 18127.08  
 1201 Boston Post Road  
 Milford, CT 06460



## Photolog Legend

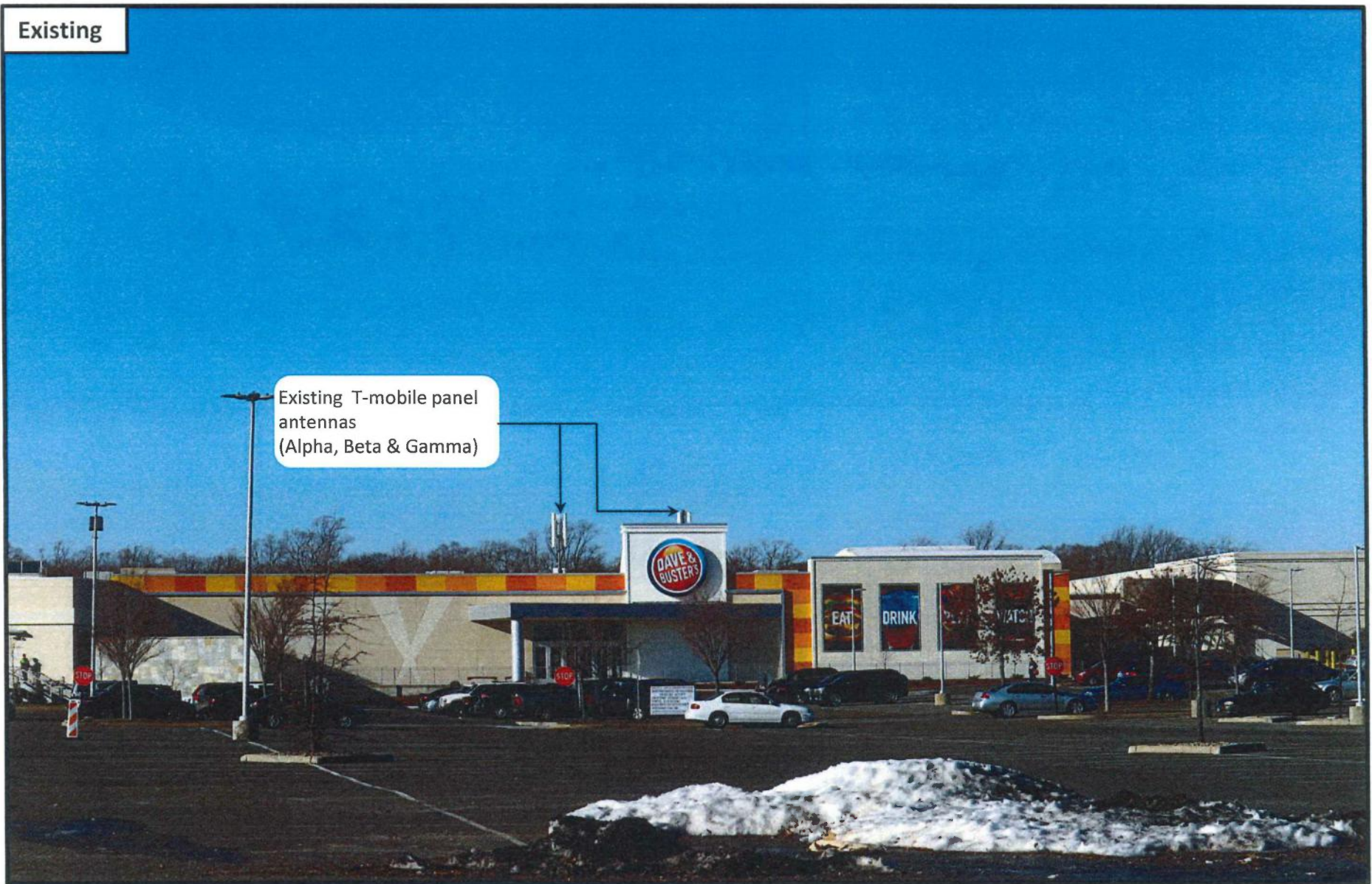
- ★ Proposed Antennas Locations
- Photo Location - (Year round visibility)
- Photo Location - (Not Visibility)
- 1000' Radius

**CEN TEK** engineering  
 Centered on Solutions™

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 [www.CentekEng.com](http://www.CentekEng.com)



Existing



Centek Project # 18127.08

Existing Photo # :	1
GPS Coordinates (Photo):	41.23470 -73.03253
Distance to Antennas:	800/900 Feet
Orientation:	Looking South
Visibility:	Year Round



## Simulation



Centek Project # 18127.08

Simulation Photo # :	1
GPS Coordinates (Photo):	41.23470 -73.03253
Distance to Antennas:	800/900 Feet
Orientation:	Looking South
Visibility:	Year Round

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Centered on Solutions™

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Existing



Existing T-mobile panel  
antennas  
(Alpha, Beta & Gamma)

Centek Project # 18127.08

Existing Photo # :	2
GPS Coordinates (Photo):	41.23646 -73.03274
Distance to Antennas:	200/950 Feet
Orientation:	Looking West
Visibility:	Year Round

**CEN TEK** engineering  
Centered on Solutions<sup>SM</sup>

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 [www.CentekEng.com](http://www.CentekEng.com)



## Simulation



Centek Project # 18127.08

Simulation Photo # :	2
GPS Coordinates (photo):	41.23646 -73.03274
Distance to Antennas:	200/950 Feet
Orientation:	Looking West
Visibility:	Year Round

**CEN TEK** engineering  
Centered on Solutions™

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## Existing

Existing T-mobile  
panel antennas  
(Delta)(Beyond)



Centek Project # 18127.08

Existing Photo # :	3
GPS Coordinates (Photo):	41.23372 -73.035105
Distance to antennas:	1150/750 Feet
Orientation:	Looking Southeast
Visibility:	Not Visible

**CEN TEK** engineering  
Centered on Solutions™

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 [www.CentekEng.com](http://www.CentekEng.com)



## Simulation



Centek Project # 18127.08

Simulation Photo # :  
GPS Coordinates (Photo):  
Distance to Antennas:  
Orientation:  
Visibility:

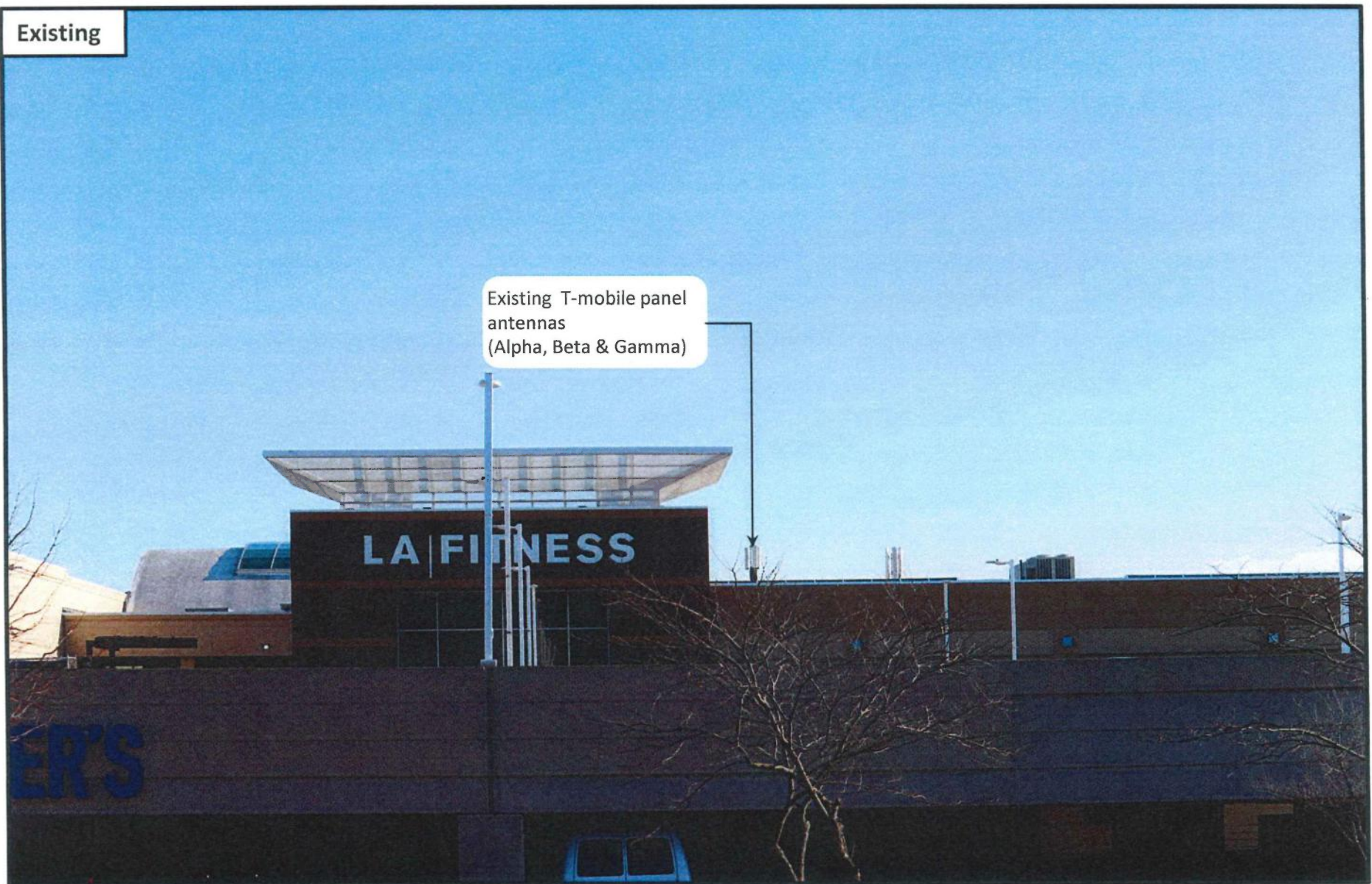
3  
41.23372 -73.035105  
1150/750 Feet  
Looking Southeast  
Year Round

**CEN TEK** engineering  
Centered on Solutions™

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 [www.CentekEng.com](http://www.CentekEng.com)



Existing



Centek Project # 18127.08

Existing Photo # :	4
GPS Coordinates (Photo):	41.23809 -73.03544
Distance to Antennas:	700/900 Feet
Orientation:	Looking North
Visibility:	Year Round

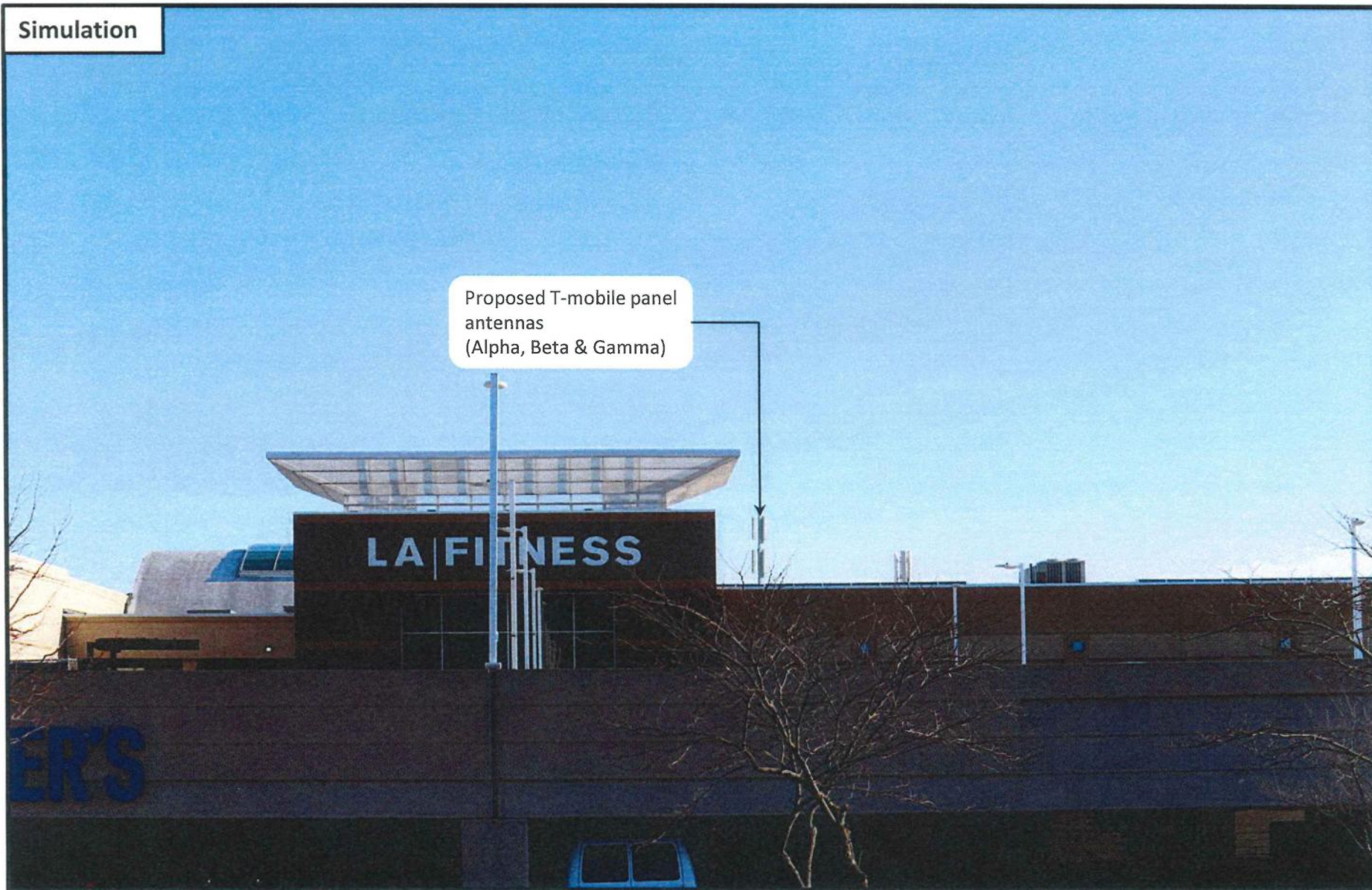
**CEN TEK** engineering

Centered on Solutions™

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 [www.CentekEng.com](http://www.CentekEng.com)



## Simulation



Centek Project # 18127.08

Simulation Photo # :	4
GPS Coordinates (Library):	41.23809 -73.03544
Distance to Library:	700/900 Feet
Orientation:	Looking North
Visibility:	Year Round

**CEN TEK** engineering  
Centered on Solutions™

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 [www.CentekEng.com](http://www.CentekEng.com)



Existing

Existing T-mobile panel  
antennas (Beyond)  
(Alpha, Beta & Gamma)



Centek Project # 18127.08

Existing Photo # :	5
GPS Coordinates (Library):	41.23544 -73.03920
Distance to Library:	1500/1050 Feet
Orientation:	Looking East
Visibility:	Not Visible

**CEN TEK** engineering  
Centered on Solutions™

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 [www.CentekEng.com](http://www.CentekEng.com)



## Simulation



Centek Project # 18127.08

Simulation Photo # :	5
GPS Coordinates (Library):	41.23544 -73.03920
Distance to Library:	1500/1050 Feet
Orientation:	Looking East
Visibility:	Not Visible

**CEN TEK** engineering  
Centered on Solutions™

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 [www.CentekEng.com](http://www.CentekEng.com)



Existing

Existing T-mobile panel  
antennas (Beyond)  
(Alpha, Beta & Gamma)

Centek Project # 18127.08

Existing Photo # :

6

GPS Coordinates (Library):

41.23766 -73.03285

Distance to Library:

510/1087 Feet

Orientation:

Looking Northeast

Visibility:

Not Visible

**CEN**TEK engineering  
Centered on Solutions™

63-2 North Branford Road, Branford, CT 06405 Fax 203.488.8587 [www.CentekEng.com](http://www.CentekEng.com)



## Simulation

Proposed T-mobile panel  
antennas (Beyond)  
(Alpha, Beta & Gamma)

Centek Project # 18127.08

Simulation Photo # :

6

GPS Coordinates (Library):

41.23766 -73.03285

Distance to Library:

510/1087 Feet

Orientation:

Looking Northeast

Visibility:

Not Visible

**CENTEK** engineering  
Centered on Solutions™

63-2 North Branford Road, Branford, CT 06405 Fax 203.488.8587 [www.CentekEng.com](http://www.CentekEng.com)

**ATTACHMENT G**

**EME**



# Radio Frequency – Electromagnetic Energy (RF-EME) Compliance Report (L700 CMP4)

---

## T-Mobile Proposed Facility

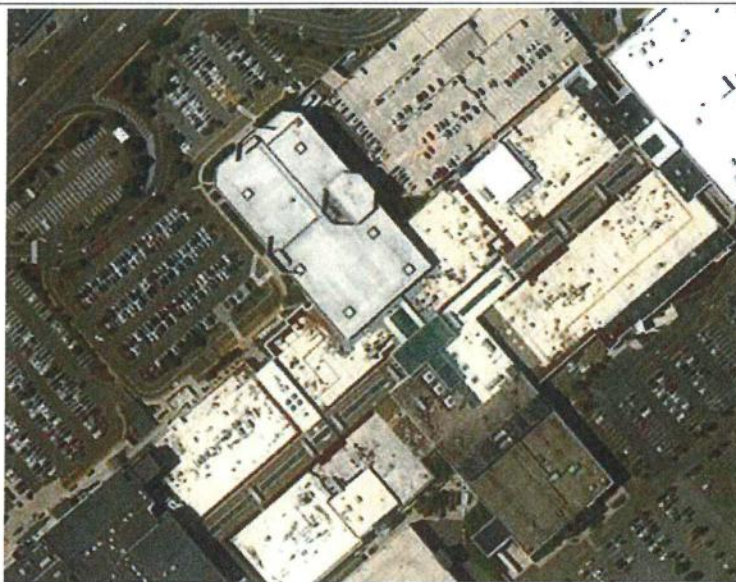
Site ID: CT11002A

Milford / I-95/I

1201 Boston Post Road, Milford, Connecticut 06460

**December 24, 2018**

EBI Project Number:  
6218007259



**Status:**

**The proposed site will be compliant with the installation of the mitigation measures described in Attachment I.**

**Remarks:** See signage plan for mitigation measures to be installed upon upgrade/installation of the site to comply with FCC and T-Mobile standards.

Prepared by:





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## **I.0 Executive Summary**

EnviroBusiness Inc. (dba EBI Consulting) has been contracted by T-Mobile to conduct radio frequency electromagnetic (RF-EME) modeling for T-Mobile Site CT11002A located at 1201 Boston Post Road in Milford, Connecticut to determine RF-EME exposure levels from proposed T-Mobile wireless communications equipment at this site. As described in detail in Appendix B of this report, the Federal Communications Commission (FCC) has developed Maximum Permissible Exposure (MPE) Limits for general public exposures and occupational exposures. This report summarizes the results of RF-EME modeling in relation to relevant FCC RF-EME compliance standards for limiting human exposure to RF-EME fields. This report contains a detailed summary of the RF EME analysis for the site.

This document addresses the compliance of T-Mobile's proposed transmitting facilities independently at the site.

The Maximum Emissions Value is 34.2000% of the FCC's general public limit (6.8400% of the FCC's occupational limit) at the main roof level. The proposed site is in compliance with Federal regulations regarding (radio frequency) RF Emissions.

At the nearest walking/working surfaces to the T-Mobile antennas on the rooftop, the maximum power density generated by the T-Mobile antennas is approximately 34.20 percent of the FCC's general public limit (6.84 percent of the FCC's occupational limit).

Based on worst-case predictive modeling, there are no modeled exposures on any accessible main roof level-walking/working surface related to T-Mobile's equipment in the area that exceed the FCC's occupational and/or general public exposure limits at this site.

Signage is recommended at the site as presented in Attachment I. Posting of the signage brings the site into compliance with FCC rules and regulations.

## 2.0 MPE Calculations

Calculations were completed for the proposed T-Mobile Wireless antenna rooftop facility located at 1201 Boston Post Road in Milford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Because of the short wavelength of PCS services, the antennas require line-of-site paths for good propagation, and are typically installed a distance above ground level. Antennas are constructed to concentrate energy towards the horizon, with as little energy as possible scattered towards the ground or the sky. This design, combined with the low power of PCS facilities, generally results in no possibility for exposure to approach Maximum Permissible Exposure (MPE) levels, with the exception of in areas in the immediate vicinity of the antennas.

In accordance with T-Mobile's RF Exposure policy, EBI performed theoretical modeling using RoofView® software to estimate the worst-case power density at the site rooftop-level resulting from operation of the antennas.

For this report, EBI utilized antenna and power data provided by T-Mobile and compared the resultant worst-case MPE levels to the FCC's occupational/controlled exposure limits outlined in OET Bulletin 65. EBI has performed theoretical worst case modeling using RoofView® to estimate the maximum potential power density from each proposed antenna based on worst-case assumptions for the number of antennas and power. All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmission paths per carrier prescribed configuration.

The assumptions used in the modeling are based upon information provided by T-Mobile in the supplied drawings and known configuration values information gathered from other sources to approximate each additional carrier's contribution.

There are no collocated carriers on the rooftop.

The data for all T-Mobile antennas used in this analysis is shown in Section 3.0. Actual antenna gains for each antenna were used per manufacturer's specifications. All calculations were done with respect to uncontrolled and general public threshold limits.



### 3.0 T-Mobile Antenna Inventory

Sector	Antenna Number	Antenna Make	Antenna Model	Height (ft) Above Nearest Walking Surface	Azimuth (°)	Technology	Frequency Band	Power Per Channel (W)	Number of Channels	ERP (W)
A	1	Ericsson	AIR21 B4A/B12P 6'	20.7	75	UMTS	AWS - 2100 MHz	40	1	1538
A	1	Ericsson	AIR21 B4A/B12P 6'	20.7	75	LTE	700 MHz	20	2	865
A	2	Ericsson	AIR32 B66A/B2A	28.3	75	LTE	PCS - 1900 MHz	40	2	2742
A	2	Ericsson	AIR32 B66A/B2A	28.3	75	GSM	PCS - 1900 MHz	15	1	514
A	3	Ericsson	AIR3246 B66	21.2	75	LTE	AWS - 2100 MHz	40	4	6153
B	1	Ericsson	AIR21 B4A/B12P 6'	20.7	190	UMTS	AWS - 2100 MHz	40	1	1538
B	1	Ericsson	AIR21 B4A/B12P 6'	20.7	190	LTE	700 MHz	20	2	865
B	2	Ericsson	AIR32 B66A/B2A	28.3	190	LTE	PCS - 1900 MHz	40	2	2742
B	2	Ericsson	AIR32 B66A/B2A	28.3	190	GSM	PCS - 1900 MHz	15	1	514
B	3	Ericsson	AIR3246 B66	21.2	190	LTE	AWS - 2100 MHz	40	4	6153
C	1	Ericsson	AIR21 B4A/B12P 6'	20.7	320	UMTS	AWS - 2100 MHz	40	1	1538
C	1	Ericsson	AIR21 B4A/B12P 6'	20.7	320	LTE	700 MHz	20	2	865
C	2	Ericsson	AIR32 B66A/B2A	28.3	320	LTE	PCS - 1900 MHz	40	2	2742
C	2	Ericsson	AIR32 B66A/B2A	28.3	320	GSM	PCS - 1900 MHz	15	1	514
C	3	Ericsson	AIR3246 B66	28.2	320	LTE	AWS - 2100 MHz	40	4	6153
D	1	Ericsson	AIR21 B4A/B12P 6'	18.7	250	UMTS	AWS - 2100 MHz	40	1	1538
D	1	Ericsson	AIR21 B4A/B12P 6'	18.7	250	LTE	700 MHz	20	2	865
D	2	Ericsson	AIR32 B66A/B2A	19.3	250	LTE	PCS - 1900 MHz	40	2	2742
D	2	Ericsson	AIR32 B66A/B2A	19.3	250	GSM	PCS - 1900 MHz	15	1	514
D	3	Ericsson	AIR3246 B66	19.2	250	LTE	AWS - 2100 MHz	40	4	6153

• This table contains an inventory of only T-Mobile Antennas and Power Values. Note that EBI uses an assumed set of antenna specifications and powers for unknown and other carrier antennas for modeling purposes as detailed in Section 2.0.

## 4.0 Summary and Conclusions

All calculations performed for this analysis yielded results that were within the allowable limits for exposure to RF Emissions. Based on predictive modeling, there are no modeled exposures on any accessible main roof level-walking/working surface related to T-Mobile's equipment in the area that exceed the FCC's occupational and/or general public exposure limits at this site. Installation of mitigation measures will bring the proposed site into compliance.

There are no collocated carriers on the rooftop.

The anticipated maximum contribution from each sector of the proposed T-Mobile facility is 34.2% of the allowable FCC established general public limit (6.84% of the FCC occupational limit). This was determined through calculations along a radial from each sector taking full power values into account as well as actual vertical plane antenna gain values per the manufacturers supplied specifications for gain. Based on worst-case predictive modeling, there are no areas at ground level related to the proposed antennas that exceed the FCC's occupational or general public exposure limits at this site. At ground level, the maximum power density generated by the antennas is approximately 10.10% of the FCC's general public limit (2.02% of the FCC's occupational limit).




A site is considered out of compliance with FCC regulations if there are areas that exceed the FCC exposure limits and there are no RF hazard mitigation measures in place. Any carrier which has an installation that contributes more than 5% of the applicable MPE must participate in mitigating these RF hazards. For this facility, the composite values calculated were within the allowable 100% threshold standard per the federal government.

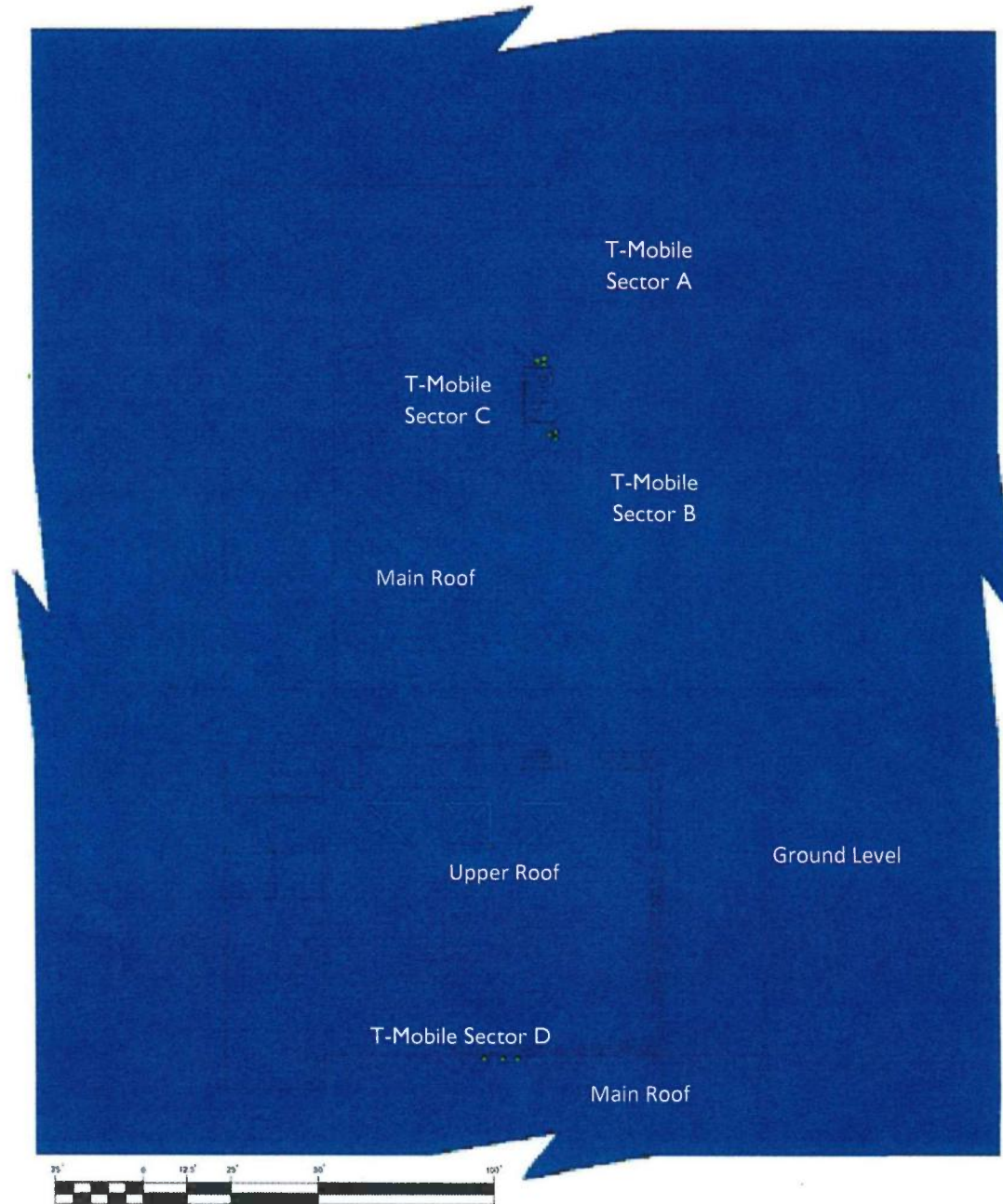
EBI's modeling indicates that there are no areas on the walking/working surfaces at the rooftop level in front of the T-Mobile antennas that may exceed the FCC standards for general population and/or occupational exposure. To reduce the risk of exposure and/or injury, EBI recommends that access to the rooftop or areas associated with the active antenna installation be restricted and secured where possible. In order to alert any workers potentially accessing the site, a blue Notice sign and a yellow Guidelines sign are recommended for installation at the access to the rooftop as depicted on the Signage Plan – Attachment I.


# Attachment I: MPE Analysis and Recommended Signage

Post at Roof  
Access Points







% FCC Public Exposure Limit	
	500 < Exposure Level
	100 < Exposure Level ≤ 500
	Exposure Level ≤ 100



 T-Mobile  
Antennas



Sign	Sign Count	Description	Posting Instructions
	I	<b>Blue Notice Sign</b> Used to notify individuals they are entering an area where the power density emitted from transmitting antennas may exceed the FCC's MPE limit for the general public or occupational exposures.	Securely post at all access points to the site in a manner conspicuous to all individuals entering thereon.
	I	<b>Guidelines</b> Informational sign used to notify workers that there are active antennas installed and provide guidelines for working in RF environments.	Securely post at all access points to the site in a manner conspicuous to all individuals entering thereon.
	N/A	<b>Yellow Caution Sign</b> Used to notify individuals that they are entering a hot spot where either the general public or occupational FCC's MPE limit is or could be exceeded.	Signage not required.
	N/A	<b>Red Warning Sign</b> Used to notify individuals that they are entering a hot zone where either the general public or occupational FCC's MPE limit has been exceeded.	Signage not required.
Notes:	<b>The proposed site will be compliant with the installation of the mitigation measures.</b> The actual number of access points may vary based on documentation provided and/or if a survey was conducted. Recommended signage locations are based on T-Mobile's guidance for the worst-case scenario in each sector. The actual signage installation is dependent on accessibility of the facility and antennas. Locations deemed inaccessible due to OSHA safety standards (proximity to unprotected roof edge or slope, etc.) will be compliant upon installation of recommended signage at the closest accessible point.		

## Attachment 2: RoofView® Export File

StartMapDefinition																						List Of Areas	
Roof Max	Roof Max	Map Max	Map Max	Y Offset	X Offset	Number of envelope																	
210	210	210	210	0	0	1 \$K\$11:\$HL\$K\$11:\$HL\$220										\$K\$11:\$HL\$220							
StartSettingsData																							
Standard	Method	Uptime	Scale Fact	Low Thr	Low Color	Mid Thr	Mid Color	Hi Thr	Hi Color	Over Color	Ap Ht Mult	Ap Ht Method											
4	2	3	1	100	1	500	2	5000	3	3	1.5	1											
StartAntennaData		It is advisable to provide an ID (ant 1) for all antennas																					
ID	Name	(MHz)	Trans	Trans	Coax	Coax	Other	Input	Calc				(ft)	(ft)	(ft)		(ft)	dBd	BWdth	Uptime	ON		
		Freq	Power	Count	Len	Type	Loss	Power	Power	Mfg	Model	X	Y	Z	Type	Aper	Gain	Pt Dir	Profile	flag			
TMO A1	UMTS	2100	40	1	0	0	0	0		40 Ericsson	AIR21 B4A/B12P 6'	114	207	20.66667		6	15.85	65;31		ON•			
TMO A1	LTE	700	20	2	0	0	0	0		40 Ericsson	AIR21 B4A/B12P 6'	114	207	20.66667		6	13.35	68;31		ON•			
TMO A2	LTE	1900	40	2	0	0	0	0		80 Ericsson	AIR32 B66A/B2A	117	186	28.31667		4.7	15.35	63;31		ON•			
TMO A2	GSM	1900	15	1	0	0	0	0		15 Ericsson	AIR32 B66A/B2A	117	186	28.31667		4.7	15.35	63;31		ON•			
TMO A3	LTE	2100	40	4	0	0	0	0		160 Ericsson	AIR3246 B66	117	186	21.24667		4.84	15.85	65;31		ON•			
TMO B1	UMTS	2100	40	1	0	0	0	0		40 Ericsson	AIR21 B4A/B12P 6'	114	205	20.66667		6	15.85	65;146		ON•			
TMO B1	LTE	700	20	2	0	0	0	0		40 Ericsson	AIR21 B4A/B12P 6'	114	205	20.66667		6	13.35	68;146		ON•			
TMO B2	LTE	1900	40	2	0	0	0	0		80 Ericsson	AIR32 B66A/B2A	117	184	28.31667		4.7	15.35	63;146		ON•			
TMO B2	GSM	1900	15	1	0	0	0	0		15 Ericsson	AIR32 B66A/B2A	117	184	28.31667		4.7	15.35	63;146		ON•			
TMO B3	LTE	2100	40	4	0	0	0	0		160 Ericsson	AIR3246 B66	117	184	21.24667		4.84	15.85	65;146		ON•			
TMO C1	UMTS	2100	40	1	0	0	0	0		40 Ericsson	AIR21 B4A/B12P 6'	111	206	20.66667		6	15.85	65;276		ON•			
TMO C1	LTE	700	20	2	0	0	0	0		40 Ericsson	AIR21 B4A/B12P 6'	111	206	20.66667		6	13.35	68;276		ON•			
TMO C2	LTE	1900	40	2	0	0	0	0		80 Ericsson	AIR32 B66A/B2A	115	185	28.31667		4.7	15.35	63;276		ON•			
TMO C2	GSM	1900	15	1	0	0	0	0		15 Ericsson	AIR32 B66A/B2A	115	185	28.31667		4.7	15.35	63;276		ON•			
TMO C3	LTE	2100	40	4	0	0	0	0		160 Ericsson	AIR3246 B66	115	185	21.24667		4.84	15.85	65;276		ON•			
TMO D1	UMTS	2100	40	1	0	0	0	0		40 Ericsson	AIR21 B4A/B12P 6'	105	6	18.66667		6	15.85	65;206		ON•			
TMO D1	LTE	700	20	2	0	0	0	0		40 Ericsson	AIR32 B66A/B12P 6'	105	6	18.66667		6	13.35	68;206		ON•			
TMO D2	LTE	1900	40	2	0	0	0	0		80 Ericsson	AIR32 B66A/B2A	96	6	19.31667		4.7	15.35	63;206		ON•			
TMO D2	GSM	1900	15	1	0	0	0	0		15 Ericsson	AIR32 B66A/B2A	96	6	19.31667		4.7	15.35	63;206		ON•			
TMO D3	LTE	2100	40	4	0	0	0	0		160 Ericsson	AIR3246 B66	101	6	19.24667		4.84	15.85	65;206		ON•			
StartSymbolData																							
Sym	Map Mark	Roof X	Roof Y	Map LabelDescription ( notes for this table only )																			
Sym		5	35	AC Unit	Sample symbols																		
Sym		14	5	Roof Access																			
Sym		45	5	AC Unit																			
Sym		45	20	Ladder																			

It should be noted that Roofview® considers the modeled area to be relative to true north. The provided drawings presented the site layout at an orientation other than true north. As such, the azimuths used in the Roofview® modeling were adjusted to account for this modified orientation.

## **Appendix A: Certifications**



## Preparer Certification

I, Thanh Estevam, state that:

- I am an employee of EnviroBusiness Inc. (d/b/a EBI Consulting), which provides RF-EME safety and compliance services to the wireless communications industry.
- I have successfully completed RF-EME safety training, and I am aware of the potential hazards from RF-EME and would be classified "occupational" under the FCC regulations.
- I am fully aware of and familiar with the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation.
- I have been trained on RF-EME modeling using RoofView® modeling software.
- I have reviewed the data provided by the client and incorporated it into this Site Compliance Report such that the information contained in this report is true and accurate to the best of my knowledge.



## **Appendix B: Federal Communications Commission (FCC) Requirements**

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limit for the 700 and 800 MHz Bands is  $467 \mu\text{W}/\text{cm}^2$  and  $567 \mu\text{W}/\text{cm}^2$  respectively, and the general population exposure limit for the PCS and AWS bands is  $1000 \mu\text{W}/\text{cm}^2$ . Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

A site is considered out of compliance with FCC regulations if there are areas that exceed the FCC exposure limits and there are no RF hazard mitigation measures in place. Any carrier which has an installation that contributes more than 5% of the applicable MPE must participate in mitigating these RF hazards.

Additional details can be found in FCC OET 65.



**ATTACHMENT H**  
**FAA COMPLIANCE REPORT**

February 28, 2019

Ms. Jenn Dupont  
T-Mobile USA  
c/o Transcend Wireless LLC  
35 Griffin Road  
Bloomfield, CT 06002

**Subject: Federal Aviation Administration (FAA) Compliance Results  
Propose T-Mobile USA Project  
Site No. CT11002A / Milford / I-95 / I  
1201 Boston Post Road  
Milford, CT 06460  
EBI Project No. 6119000677**

Dear Ms. Dupont

Enclosed please find the results of the Federal Aviation Administration (FAA) Compliance studies for the above-referenced site. The studies were completed based on information provided by Transcend Wireless LLC on behalf of T-Mobile USA, and gathered from the Land Survey and Site Plans, attached as Appendix A.

EBI utilized both commercially available and publicly accessible software that runs algorithms in accordance with FAA glide-slope calculations, referenced in Federal Aviation Regulation (FAR) Part 77 and FCC Rulepart 47 CFR 17, to determine the need for filing with the FAA and if registration with the FCC are required. For this site, our analysis demonstrated that notice to the FAA and an Antenna Structure Registration with the FCC are not required. Thus, the site may proceed from an FAA Compliance perspective.

If the proposed project location or proposed height of the structure changes, please notify EBI Consulting, and we will be happy to conduct FAA Compliance studies based on the changes.

Land Survey and Site Plans – Appendix A

Latitude (NAD 83): 41° 14' 11.111" N  
Longitude (NAD 83): 73° 02' 03.544" W  
Site Ground Elevation (AMSL): 21.74 feet  
Proposed Structure Height (AGL): 76.91 feet

Airspace© Studies – Appendix B

**PASS.** This site passed all Airspace studies, and notice to the FAA is not required.

FCC TowAir – Appendix C

**PASS.** This site does not require FCC registration based on the 6.10-meter (20-foot) rule.

Thank you for the opportunity to be of service to Transcend Wireless LLC on behalf of T-Mobile USA, and please don't hesitate to contact us with any questions or if we can assist with any of your future regulatory needs.

Respectfully Submitted,



Mr. Jermaine Deer  
Author/FAA Specialist  
TEL: 954-234-7429



Mr. Ian Swanson  
Project Manager  
TEL: (339) 933-0448

Appendix A: Land Survey and Site Plans  
Appendix B: Airspace© Studies  
Appendix C: FCC TowAir Results





Centered on Solutions<sup>SM</sup>

## FAA 2-C CERTIFICATION

**Applicant:** T-Mobile Northeast LLC  
35 Griffin Rd S  
Bloomfield, CT 06002

**Site Name:** CT11002A

**Address:** 1201 Boston Post Road  
Milford, CT 06460

**Horizontal Datum Source:**

☐ Ground Survey    ☒ GPS Survey    ☒ NAD 83    ☐ NAD 27

**Vertical Datum Source:**

☐ Ground Survey    ☒ GPS Survey    ☒ NAVD 88    ☐ NGVD 29

**Structure Type:**

☒ Existing    ☐ Monopole Tower    ☐ Transmission Tower    ☐ Utility Pole  
☐ Proposed    ☐ SST Lattice Tower    ☐ Smokestack    ☒ Roof Top  
                  ☐ Guyed Lattice Tower    ☐ Water Tank    ☐ Other (describe)

**Latitude:** N 41° 14' 11.111" NAD83    N 41.2364196° NAD83

**Longitude:** W 73° 02' 03.544" NAD83    W 73.0343176° NAD83

**Ground Elevation:** 21.74 feet AMSL

<b>Top of Existing Roof (Alpha, Beta, Gamma):</b>	19.99 ± feet AGL	41.73 ± feet AMSL
<b>Top of Existing Antenna (Delta):</b>	39.27 ± feet AGL	61.01 ± feet AMSL
<b>Top of Existing Roof (Delta):</b>	39.61 ± feet AGL	61.35 ± feet AMSL
<b>Top of Existing Antenna (Alpha, Beta, Gamma):</b>	46.44 ± feet AGL	68.18 ± feet AMSL
<b>Top of Proposed Antenna (Alpha, Beta, Gamma):</b>	52.33 ± feet AGL	74.07 ± feet AMSL
<b>Top of Existing Architectural Parapet:</b>	76.91 ± feet AGL	98.65 ± feet AMSL

**Certification:** I certify that the Latitude and Longitude noted hereon are accurate to within ± 50 feet horizontally and that the site elevation is accurate to within ± 20 feet vertically. The top of proposed antenna height is 52.33 ± feet AGL (74.07 ± AMSL). The overall height is the top of architectural parapet at 76.91 ± feet AGL (98.65 ± AMSL). The horizontal datum (coordinates) are in terms of the North American Datum of 1983 (NAD 83) and are expressed in degrees minutes and seconds to the nearest thousandth of a second. The vertical datum (heights) is in terms of the National Geodetic Vertical Datum of 1988 and expressed to the nearest hundredth of a foot.

**Company:** Centek Engineering, Inc.  
**Signature:**   
**PE Name & License No.:** Carlo F. Centore, PE (Lic. No. CT16694)



**Date Issued:** 2/4/2019

TOWAIR Determination Results

\*\*\* NOTICE \*\*\*

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

Structure does not require registration. The structure meets the 6.10-meter (20-foot) Rule criteria.

Your Specifications

NAD83 Coordinates

Latitude	41-14-11.1 north
Longitude	073-02-03.5 west

Measurements (Meters)

Overall Structure Height (AGL)	23.4
Support Structure Height (AGL)	23.4
Site Elevation (AMSL)	6.6

Structure Type

B - Building

Tower Construction Notifications

Notify Tribes and Historic Preservation Officers of your plans to build a tower.

CLOSE WINDOW