Robinson+Cole

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Also admitted in Massachusetts
and New York

January 10, 2022

Via Electronic Mail

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

Re: **Notice of Exempt Modification – Facility Modification**
18 Old Ridgebury Road, Danbury, Connecticut

Dear Attorney Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains an existing wireless telecommunications facility at the above-referenced property address (the "Property"). The facility consists of antennas, remote radio heads and an equipment shelter on the roof of the hotel building at the Property. Cellco's existing wireless facility was approved by the Council in October of 1994 (Petition No. 334). A copy of the Petition No. 334 Staff Report is included in Attachment 1.

Cellco now intends to modify its facility by removing six (6) antennas and installing three (3) JMA MX08FIT265-01antennas and six (6) JMA MX06FRO460-02 antennas in the same locations on the building. Cellco also intends to remove six (6) remote radio heads ("RRHs") and install nine (9) new RRHs behind its antennas. A set of project plans showing Cellco's proposed facility modifications and the specifications for Cellco's new antennas and RRHs are included in Attachment 2.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Danbury's Chief Elected Official and Land Use Officer.

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

1. The proposed modifications will not result in an increase in the height of the existing facility. Cellco's replacement antennas and RRHs will be installed at the same height and location on the building.

2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The installation of Cellco's new antennas and RRHs will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A general Cumulative Power Density table for the modified facility is included in Attachment 3. The modified facility will be capable of providing Cellco's 5G wireless service.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. According to the attached Structural Analysis Report ("SA"), which includes an analysis of the existing mounts, the existing building and antenna mounting system can support Cellco's proposed modifications. A copy of the SA is included in Attachment 4.

A copy of the parcel map and Property owner information is included in Attachment 5. A Certificate of Mailing verifying that this filing was sent to municipal officials and the property owner is included in Attachment 6.

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:

Dean Esposito, Danbury Mayor
Sharon Calitro, Director of Planning and Zoning
Eagle Propco 10 LLC, Property Owner
Karla Hanna, Verizon Wireless

ATTACHMENT 1

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

136 Main Street, Suite 401
New Britain, Connecticut 06051-4225
Phone: 827-7682

Petition No. 334
Metro Mobile CTS of Fairfield County, Inc.
Staff Report
October 20, 1994

On October 7, 1994, Metro Mobile CTS of Fairfield County, Inc. (Metro Mobile) petitioned the Connecticut Siting Council (Council) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) would be needed to install certain cellular telecommunications antennas on an existing Hilton Hotel building located at 18 Old Ridgebury Road, Danbury, Connecticut. Equipment associated with the antenna installation would be located within a 20-foot by 30-foot single story, pre-engineered panel-type building to be placed on the roof of the Hotel.

Under Regulations of Connecticut State Agencies (RSA) section 16-50j-2a(q) "Tower" means a structure, whether free standing or attached to a building or another structure, that has a height greater than its diameter and that is high relative to its surroundings, or that is used to support antennas for sending or receiving signals to or from satellites, which is or is to be:

1) used principally to support one or more antennas for receiving or sending radio frequency signals **and**
2) owned or operated by the State or a public service company as defined in 16-1 of the General Statutes, or used for public cellular radio communications service as defined section 16-50i of the General Statutes of Connecticut. (emphasis added)

On September 19, 1994, the Council ruled that it did not have jurisdiction to regulate "associated telecommunications equipment" not directly associated with a tower.

Since there is no existing tower nor will there be a tower as defined in RSA 16-50j-2a(q) after the antennas are attached, staff believes that the Council has no jurisdiction in this matter.

Stephen M. Howard
Siting Analyst

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ATTACHMENT 2

verizon

W DANBURY CT
18 OLD RIDGEBURY ROAD
DANBURY, CT 06810

GENERAL NOTES AND SPECIFICATIONS

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "G" STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES, 2017 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE, AND LOCAL CODES.
2. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. 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.
4. 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.
5. 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.
6. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, AND ALL TRADES AS APPLICABLE PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
7. 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.
8. 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.
9. 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 WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING BUILDING'S/PROPERTY'S OPERATIONS, COORDINATE WORK WITH BUILDING/PROPERTY OWNER.
10. 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.
11. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
12. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
13. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE VERIZON WIRELESS 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.
14. 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.
15. 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.
16. 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.
17. 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.
18. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB- CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
19. 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.
20. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED PRIOR TO ANY EXCAVATION WORK. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
21. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
22. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
23. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
24. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.

SITE DIRECTIONS

FROM: 20 ALEXANDER DRIVE, WALLINGFORD, CONNECTICUT **TO:** 18 OLD RIDGEBURY ROAD, DANBURY, CT 06810

1.	START OUT GOING NORTH ON ALEXANDER DR TOWARD BARNES INDUSTRIAL RD.	0.18 MI
2.	TURN RIGHT ONTO BARNES INDUSTRIAL RD.	0.11 MI
3.	TAKE THE 1ST LEFT ONTO CT-68.	4.35 MI
4.	TURN LEFT ONTO S MERIDEN RD/CT-70/CT-68. CONTINUE TO FOLLOW CT-70/CT-68.	1.24 MI
5.	TURN RIGHT ONTO S MAIN ST/CT-10/CT-70/CT-68.	0.15 MI
6.	TURN LEFT ONTO MAIN ST/CT-70/CT-68.	0.29 MI
7.	TURN LEFT ONTO W MAIN ST/CT-70/CT-68. CONTINUE TO FOLLOW CT-70.	4.06 MI
8.	MERGE ONTO I-84 W VIA THE RAMP ON THE LEFT.	36.49 MI
9.	TAKE EXIT 2A-2B TOWARD OLD RIDGEBURY RD/US-6/MILL PLAIN RD/US-202.	0.19 MI
10.	MERGE ONTO OLD RIDGEBURY RD VIA EXIT 2A.	0.57 MI
11.	18 OLD RIDGEBURY RD, DANBURY, CT 06810-5128, 18 OLD RIDGEBURY RD IS ON THE LEFT.	

VICINITY MAP

SCALE: 1" = 2000'

PROJECT SUMMARY

1. THE PROPOSED UPGRADE SCOPE OF WORK AT THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY GENERALLY INCLUDES THE FOLLOWING:

A. AT THE EXISTING ROOFTOP MOUNTED ANTENNA SECTORS:

- INSTALL (4) NEW ANTENNA MASTS. REFER TO DETAILS ON C-3 FOR ADDITIONAL INFORMATION.
- INSTALL (6) JMA - MXOFRO460-02 ANTENNAS.
- INSTALL (3) JMA - MX08FIT265-01 ANTENNAS.
- INSTALL (3) JMA - 91900314-02 MOUNTS.
- INSTALL (3) SAMSUNG - RF4439d-25A RADIOS.
- INSTALL (3) SAMSUNG - RF4440d-13A RADIOS.
- INSTALL (3) SAMSUNG - RT-8808-77A RADIOS.
- INSTALL (3) COMMSCOPE - IMF8-C-2STP FILTERS
- RETAIN (6) RFS - APL868013 ANTENNAS.
- RETAIN (3) 6x12 HYBRID CABLES.
- RETAIN (3) RAYCAP - OVP-6 BOXES.
- RETAIN (6) COAXIAL CABLES.
- REMOVE (3) RFS - APX75-866512-T2 749MHZ ANTENNAS.
- REMOVE (3) RYMSA - MG D3-800TO ANTENNAS.
- REMOVE (6) NOKIA RADIOS.

PROJECT INFORMATION

SITE NAME:	W DANBURY CT
SITE ADDRESS:	18 OLD RIDGEBURY ROAD DANBURY, CT 06810
LESSEE/TENANT:	CELLCO PARTNERSHIP d.b.a. VERIZON WIRELESS 20 ALEXANDER DRIVE WALLINGFORD, CT 06492
CONTACT PERSON:	WALTER CHARCZNSKI (CONSTRUCTION MANAGER) VERIZON WIRELESS (860) 306-1806
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT. 06405 (203) 488-0580
PROJECT COORDINATES:	LATITUDE: 41° 23' 18.3408"N LONGITUDE: 73° 30' 54.4464"W (COORDINATES REFERENCED FROM VERIZON WIRELESS RFDS DATED 11/16/2021)

SHEET INDEX

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	11/17/21	DMD	TJL	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
A	11/15/21	ANC	DMD	CONSTRUCTION DRAWINGS - REVISED PER FAA 2C SURVEY
A	11/10/21	BSP	DMD	CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW

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Branford, CT 06405
www.CentekEng.com

Cellco Partnership d/b/a Verizon Wireless

W DANBURY CT

18 OLD RIDGEBURY ROAD
DANBURY, CT 06810

DATE: 11/10/21
SCALE: AS NOTED
JOB NO. 21007.51

TITLE SHEET

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Sheet No. 1 of 8

NOTES AND SPECIFICATIONS

DESIGN BASIS

GOVERNING CODE: 2015 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2018 CT STATE BUILDING CODE AND AMENDMENTS.

1. DESIGN CRITERIA:
   - RISK CATEGORY: II (BASED ON TABLE 1604.5 OF THE 2015 IBC)
   - ULTIMATE DESIGN SPEED (BUILDING): 120 MPH (Vult) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-10) PER 2015 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2018 CONNECTICUT STATE BUILDING CODE.
   - SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

STRUCTURAL STEEL

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

   A. STRUCTURAL STEEL (W SHAPES)----ASTM A992 (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
   C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   E. PIPE---ASTM A53 (FY = 35 KSI)
   F. CONNECTION BOLTS---ASTM A325-N
   G. U-BOLTS---ASTM A36
   H. ANCHOR RODS---ASTM F 1554
   I. WELDING ELECTRODE---ASTM E 70XX

2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
16. FABRICATE BEAMS WITH MILL CAMBER UP.
17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	11/7/21	DMD	TdL	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
A	11/15/21	ANC	DMD	CONSTRUCTION DRAWINGS – REVISED PER FAA 2C SURVEY
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NOTES AND SPECIFICATIONS

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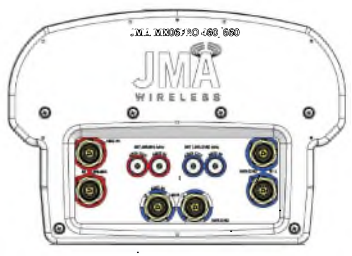
Sheet No. 2 of 8



JMA MX08FIT265-01

PLUMBING DIAGRAM NOTES:

1. PORTS 1 & 2 ARE FOR LOW BAND (698–896 MHz).
2. PORTS 3, 4, 5 & 6 ARE FOR HIGH BAND (1695–2360 MHz).
3. SMART BIAS TEE (SBT) IS THROUGH ANTENNA PORTS 1 & 3 (1 FOR LOW BAND AND 3 FOR HIGH BAND).
4. AISG CABLE IS ONLY NEEDED WHEN DRAWN IN THE DIAGRAMS ABOVE. IF IT IS NOT DRAWN THEN SBT IS ENOUGH TO CONTROL ALL RET MOTORS.
5. NOT ALL SBT PORTS ARE NEEDED TO CONTROL RET. ONLY GREEN PORT CONNECTION TO GREEN PORT WILL CONTROL RET.

RET DC SIGNAL PASS FOR RET (PORT THAT WILL CONTROL RET)

PLUMBING DIAGRAM COMMENTS:

A. DIAGRAMS SHOW ANTENNA PORT CONFIGURATIONS AS VIEWED FROM BELOW ANTENNAS.

B. ANTENNA POSITIONS ARE INDICATED AS VIEWED FROM IN FRONT OF ANTENNAS.

C. CAP AND WEATHERPROOF UNUSED ANTENNA PORTS.

D. ALL PLUMBING DIAGRAM COLORS ARE IRRELEVANT EXCEPT FOR AISG AND HYBRIFLEX CABLE. (FOR THE COAX COLORS, FOLLOW COAX COLORS GUIDE ABOVE)

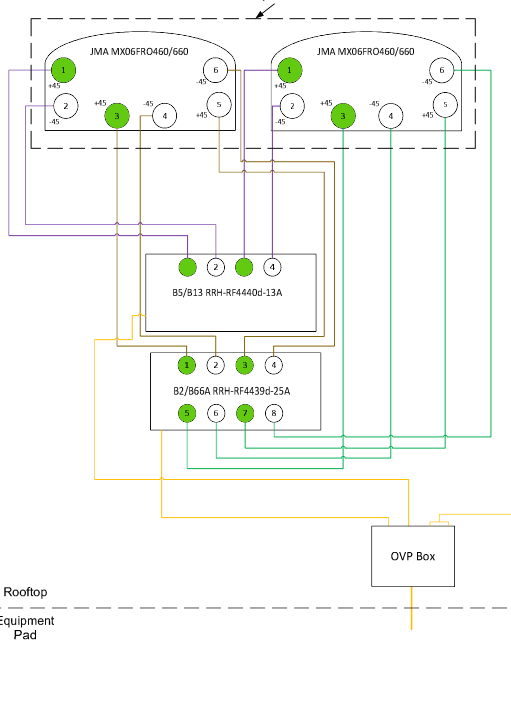
DC SIGNAL CAPABLE PORT

AISG CABLE

RET DC SIGNAL PASS FOR RET (PORT THAT WILL CONTROL RET)

HYBRIFLEX CABLES

2" Side By Side Mount



NOTES:

1. INFORMATION SHOWN HEREIN IS FOR USE BY VERIZON WIRELESS EQUIPMENT OPERATIONS.
2. THIS B.O.M. DRAWING IS BASED ON FACILITY UPGRADE DESIGN DRAWINGS PREPARED BY CENTEK ENGINEERING (REV.0 DATED: 11/17/2021), & VERIZON WIRELESS RF ANTENNA EQUIPMENT RECOMMENDATION (DATED 11/16/2021).

BILL OF MATERIALS

TECHNOLOGY	QUANTITY	ANTENNA
LTE 700 LTE 850 5G LTE PCS 1900 LTE AWS 2100	6	JMA ANTENNA MODEL: MX06FRO460-02
5G	3	JMA ANTENNA MODEL: MX08FIT265-01

CABLES	QUANTITY	LENGTH EA	COMMENTS
HYBRID CABLE	0	± FT EA	–

RADIOS	QUANTITY	COMMENTS
LTE 700 LTE 850 5G	3	SAMSUNG MODEL: RF4440d-13A
LTE PCS 1900 LTE AWS 2100	3	SAMSUNG MODEL: RF4439-25A
5G	3	SAMSUNG MODEL: RT8808-77A

DIPLEXERS	QUANTITY	COMMENTS
–	0	–

OVP BOXES	QUANTITY	COMMENTS
–	0	–

ANTENNA MOUNT	QUANTITY	COMMENTS
JMA WIRELESS	3	JMA MODEL: 919003314-02

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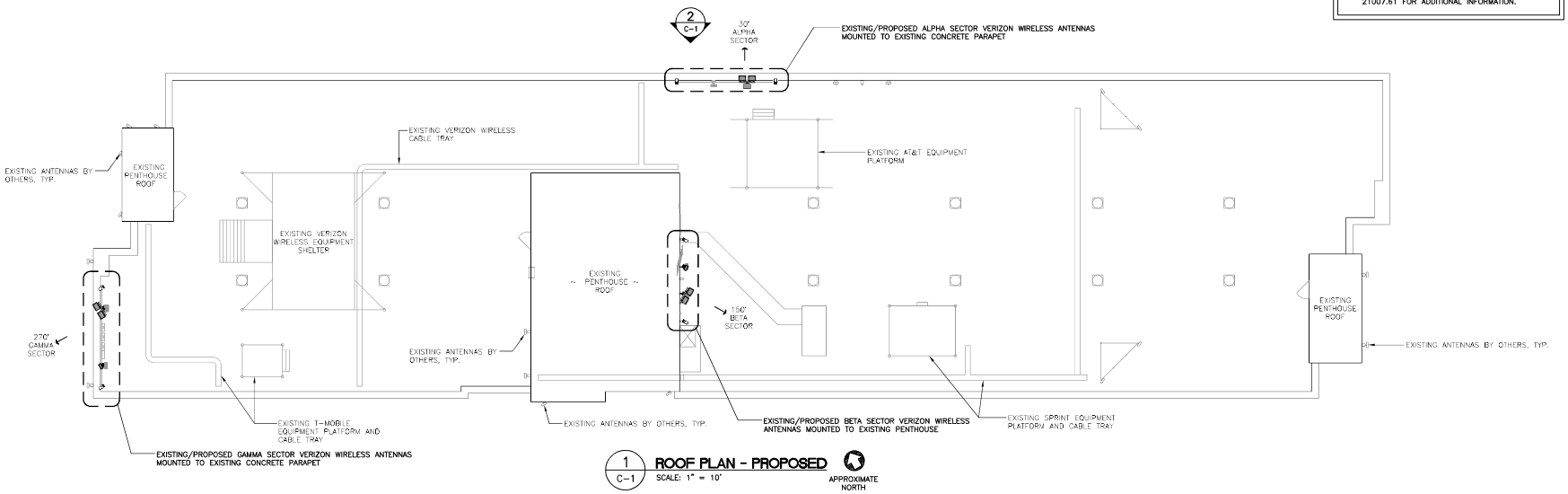
RF BILL OF MATERIALS

B-1

Sheet No. 3 of 8

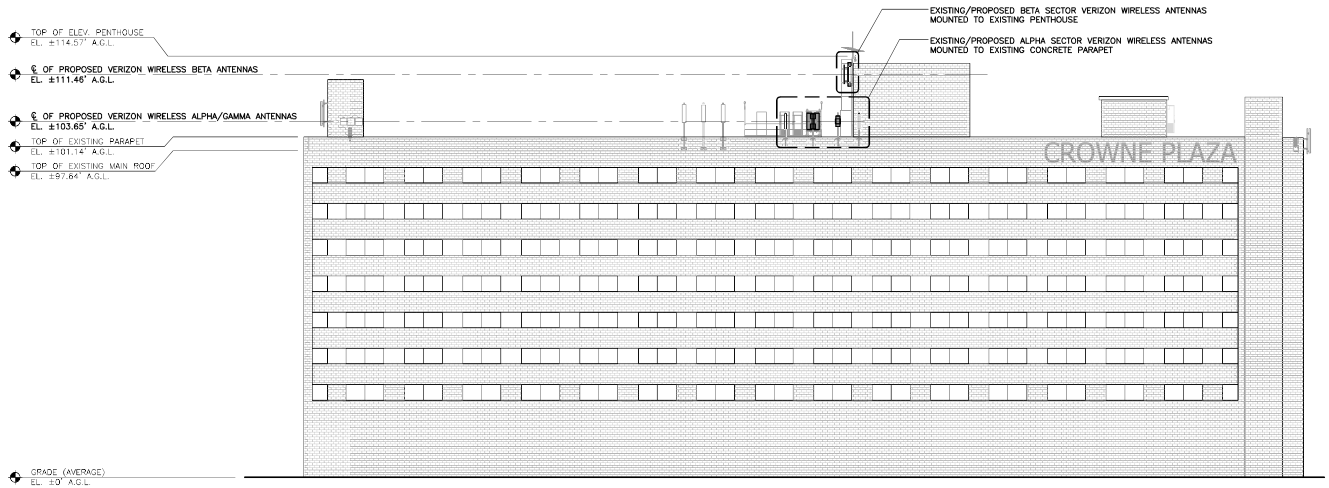
STRUCTURAL ANALYSIS REFERENCE NOTE:

1. REFER TO THE PASSING STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING DATED 11/10/2021. CENTEK PROJECT NO. 21007.61 FOR ADDITIONAL INFORMATION.



1 C-1 **ROOF PLAN - PROPOSED**
SCALE: 1" = 10'

APPROXIMATE NORTH



2 C-1 **NORTH BUILDING ELEVATION - PROPOSED**
SCALE: 1" = 15'

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0	11/1/21	DMD	TdL	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
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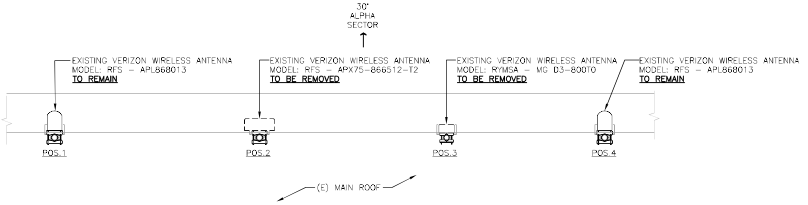
SCALE: AS NOTED
JOB NO. 21007.61

ROOF PLAN AND BUILDING ELEVATION

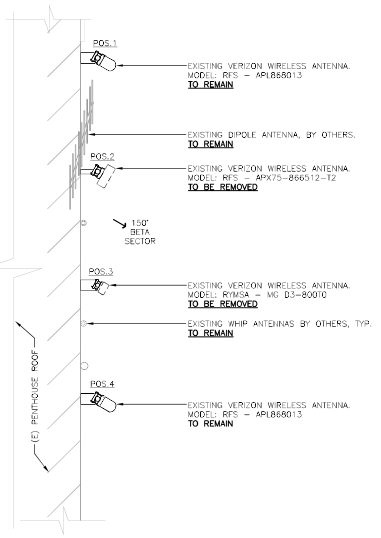
C-1

Sheet No. 4 of 8

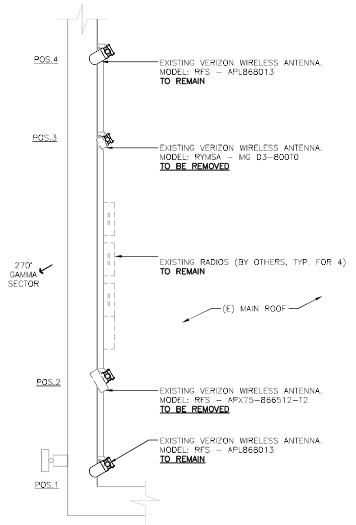
EXISTING ANTENNA CONFIGURATIONS



1 C-2 **EXISTING ALPHA SECTOR CONFIGURATION PLAN** APPROXIMATE NORTH
SCALE: 1/2" = 1'

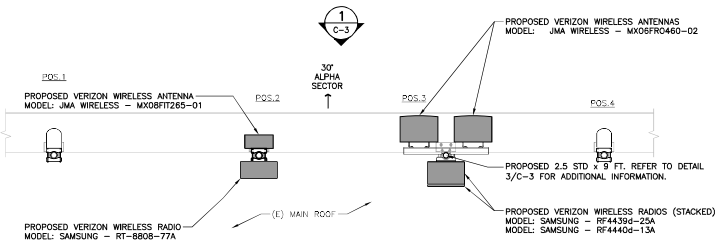


2 C-2 **EXISTING BETA SECTOR CONFIGURATION PLAN** APPROXIMATE NORTH
SCALE: 3/8" = 1'

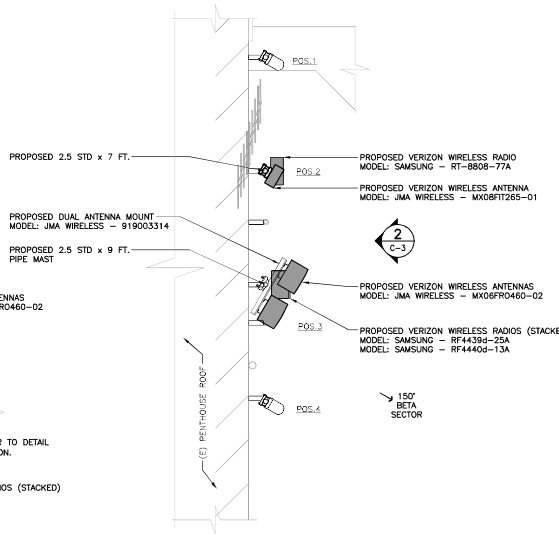


3 C-2 **EXISTING GAMMA SECTOR CONFIGURATION PLAN** APPROXIMATE NORTH
SCALE: 3/8" = 1'

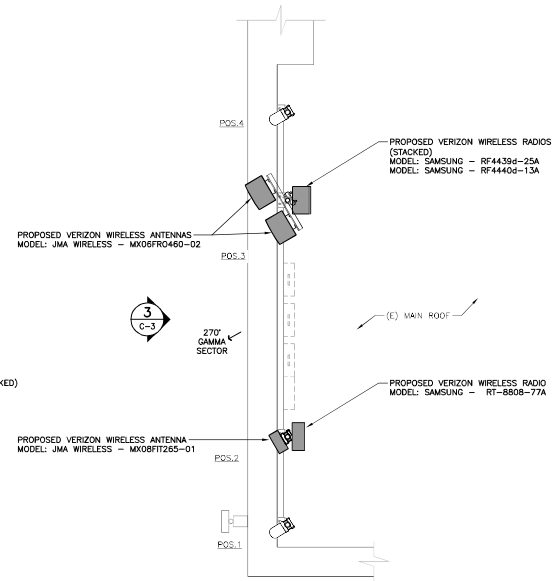
PROPOSED ANTENNA CONFIGURATIONS



1A C-2 **PROPOSED ALPHA SECTOR CONFIGURATION PLAN** APPROXIMATE NORTH
SCALE: 1/2" = 1'



2A C-2 **PROPOSED BETA SECTOR CONFIGURATION PLAN** APPROXIMATE NORTH
SCALE: 3/8" = 1'



3A C-2 **PROPOSED GAMMA SECTOR CONFIGURATION PLAN** APPROXIMATE NORTH
SCALE: 3/8" = 1'

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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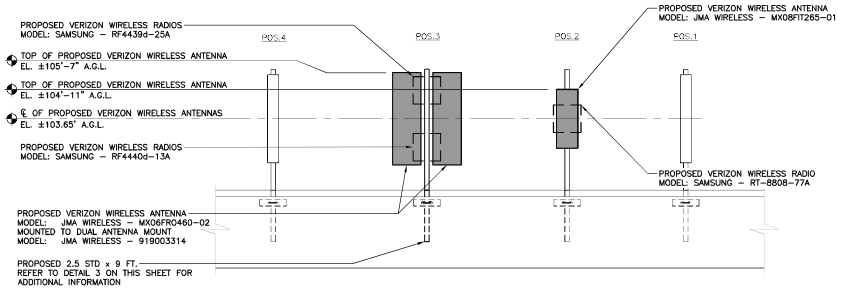
SECTOR CONFIGURATION PLANS

C-2

Sheet No. 5 of 8

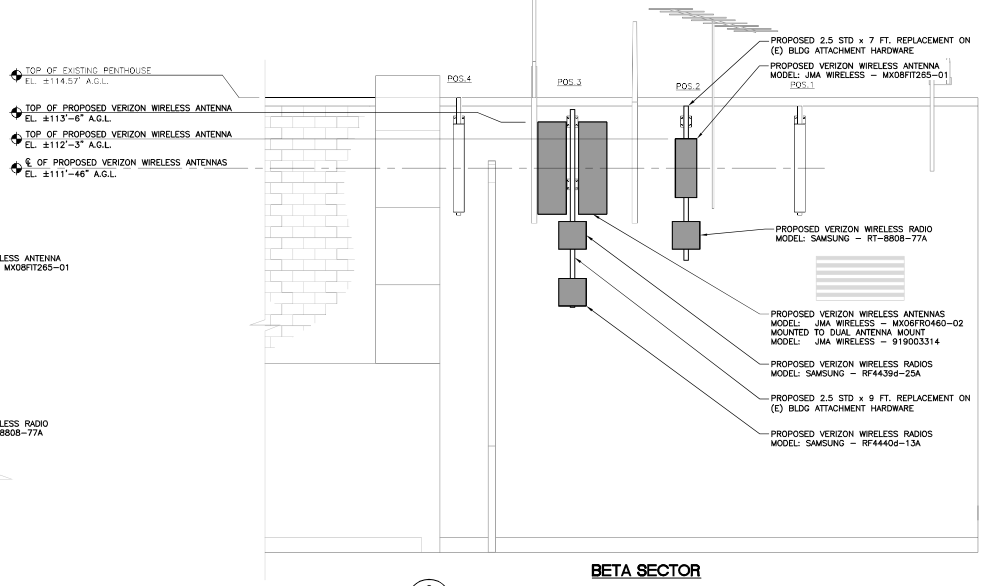
PROPOSED ANTENNA CONFIGURATIONS



ALPHA/GAMMA SECTOR

1 / C-3 **PROPOSED SECTOR CONFIGURATION ELEVATION**

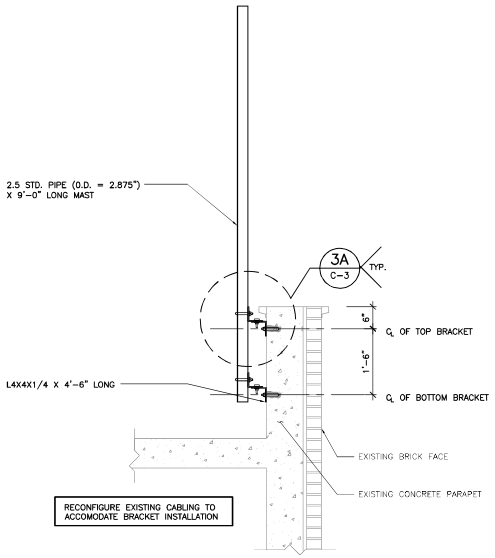
SCALE: 3/8" = 1'



BETA SECTOR

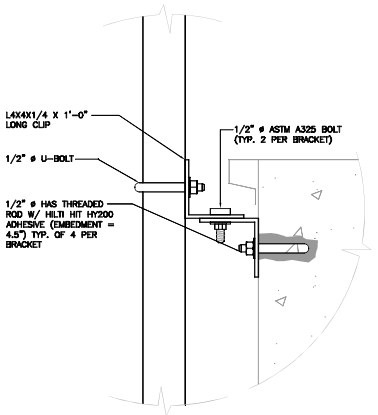
2 / C-3 **PROPOSED SECTOR CONFIGURATION ELEVATION**

SCALE: 3/8" = 1'



3 / C-3 **ANTENNA MAST CONNECTION DETAIL**

SCALE: 3/8" = 1'



3A / C-3 **BRACKET + CONNECTION DETAIL**

SCALE: 3" = 1'

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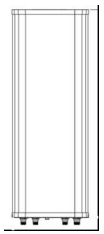
SECTOR CONFIGURATION ELEVATIONS

C-3

Sheet No. 6 of 8

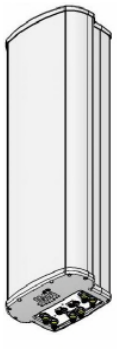


ELEVATION

MX08FIT265-01 (BOTTOM VIEW)

ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: JMA MODEL: MX08FIT265-01	32.0"L x 11.6"W x 4.5"D	26.5 LBS.

1 / C-4 **ANTENNA DETAIL**
NOT TO SCALE

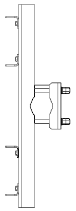


ELEVATION - ISOMETRIC

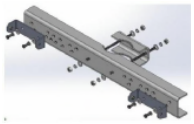
BOTTOM

8-PORT SECTOR ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: JMA MODEL: MX06FRO460-02	50.2"L x 15.4"W x 10.7"D	41.0 LBS. (W/OUT MOUNT KIT)

2 / C-4 **ANTENNA DETAIL**
NOT TO SCALE



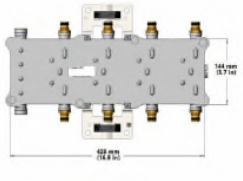
PLAN VIEW



ANTENNA MOUNT ISOMETRIC

DUAL ANTENNA MOUNTING KIT	
EQUIPMENT	DESCRIPTION
MOUNT MAKE: JMA MODEL: 919003314	• SIDE-BY-SIDE MOUNTING KIT, ACCOMMODATES (2) COMPATABLE ANTENNAS • 2 BRACKETS REQUIRED FOR 4'-6' ANTENNAS • 3 BRACKETS REQUIRED FOR 6'-8' ANTENNAS

3 / C-4 **DUAL ANTENNA MOUNT DETAIL**
NOT TO SCALE



COUPLER			
EQUIPMENT	DESCRIPTION	DIMENSIONS	WEIGHT
MAKE: COMMSCOPE MODEL: IMF8-C-2STP E14V00P32	8 PACK, 2 STEP IMF PASS C-BAND, SWITCHABLE, 4.3-10 CONNECTORS	16.9"H x 5.7"W x 3"D	22.3 LBS. (W/MNTG HDWR)

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.

4 / C-3 **COUPLER DETAIL**
NOT TO SCALE

RRH - ISOMETRIC

DUAL BAND RRU (REMOTE RADIO UNIT)			
EQUIPMENT	BANDS	DIMENSIONS	WEIGHT
MAKE: SAMSUNG MODEL: RF4439d-25A	B25: PCS (1900 MHz) B66: AWS (2100 MHz)	15.0"H x 15.0"W x 10.0"D	74.7 LBS.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.

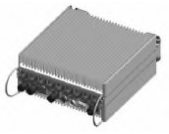
5 / C-4 **DUAL-BAND AWS/PCS MACRO RADIO UNIT DETAIL**
NOT TO SCALE

RRH - ISOMETRIC

DUAL BAND RRU (REMOTE RADIO UNIT)			
EQUIPMENT	BANDS	DIMENSIONS	WEIGHT
MAKE: SAMSUNG MODEL: RF440d-13A	B5: 850 MHz B13: 700 MHz	15.0"H x 15.0"W x 9.0"D	70.3 LBS.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.

6 / C-4 **DUAL-BAND 700/850 MHZ MACRO RADIO UNIT DETAIL**
NOT TO SCALE



RRH - ISOMETRIC

C BAND NR RT8808 (8T8R 320W RU) RRU (REMOTE RADIO UNIT)			
EQUIPMENT	BANDS	DIMENSIONS	WEIGHT
MAKE: SAMSUNG MODEL: RT-8808-77A (8T8R 320W RU)	N77: 3700 MHz	15.0"H x 15.0"W x 6.8"D	59.5 LBS.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO ORDERING.

7 / C-4 **C-BAND NR RT8808 (8T8R 320W) RADIO UNIT DETAIL**
NOT TO SCALE

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RF DETAILS

C-4

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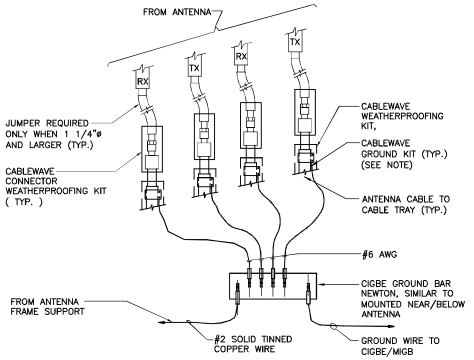
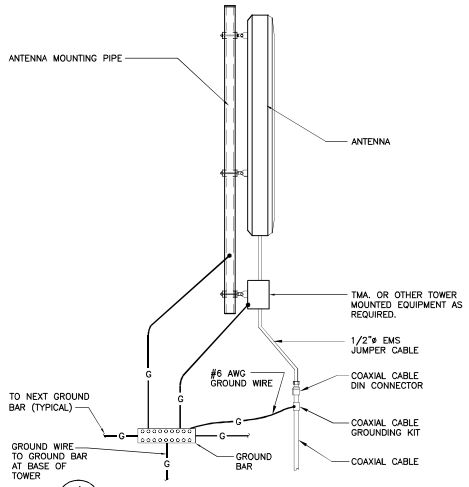


NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

1 E-1 CONNECTION OF GROUND WIRES TO GROUND BAR

NOT TO SCALE

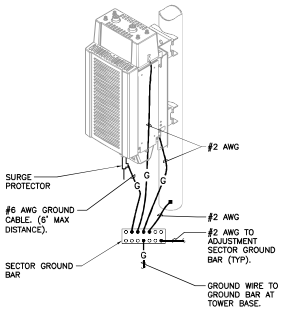


4 E-1 TYPICAL ANTENNA GROUNDING DETAIL

NOT TO SCALE

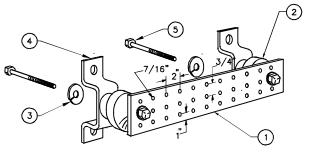
EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:

1. AT TOP OF THE CABINET
2. AT RIGHT SIDE OF THE CABINET.



2 E-1 RRH POLE MOUNT GROUNDING

NOT TO SCALE

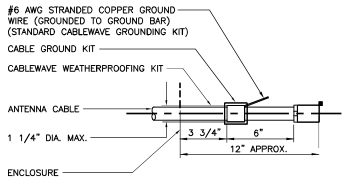


NOTES

1. TINNED COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4.
3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056.
5. 5/8-11 x 1" STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS.

5 E-1 GROUND BAR DETAIL

NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

3 E-1 ANTENNA CABLE GROUNDING DETAIL

NOT TO SCALE

ELECTRICAL SPECIFICATIONS

SECTION 16010

1.01. SCOPE OF WORK

A. WORK SHALL INCLUDE ALL LABOR, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE (MAKE READY FOR OPERATION) ALL THE ELECTRICAL WORK INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

1. CELLULAR GROUNDING SYSTEMS CONSISTING OF ANTENNA GROUNDING, GROUND BARS, ETC.

1.02. GENERAL REQUIREMENTS

A. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.

B. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNERS REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES THAT MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS THAT MAY BE REQUIRED BY THE LOCAL AUTHORITY.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.

E. NO MATERIAL OTHER THAN THAT CONTAINED IN THE "LATEST LIST OF ELECTRICAL FITTINGS" APPROVED BY THE UNDERWRITERS' LABORATORIES, SHALL BE USED IN ANY PART OF THE WORK. ALL MATERIAL FOR WHICH LABEL SERVICE HAS BEEN ESTABLISHED SHALL BEAR THE U.L. LABEL.

F. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.

G. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.

H. THE ELECTRICAL CONTRACTOR SHALL SUPPLY THREE (3) COMPLETE SETS OF APPROVED DRAWINGS, ENGINEERING DATA SHEETS, MAINTENANCE AND OPERATING INSTRUCTION MANUALS FOR ALL SYSTEMS AND THEIR RESPECTIVE EQUIPMENT. THESE MANUALS SHALL BE INSERTED IN VINYL COVERED 3-RING BINDERS AND TURNED OVER TO OWNER'S REPRESENTATIVE ONE (1) WEEK PRIOR TO FINAL PUNCH LIST.

I. ALL WORK SHALL BE INSTALLED IN A NEAT AND WORKMAN LIKE MANNER AND WILL BE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE.

J. ALL EQUIPMENT AND MATERIALS TO BE INSTALLED SHALL BE NEW, UNLESS OTHERWISE NOTED.

K. BEFORE FINAL PAYMENT, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF PRINTS (AS-BUILTS), LEGIBLY MARKED IN RED PENCIL TO SHOW ALL CHANGES FROM THE ORIGINAL PLANS.

L. ENTIRE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH OWNER'S SPECIFICATIONS, AND REQUIREMENTS OF ALL LOCAL AUTHORITIES HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH APPROPRIATE INDIVIDUALS TO OBTAIN ALL SUCH SPECIFICATIONS AND REQUIREMENTS. NOTHING CONTAINED IN, OR OMITTED FROM, THESE DOCUMENTS SHALL RELIEVE CONTRACTOR FROM THIS OBLIGATION.

SECTION 16450

1.01. GROUNDING

A. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.

B. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.

C. EQUIPMENT GROUNDING CONDUCTOR:

1. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122.

2. THE MINIMUM SIZE OF EQUIPMENT GROUND CONDUCTOR SHALL BE #12 AWG COPPER.

D. CELLULAR GROUNDING SYSTEM:

PROVIDE THE CELLULAR GROUNDING SYSTEM AS SPECIFIED ON DRAWINGS, INCLUDING, BUT NOT LIMITED TO:

1. GROUND BARS
2. ANTENNA GROUND CONNECTIONS AND PLATES.

E. ALL EQUIPMENT SHALL BE BONDED TO GROUND AS REQUIRED BY N.E.C., MFG. SPECIFICATIONS, AND OWNER'S SPECIFICATIONS.

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ELECTRICAL DETAILS AND SPECIFICATIONS

E-1

Sheet No. 8 of 8

SAMSUNG

Radio Access Network

102 RRU
Product Specification

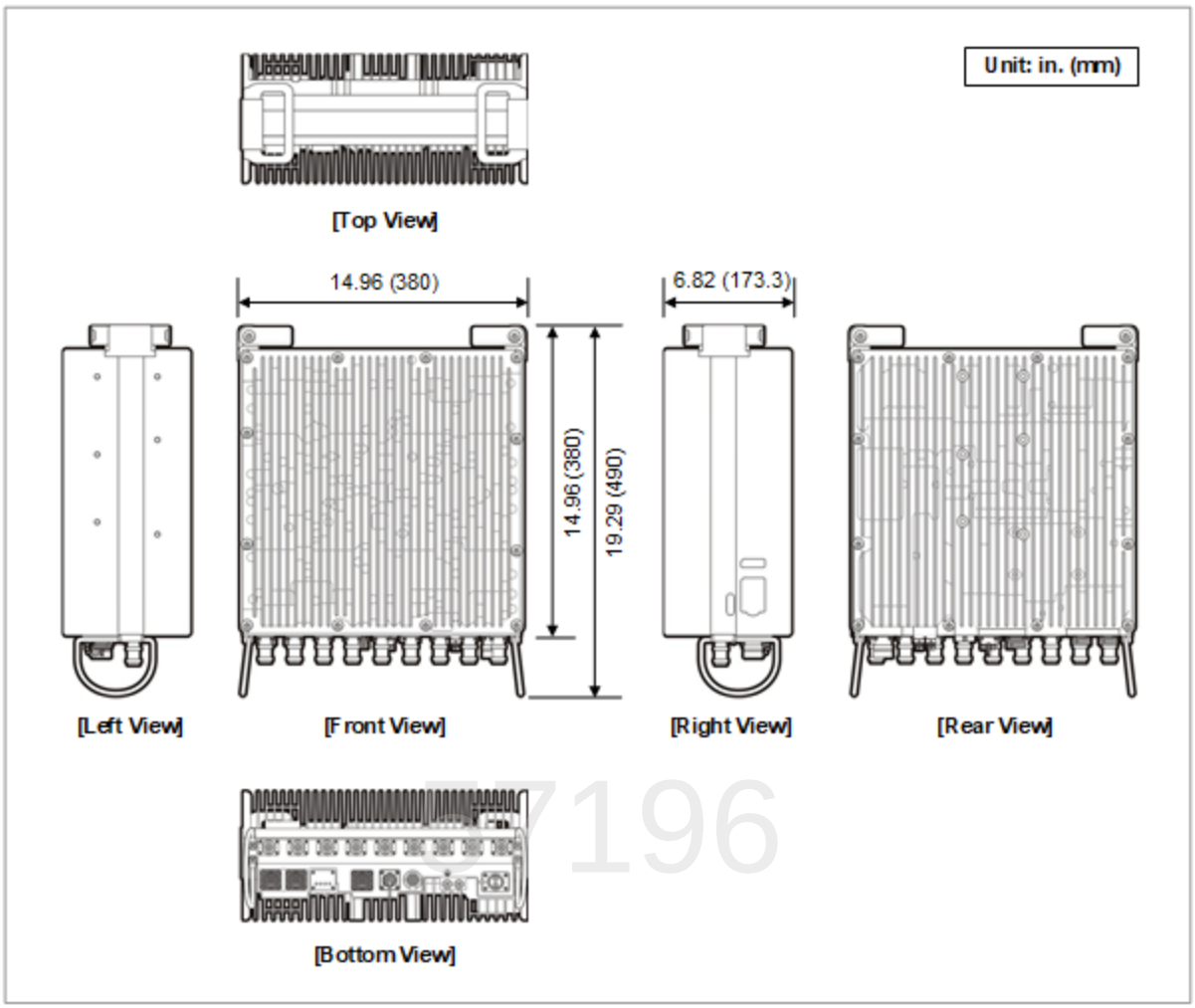
for RT8808-77A

Specifies hardware configuration, functions, specifications, components, ports, and LED information for the radio units.

Document Version 1.0
June 2021

Document Number: 2600-00T7PZGA2

Figure 1. Appearance



The RT8808-77A can be mounted on a wall or pole as displayed in the following installation scenario:

Specifications

The following table outlines the main specifications of RT8808-77A.

Table 2. Specifications (RT8808-77A)

Item	RT8808-77A
Radio Technology	5G NR
Operating Frequency	3700 to 3980 MHz
Channel Bandwidth	20/40/60/80/100 MHz
RF Chain	• 8T8R, 4T4R+4T4R Bi-sector • 2T2R+2T2R+2T2R Tri-sector • 4T8R+4T8R split mode
RF Output Power	Max. 320W (8 x 40W)
Capacity	Total Max 2C
CPRI interface	15km, 2 ports (25Gbps x 2), SFP28, single mode, Bi-di (Option: Duplex)
Input Voltage	-48 V DC (-38 V DC to -57 V DC)
Power Consumption (Max.)	1,192 W (100% load, 25°C) (w/o RET)
Operating Humidity	5% to 100%RH (Condensing, not to exceed 30g/m3 absolute humidity)
Operating Temperature	-40°C to 55°C (without solar load)
Dimension (in./mm)	14.96/380 (W) × 6.82/173.3(D) × 14.96/380 (H)
Weight (kg)	27 or less than
Cooling	Natural convection
Waterproof/Dustproof	IP65
Wind Resistance	Telcordia GR-487-CORE Issue5 • Wind Resistance (Section 3.36)
Earthquake Specification	Telcordia GR-63-CORE, Issue5, □ Earthquake (Section 4.4.1)
Vibration Specification	Telcordia GR-63-CORE, Issue5, • Office Vibration (Section 4.4.4) • Transportation Vibration (Section 4.4.5)
Altitude	Telcordia GR-63-CORE, Issue5, • Altitude (Section 4.1.3)
EMC	FCC Title 47 CFR Part 15
RF	FCC Title 47 CFR Part 27, 24
Safety	UL 62368-1, 2nd Edition
Installation	Pole, Wall, Tower

The power consumption is predicted with a simulation and the measured value is subject to change by ±10%

SAMSUNG

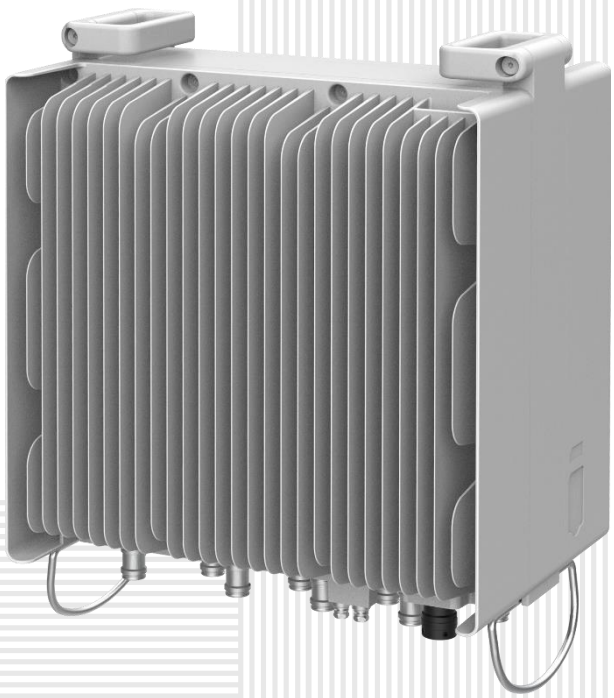
AWS/PCS MACRO RADIO

DUAL-BAND AND HIGH POWER FOR MACRO COVERAGE

Samsung's future proof dual-band radio is designed to help effectively increase the coverage areas in wireless networks. This AWS/PCS 4T4R dual-band radio has 4Tx/4Rx to 2Tx/2Rx RF chains options and a total output power of 320W, making it ideal for macro sites.

57196

Model Code	RF4439d-25A



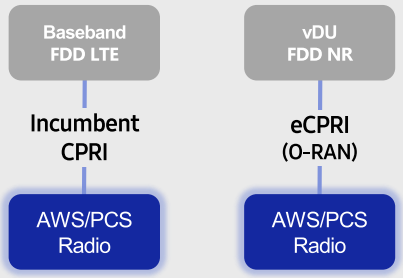
Homepage
samsungnetworks.com

Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

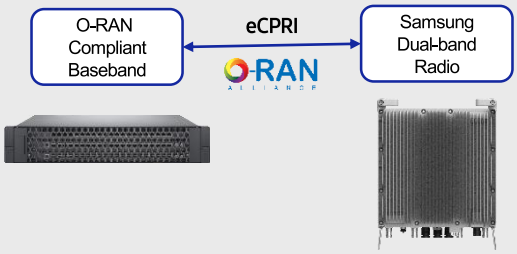
Samsung's AWS/PCS macro radio can support each incumbent CPRI interface as well as advanced eCPRI interfaces. This feature provides installable options for both legacy LTE networks and added NR networks.



O-RAN Compliant

A standardized O-RAN radio can help in implementing cost-effective networks, which are capable of sending more data without compromising additional investments.

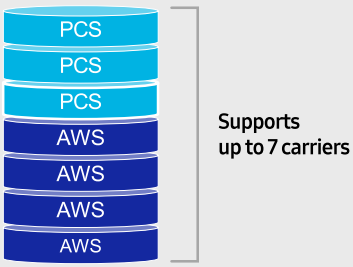
Samsung's state-of-the-art O-RAN technology will help accelerate the effort toward constructing a solid O-RAN ecosystem.



Optimum Spectrum Utilization

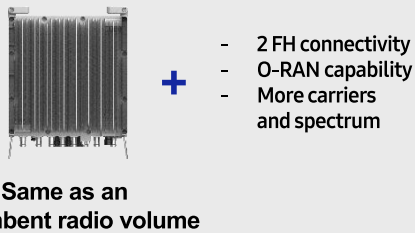
The number of required carriers varies according to site (region). Supporting many carriers is essential for using all frequencies that the operator has available.

The new AWS/PCS dual-band radio can support up to 3 carriers in the PCS (1.9GHz) band and 4 carriers in the AWS (2.1GHz) band, respectively.



Brand New Features in a Compact Size

Samsung's AWS/PCS macro radio offers several features, such as dual connectivity for baseband for both CDU and vDU, O-RAN capability, more carriers and an enlarged PCS spectrum, combined into an incumbent radio volume of 36.8L.



Technical Specifications

Item	Specification
Tech	LTE / NR
Brand	B25(PCS), B66(AWS)
Frequency Band	DL: 1930 – 1995MHz, UL: 1850 – 1915MHz DL: 2110 – 2200MHz, UL: 1710 – 1780MHz
RF Power	(B25) 4 × 40W or 2 × 60W (B66) 4 × 60W or 2 × 80W
IBW/OBW	(B25) 65MHz / 30MHz (B66) DL 90MHz, UL 70MHz / 60MHz
Installation	Pole, Wall
Size/ Weight	14.96 x 14.96 x 10.04inch (36.8L) / 74.7lb

SAMSUNG

700/850MHZ MACRO RADIO

DUAL-BAND AND HIGH POWER FOR MACRO COVERAGE

Samsung's future proof dual-band radio is designed to help effectively increase the coverage areas in wireless networks. This 700/850MHz 4T4R dual-band radio has 4Tx/4Rx to 2Tx/2Rx RF chains options and a total output power of 320W, making it ideal for macro sites.

Model Code	RF4440d-13A

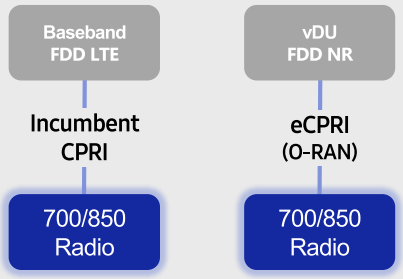
Homepage
samsungnetworks.com

Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

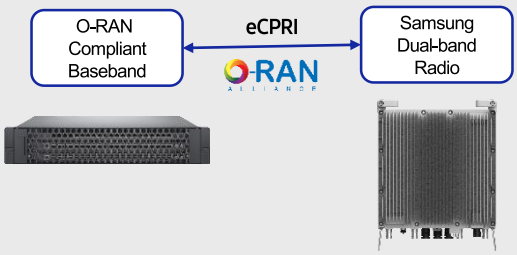
Samsung's 700/850MHz macro radio can support each incumbent CPRI interface as well as an advanced eCPRI interface. This feature provides installable options for both legacy LTE networks and added NR networks.



O-RAN Compliant

A standardized O-RAN radio can help when implementing cost-effective networks because it is capable of sending more data without compromising additional investments.

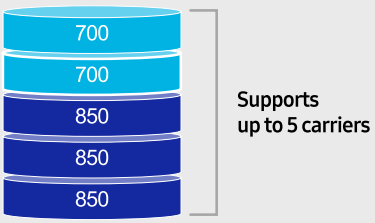
Samsung's state-of-the-art O-RAN technology will help accelerate the effort toward constructing a solid O-RAN ecosystem.



Optimum Spectrum Utilization

The number of required carriers varies according to site (region). The ability to support many carriers is essential for using all frequencies that the operator has available.

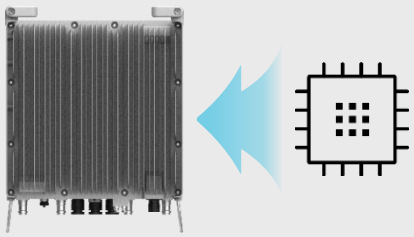
The new 700/850MHz dual-band radio can support up to 2 carriers in the B13 (700MHz) band and 3 carriers in the B5 (850MHz) band, respectively.



Secured Integrity

Access to sensitive data is allowed only to authorized software.

The Samsung radio's CPU can protect root of trust, which is credential information to verify SW integrity, and secure storage provides access control to sensitive data by using dedicated hardware (TPM).



Technical Specifications

Item	Specification
Tech	LTE / NR
Brand	B13(700MHz), B5(850MHz)
Frequency Band	DL: 746 – 756MHz, UL: 777 – 787MHz DL: 869 – 894MHz, UL: 824 – 849MHz
RF Power	(B13) 4 × 40W or 2 × 60W (B5) 4 × 40W or 2 × 60W
IBW/OBW	(B13) 10MHz / 10MHz (B5) 25MHz / 25MHz
Installation	Pole, Wall
Size/ Weight	14.96 x 14.96 x 9.05inch (33.2L) / 70.33 lb

MX08FIT265-01

NWAV™ Panel Antenna

8-Port 32 in. FIT (Form in Tighter), 3700 - 4200 MHz

- 5G C-Band 8T8R beamforming antenna
- Optimized antenna array design for all C-Band beam-forming combinations
- Excellent passive intermodulation (PIM) performance reduces harmful interference
- Integrated (internal RET) for remote electrical tilt control

Electrical specification (minimum/maximum)	Ports 1, 2, 3, 4, 5, 6, 7, 8
Frequency bands, MHz	3700-4200
Gain, dBi	17.1
Horizontal beamwidth (HBW), degrees	85
Horizontal beamwidth tolerance, degrees	±5
Front-to-back ratio, co-polar power @180°± 30°, dB	27
Vertical beamwidth (VBW), degrees[1]	5.5
Vertical beamwidth tolerance, degrees	±0.3
Remote electrical downtilt (EDT) range, degrees	2-12
First upper side lobe (USLS) suppression, dB[1]	15
Coupling level, Amp, Antenna port to Cal port, dB	26
Coupling level, max Amp Δ, Antenna port to Cal port, dB	±0.6
Coupler, max Amp Δ, Antenna port to Cal port, dB	0.65
Coupler, max Phase Δ, Antenna port to Cal port, degrees	4
Cross-polar isolation, port-to-port, dB[1]	25
Max VSWR / return loss, dB	1.5:1 / -14.0
Max passive intermodulation (PIM), 2x20W carrier, dBc	-145
Max input power per port at 50 °C, watts	75

[1] Typical value over frequency and tilt

Electrical specification, Broadcast 65°	Ports 1, 2, 3, 4, 5, 6, 7, 8
Frequency bands, MHz	3700-4200
Gain over all tilts, dBi	22.5
Horizontal beamwidth (HBW), degrees1	65
Horizontal beamwidth tolerance, degrees	±6
Vertical beamwidth (VBW), degrees[1]	5.5
Vertical beamwidth tolerance, degrees	±0.3
First upper side lobe (USLS) suppression, dB[1]	<-16

Electrical specification, Service Beam	Ports 1, 2, 3, 4, 5, 6, 7, 8
Frequency bands, MHz	3700-4200
Steered 0° gain, dBi	22.5
Steered 0° Gain tolerance, dBi	±0.6
Steered 0° Beamwidth, Horizontal, degrees	22
Steered 0° CPR at beampeak, dB	18
Steered 0° Horizontal Sidelobe, dB	12
Steered 30° Gain, dBi (max)	21.8
Steered 30° Gain tolerance, dBi	±0.6
Steered 30° Gain, dBi	21
Steered 30° Beamwidth, Horizontal, degree	22.2
Steered 30° CPR at beampeak, dB	18
Steered 30° Horizontal Sidelobe, dB	10

Electrical specification, Soft Split	Ports 1, 2, 3, 4, 5, 6, 7, 8
Frequency bands, MHz	3700-4200
Gain over all tilts, dBi	21.8
Horizontal beamwidth (HBW), degrees[1]	32
First upper side lobe (USLS) suppression, dB[1]	15

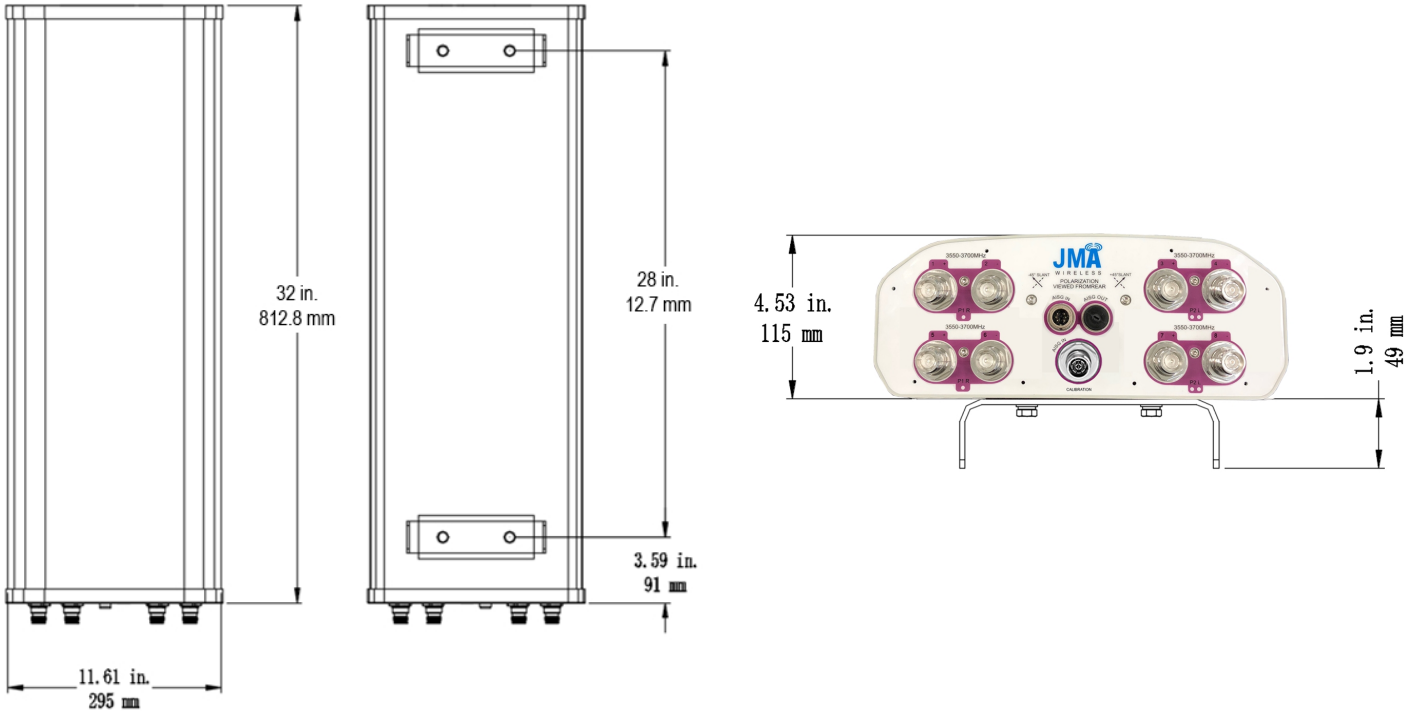
Beamforming weighting table available upon request

MX08FIT265-01

NWAV™ Panel Antenna

Mechanical specifications	
Dimensions height/width/depth, inches (mm)	32.0/ 11.6/ 4.53 (812.8/ 295/ 115)
Shipping dimensions length/width/height, inches (mm)	37.0/ 16.9/ 11.8 (939.8/ 430/ 300)
No. of RF input ports, connector type, and location	8 x 4.3-10 female, bottom
Calibration interface port, connector type, and location	1 x 4.3-10 female, bottom
RF connector torque	96 lbf·in (10.85 N·m or 8 lbf·ft)
Net antenna weight, lb (kg)	23.2 (10.52)
Weight with supplied pipe mount bracket, lb (kg)	26.5 (12.02)
Shipping weight, lb (kg)	49.1 (22.27)
Rated wind survival speed, mph (km/h)	150 (241)
Frontal wind loading @ 150 km/h, lbf (N)	56.9

Front view **Back view** **Bottom view**



Ordering information	
Antenna model	**Description**
MX08FIT265-01	32-inch 8T8R beamforming antenna, 3700-4200 MHz with RET
Mounting kit (included)	91900330 BRACKET KIT, range of mechanical up/down tilt -2° to 12°
Optional accessories	
AISG cables	M/F cables for AISG connections
PCU-1000 RET controller	Stand-alone controller for RET control and configurations

Remote electrical tilt (RET 1000) information	
RET location	Integrated into antenna
RET interface connector type	8-pin AISG connector per IEC 60130-9 or RF port Bias-T
RET connector torque	Min 0.5 N·m to max 1.0 N·m (hand pressure & finger tight)
RET interface connector quantity	1 pair of AISG male/female connectors and 1 RF port Bias-T
RET interface connector location	Bottom of the antenna
Total no. of internal RETs	1
RET input operating voltage, vdc	10-30
RET max power consumption, idle state, W	≤ 2.0
RET max power consumption, normal operating conditions, W	≤ 13.0
RET communication protocol	AISG 2.0 / 3GPP

RET and RF connector topology

Each RET device can be controlled either via the designated external AISG connector or RF port as shown below:

RET device	Band	RF port
1	3700-4200	1-8

Array topology

1 set of radiating arrays

P1: 3700-4200 MHz

Band	RF port
3700-4200	1-8

Product Specifications

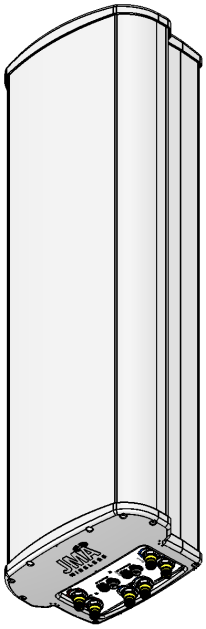
MX06FRO460-02

NWAV™ X-Pol Antenna | Hex-Port | 4 ft | 60°

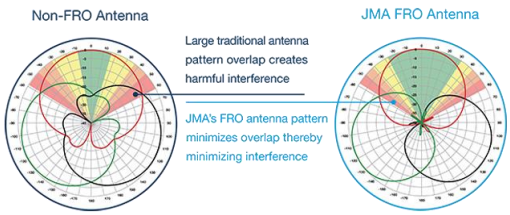
X-Pol, Hex-Port 4 ft 60º Fast Roll Off with Smart Bias T

(2) 698-894 MHz & (4) 1695-2180 MHz

- Fast Roll Off (FRO™) Azimuth beam pattern improves Intra- and Inter-cell SINR
- Excellent Passive Intermodulation (PIM) performance reduces harmful interference
- Fully integrated (iRETs) with *independent* RET control for low and high bands for ease of network optimization
- *SON-Ready* array spacing supports beamforming capabilities
- Suitable for LTE/CDMA/PCS/UMTS/GSM Air interface technologies
- Integrated Smart BIAS-Ts reduces leasing costs



Fast Roll-Off (FRO) increased throughput, without compromising coverage.



FRO technology increases the Signal to Interference & Noise Ratio (SINR) by eliminating overlap between sectors.

LTE Throughput	SINR	Speed (bps/Hz)	Speed Increase	CQI
Excellent	>20	>5	333+ %	14-15
Good	12-20	3.3-5	277%	10-13
Fair	6-12	1.5-3.3	160%	7-9
Poor	<6	<1.5	0%	1-7

nWAV technology

Electrical Specification (Minimum/ Maximum)	Ports 1,2		Ports 3,4,5,6		
Frequency bands, MHz	698-798	824-894	1695-1880	1850-1990	1920-2180
Polarization	± 45⁰		± 45⁰		
Average gain over all tilts, dBi	13.1	13.5	16.6	16.8	17.2
Horizontal beamwidth (HBW), degrees[1]	61.0	52.0	57.0	54.0	53.0
Front-to-back ratio, co-polar power @180⁰± 30⁰, dB	>21	>21	>25.0	>25.0	>25.0
X-Pol discrimination (CPR) at boresight, dB	>16	>15	>17	>17	>17
Sector power ratio, percent	<4.8	<3.2	<3.7	<3.8	<3.6
Vertical beamwidth, (VBW), degrees[1]	18.5	16.5	8.2	7.8	7.3
Electrical downtilt (EDT) range, degrees	2-16	2-16	0-9		
First upper side lobe (USLS) suppression, dB[1]	≤ -15	≤ -16	≤ -16	≤ -16	≤ -16
Minimum cross-polar isolation, port-to-port, dB	25	25	25	25	25
Maximum VSWR/ return loss, dB	1.5/ -14.0	1.5/ -14.0	1.5/ -14.0	1.5/ -14.0	1.5/ -14.0
Maximum passive Intermodulation (PIM), 2x 20W carrier, dBc	-153	-153	-153		
Maximum input power per any port, watts	300		250		
Total composite power all ports, watts	1500				

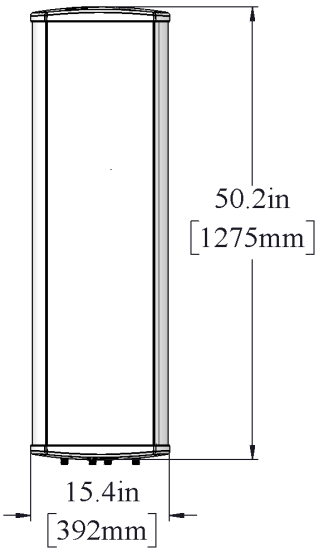
[1] Typical value over frequency and tilt

MX06FRO460-02

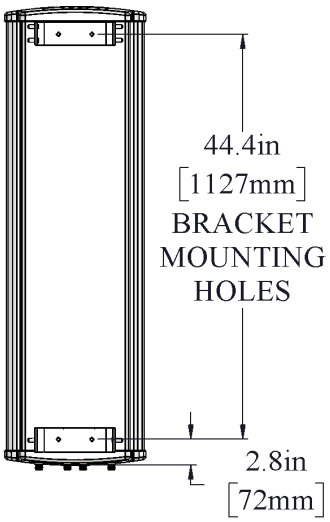
NWAV™ X-Pol Antenna | Hex-Port | 4 ft | 60°

Mechanical Specifications	
Dimensions height/ width/ depth, inches (mm)	50.2/ 15.4/ 10.7 (1275/ 392/ 273)
Shipping dimensions length/ width/ height, inches (mm)	60/ 20/ 15 (1524/ 508/ 381)
No. of RF input ports, connector type & location	6 x 4.3-10 Female, bottom
RF connector torque	96 in- lb (10.85 N-M or 8 ft-lbs)
Net antenna weight, lb (kg)	41 (18.64)
Shipping weight, lbs. (kg)	79 (35.91)
Antenna mounting and downtilt kit included with antenna	91900318
Net weight of the mounting and downtilt kit, lbs. (kg)	18 (8.18)
Range of mechanical up/ down tilt	-2° to 12°
Rated wind survival speed, mph (km/h)	150 (241)
Frontal, lateral & rear wind loading @ 150 km/h, lbf (N)	114 (507), 54 (240), 117 (520)
Equivalent flat plate @100 mph and Cd=2, sq. ft.	1.48

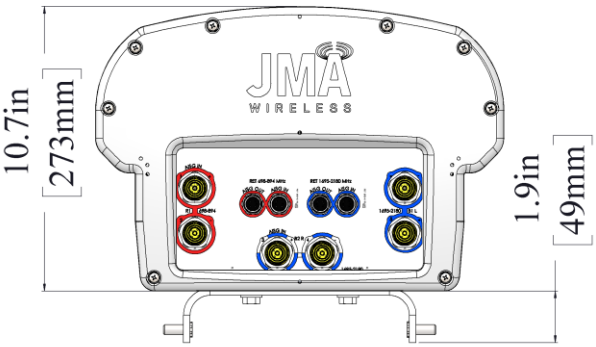
FRONT VIEW



BACK VIEW



BOTTOM VIEW



Ordering Information	
Antenna Model	**Description**
MX06FRO460-02	4F X- Pol HEX FRO 60° 2-16°/ 0-9° RET, 4.3-10 & SBT
Optional Accessories	
992100-CA030-SC	Optional AISG jumper cable, M/F, 3.0 meters
PCU-1000	Primary control Unit, USB

MX06FRO460-02

NWAV™ X-Pol Antenna | Hex-Port | 4 ft | 60°

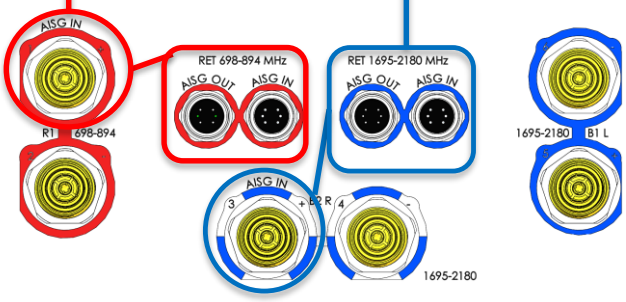
Remote Electrical Tilt (RET 1000) Information	
RET location	Integrated into antenna
RET interface connector type	8 pin AISG connector per IEC 60130-9
RET interface connector quantity	2 pairs of AISG male/ female connectors
RET interface connector location	Bottom of the antenna
Total No. of internal RETs low bands	1
Total No. of internal RETs high bands	1
RET input operating voltage, vdc	10-30
RET max. power consumption, idle state, W	≤ 2.0
RET max. power consumption, normal operating conditions, W	≤ 13.0
RET communication protocol	AISG 2.0/ 3GPP

RET & RF Connector Topology

Each RET device can be controlled either via the designated external AISG connector or RF port as shown below

RET Device	Band	RF Port
1	698-894	1-2

RET Device	Band	RF Port
2	1695-2180	3-6

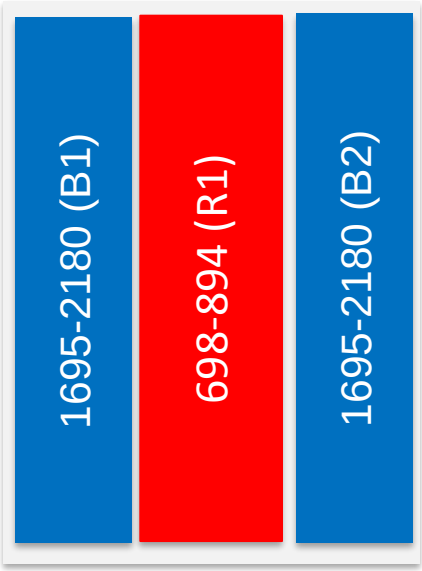


Array Topology

3 sets of radiating arrays

R1 – 698-894MHz
B1 – 1695-2180MHz
B2 – 1695-2180MHz

Band	RF Port
1695-2180	3-4
698-894	1-2
1695-2180	5-6



ATTACHMENT 3

Site Name: ***W DANBURY CT***
Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissible Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
VZW 700	751	4	294	1175	103.65	0.0039	0.5007	0.79%
VZW CDMA	878.49	2	226	452	103.65	0.0015	0.5857	0.26%
VZW Cellular	874	4	337	1349	103.65	0.0045	0.5827	0.78%
VZW PCS	1975	4	1202	4809	103.65	0.0161	1.0000	1.61%
VZW AWS	2120	4	1380	5522	103.65	0.0185	1.0000	1.85%
VZW CBAND	3730.08	4	6531	26125	103.65	0.0875	1.0000	8.75%
Total Percentage of Maximum Permissible Exposure								14.02%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992
**Calculation includes a -10 dB Off Beam Antenna Pattern Adjustment pursuant to Attachments B and C of the Siting Council's November 10, 2015 Memorandum for Exempt Modification filings

MHz = Megahertz
mW/cm^2 = milliwatts per square centimeter
ERP = Effective Radiated Power

Absolute worst case maximum values used.

ATTACHMENT 4

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Frames & Host Building

Proposed Verizon
Antenna Upgrade

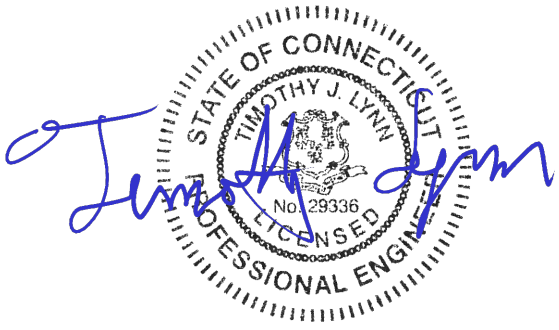
Site Ref: West Danbury

18 Old Ridgebury Road
Danbury, CT

CENTEK Project No. 21007.61

~~Date: October 19, 2021~~

Rev 1: November 10, 2021



Prepared for:

Verizon Wireless
20 Alexander Drive
Wallingford, CT 06492

Table of Contents

Introduction

The purpose of this report is to summarize the results of the structural analysis of the equipment upgrade proposed by Verizon on the existing host building located in Danbury, CT.

The host structure is an unoccupied hotel. The antennas are mounted on steel pipe masts, which are attached to the building parapet (Alpha & Gamma sector) and to the elevator penthouse façade (Beta Sector). The mounts geometry and member size information was obtained from a site visit performed by Centek personnel on September 21, 2021

Proposed/existing antenna and appurtenance information was taken from a RF data sheet dated 10/7/2021 provided by Verizon Wireless.

Primary Assumptions Used in the Analysis

- The host structure's theoretical capacity not including any assessment of the condition of the host structure.
- The existing elevated steel platform carries the horizontal and vertical loads due to the weight of equipment, and wind and transfers into host structure.
- Proposed reinforcement and support steel will be properly installed and maintained.
- Structure is in plumb condition.
- Loading for equipment and enclosure 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 observed during roof framing mapping.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.

Antenna and Equipment Summary

Location	Appurtenance / Equipment	Rad Center Elevation (AGL)	Mount Type
Alpha Sector	(2) RFS APL868013 Antenna **(2) JMA MX06FRO460-02 Antennas** **(1) JMA MX08FIT265-01 Antenna** ~~(1) RFS APX75-866512-T2-749MHZ Antenna~~ ~~(1) RYMSA- MG-D3-800T0 Antenna~~ ~~(1) Nokia B13-RRH-4X30~~ ~~(1) Nokia B4-B25-RRH-4x30~~ **(1) Samsung RF4439d-25A RRH** **(1) Samsung RF4440d-13A** **(1) Samsung RT-8808-77A**	+/- 103.5-ft	Antenna pipe masts attached to building's parapet
Beta Sector	(2) RFS APL868013 Antenna **(2) JMA MX06FRO460-02 Antennas** **(1) JMA MX08FIT265-01 Antenna** ~~(1) RFS APX75-866512-T2-749MHZ Antenna~~ ~~(1) RYMSA- MG-D3-800T0 Antenna~~ ~~(1) Nokia B13-RRH-4X30~~ ~~(1) Nokia B4-B25-RRH-4x30~~ **(1) Samsung RF4439d-25A RRH** **(1) Samsung RF4440d-13A** **(1) Samsung RT-8808-77A**	+/- 111.5-ft	Antenna pipe masts attached to façade of building penthouse
Gamma Sector	(2) RFS APL868013 Antenna **(2) JMA MX06FRO460-02 Antennas** **(1) JMA MX08FIT265-01 Antenna** ~~(1) RFS APX75-866512-T2-749MHZ Antenna~~ ~~(1) RYMSA- MG-D3-800T0 Antenna~~ ~~(1) Nokia B13-RRH-4X30~~ ~~(1) Nokia B4-B25-RRH-4x30~~ **(1) Samsung RF4439d-25A RRH** **(1) Samsung RF4440d-13A** **(1) Samsung RT-8808-77A**	+/- 103.5-ft	Antenna pipe masts attached to building's parapet

~~Equipment~~ – Indicates equipment to be removed.
Equipment – Indicates equipment to be installed.

Analysis

The existing antenna mounts were modeled using a comprehensive computer program titled Risa3D. The program analyzes the elevated steel supports considering the worst-case code prescribed loading condition. The platform was considered to be loaded by concentric forces, and the model assumes that the members are subjected to bending, axial, and shear forces.

Design Loading

Loading was determined per the requirements of the 2015 International Building Code amended by the 2018 CSBC and ASCE 7-10 “Minimum Design Loads for Buildings and Other Structures”.

Wind Speed:	V_{ult} = 120 mph	Appendix N of the 2018 CT State Building Code
Risk Category:	II	2015 IBC; Table 1604.05
Exposure Category:	Surface Roughness C	ASCE 7-10; Section 26.7.2
Dead Load	Equipment and framing self-weight	Identified within SAR design calculations

‘

Reference Standards

2015 International Building Code:

1. ACI 318-14, *Building Code Requirements for Structural Concrete.*
2. ACI 530-13, *Building Code Requirements for Masonry Structures*.
3. AISC 360-10, *Specification for Structural Steel Buildings*
4. AWS D1.1 – 00, *Structural Welding Code – Steel*.
5. AF&PA-12*, Span Tables for Joists and Rafters*.

Results

Structure stresses were calculated utilizing the structural analysis software RISA 3D. The stresses were determined based on the AISC standard.

- Calculated stresses for the antenna mounts were found to **BE WITHIN ALLOWABLE** limits.

Sector	Component	Stress Ratio (percentage of capacity)	Result
Alpha & Gamma	Pipe 2.5 STD (Proposed Antenna Mast)	57.3%	**PASS**
	Pipe 2.0 STD (Existing Antenna Mast)	25.6%	**PASS**
	1/2" Threaded Rod with Hilti HY20 ADHESIVE	16.4%	**PASS**
Beta	Pipe 2.0 STD (Proposed Antenna Mast)	72.4%	**PASS**
	Pipe 2.0 STD (Existing Mount Mast)	37.3%	**PASS**
	1/2" Threaded Rod with Hilti HY20 ADHESIVE	47.5%	**PASS**

Conclusion

This analysis shows that the subject antenna mounts and host building **HAVE SUFFICIENT CAPACITY** to support the proposed modified antenna configuration.

The analysis is based, in part, on the information provided to this office by Verizon. 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

STATE OF CONNECTICUT
TIMOTHY J. LYNN
No. 29336
LICENSED
PROFESSIONAL ENGINEER

Prepared by:

Fernando J. Palacios
Engineer

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.

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM ~ RISA-3D

- RISA-3D Structural Analysis Program is an integrated structural analysis and design software package for buildings, bridges, tower structures, etc.

Modeling Features:

- Comprehensive CAD-like graphic drawing/editing capabilities that let you draw, modify and load elements as well as snap, move, rotate, copy, mirror, scale, split, merge, mesh, delete, apply, etc.
- Versatile drawing grids (orthogonal, radial, skewed)
- Universal snaps and object snaps allow drawing without grids
- Versatile general truss generator
- Powerful graphic select/unselect tools including box, line, polygon, invert, criteria, spreadsheet selection, with locking
- Saved selections to quickly recall desired selections
- Modification tools that modify single items or entire selections
- Real spreadsheets with cut, paste, fill, math, sort, find, etc.
- Dynamic synchronization between spreadsheets and views so you can edit or view any data in the plotted views or in the spreadsheets
- Simultaneous view of multiple spreadsheets
- Constant in-stream error checking and data validation
- Unlimited undo/redo capability
- Generation templates for grids, disks, cylinders, cones, arcs, trusses, tanks, hydrostatic loads, etc.
- Support for all units systems & conversions at any time
- Automatic interaction with RISASection libraries
- Import DXF, RISA-2D, STAAD and ProSteel 3D files
- Export DXF, SDNF and ProSteel 3D files

Analysis Features:

- Static analysis and P-Delta effects
- Multiple simultaneous dynamic and response spectra analysis using Gupta, CQC or SRSS mode combinations
- Automatic inclusion of mass offset (5% or user defined) for dynamic analysis
- Physical member modeling that does not require members to be broken up at intermediate joints
- State of the art 3 or 4 node plate/shell elements
- High-end automatic mesh generation — draw a polygon with any number of sides to create a mesh of well-formed quadrilateral (NOT triangular) elements.
- Accurate analysis of tapered wide flanges - web, top and bottom flanges may all taper independently
- Automatic rigid diaphragm modeling
- Area loads with one-way or two-way distributions
- Multiple simultaneous moving loads with standard AASHTO loads and custom moving loads for bridges, cranes, etc.
- Torsional warping calculations for stiffness, stress and design
- Automatic Top of Member offset modeling
- Member end releases & rigid end offsets
- Joint master-slave assignments
- Joints detachable from diaphragms
- Enforced joint displacements

- 1-Way members, for tension only bracing, slipping, etc.
- 1-Way springs, for modeling soils and other effects
- Euler members that take compression up to their buckling load, then turn off.
- Stress calculations on any arbitrary shape
- Inactive members, plates, and diaphragms allows you to quickly remove parts of structures from consideration
- Story drift calculations provide relative drift and ratio to height
- Automatic self-weight calculations for members and plates
- Automatic subgrade soil spring generator

Graphics Features:

- Unlimited simultaneous model view windows
- Extraordinary “true to scale” rendering, even when drawing
- High-speed redraw algorithm for instant refreshing
- Dynamic scrolling stops right where you want
- Plot & print virtually everything with color coding & labeling
- Rotate, zoom, pan, scroll and snap views
- Saved views to quickly restore frequent or desired views
- Full render or wire-frame animations of deflected model and dynamic mode shapes with frame and speed control
- Animation of moving loads with speed control
- High quality customizable graphics printing

Design Features:

- Designs concrete, hot rolled steel, cold formed steel and wood
- ACI 1999/2002, BS 8110-97, CSA A23.3-94, IS456:2000,EC 2-1992 with consistent bar sizes through adjacent spans
- Exact integration of concrete stress distributions using parabolic or rectangular stress blocks
- Concrete beam detailing (Rectangular, T and L)
- Concrete column interaction diagrams
- Steel Design Codes: AISC ASD 9th, LRFD 2nd & 3rd, HSS Specification, CAN/CSA-S16.1-1994 & 2004, BS 5950-1-2000, IS 800-1984, Euro 3-1993 including local shape databases
- AISI 1999 cold formed steel design
- NDS 1991/1997/2001 wood design, including Structural Composite Lumber, multi-ply, full sawn
- Automatic spectra generation for UBC 1997, IBC 2000/2003
- Generation of load combinations: ASCE, UBC, IBC, BOCA, SBC, ACI
- Unbraced lengths for physical members that recognize connecting elements and full lengths of members
- Automatic approximation of K factors
- Tapered wide flange design with either ASD or LRFD codes
- Optimization of member sizes for all materials and all design codes, controlled by standard or user-defined lists of available sizes and criteria such as maximum depths
- Automatic calculation of custom shape properties
- Steel Shapes: AISC, HSS, CAN, ARBED, British, Euro, Indian, Chilean
- Light Gage Shapes: AISI, SSMA, Dale / Incor, Dietrich, Marino\WARE
- Wood Shapes: Complete NDS species/grade database
- Full seamless integration with RISAFoot (Ver 2 or better) for advanced footing design and detailing
- Plate force summation tool

Results Features:

- Graphic presentation of color-coded results and plotted designs
- Color contours of plate stresses and forces with quadratic smoothing, the contours may also be animated
- Spreadsheet results with sorting and filtering of: reactions, member & joint deflections, beam & plate forces/stresses, optimized sizes, code designs, concrete reinforcing, material takeoffs, frequencies and mode shapes
- Standard and user-defined reports
- Graphic member detail reports with force/stress/deflection diagrams and detailed design calculations and expanded diagrams that display magnitudes at any dialed location
- Saved solutions quickly restore analysis and design results.

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: Wind Load on Equipment per ASCE 7-10

Location: Danbury, CT

Rev. 0: 10/14/21

Prepared by: T.J.L; Checked by: C.F.C.
Job No. 21007.61

Design Wind Load on Other Structures: (Based on IBC 2015, 2018 CSBC and ASCE 7-10)

Wind Speed =	$V := 120$ 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 =	$Z := 123$ ft	(User Input)	
Structure Type =	$Structuretype := Square\_Chimney$	(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 =

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

3-Sec Gust Speed Power Law Exponent =

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

Integral Length Scale Factor =

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

Integral Length Scale Power Law Exponent =

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

Turbulence Intensity Factor =

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

Exposure Constant =

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

Exposure Coefficient =

$$K_z := \begin{cases} 2.01\left(\frac{Z}{zg}\right)^{\left(\frac{2}{\alpha}\right)} & \text{if } 15 \le Z \le zg = 1.32 \\ 2.01\left(\frac{15}{zg}\right)^{\left(\frac{2}{\alpha}\right)} & \text{if } Z < 15 \end{cases}$$ (Table 29.3-1)

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Subject:	Wind Load on Equipment per ASCE 7-10
Location:	Danbury, CT
Rev. 0: 10/14/21	Prepared by: T.J.L; Checked by: C.F.C. Job No. 21007.61

Topographic Factor =	$K_{zt} := 1$	(Eq. 26.8-2)
Wind Directionality Factor =	$K_d = 0.9$	(Table 26.6-1)
Velocity Pressure =	$q_z := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V^2 = 43.86$	(Eq. 29.3-1)
Peak Factor for Background Response =	$g_Q := 3.4$	(Sec 26.9.4)
Peak Factor for Wind Response =	$g_v := 3.4$	(Sec 26.9.4)
Equivalent Height of Structure =	$z := \begin{cases} Z_{min} & \text{if } Z_{min} > 0.6 \cdot Height \\ 0.6 \cdot Height & \text{otherwise} \end{cases} = 15$	(Sec 26.9.4)
Intensity of Turbulence =	$I_z := c \cdot \left(\frac{33}{z}\right)^{\left(\frac{1}{6}\right)} = 0.228$	(Eq. 26.9-7)
Integral Length Scale of Turbulence =	$L_Z := l \cdot \left(\frac{z}{33}\right)^{E} = 427.057$	(Eq. 26.9-9)
Background Response Factor =	$Q := \sqrt{\frac{1}{1 + 0.63\left(\frac{Width + Height}{L_Z}\right)^{0.63}}} = 0.977$	(Eq. 26.9-8)
Gust Response Factor =	$G := 0.925 \cdot \left[\frac{\left(1 + 1.7 \cdot g_Q \cdot I_z \cdot Q\right)}{1 + 1.7 \cdot g_v \cdot I_z}\right] = 0.913$	(Eq. 26.9-6)
Force Coefficient =	$C_f = 1.383$	(Fig 29.5-1 - 29.5-3)
Wind Force =	$F := q_z \cdot G \cdot C_f = 55$	psf

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Subject:	Wind Load on Equipment per ASCE 7-10
Location:	Danbury, CT
Rev. 0: 10/14/21	Prepared by: T.J.L; Checked by: C.F.C. Job No. 21007.61

Development of Wind & Ice Load on Antennas

Antenna Model =	RFSAPL868013		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 48$	in	(User Input)
Antenna Width =	$W_{ant} := 6$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.6$	in	(User Input)
Antenna Weight =	$WT_{ant} := 10$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 2$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 2$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 111$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 2.9$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 2.9$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 159$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 10$	lbs

Development of Wind & Ice Load on Antennas

Antenna Model =	JMA MX06FRO460-02		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 50.2$	in	(User Input)
Antenna Width =	$W_{ant} := 15.4$	in	(User Input)
Antenna Thickness =	$T_{ant} := 10.7$	in	(User Input)
Antenna Weight =	$WT_{ant} := 42$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5.4$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 5.4$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 297$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 3.7$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 3.7$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 207$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 42$	lbs

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Subject:	Wind Load on Equipment per ASCE 7-10
Location:	Danbury, CT
Rev. 0: 10/14/21	Prepared by: T.J.L; Checked by: C.F.C. Job No. 21007.61

Development of Wind & Ice Load on Antennas

Antenna Model =	JMA MX08FIT265-01		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 32$	in	(User Input)
Antenna Width =	$W_{ant} := 11.6$	in	(User Input)
Antenna Thickness =	$T_{ant} := 4.53$	in	(User Input)
Antenna Weight =	$WT_{ant} := 25$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 2.6$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 2.6$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 143$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 1$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 1$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 56$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 25$	lbs

Development of Wind & Ice Load on RRHs

RRUS Data:

RRUS Model =	Samsung RF4439d-25A		
RRUS Shape =	Flat		(User Input)
RRUS Height =	$L_{RRH} := 14.96$	in	(User Input)
RRUS Width =	$W_{RRH} := 14.96$	in	(User Input)
RRUS Thickness =	$T_{RRH} := 10.04$	in	(User Input)
RRUS Weight =	$WT_{RRH} := 75$	lbs	(User Input)
Number of RRUS's =	$N_{RRH} := 1$		(User Input)

Wind Load (Front)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot W_{RRH}}{144} = 1.6$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 1.6$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 86$	lbs

Wind Load (Side)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot T_{RRH}}{144} = 1$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 1$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 58$	lbs

Gravity Load (without ice)

Weight of All RRHs =	$WT_{RRH} \cdot N_{RRH} = 75$	lbs

Development of Wind & Ice Load on RRHs

RRUS Data:

RRUS Model =	Samsung RF4440d-13A		
RRUS Shape =	Flat		(User Input)
RRUS Height =	$L_{RRH} := 14.96$	in	(User Input)
RRUS Width =	$W_{RRH} := 14.96$	in	(User Input)
RRUS Thickness =	$T_{RRH} := 9.05$	in	(User Input)
RRUS Weight =	$WT_{RRH} := 71$	lbs	(User Input)
Number of RRUS's =	$N_{RRH} := 1$		(User Input)

Wind Load (Front)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot W_{RRH}}{144} = 1.6$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 1.6$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 86$	lbs

Wind Load (Side)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot T_{RRH}}{144} = 0.9$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 0.9$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 52$	lbs

Gravity Load (without ice)

Weight of All RRHs =	$WT_{RRH} \cdot N_{RRH} = 71$	lbs

Development of Wind & Ice Load on RRHs

RRUS Data:

RRUS Model =	Samsung RT8808-77A		
RRUS Shape =	Flat		(User Input)
RRUS Height =	$L_{RRH} := 14.96$	in	(User Input)
RRUS Width =	$W_{RRH} := 14.96$	in	(User Input)
RRUS Thickness =	$T_{RRH} := 6.82$	in	(User Input)
RRUS Weight =	$WT_{RRH} := 60$	lbs	(User Input)
Number of RRUS's =	$N_{RRH} := 1$		(User Input)

Wind Load (Front)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot W_{RRH}}{144} = 1.6$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 1.6$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 86$	lbs

Wind Load (Side)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot T_{RRH}}{144} = 0.7$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 0.7$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 39$	lbs

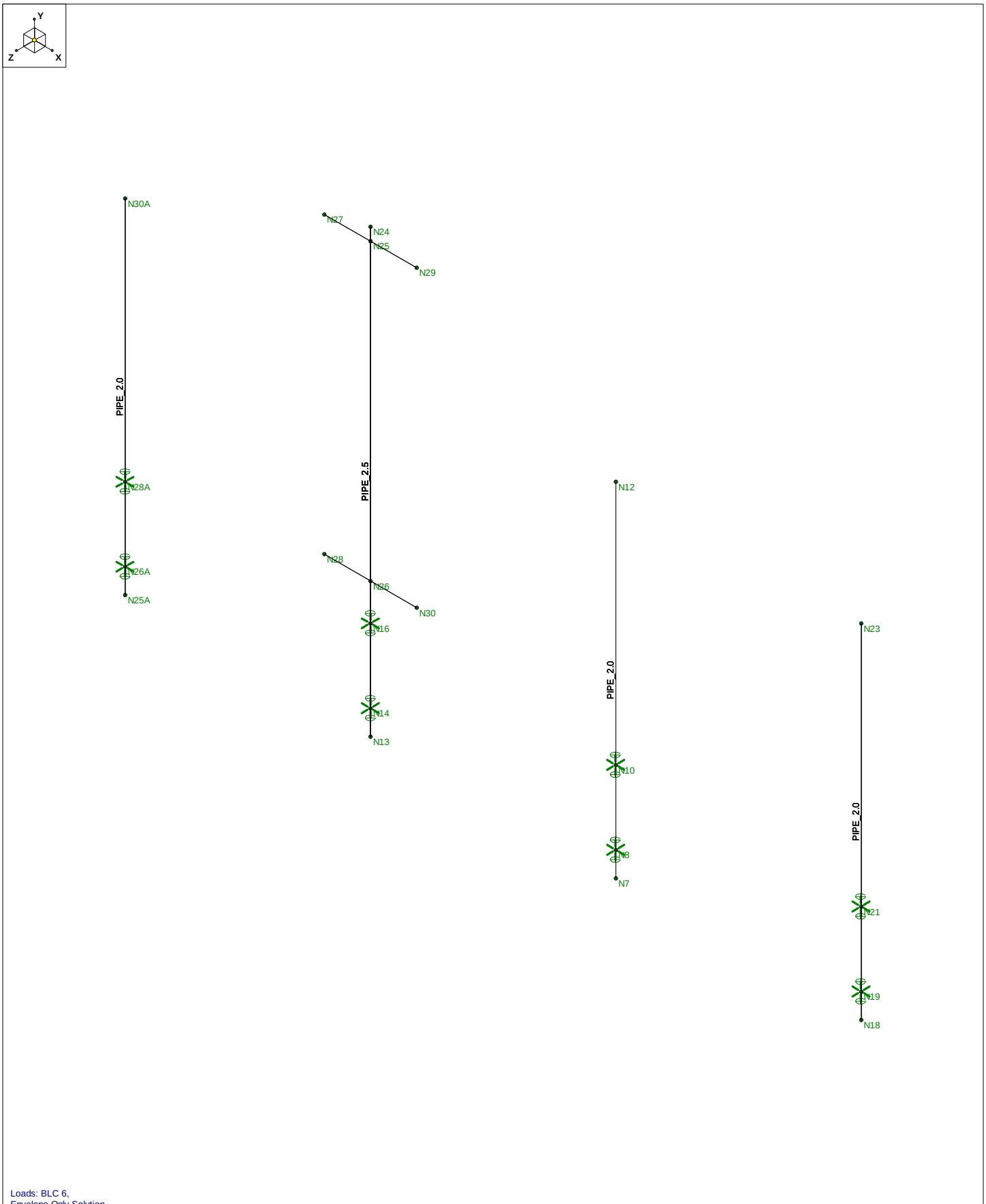
Gravity Load (without ice)

Weight of All RRHs =	$WT_{RRH} \cdot N_{RRH} = 60$	lbs

Alpha & Gamma Sectors

Alpha sector

Gamma sector



Loads: BLC 6,
Envelope Only Solution

Centek Engineering		
FJP	CT5072- Antenna Mount - Alpha & Gamma	Oct 19, 2021 at 10:25 AM
21007.61	Member Framing	W Danbury CT_Alpha_ & Gamma.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
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

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	1
Cd X	1
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 (\...	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 Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	(E) Pipe Mast_Pipe 2.0..	PIPE_2.0	Column	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25
2	(P)Pipe Mast_Pipe 2.5 ...	PIPE_2.5	Column	Pipe	A53 Grade B	Typical	1.61	1.45	1.45	2.89

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
1	PS.1	(E) Pipe Mast_Pipe ...	7	Segment		Lbyy						Lateral
2	PS.3	(P)Pipe Mast_Pipe ...	9	Segment	Segment	Lbyy						Lateral
3	PS.2	(E) Pipe Mast_Pipe ...	7	Segment		Lbyy						Lateral
4	PS.4	(E) Pipe Mast_Pipe ...	7	Segment		Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
1	PS.1	N23	N18			(E) Pipe Mast_Pipe 2.0 STD	Column	Pipe	A53 Grade B	Typical
2	PS.3	N24	N13			(P)Pipe Mast_Pipe 2.5 STD	Column	Pipe	A53 Grade B	Typical
3	PS.2	N12	N7			(E) Pipe Mast_Pipe 2.0 STD	Column	Pipe	A53 Grade B	Typical
4	M13	N27	N29			RIGID	None	None	RIGID	Typical
5	M14	N28	N30			RIGID	None	None	RIGID	Typical
6	PS.4	N30A	N25A			(E) Pipe Mast_Pipe 2.0 STD	Column	Pipe	A53 Grade B	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N7	10	0	0	0	
2	N8	10	.5	0	0	
3	N10	10	2	0	0	
4	N12	10	7	0	0	
5	N13	5	0	0	0	
6	N14	5	.5	0	0	
7	N16	5	2	0	0	
8	N18	15	0	0	0	
9	N19	15	.5	0	0	
10	N21	15	2	0	0	
11	N23	15	7	0	0	
12	N24	5	9	0	0	
13	N25	5	8.75	0	0	
14	N26	5	2.75	0	0	
15	N27	4.056667	8.75	0	0	
16	N28	4.056667	2.75	0	0	
17	N29	5.9425	8.75	0	0	
18	N30	5.9425	2.75	0	0	
19	N25A	0	0	0	0	
20	N26A	0	.5	0	0	
21	N28A	0	2	0	0	
22	N30A	0	7	0	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	N28A	Reaction	Reaction	Reaction		Reaction	
2	N26A	Reaction	Reaction	Reaction		Reaction	
3	N16	Reaction	Reaction	Reaction		Reaction	
4	N14	Reaction	Reaction	Reaction		Reaction	
5	N8	Reaction	Reaction	Reaction		Reaction	
6	N10	Reaction	Reaction	Reaction		Reaction	
7	N19	Reaction	Reaction	Reaction		Reaction	
8	N21	Reaction	Reaction	Reaction		Reaction	

Member Point Loads (BLC 2 : Weight of Equipment)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PS.1	Y	-.005	.5
2	PS.1	Y	-.005	4.5
3	M13	Y	-.021	.472
4	M14	Y	-.021	.472
5	M13	Y	-.021	1.414
6	M14	Y	-.021	1.414
7	PS.2	Y	-.013	1.083
8	PS.2	Y	-.013	4
9	PS.3	Y	-.075	2
10	PS.3	Y	-.071	4
11	PS.4	Y	-.005	.5
12	PS.4	Y	-.005	4.5
13	PS.2	Y	-.06	2

Member Point Loads (BLC 3 : Wind X-Direction (55 PSF))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PS.1	X	.08	.5
2	PS.1	X	.08	4.5
3	M13	X	.104	.472
4	M14	X	.104	.472
5	M13	X	.104	1.414
6	M14	X	.104	1.414
7	PS.2	X	.028	1.083
8	PS.2	X	.028	4
9	PS.3	X	.058	2
10	PS.3	X	.052	4
11	PS.4	X	.08	.5
12	PS.4	X	.08	4.5
13	PS.2	X	.039	2

Member Point Loads (BLC 4 : Wind Z-Direction (55 PSF))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PS.1	Z	.056	.5
2	PS.1	Z	.056	4.5
3	M13	Z	.149	.472
4	M14	Z	.149	.472
5	M13	Z	.149	1.414

Member Point Loads (BLC 4 : Wind Z-Direction (55 PSF)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
6	M14	Z	.149	1.414
7	PS.2	Z	.072	1.083
8	PS.2	Z	.072	4
9	PS.4	Z	.056	.5
10	PS.4	Z	.056	4.5

Member Distributed Loads (BLC 3 : Wind X-Direction (55 PSF))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/f..	Start Location[ft,%]	End Location[ft,%]
1	PS.2	X	.011	.011	0	0
2	PS.3	X	.011	.011	0	0
3	PS.1	X	.011	.011	0	0
4	PS.4	X	.011	.011	0	0

Member Distributed Loads (BLC 4 : Wind Z-Direction (55 PSF))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/f..	Start Location[ft,%]	End Location[ft,%]
1	PS.1	Z	.011	.011	4.5	0
2	PS.1	Z	.011	.011	0	.5
3	PS.3	Z	.011	.011	5.792	7.667
4	PS.2	Z	.011	.011	4	0
5	PS.2	Z	.011	.011	0	1.083
6	PS.4	Z	.011	.011	0	0

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distrib..	Area(...	Surfa...
1	Self Weight	DL		-1						
2	Weight of Equipment	DL					13			
3	Wind X-Direction (55 PSF)	WLX					13	4		
4	Wind Z-Direction (55 PSF)	WLZ					10	6		

Load Combinations

	Description	Solve	P...	S...	B...	Fa...	BLC	Fact...	BLC	Fa...	BLC	Fa...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	IBC 16-8	Yes	Y		DL	1																		
2	IBC 16-9	Yes	Y		DL	1	LL	1	LLS	1														
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) (a)	Yes	Y		DL	1	WLX	.6																
10	IBC 16-12 (a) (b)	Yes	Y		DL	1	WLZ	.6																
11	IBC 16-12 (a) (c)	Yes	Y		DL	1	WLX	-.6																
12	IBC 16-12 (a) (d)	Yes	Y		DL	1	WLZ	-.6																
13	IBC 16-13 (a) (a)	Yes	Y		DL	1	WLX	.45	LL	.75	LLS	.75	RLL	.75										
14	IBC 16-13 (a) (b)	Yes	Y		DL	1	WLZ	.45	LL	.75	LLS	.75	RLL	.75										
15	IBC 16-13 (a) (c)	Yes	Y		DL	1	WLX	-.45	LL	.75	LLS	.75	RLL	.75										
16	IBC 16-13 (a) (d)	Yes	Y		DL	1	WLZ	-.45	LL	.75	LLS	.75	RLL	.75										

Load Combinations (Continued)

	Description	Solve	P...	S...	B...	Fa...	BLC	Fact...	BLC	Fa...	BLC	Fa...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
17	IBC 16-13 (b) (a)	Yes	Y		DL	1	WLX	.45	LL	.75	LLS	.75	SL	.75	S...	.75						
18	IBC 16-13 (b) (b)	Yes	Y		DL	1	WLZ	.45	LL	.75	LLS	.75	SL	.75	S...	.75						
19	IBC 16-13 (b) (c)	Yes	Y		DL	1	WLX	-.45	LL	.75	LLS	.75	SL	.75	S...	.75						
20	IBC 16-13 (b) (d)	Yes	Y		DL	1	WLZ	-.45	LL	.75	LLS	.75	SL	.75	S...	.75						
21	IBC 16-13 (c) (a)	Yes	Y		DL	1	WLX	.45	LL	.75	LLS	.75	RL	.75								
22	IBC 16-13 (c) (b)	Yes	Y		DL	1	WLZ	.45	LL	.75	LLS	.75	RL	.75								
23	IBC 16-13 (c) (c)	Yes	Y		DL	1	WLX	-.45	LL	.75	LLS	.75	RL	.75								
24	IBC 16-13 (c) (d)	Yes	Y		DL	1	WLZ	-.45	LL	.75	LLS	.75	RL	.75								
25	IBC 16-15 (a)	Yes	Y		DL	.6	WLX	.6														
26	IBC 16-15 (b)	Yes	Y		DL	.6	WLZ	.6														
27	IBC 16-15 (c)	Yes	Y		DL	.6	WLX	-.6														
28	IBC 16-15 (d)	Yes	Y		DL	.6	WLZ	-.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	N28A	max	.348	11	.03	24	.271	12	0	28	0	28	0	28
2		min	-.348	9	.018	25	-.271	10	0	1	0	1	0	1
3	N26A	max	.206	9	.004	24	.158	10	0	28	0	28	0	28
4		min	-.206	11	.003	25	-.158	12	0	1	0	1	0	1
5	N16	max	1.289	11	.272	24	1.281	12	0	28	0	28	0	28
6		min	-1.289	9	.163	25	-1.281	10	0	1	0	10	0	1
7	N14	max	.915	9	.007	24	.911	10	0	28	0	28	0	28
8		min	-.915	11	.004	25	-.911	12	0	1	0	1	0	1
9	N8	max	.149	9	.004	24	.157	10	0	28	0	28	0	28
10		min	-.149	11	.003	25	-.157	12	0	1	0	1	0	1
11	N10	max	.251	11	.106	24	.27	12	0	28	0	28	0	28
12		min	-.251	9	.064	25	-.27	10	0	1	0	1	0	1
13	N19	max	.206	9	.004	24	.114	10	0	28	0	28	0	28
14		min	-.206	11	.003	25	-.114	12	0	1	0	1	0	1
15	N21	max	.348	11	.03	24	.201	12	0	28	0	28	0	28
16		min	-.348	9	.018	25	-.201	10	0	1	0	1	0	1
17	Totals:	max	.76	27	.458	24	.683	28						
18		min	-.76	25	.275	25	-.683	10						

Envelope Joint Displacements

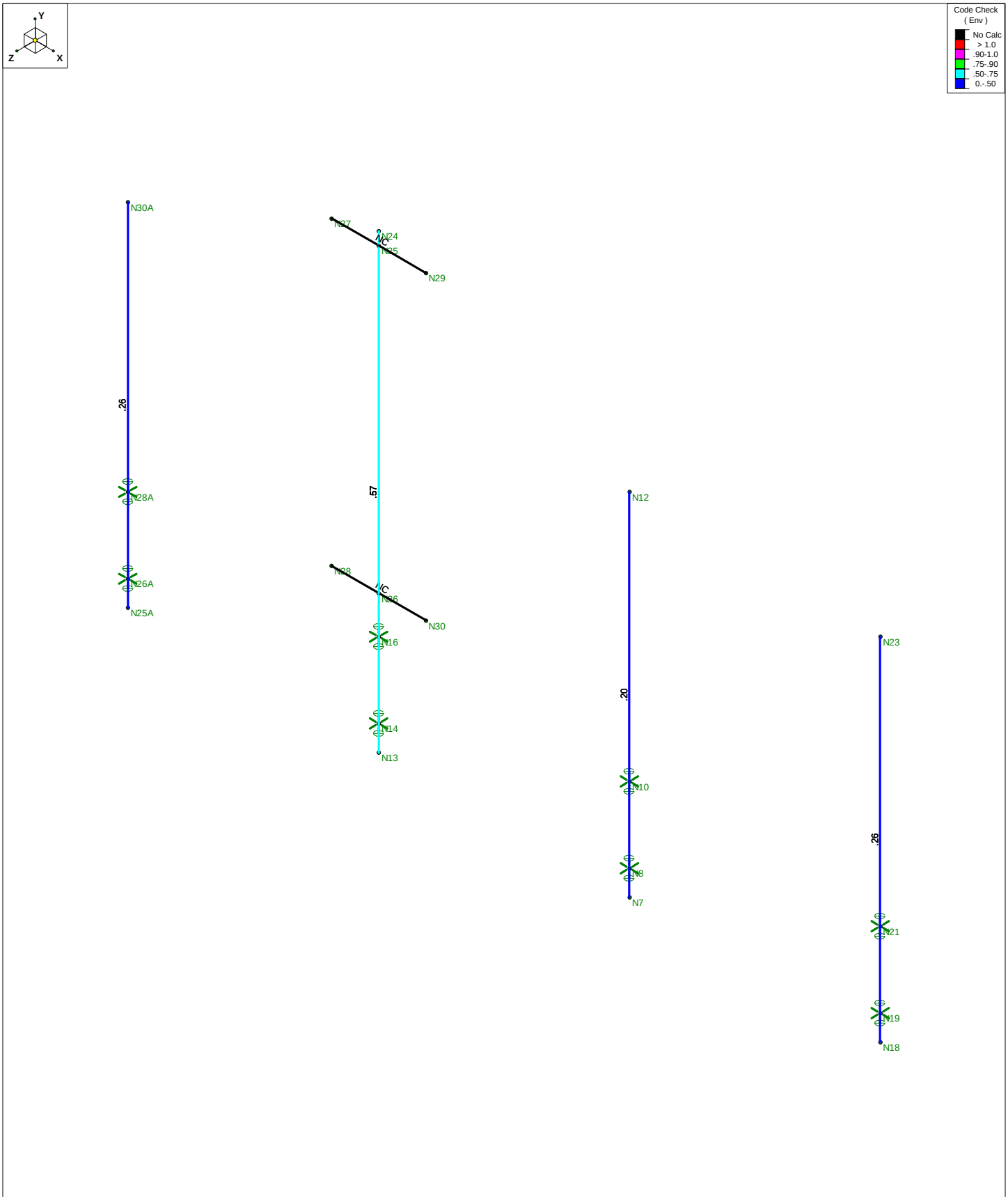
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotation [rad]	LC
1	N7	max	.003	9	0	28	.004	10	5.853e-04	12	0	28	5.548e-04	9
2		min	-.003	11	0	1	-.004	12	-5.853e-04	10	0	1	-5.548e-04	11
3	N8	max	0	28	0	28	0	28	5.84e-04	12	0	28	5.534e-04	9
4		min	0	1	0	1	0	1	-5.84e-04	10	0	1	-5.534e-04	11
5	N10	max	0	28	0	28	0	28	1.253e-03	10	0	28	1.187e-03	11
6		min	0	1	0	1	0	1	-1.253e-03	12	0	1	-1.187e-03	9
7	N12	max	.245	9	0	28	.265	10	5.502e-03	10	0	28	4.977e-03	11
8		min	-.245	11	0	1	-.265	12	-5.502e-03	12	0	1	-4.977e-03	9
9	N13	max	.008	9	0	28	.008	10	1.368e-03	12	0	28	1.385e-03	9
10		min	-.008	11	0	1	-.008	12	-1.368e-03	10	0	1	-1.385e-03	11
11	N14	max	0	28	0	28	0	28	1.368e-03	12	0	28	1.384e-03	9
12		min	0	1	0	1	0	1	-1.368e-03	10	0	1	-1.384e-03	11
13	N16	max	0	28	0	28	0	28	3.022e-03	10	0	28	3.058e-03	11

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotation [rad]	LC
14		min	0	1	0	1	0	1	-3.022e-03	12	0	1	-3.058e-03	9
15	N18	max	.005	9	0	28	.003	10	4.333e-04	12	0	28	7.586e-04	9
16		min	-.005	11	0	1	-.003	12	-4.333e-04	10	0	1	-7.586e-04	11
17	N19	max	0	28	0	28	0	28	4.319e-04	12	0	28	7.572e-04	9
18		min	0	1	0	1	0	1	-4.319e-04	10	0	1	-7.572e-04	11
19	N21	max	0	28	0	28	0	28	9.274e-04	10	0	28	1.623e-03	11
20		min	0	1	0	1	0	1	-9.274e-04	12	0	1	-1.623e-03	9
21	N23	max	.365	9	0	28	.215	10	4.713e-03	10	0	28	7.857e-03	11
22		min	-.365	11	0	1	-.215	12	-4.713e-03	12	0	1	-7.857e-03	9
23	N24	max	1.246	9	0	28	1.287	10	2.102e-02	10	2.494e-06	26	1.977e-02	11
24		min	-1.246	11	0	1	-1.287	12	-2.102e-02	12	-2.494e-06	12	-1.976e-02	9
25	N25	max	1.187	9	0	28	1.224	10	2.102e-02	10	2.494e-06	26	1.977e-02	11
26		min	-1.187	11	0	1	-1.224	12	-2.102e-02	12	-2.494e-06	12	-1.976e-02	9
27	N26	max	.047	9	0	28	.046	10	6.974e-03	10	4.988e-07	26	7.07e-03	11
28		min	-.047	11	0	1	-.046	12	-6.974e-03	12	-4.988e-07	12	-7.07e-03	9
29	N27	max	1.187	9	.223	9	1.224	10	2.102e-02	10	2.494e-06	26	1.977e-02	11
30		min	-1.187	11	-.224	11	-1.224	12	-2.102e-02	12	-2.494e-06	12	-1.976e-02	9
31	N28	max	.047	9	.08	9	.046	10	6.974e-03	10	4.988e-07	26	7.07e-03	11
32		min	-.047	11	-.08	11	-.046	12	-6.974e-03	12	-4.988e-07	12	-7.07e-03	9
33	N29	max	1.187	9	.223	11	1.224	10	2.102e-02	10	2.494e-06	26	1.977e-02	11
34		min	-1.187	11	-.224	9	-1.224	12	-2.102e-02	12	-2.494e-06	12	-1.976e-02	9
35	N30	max	.047	9	.08	11	.046	10	6.974e-03	10	4.988e-07	26	7.07e-03	11
36		min	-.047	11	-.08	9	-.046	12	-6.974e-03	12	-4.988e-07	12	-7.07e-03	9
37	N25A	max	.005	9	0	28	.004	10	5.879e-04	12	0	28	7.586e-04	9
38		min	-.005	11	0	1	-.004	12	-5.879e-04	10	0	1	-7.586e-04	11
39	N26A	max	0	28	0	28	0	28	5.866e-04	12	0	28	7.572e-04	9
40		min	0	1	0	1	0	1	-5.866e-04	10	0	1	-7.572e-04	11
41	N28A	max	0	28	0	28	0	28	1.258e-03	10	0	28	1.623e-03	11
42		min	0	1	0	1	0	1	-1.258e-03	12	0	1	-1.623e-03	9
43	N30A	max	.365	9	0	28	.281	10	6.027e-03	10	0	28	7.857e-03	11
44		min	-.365	11	0	1	-.281	12	-6.027e-03	12	0	1	-7.857e-03	9

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

	Memb...	Shape	Code Check	L...	LC	Sh...	L...	Dir	...	Pnc/o...	Pnt/o...	Mnyy/om [k-ft]	Mn...	Cb	Eqn
1	PS.1	PIPE_2.0	.256	4....	11	.034	5....		...	11.88	21.377	1.245	1.245	2....	H1...
2	PS.3	PIPE_2.5	.573	6....	11	.092	7....		...	33.588	33.743	2.393	2.393	1....	H1...
3	PS.2	PIPE_2.0	.201	4....	12	.027	5....		...	11.88	21.377	1.245	1.245	1	H1...
4	PS.4	PIPE_2.0	.256	4....	11	.034	5....		...	11.88	21.377	1.245	1.245	2....	H1...



Member Code Checks Displayed (Enveloped)
Loads: BLC 6,
Envelope Only Solution

Centek Engineering		
FJP	CT5072- Antenna Mount - Alpha & Gamma	Oct 19, 2021 at 10:25 AM
21007.61	Unity Check	W Danbury CT_Alpha_ & Gamma.r3d

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject:	Connection to Host Building
Location:	Danbury, CT
Rev. 0: 10/19/21	Prepared by: T.J.L. Checked by: C.F.C. Job No. 21007.61

Antenna Mast Connection:

Anchor Data:

HAS Threaded Rod w/ Hilti HY200 Adhesive =

Number of Anchor Bolts =	$N := 4$	(User Input)
Diameter of Bolts =	$D := 0.5in$	(User Input)
Embedment of Bolts =	$EM := 4.5in$	(User Input)
Bolt Spacing Horz =	$Sp_H := 12in$	(User Input)
Bolt Spacing Vertical =	$Sp_V := 0in$	(User Input)
Bolt Edge Distance =	$Edge := 6in$	(User Input)
Bolt Design Strength Tension =	$\Phi N_n := 5.31 \cdot kips$	(User Input)
Adjustment Factor for Spacing in Tension =	$f_{AN} := 0.9$	(User Input)
Adjustment Factor for Edge Distance in Tension =	$f_{RN} := 0.85$	(User Input)
Bolt Design Resistance in Tension =	$N_{des} := \Phi N_n \cdot f_{AN} \cdot f_{RN} = 4.1 \cdot kips$	(User Input)
Bolt Design Strength Shear =	$\Phi V_n := 11.44 \cdot kips$	(User Input)
Adjustment Factor for Spacing in Shear =	$f_{AV} := 0.66$	(User Input)
Adjustment Factor for Edge Distance in Shear =	$f_{RV} := 0.7$	(User Input)
Concrete Thickness Factor in Shear =	$f_{HV} := 0.74$	(User Input)
Bolt Design Resistance in Shear =	$V_{des} := \Phi V_n \cdot f_{AV} \cdot f_{RV} \cdot f_{HV} = 3.9 \cdot kips$	(User Input)
Converison Factor =	$\alpha_{ASD} := 1.6$	(User Input)
Alowable Tension =	$T_{all} := \frac{N_{des}}{\alpha_{ASD}} = 2.54 \cdot kips$	(User Input)
Alowable Shear =	$V_{all} := \frac{V_{des}}{\alpha_{ASD}} = 2.44 \cdot kips$	(User Input)

CENTEK engineering
Centered on Solutions™ www.centekeng.com
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Branford, CT 06405 F: (203) 488-8587

Subject:	Connection to Host Building
Location:	Danbury, CT
Rev. 0: 10/19/21	Prepared by: T.J.L. Checked by: C.F.C. Job No. 21007.61

Design Reactions: Wind X-Direction

Shear X = $Shear_x := 1.3 \cdot kips$ (User Input)

Shear Y = $Shear_y := 0.3 \cdot kips$ (User Input)

Shear Z = $Shear_z := 0 \cdot kips$ (User Input)

Moment X = $Mx := 0 \cdot ft \cdot kips$ (User Input)

Moment Y = $My := 0 \cdot ft \cdot kips$ (User Input)

Moment Z = $Mz := 0 \cdot ft \cdot kips$ (User Input)

Anchor Check:

Max Tension Force = $T_{Max} := \frac{Shear_z}{N} = 0$

Max Shear Force = $V_{Max} := \frac{Shear_y + Shear_x}{N} = 400\,lb$

Condition 1 = $Condition1 := if\left(\frac{T_{Max}}{T_{all}} + \frac{V_{Max}}{V_{all}} \le 1.0, "OK", "NG"\right) = "OK"$

% of Capacity = $\max\left[\frac{T_{Max}}{T_{all}}, \frac{V_{Max}}{V_{all}}, \left(\frac{\frac{T_{Max}}{T_{all}} + \frac{V_{Max}}{V_{all}}}{1.0}\right)\right] = 16.4 \cdot \%$

Design Reactions: Wind Z-Direction

Shear X = $Shear_x := 0 \cdot kips$ (User Input)

Shear Y = $Shear_y := 0.3 \cdot kips$ (User Input)

Shear Z = $Shear_z := 1.3 \cdot kips$ (User Input)

Moment X = $Mx := 0 \cdot ft \cdot kips$ (User Input)

Moment Y = $My := 0 \cdot ft \cdot kips$ (User Input)

Moment Z = $Mz := 0 \cdot ft \cdot kips$ (User Input)

Anchor Check:

Max Tension Force = $T_{Max} := \frac{Shear_z}{N} = 325\,lb$

Max Shear Force = $V_{Max} := \frac{Shear_y + Shear_x}{N} = 75\,lb$

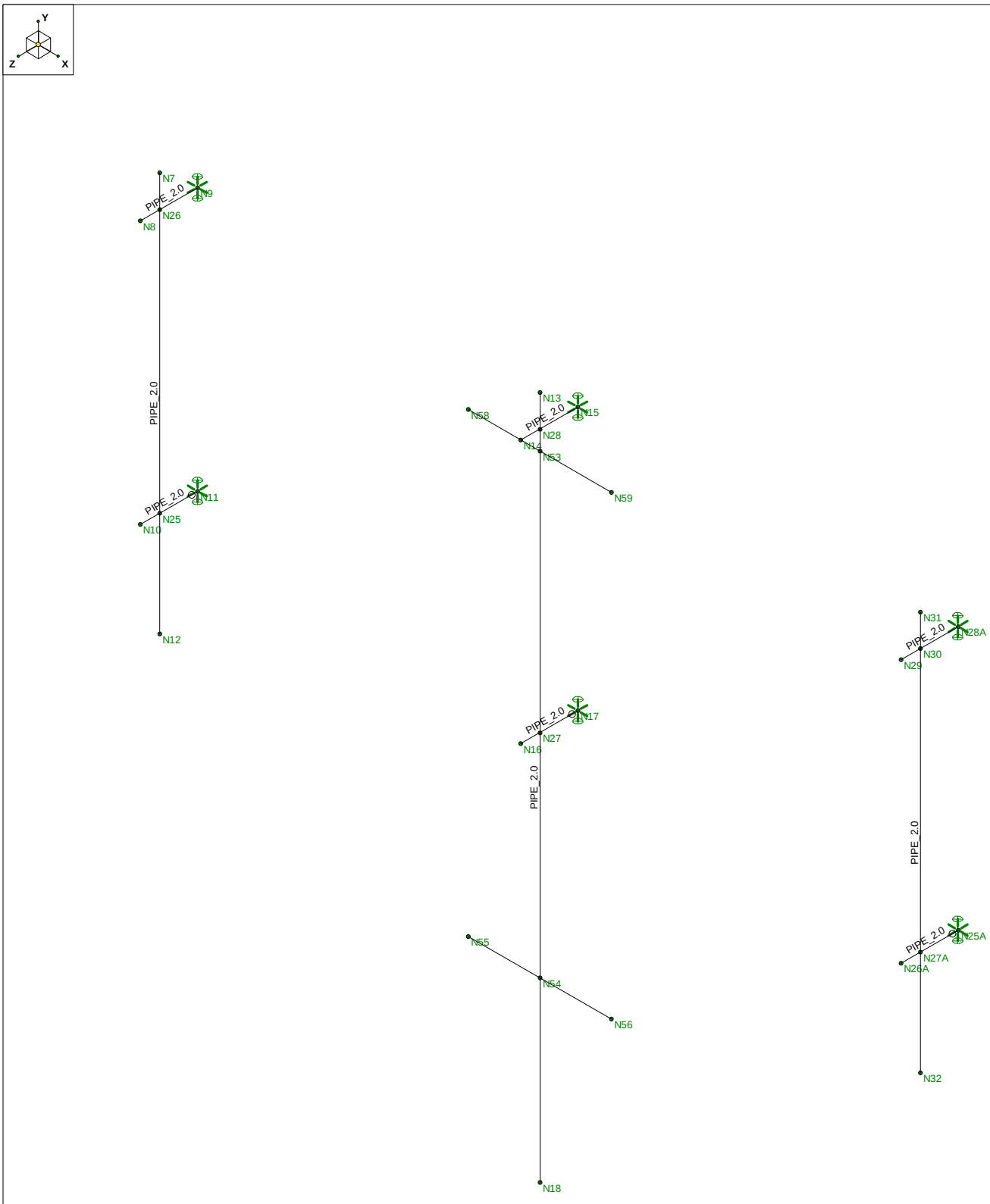
Condition 1 = $Condition1 := if\left(\frac{T_{Max}}{T_{all}} + \frac{V_{Max}}{V_{all}} \le 1.0, "OK", "NG"\right) = "OK"$

% of Capacity = $\max\left[\frac{T_{Max}}{T_{all}}, \frac{V_{Max}}{V_{all}}, \left(\frac{\frac{T_{Max}}{T_{all}} + \frac{V_{Max}}{V_{all}}}{1.0}\right)\right] = 15.9 \cdot \%$

CENTEK Engineering, Inc.
Structural Analysis – Antenna Frames & Host Building
Verizon Antenna Upgrade – W Danbury CT
Danbury, CT
Rev 1 ~ November 10, 2021

Beta Sector

REPORT



Envelope Only Solution

Centek Engineering		
FJP	West Danbury CT - Antenna Mount - Beta	Oct 19, 2021 at 10:52 AM
21007.61	Member Framing	W Danbury CT_Beta.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
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

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	1
Cd X	1
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 (\...	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 Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	(E) Pipe Mast_Pipe 2.0...	PIPE_2.0	Column	Wide Flange	A53 Grade B	Typical	1.02	.627	.627	1.25
2	(P) Pipe Mast_Pipe 2.0...	PIPE_2.0	Column	Wide Flange	A53 Grade B	Typical	1.02	.627	.627	1.25
3	(E)1/2"dia.	SR 1/2	Beam	Pipe	A36 Gr.36	Typical	.196	.003	.003	.006

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
1	M4	(E) Pipe Mast_Pipe ...	.75			Lbyy						Lateral
2	M5	(E) Pipe Mast_Pipe ...	.75			Lbyy						Lateral
3	M6	(E) Pipe Mast_Pipe ...	.75			Lbyy						Lateral
4	M7	(E) Pipe Mast_Pipe ...	.75			Lbyy						Lateral
5	M8	(E) Pipe Mast_Pipe ...	.75			Lbyy						Lateral
6	M9	(E) Pipe Mast_Pipe ...	.75			Lbyy						Lateral
7	PS.1	(E) Pipe Mast_Pipe ...	5.25	Segment		Lbyy						Lateral
8	PS.2	(P) Pipe Mast_Pipe ...	9	Segment		Lbyy						Lateral
9	PS.4	(E) Pipe Mast_Pipe ...	5.25	Segment		Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
1	M4	N10	N11		90	(E) Pipe Mast_Pipe 2.0 STD	Column	Wide Flange	A53 Grade B	Typical
2	M5	N8	N9		90	(E) Pipe Mast_Pipe 2.0 STD	Column	Wide Flange	A53 Grade B	Typical
3	M6	N16	N17		90	(E) Pipe Mast_Pipe 2.0 STD	Column	Wide Flange	A53 Grade B	Typical
4	M7	N14	N15		90	(E) Pipe Mast_Pipe 2.0 STD	Column	Wide Flange	A53 Grade B	Typical
5	M8	N26A	N25A		90	(E) Pipe Mast_Pipe 2.0 STD	Column	Wide Flange	A53 Grade B	Typical
6	M9	N29	N28A		90	(E) Pipe Mast_Pipe 2.0 STD	Column	Wide Flange	A53 Grade B	Typical
7	PS.1	N31	N32			(E) Pipe Mast_Pipe 2.0 STD	Column	Wide Flange	A53 Grade B	Typical
8	PS.2	N13	N18			(P) Pipe Mast_Pipe 2.0 STD	Column	Wide Flange	A53 Grade B	Typical
9	PS.4	N7	N12			(E) Pipe Mast_Pipe 2.0 STD	Column	Wide Flange	A53 Grade B	Typical
10	M24	N58	N59			RIGID	None	None	RIGID	Typical
11	M25	N55	N56			RIGID	None	None	RIGID	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N12	5	-5.25	.5	0	
2	N18	10	-9	.5	0	
3	N32	15	-5.25	.5	0	
4	N11	5	-3.875	0	0	
5	N10	5	-3.875	.75	0	
6	N25	5	-3.875	.5	0	
7	N17	10	-3.875	0	0	
8	N16	10	-3.875	.75	0	
9	N27	10	-3.875	.5	0	
10	N25A	15	-3.875	0	0	
11	N26A	15	-3.875	.75	0	
12	N27A	15	-3.875	.5	0	
13	N9	5	-0.416667	0	0	
14	N8	5	-0.416667	.75	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
15	N26	5	-0.416667	.5	0	
16	N15	10	-0.416667	0	0	
17	N14	10	-0.416667	.75	0	
18	N28	10	-0.416667	.5	0	
19	N28A	15	-0.416667	0	0	
20	N29	15	-0.416667	.75	0	
21	N30	15	-0.416667	.5	0	
22	N7	5	0	.5	0	
23	N13	10	0	.5	0	
24	N31	15	0	.5	0	
25	N53	10	-0.666667	.5	0	
26	N54	10	-6.666667	.5	0	
27	N55	9.056667	-6.666667	.5	0	
28	N56	10.9425	-6.666667	.5	0	
29	N58	9.056667	-0.666667	.5	0	
30	N59	10.9425	-0.666667	.5	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	N9	Reaction	Reaction	Reaction		Reaction	
2	N11	Reaction	Reaction	Reaction		Reaction	
3	N15	Reaction	Reaction	Reaction		Reaction	
4	N17	Reaction	Reaction	Reaction		Reaction	
5	N25A	Reaction	Reaction	Reaction		Reaction	
6	N28A	Reaction	Reaction	Reaction		Reaction	

Member Point Loads (BLC 2 : Weight of Equipment)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PS.1	Y	-.005	.5
2	PS.1	Y	-.005	4.5
3	M24	Y	-.021	.472
4	M24	Y	-.021	1.414
5	M25	Y	-.021	.472
6	M25	Y	-.021	1.414
7	PS.4	Y	-.013	.5
8	PS.4	Y	-.013	3
9	PS.4	Y	-.06	4.5
10	PS.2	Y	-.071	7.5
11	PS.2	Y	-.075	8.5

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PS.1	X	.08	.5
2	PS.1	X	.08	4.5
3	M24	X	.104	.472
4	M24	X	.104	1.414
5	M25	X	.104	.472
6	M25	X	.104	1.414

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
7	PS.4	X	.028	.5
8	PS.4	X	.028	3
9	PS.4	X	.039	4.5
10	PS.2	X	.052	7.5
11	PS.2	X	.058	8.5

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PS.1	Z	.056	.5
2	PS.1	Z	.056	4.5
3	M24	Z	.149	.472
4	M24	Z	.149	1.414
5	M25	Z	.149	.472
6	M25	Z	.149	1.414
7	PS.4	Z	.072	.5
8	PS.4	Z	.072	3
9	PS.4	Z	.047	4.5
10	PS.2	Z	.086	7.5
11	PS.2	Z	.086	8.5

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
1	M4	X	.011	.011	0	0
2	M5	X	.011	.011	0	0
3	M6	X	.011	.011	0	0
4	M7	X	.011	.011	0	0
5	M8	X	.011	.011	0	0
6	M9	X	.011	.011	0	0
7	PS.1	X	.011	.011	0	0
8	PS.2	X	.011	.011	0	0
9	PS.4	X	.011	.011	0	0

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distrib..	Area(...	Surfa...
1	Self Weight	DL		-1						
2	Weight of Equipment	DL					11			
3	Wind X-Direction	WLX					11	9		
4	Wind Z-Direction	WLZ					11			

Load Combinations

	Description	Solve	P...	S...	B...	Fa...	BLC	Fact...	BLC	Fa...	BLC	Fa...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	IBC 16-8	Yes	Y		DL	1																		
2	IBC 16-9	Yes	Y		DL	1	LL	1	LLS	1														
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												

Load Combinations (Continued)

	Description	Solve	P...	S...	B...	Fa...	BLC	Fact...	BLC	Fa...	BLC	Fa...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
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) (a)	Yes	Y		DL	1	WLX	.6														
10	IBC 16-12 (a) (b)	Yes	Y		DL	1	WLZ	.6														
11	IBC 16-12 (a) (c)	Yes	Y		DL	1	WLX	-.6														
12	IBC 16-12 (a) (d)	Yes	Y		DL	1	WLZ	-.6														
13	IBC 16-13 (a) (a)	Yes	Y		DL	1	WLX	.45	LL	.75	LLS	.75	RLL	.75								
14	IBC 16-13 (a) (b)	Yes	Y		DL	1	WLZ	.45	LL	.75	LLS	.75	RLL	.75								
15	IBC 16-13 (a) (c)	Yes	Y		DL	1	WLX	-.45	LL	.75	LLS	.75	RLL	.75								
16	IBC 16-13 (a) (d)	Yes	Y		DL	1	WLZ	-.45	LL	.75	LLS	.75	RLL	.75								
17	IBC 16-13 (b) (a)	Yes	Y		DL	1	WLX	.45	LL	.75	LLS	.75	SL	.75	S...	.75						
18	IBC 16-13 (b) (b)	Yes	Y		DL	1	WLZ	.45	LL	.75	LLS	.75	SL	.75	S...	.75						
19	IBC 16-13 (b) (c)	Yes	Y		DL	1	WLX	-.45	LL	.75	LLS	.75	SL	.75	S...	.75						
20	IBC 16-13 (b) (d)	Yes	Y		DL	1	WLZ	-.45	LL	.75	LLS	.75	SL	.75	S...	.75						
21	IBC 16-13 (c) (a)	Yes	Y		DL	1	WLX	.45	LL	.75	LLS	.75	RL	.75								
22	IBC 16-13 (c) (b)	Yes	Y		DL	1	WLZ	.45	LL	.75	LLS	.75	RL	.75								
23	IBC 16-13 (c) (c)	Yes	Y		DL	1	WLX	-.45	LL	.75	LLS	.75	RL	.75								
24	IBC 16-13 (c) (d)	Yes	Y		DL	1	WLZ	-.45	LL	.75	LLS	.75	RL	.75								
25	IBC 16-15 (a)	Yes	Y		DL	.6	WLX	.6														
26	IBC 16-15 (b)	Yes	Y		DL	.6	WLZ	.6														
27	IBC 16-15 (c)	Yes	Y		DL	.6	WLX	-.6														
28	IBC 16-15 (d)	Yes	Y		DL	.6	WLZ	-.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	N9	max	.034	11	.067	10	.039	28	0	28	.049	11	0	28
2		min	-.034	9	.02	28	-.064	10	0	1	-.049	9	0	1
3	N11	max	.067	27	.068	12	.082	12	0	28	0	28	0	28
4		min	-.067	25	.021	26	-.057	26	0	1	0	1	0	1
5	N15	max	.066	25	.899	12	.075	26	0	28	.191	11	0	28
6		min	-.066	27	-.69	26	-.135	12	0	1	-.191	9	0	1
7	N17	max	.45	27	.899	10	.596	12	0	28	0	28	0	28
8		min	-.45	25	-.692	28	-.536	26	0	1	0	1	0	1
9	N25A	max	.085	27	.033	10	.045	12	0	28	0	28	0	28
10		min	-.085	25	-.006	28	-.038	26	0	1	0	1	0	1
11	N28A	max	.055	11	.033	12	.024	28	0	28	.069	11	0	28
12		min	-.055	9	-.006	26	-.031	10	0	1	-.069	9	0	1
13	Totals:	max	.625	11	.409	11	.643	28						
14		min	-.625	9	.246	25	-.643	10						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotation [rad]	LC
1	N12	max	.013	25	0	26	0	26	2.214e-04	12	1.385e-03	9	2.788e-04	25
2		min	-.013	27	-.001	12	-.004	12	3.553e-05	26	-1.385e-03	11	-2.788e-04	27
3	N18	max	1.163	25	.015	26	.941	26	1.936e-02	28	9.059e-03	25	2.072e-02	25
4		min	-1.163	27	-.021	12	-.972	12	-1.889e-02	26	-9.058e-03	27	-2.071e-02	27
5	N32	max	.021	25	0	26	.002	26	1.987e-04	12	1.763e-03	9	6.486e-04	25
6		min	-.021	11	0	12	-.003	12	-1.237e-04	26	-1.763e-03	11	-6.486e-04	27
7	N11	max	0	28	0	28	0	28	0	28	0	28	2.057e-04	25

Envelope Joint Displacements (Continued)

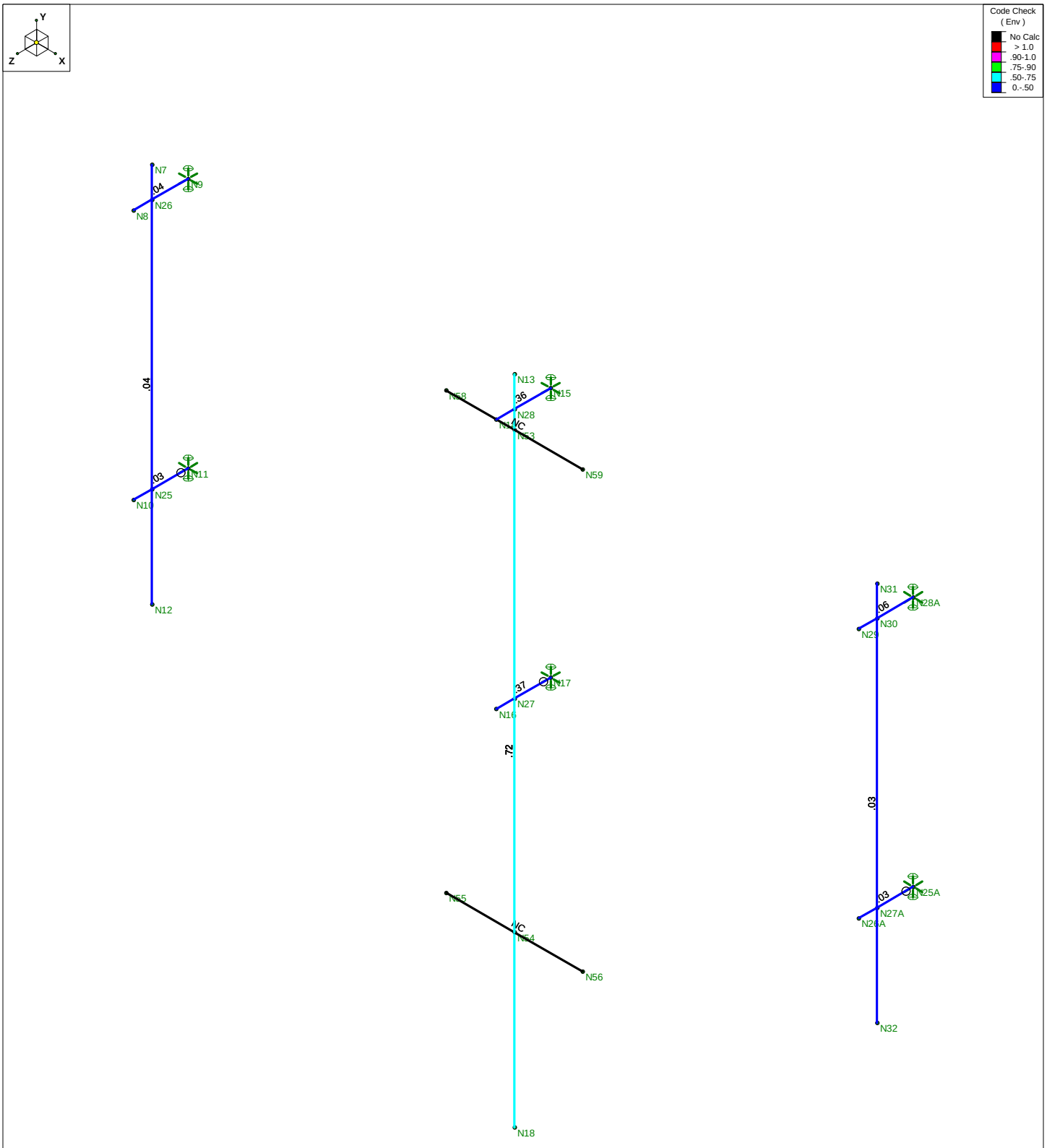
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotation [rad]	LC
8		min	0	1	0	1	0	1	0	1	0	1	-2.057e-04	27
9	N10	max	.013	9	0	26	0	26	1.671e-04	12	1.386e-03	9	2.057e-04	25
10		min	-.013	11	-.002	12	0	12	9.011e-05	26	-1.386e-03	11	-2.057e-04	27
11	N25	max	.009	9	0	26	0	26	1.67e-04	12	1.385e-03	9	2.057e-04	25
12		min	-.009	11	-.001	12	0	12	9.006e-05	26	-1.385e-03	11	-2.057e-04	27
13	N17	max	0	28	0	28	0	28	0	28	0	28	8.994e-03	25
14		min	0	1	0	1	0	1	0	1	0	1	-8.994e-03	27
15	N16	max	.084	25	.025	26	0	26	4.005e-03	12	9.059e-03	25	8.994e-03	25
16		min	-.084	27	-.032	12	0	12	-3.395e-03	26	-9.059e-03	27	-8.994e-03	27
17	N27	max	.057	25	.015	26	0	26	4.005e-03	12	9.059e-03	25	8.994e-03	25
18		min	-.057	27	-.02	12	0	12	-3.395e-03	26	-9.058e-03	27	-8.994e-03	27
19	N25A	max	0	28	0	28	0	28	0	28	0	28	5.278e-04	25
20		min	0	1	0	1	0	1	0	1	0	1	-5.278e-04	27
21	N26A	max	.016	9	0	26	0	26	1.338e-04	12	1.763e-03	9	5.278e-04	25
22		min	-.016	11	-.001	12	0	12	-5.867e-05	26	-1.763e-03	11	-5.278e-04	27
23	N27A	max	.011	9	0	26	0	26	1.337e-04	12	1.763e-03	9	5.278e-04	25
24		min	-.011	11	0	12	0	12	-5.873e-05	26	-1.763e-03	11	-5.278e-04	27
25	N9	max	0	28	0	28	0	28	2.39e-04	12	0	28	2.743e-04	9
26		min	0	1	0	1	0	1	1.126e-04	26	0	1	-2.743e-04	11
27	N8	max	.001	9	0	26	0	10	1.881e-04	12	2.039e-04	9	2.743e-04	9
28		min	-.001	11	-.002	12	0	28	5.737e-05	26	-2.039e-04	11	-2.743e-04	11
29	N26	max	0	9	0	26	0	10	1.88e-04	12	2.038e-04	9	2.743e-04	9
30		min	0	11	-.001	12	0	28	5.732e-05	26	-2.038e-04	11	-2.743e-04	11
31	N15	max	0	28	0	28	0	28	3.356e-03	12	0	28	2.211e-03	27
32		min	0	1	0	1	0	1	-2.512e-03	26	0	1	-2.211e-03	25
33	N14	max	.006	25	.019	26	0	12	2.245e-03	12	1.029e-03	25	2.211e-03	27
34		min	-.006	27	-.026	12	0	26	-1.657e-03	26	-1.029e-03	27	-2.211e-03	25
35	N28	max	.003	25	.014	26	0	12	2.245e-03	12	1.029e-03	25	2.211e-03	27
36		min	-.003	27	-.019	12	0	26	-1.657e-03	26	-1.029e-03	27	-2.211e-03	25
37	N28A	max	0	28	0	28	0	28	1.366e-04	12	0	28	1.886e-04	9
38		min	0	1	0	1	0	1	-3.035e-05	26	0	1	-1.886e-04	11
39	N29	max	.002	9	0	26	0	10	9.676e-05	12	2.735e-04	9	1.886e-04	9
40		min	-.002	11	-.001	12	0	28	-2.23e-05	26	-2.735e-04	11	-1.886e-04	11
41	N30	max	0	9	0	26	0	10	9.667e-05	12	2.733e-04	9	1.886e-04	9
42		min	0	11	0	12	0	28	-2.236e-05	26	-2.733e-04	11	-1.886e-04	11
43	N7	max	0	11	0	26	0	12	1.88e-04	12	2.038e-04	9	2.736e-04	9
44		min	0	9	-.001	12	0	26	5.732e-05	26	-2.038e-04	11	-2.736e-04	11
45	N13	max	.014	25	.014	26	.011	12	2.245e-03	12	1.029e-03	25	2.212e-03	27
46		min	-.014	27	-.019	12	-.008	26	-1.657e-03	26	-1.029e-03	27	-2.212e-03	25
47	N31	max	0	25	0	26	0	12	9.667e-05	12	2.733e-04	9	1.878e-04	9
48		min	0	27	0	12	0	26	-2.236e-05	26	-2.733e-04	11	-1.878e-04	11
49	N53	max	.004	27	.014	26	.004	26	1.177e-03	12	1.609e-03	25	2.187e-03	27
50		min	-.004	25	-.019	12	-.005	12	-8.25e-04	26	-1.609e-03	27	-2.187e-03	25
51	N54	max	.588	25	.015	26	.418	26	1.837e-02	12	9.059e-03	25	1.993e-02	25
52		min	-.588	27	-.021	12	-.436	12	-1.789e-02	26	-9.058e-03	27	-1.993e-02	27
53	N55	max	.588	25	.224	27	.419	26	1.837e-02	12	9.059e-03	25	1.993e-02	25
54		min	-.588	27	-.228	25	-.436	12	-1.789e-02	26	-9.058e-03	27	-1.993e-02	27
55	N56	max	.588	25	.223	25	.418	26	1.837e-02	12	9.059e-03	25	1.993e-02	25
56		min	-.588	27	-.228	27	-.436	12	-1.789e-02	26	-9.058e-03	27	-1.993e-02	27
57	N58	max	.004	27	.023	25	.018	25	1.177e-03	12	1.609e-03	25	2.187e-03	27
58		min	-.004	25	-.027	11	-.019	11	-8.25e-04	26	-1.609e-03	27	-2.187e-03	25
59	N59	max	.004	27	.023	27	.018	27	1.177e-03	12	1.609e-03	25	2.187e-03	27

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotation [rad]	LC
60		min	-.004	25	-.027	9	-.019	9	-8.25e-04	26	-1.609e-03	27	-2.187e-03	25

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

	Memb...	Shape	Code Check	L...	LC	Sh...	L...	Dir	...	Pnc/o...	Pnt/o...	Mnyy/om [k-ft]	Mn...	Cb	Eqn
1	M4	PIPE_2.0	.035	.25	11	.014	.75		..	21.234	21.377	1.245	1.245	1....	H1..
2	M5	PIPE_2.0	.040	.75	11	.010	.75		..	21.234	21.377	1.245	1.245	1....	H1..
3	M6	PIPE_2.0	.373	.25	10	.140	.75		..	21.234	21.377	1.245	1.245	1	H1..
4	M7	PIPE_2.0	.364	.25	12	.140	.75		..	21.234	21.377	1.245	1.245	1....	H1..
5	M8	PIPE_2.0	.034	.25	11	.013	.75		..	21.234	21.377	1.245	1.245	1....	H1..
6	M9	PIPE_2.0	.055	.75	11	.009	.75		..	21.234	21.377	1.245	1.245	1....	H1..
7	PS.1	PIPE_2.0	.029	3....	11	.045	.4...		..	15.361	21.377	1.245	1.245	2....	H1..
8	PS.2	PIPE_2.0	.724	3....	26	.238	3....		..	8.08	21.377	1.245	1.245	1	H1..
9	PS.4	PIPE_2.0	.039	3....	12	.035	3....		..	15.361	21.377	1.245	1.245	1	H1..



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek Engineering		
FJP	West Danbury CT - Antenna Mount - Beta	Oct 19, 2021 at 10:52 AM
21007.61	Unity Check	W Danbury CT_Beta.r3d

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: Connection to Building

Location: Danbury, CT

Rev. 0: 10/05/2021

Prepared by: F.J.P; Checked by: T.J.L
Job No. 21007.61

Antenna Mast to Building Connection:

Anchor Data:

1/2" Threaded Rod with Hilti HY20 ADHESIVE

Number of Bolts =	$N := 4$	(User Input)
Embedment =	$Embed := 6 \cdot in$	(User Input)
Spacing=	$S := 3 \cdot in$	(User Input)
Allowable Load in Tension =	$T_{all} := 745 \cdot lbf$	(User Input)
Allowable Load in Shear =	$V_{all} := 930 \cdot lbf$	(User Input)

Design Reactions:

Shear X =	$Shear_x := .445 \cdot kip$	(User Input)
Axial =	$Vertical := .965\ kip$	(User Input)
Shear Z =	$Shear_z := .566 \cdot kip$	(User Input)
Moment Y =	$M_Y := 0 \cdot kip \cdot ft$	(User Input)
Moment Z =	$M_Z := 0 \cdot kip \cdot ft$	(User Input)

Anchor Check:

Max Tension Force =
$$T_{Max} := \frac{Shear_z}{N} + \frac{M_Y}{S \cdot \frac{N}{2}} = 141.5\ lbf$$

Max Shear Force =
$$V_{Max} := \frac{\sqrt{Shear_x^2 + Vertical^2}}{N} + \frac{M_Z}{S \cdot N} = 265.67\ lbf$$

Condition 1 =
$$Condition1 := if\left(\frac{T_{Max}}{T_{all}} \le 1.00, \text{“OK”}, \text{“NG”}\right) = \text{“OK”}$$

Condition 2 =
$$Condition2 := if\left(\frac{V_{Max}}{V_{all}} \le 1.00, \text{“OK”}, \text{“NG”}\right) = \text{“OK”}$$

Condition 3 =
$$Condition3 := if\left(\frac{T_{Max}}{T_{all}} + \frac{V_{Max}}{V_{all}} \le 1.0, \text{“OK”}, \text{“NG”}\right) = \text{“OK”}$$

% of Capacity =
$$\max\left(\frac{T_{Max}}{T_{all}}, \frac{V_{Max}}{V_{all}}, \left(\frac{\frac{T_{Max}}{T_{all}} + \frac{V_{Max}}{V_{all}}}{1.0}\right)\right) = 47.56\%$$

Note: Due to lack of attachment information, it has been assumed that (4) -1/2" bolts were used for the attachment to the building façade using with Hilti HY20 Adhesive.

verizon fuze | RFDS

EAST > North East > New England > New England West > W DANBURY CT

Mahmood, Shaikh - shaikh.mahmood@verizonwireless.com - 10/7/2021 22:50:16

Project Details

FUZE Project ID:	16486722
Project Name:	5G L-Sub6 - Carrier Add
Project Alt Name:	5G L-Sub6 - Carrier Add
Project Type:	Modification
Modification Type:	VDU_UPGRADE_OR_ADD
Designed Sector Carrier 4G:	15
Designed Sector Carrier 5G:	3
Additional Sector Carrier 4G:	N/A
Additional Sector Carrier 5G:	N/A
FP Solution Type & Tech Type:	MODIFICATION;4G_4TX,4G_PCS,5G_850,5G_L-Sub6-Prep,5G_vDU add - Sub3
Carrier Aggregation:	false
MPT Id:	
eCIP-0:	false
Suffix:	Rev0_10.07.2021

Location Information

Site ID:	325024
E-NodeB ID:	0659452,065007
PSLC:	468225
Switch Name:	Westboro
Tower Owner:	
Tower Type:	Building Side-Mounted
Site Type:	MACRO
Site Sub Type:	SPOKE
Street Address:	18 Old Ridgebury Rd.
City:	Danbury
State:	CT
Zip Code:	06810
County:	Fairfield
Latitude:	41.388428 / 41° 23' 18.3408" N
Longitude:	-73.515124 / 73° 30' 54.4464" W

RFDS Project Scope:

*******Rooftop**********
Rev0_10.07.2021: Initial Design.
850-LTE, 5G_850,PCS-LTE, 5G_L-Sub6 Add:
• Swap out existing LTE antennas with JMA MX06FRO460-02
• 850 CDMA 1xRTT Antenna remains in all sectors.
• Add 2" Side by Side Antenna Mounting Bracket.
• This site is in close proximity of Earth Satellite Station buffer. Add CommScope IMF8-C-2STP | E14V00P32 Filter for L-Sub6 8T8R RRH.
• Retain existing OVP Box and Hybrid Power/Fiber cables.
• Add L-Sub6 Samsung antennas to all sectors.
• Upgrade Nokia RRHs to Samsung RRHs: DB LB / DB HB.
• Place all RRHs near antennas on Rooftop.
• Capped and weatherproof unused RF ports.

Antenna Summary

Added

700	850	1900	AWS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID
LTE	LTE 5G	LTE	LTE		JMA	MX06FRO460-02	123	125.1	150(0008) 150(02)	false	false	PHYSICAL	2	MX06FRO460-02
LTE	LTE 5G	LTE	LTE		JMA	MX06FRO460-02	108	110.1	30(0007) 30(01)	false	false	PHYSICAL	2	MX06FRO460-02
LTE	LTE 5G	LTE	LTE		JMA	MX06FRO460-02	86	88.1	270(0009) 270(03)	false	false	PHYSICAL	2	MX06FRO460-02
				5G	JMA	MX08FIT265-01	123	124	150(0008)	false	false	PHYSICAL	1	
				5G	JMA	MX08FIT265-01	86	87	270(0009)	false	false	PHYSICAL	1	
				5G	JMA	MX08FIT265-01	108	109	30(0007)	false	false	PHYSICAL	1	

Removed

700	850	1900	AWS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID
LTE					RFS	APX75-866512-T2 749MHZ	86	88.2	270(03)	false	false	PHYSICAL	1	
LTE					RFS	APX75-866512-T2 749MHZ	108	110.2	30(01)	false	false	PHYSICAL	1	
LTE					RFS	APX75-866512-T2 749MHZ	123	125.2	150(02)	false	false	PHYSICAL	1	
			LTE		RYMSA	MG D3-800T0 (210750)	86	88.3	270(03)	false	false	PHYSICAL	1	
			LTE		RYMSA	MG D3-800T0 (210750)	108	110.3	30(01)	false	false	PHYSICAL	1	
			LTE		RYMSA	MG D3-800T0 (210750)	123	125.3	150(02)	false	false	PHYSICAL	1	

Retained

700	850	1900	AWS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID
	CDMA				RFS	APL868013	123	125	150(D2)	false	false	PHYSICAL	2	
	CDMA				RFS	APL868013	108	110	30(D1)	false	false	PHYSICAL	2	
	CDMA				RFS	APL868013	86	88	270(D3)	false	false	PHYSICAL	2	

Added: 9 **Removed:** 6 **Retained:** 6

Equipment Summary

Added

Equipment Type	Location	700	850	1900	AWS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID
Mount	Tower						Antenna Vendor	Beamforming / 2" spacing			PHYSICAL	3	
Other	Tower					5G	COMMSCOPE	IMF8-C-2STP | E14V00P32			PHYSICAL	3	
RRU	Tower			LTE	LTE		Samsung	RF4439d-25A			PHYSICAL	3	
RRU	Tower	LTE	LTE 5G				Samsung	RF4440d-13A			PHYSICAL	3	
RRU	Tower					5G	Samsung	RT-8808-77A			PHYSICAL	3	

Removed

Equipment Type	Location	700	850	1900	AWS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID
RRU	Tower	LTE					Nokia	UHBA B13 RRH 4x30			PHYSICAL	3	
RRU	Tower				LTE		Nokia	UHIC B4 RRH 2x60-4R			PHYSICAL	3	

Retained

Equipment Type	Location	700	850	1900	AWS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID
Hybrid Fiber	Tower						Hybrid	6x12			PHYSICAL	3	
OVP Box	Tower						OVP	6-OVP			PHYSICAL	3	
Coaxial Cables	Tower						coax	coax			PHYSICAL	6	

Service Info

700 MHz LTE	0000			5GLS		
Sector	**01**	**02**	**03**	**01**	**02**	**03**
Azimuth	30	150	270	30	150	270
Cell / ENode B ID	065007	065007	065007	065007	065007	065007
Antenna Model	APX75-866512-T2 749MHZ	APX75-866512-T2 749MHZ	APX75-866512-T2 749MHZ	MX06FRO460-02	MX06FRO460-02	MX06FRO460-02
Antenna Make	RFS	RFS	RFS	JMA	JMA	JMA
Antenna Centerline(Ft)	108	123	86	108	123	86
Mechanical Down-Tilt(Deg.)	0	0	4	0	0	0
Electrical Down-Tilt	2	2	2	2	2	6
Tip Height	110.2	125.2	88.2	110.1	125.1	88.1
Regulatory Power	44.54	44.34	43.33	32.64	32.49	31.75
DLEARFCN	5230	5230	5230	5230	5230	5230
Channel Bandwidth(MHz)	10	10	10	10	10	10
Total ERP (W)	400.87	399.02	389.94	293.76	292.42	285.76
TMA Make						
TMA Model						
RRU Make	Nokia	Nokia	Nokia	Samsung	Samsung	Samsung
RRU Model	UHBA B13 RRH 4x30	UHBA B13 RRH 4x30	UHBA B13 RRH 4x30	RF4440d-13A	RF4440d-13A	RF4440d-13A
Number of Tx, Rx Lines	4,4	4,4	4,4	4,4	4,4	4,4
Position						
Transmitter Id	1946307	1946305	1946306	10959623	10959625	10959627
Source	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API

850 MHz LTE				5GLS		
Sector				**01**	**02**	**03**
Azimuth				30	150	270
Cell / ENode B ID				065007	065007	065007
Antenna Model				MX06FRO460-02	MX06FRO460-02	MX06FRO460-02
Antenna Make				JMA	JMA	JMA
Antenna Centerline(Ft)				108	123	86
Mechanical Down-Tilt(Deg.)				0	0	0
Electrical Down-Tilt				2	2	6
Tip Height				110.1	125.1	88.1
Regulatory Power				149.91	149.22	145.82
DLEARFCN				2450	2450	2450
Channel Bandwidth(MHz)				10	10	10
Total ERP (W)				337.29	335.74	328.1
TMA Make						
TMA Model						
RRU Make				Samsung	Samsung	Samsung
RRU Model				RF4440d-13A	RF4440d-13A	RF4440d-13A
Number of Tx, Rx Lines				4,4	4,4	4,4
Position						
Transmitter Id				10959770	10959771	10959772
Source				ATOLL_API	ATOLL_API	ATOLL_API

850 MHz CDMA

	0000			5GLS		
Sector	**D1**	**D2**	**D3**	**D1**	**D2**	**D3**
Azimuth	30	150	270	30	150	270
Cell / ENode B ID						
Antenna Model	APL868013	APL868013	APL868013	APL868013	APL868013	APL868013
Antenna Make	RFS	RFS	RFS	RFS	RFS	RFS
Antenna Centerline(Ft)	108	123	86	108	123	86
Mechanical Down-Tilt(Deg.)	0	0	0	0	0	0
Electrical Down-Tilt	0	0	0	0	0	0
Tip Height	110	125	88	110	125	88
Regulatory Power	427.56	425.6	415.91	427.56	425.6	415.91
DLEARFCN	201, 242, 283	201, 242, 283	201, 242, 283	201, 242, 283	201, 242, 283	201, 242, 283
Channel Bandwidth(MHz)	3	3	3	3	3	3
Total ERP (W)						
TMA Make						
TMA Model						
RRU Make						
RRU Model						
Number of Tx, Rx Lines	2,2	2,2	2,2	2,2	2,2	2,2
Position						
Transmitter Id						
Source	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API

850 MHz 5GNR

				5GLS		
Sector				**0007**	**0008**	**0009**
Azimuth				30	150	270
Cell / ENode B ID				0659452	0659452	0659452
Antenna Model				MX06FRO460-02	MX06FRO460-02	MX06FRO460-02
Antenna Make				JMA	JMA	JMA
Antenna Centerline(Ft)				108	123	86
Mechanical Down-Tilt(Deg.)				0	0	0
Electrical Down-Tilt				2	2	6
Tip Height				110.1	125.1	88.1
Regulatory Power				149.91	149.22	145.82
DLEARFCN				2450	2450	2450
Channel Bandwidth(MHz)				10	10	10
Total ERP (W)				337.29	335.74	328.1
TMA Make						
TMA Model						
RRU Make				Samsung	Samsung	Samsung
RRU Model				RF4440d-13A	RF4440d-13A	RF4440d-13A
Number of Tx, Rx Lines				4,4	4,4	4,4
Position						
Transmitter Id				10959770	10959771	10959772
Source				ATOLL_API	ATOLL_API	ATOLL_API

1900 MHz LTE

				5GLS		
Sector				**01**	**02**	**03**
Azimuth				30	150	270
Cell / ENode B ID				065007	065007	065007
Antenna Model				MX06FRO460-02	MX06FRO460-02	MX06FRO460-02
Antenna Make				JMA	JMA	JMA
Antenna Centerline(Ft)				108	123	86
Mechanical Down-Tilt(Deg.)				0	0	0
Electrical Down-Tilt				2	2	2
Tip Height				110.1	125.1	88.1
Regulatory Power				109.58	109.58	109.58
DLEARFCN				1100	1100	1100
Channel Bandwidth(MHz)				20	20	20
Total ERP (W)				1202.26	1202.26	1202.26
TMA Make						
TMA Model						
RRU Make				Samsung	Samsung	Samsung
RRU Model				RF4439d-25A	RF4439d-25A	RF4439d-25A
Number of Tx, Rx Lines				4,4	4,4	4,4
Position						
Transmitter Id				10959767	10959768	10959769
Source				ATOLL_API	ATOLL_API	ATOLL_API

2100 MHz LTE

	0000			5GLS		
Sector	**01**	**02**	**03**	**01**	**02**	**03**
Azimuth	30	150	270	30	150	270
Cell / ENode B ID	065007	065007	065007	065007	065007	065007
Antenna Model	MG D3-800T0 (210750)	MG D3-800T0 (210750)	MG D3-800T0 (210750)	MX06FRO460-02	MX06FRO460-02	MX06FRO460-02
Antenna Make	RYMSA	RYMSA	RYMSA	JMA	JMA	JMA
Antenna Centerline(Ft)	108	123	86	108	123	86
Mechanical Down-Tilt(Deg.)	0	0	0	0	0	0
Electrical Down-Tilt	0	0	0	2	2	2
Tip Height	110.3	125.3	88.3	110.1	125.1	88.1
Regulatory Power	190.43	190.43	190.43	125.81	125.81	125.81
DLEARFCN	2050	2050	2050	2050	2050	2050
Channel Bandwidth(MHz)	20	20	20	20	20	20
Total ERP (W)	2089.3	2089.3	2089.3	1380.38	1380.38	1380.38
TMA Make						
TMA Model						
RRU Make	Nokia	Nokia	Nokia	Samsung	Samsung	Samsung
RRU Model	UHIC B4 RRH 2x60-4R	UHIC B4 RRH 2x60-4R	UHIC B4 RRH 2x60-4R	RF4439d-25A	RF4439d-25A	RF4439d-25A
Number of Tx, Rx Lines	4,4	4,4	4,4	4,4	4,4	4,4
Position						
Transmitter Id	1946308	1946309	1946313	10959624	10959626	10959628
Source	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API

nL-Sub6

	5GLS		
Sector	**0007**	**0008**	**0009**
Azimuth	30	150	270
Cell / ENode B ID	0659452	0659452	0659452
Antenna Model	MX08FIT265-01	MX08FIT265-01	MX08FIT265-01
Antenna Make	JMA	JMA	JMA
Antenna Centerline(Ft)	108	123	86
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	2	2	2
Tip Height	109	124	87
Regulatory Power	490.89	490.89	490.89
DLEARFCN	648672	648672	648672
Channel Bandwidth(MHz)	60	60	60
Total ERP (W)	4263.83	4263.83	4263.83
TMA Make			
TMA Model			
RRU Make	Samsung	Samsung	Samsung
RRU Model	RT-8808-77A	RT-8808-77A	RT-8808-77A
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	10959680	10959681	10959682
Source	ATOLL_API	ATOLL_API	ATOLL_API

Service Comments

Callsigns Per Antenna

Sector	Antenna Ma	Antenna Mo	Ant CL Height AGL	Tip Height	Azimuth (TI	Electrical Tilt	Mechanical Tilt	Gain	Beamwidth	Regulatory Power	Callsigns						
											700	850	1900	2100	28 GHz	31 GHz	39 GHz
No data available.																	

Callsigns

Callsign	Market	Radio Code	Market Number	Block	State	County	Licensee Name	Wholly Owned	Total MHZ	Freq Range 1	Freq Range 2	Freq Range 3	Freq Range 4	Regulatory Power	Threshold (W)	POPs/Sq Mi	Status	Action	Approved for Insvc
WQJQ689	*Northeast*	*WU*	*REA001*	*C*	*CT*	*Fairfield*	*Cellco Partnership*	*Yes*	*22.000*	*746.000-757.000*	*776.000-787.000*	*.000-.000*	*.000-.000*	*32.64*	*1000*	*1467.18*	*Active*	*added*	*Yes*
KNKA363	*Bridgeport-Stamford-Norwalk-Danbury, CT*	*CL*	*CMA042*	*A*	*CT*	*Fairfield*	*Cellco Partnership*	*Yes*	*25.000*	*824.000-835.000*	*869.000-880.000*	*845.000-846.500*	*890.000-891.500*	*427.56*	*500*	*1467.18*	*Active*	*added*	*Yes*
WQBT539	*New York, NY*	*CW*	*BTA321*	*C*	*CT*	*Fairfield*	*Cellco Partnership*	*Yes*	*10.000*	*1895.000-1900.000*	*1975.000-1980.000*	*.000-.000*	*.000-.000*	*109.58*	*1640*	*1467.18*	*Active*	*added*	*Yes*
KNLF644	*New York, NY*	*CW*	*BTA321*	*C*	*CT*	*Fairfield*	*AirTouch Cellular*	*Yes*	*20.000*	*1900.000-1910.000*	*1980.000-1990.000*	*.000-.000*	*.000-.000*	*109.58*	*1640*	*1467.18*	*Active*	*added*	*Yes*
KNLH264	*New York, NY*	*CW*	*BTA321*	*F*	*CT*	*Fairfield*	*Cellco Partnership*	*Yes*	*10.000*	*1890.000-1895.000*	*1970.000-1975.000*	*.000-.000*	*.000-.000*	*109.58*	*1640*	*1467.18*	*Active*	*added*	*Yes*
WQGB279	*Bridgeport-Stamford-Norwalk-Danbury, CT*	*AW*	*CMA042*	*A*	*CT*	*Fairfield*	*Cellco Partnership*	*Yes*	*20.000*	*1710.000-1720.000*	*2110.000-2120.000*	*.000-.000*	*.000-.000*	*125.81*	*1640*	*1467.18*	*Active*	*added*	*Yes*
WQGA906	*New York-No. New Jer.-Long Island, NY-NJ-CT-PA-MA-*	*AW*	*BEA010*	*B*	*CT*	*Fairfield*	*Cellco Partnership*	*Yes*	*20.000*	*1720.000-1730.000*	*2120.000-2130.000*	*.000-.000*	*.000-.000*	*125.81*	*1640*	*1467.18*	*Active*	*added*	*Yes*
WRBA702	New York, NY	UU	BTA321	L1	CT	Fairfield	Cellco Partnership	Yes	325.000	27600.000-27925.000	.000-.000	.000-.000	.000-.000			1467.18	Active		Yes
WRBA703	New York, NY	UU	BTA321	L2	CT	Fairfield	Cellco Partnership	Yes	325.000	27925.000-27950.000	28050.000-28350.000	.000-.000	.000-.000			1467.18	Active		Yes
WRHD609	New York, NY	UU	PEA001	M1	CT	Fairfield	Straight Path Spectrum, LLC	Yes	100.000	37600.000-37700.000	.000-.000	.000-.000	.000-.000			1467.18	Active		Yes
WRHD610	New York, NY	UU	PEA001	M10	CT	Fairfield	Straight Path Spectrum, LLC	Yes	100.000	38500.000-38600.000	.000-.000	.000-.000	.000-.000			1467.18	Active		Yes
WRHD611	New York, NY	UU	PEA001	M2	CT	Fairfield	Straight Path Spectrum, LLC	Yes	100.000	37700.000-37800.000	.000-.000	.000-.000	.000-.000			1467.18	Active		Yes
WRHD612	New York, NY	UU	PEA001	M3	CT	Fairfield	Straight Path Spectrum, LLC	Yes	100.000	37800.000-37900.000	.000-.000	.000-.000	.000-.000			1467.18	Active		Yes

WRHD613	New York, NY	UU	PEA001	M4	CT	Fairfield	Straight Path Spectrum, LLC	Yes	100.000	37900.000-38000.000	.000-.000	.000-.000	.000-.000			1467.18	Active		Yes
WRHD614	New York, NY	UU	PEA001	M5	CT	Fairfield	Straight Path Spectrum, LLC	Yes	100.000	38000.000-38100.000	.000-.000	.000-.000	.000-.000			1467.18	Active		Yes
WRHD615	New York, NY	UU	PEA001	M6	CT	Fairfield	Straight Path Spectrum, LLC	Yes	100.000	38100.000-38200.000	.000-.000	.000-.000	.000-.000			1467.18	Active		Yes
WRHD616	New York, NY	UU	PEA001	M7	CT	Fairfield	Straight Path Spectrum, LLC	Yes	100.000	38200.000-38300.000	.000-.000	.000-.000	.000-.000			1467.18	Active		Yes
WRHD617	New York, NY	UU	PEA001	M8	CT	Fairfield	Straight Path Spectrum, LLC	Yes	100.000	38300.000-38400.000	.000-.000	.000-.000	.000-.000			1467.18	Active		Yes
WRHD618	New York, NY	UU	PEA001	M9	CT	Fairfield	Straight Path Spectrum, LLC	Yes	100.000	38400.000-38500.000	.000-.000	.000-.000	.000-.000			1467.18	Active		Yes
WRHD619	New York, NY	UU	PEA001	N1	CT	Fairfield	Straight Path Spectrum, LLC	Yes	100.000	38600.000-38700.000	.000-.000	.000-.000	.000-.000			1467.18	Active	N/A	No
WRLD509	D09001 - Fairfield, CT	PL	D09001	0	CT	Fairfield	Verizon Wireless Network Procuremer LP	Yes	100.000	3550.000-3650.000	.000-.000	.000-.000	.000-.000		501	.00	Active		Yes
WRLD511	D09001 - Fairfield, CT	PL	D09001	0	CT	Fairfield	Verizon Wireless Network Procuremer LP	Yes	100.000	3550.000-3650.000	.000-.000	.000-.000	.000-.000		501	.00	Active		Yes
WRLD512	D09001 - Fairfield, CT	PL	D09001	0	CT	Fairfield	Verizon Wireless Network Procuremer LP	Yes	100.000	3550.000-3650.000	.000-.000	.000-.000	.000-.000		501	.00	Active		Yes
WRLD510	D09001 - Fairfield, CT	PL	D09001	0	CT	Fairfield	Verizon Wireless Network Procuremer LP	Yes	100.000	3550.000-3650.000	.000-.000	.000-.000	.000-.000		501	.00	Active		Yes
WRNE581	New York, NY	PM	PEA001	A1	CT	Fairfield	Cellco Partnership	Yes	20.000	3700.000-3720.000	.000-.000	.000-.000	.000-.000			1467.18	Active		No
WRNE582	New York, NY	PM	PEA001	A2	CT	Fairfield	Cellco Partnership	Yes	20.000	3720.000-3740.000	.000-.000	.000-.000	.000-.000			1467.18	Active		No

WRNE583	New York, NY	PM	PEA001	A3	CT	Fairfield	Cellco Partnership	Yes	20.000	3740.000-3760.000	.000-.000	.000-.000	.000-.000			1467.18	Active		No
WRNE584	New York, NY	PM	PEA001	A4	CT	Fairfield	Cellco Partnership	Yes	20.000	3760.000-3780.000	.000-.000	.000-.000	.000-.000			1467.18	Active		No
WRNE585	New York, NY	PM	PEA001	A5	CT	Fairfield	Cellco Partnership	Yes	20.000	3780.000-3800.000	.000-.000	.000-.000	.000-.000			1467.18	Active		No
WRNE586	New York, NY	PM	PEA001	B1	CT	Fairfield	Cellco Partnership	Yes	20.000	3800.000-3820.000	.000-.000	.000-.000	.000-.000			1467.18	Active		No
WRNE587	New York, NY	PM	PEA001	B2	CT	Fairfield	Cellco Partnership	Yes	20.000	3820.000-3840.000	.000-.000	.000-.000	.000-.000			1467.18	Active		No
WRNE588	New York, NY	PM	PEA001	B3	CT	Fairfield	Cellco Partnership	Yes	20.000	3840.000-3860.000	.000-.000	.000-.000	.000-.000			1467.18	Active		No

Sector Design

- Port 1 & 2 are for low band (698-896 MHz).
- Port 3,4,5, & 6 are for high band (1695-2360 MHz).
- Antenna Smart Bias Tee (SBT) is through port 1 for low band and port 3 for high band.
- AISG cable is only needed when drawn in the diagrams below, if it is not drawn then SBT is enough to control all RET motors.
- Not all SBT ports are needed to control RET, only green port connection to green port will control RET.

RET DC signal pass for RET
(Port that will control RET)

DC signal capable Port

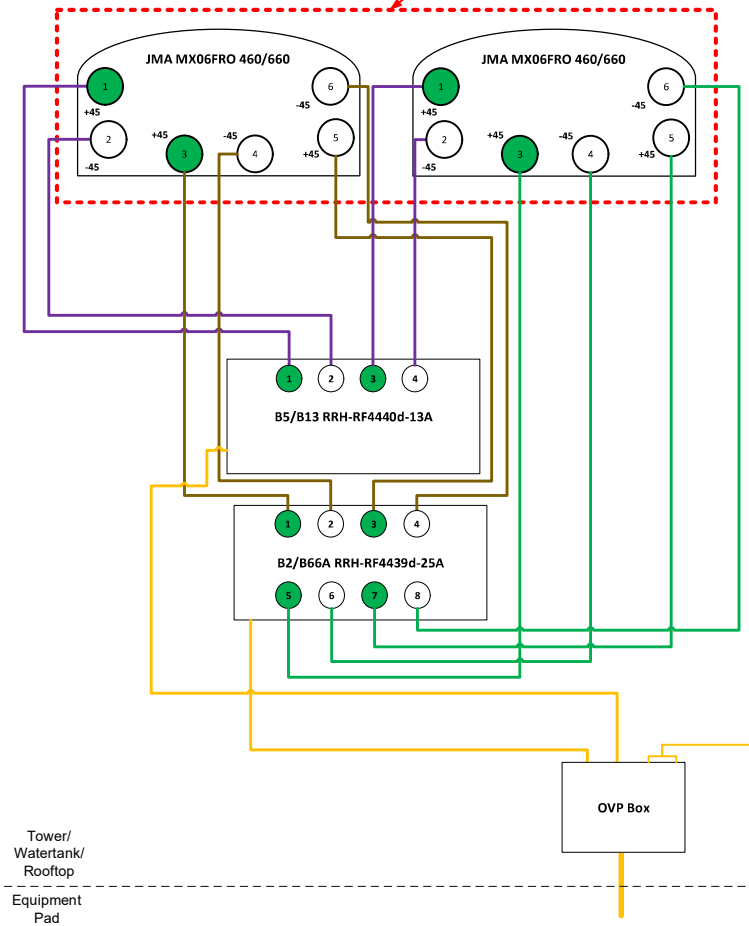
AISG Cable

RET DC signal pass for RET
(Port that will control RET)

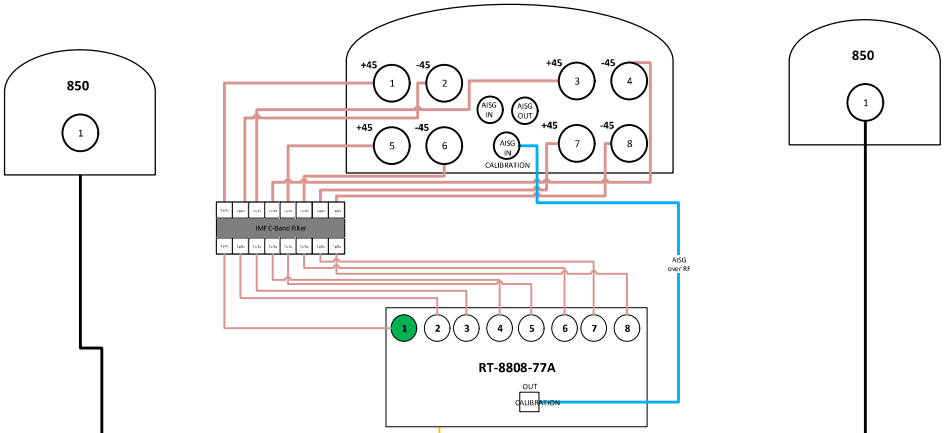
Hybriflex cables

JMA MX08FIT265-01

2" Side By Side Mount



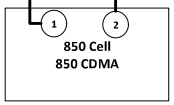
JMA MX08FIT265-01



OVP Box

Tower/
Watertank/
Rooftop

Equipment
Pad



Comments:

Diagram shows configuration as viewed from standing behind the antennas.

Antennas will be installed in that order from left to right. Antenna position:1,2,3,4.

Cap and weatherproof unused antenna ports.

All plumbing diagram colors are irrelevant except for AISG & Hybriflex cable.

Band	Sector 1 (Alpha) Color Codes						
850 CDMA	R						
	R	R					
700	R	P					
	R	R	P				
	R	R	R	P			
	R	R	R	R	P		
850 LTE	R	P	P				
	R	R	P	P			
	R	R	R	P	P		
	R	R	R	R	P	P	
700 / 850	R	P	P	P			
	R	R	P	P	P		
	R	R	R	P	P	P	
	R	R	R	R	P	P	P
AWS	R	W					
	R	R	W				
	R	R	R	W			
	R	R	R	R	W		
PCS	R	W	W				
	R	R	W	W			
	R	R	R	W	W		
	R	R	R	R	W	W	
AWS / PCS	R	W	W	W			
	R	R	W	W	W		
	R	R	R	W	W	W	
	R	R	R	R	W	W	W
CBRS	R	Y					
	R	R	Y				
	R	R	R	Y			
	R	R	R	R	Y		
LAA	R	Y	Y				
	R	R	Y	Y			

	Sector 2 (Beta) Color Codes						
	B						
	B	B					
	B	P					
	B	B	P				
	B	B	B	P			
	B	B	B	B	P		
	B	P	P				
	B	B	P	P			
	B	B	B	P	P		
	B	B	B	B	P	P	
	B	P	P	P			
	B	B	P	P	P		
	B	B	B	P	P	P	
	B	B	B	B	P	P	P
	B	W					
	B	B	W				
	B	B	B	W			
	B	B	B	B	W		
	B	W	W				
	B	B	W	W			
	B	B	B	W	W		
	B	B	B	B	W	W	
	B	W	W	W			
	B	B	W	W	W		
	B	B	B	W	W	W	
	B	B	B	B	W	W	W
	B	Y					
	B	B	Y				
	B	B	B	Y			
	B	B	B	B	Y		
	B	Y	Y				
	B	B	Y	Y			

	Sector 3 (Gamma) Color Codes						
	G						
	G	G					
	G	P					
	G	G	P				
	G	G	G	P			
	G	G	G	G	P		
	G	P	P				
	G	G	P	P			
	G	G	G	P	P		
	G	G	G	G	P	P	
	G	P	P	P			
	G	G	P	P	P		
	G	G	G	P	P	P	
	G	G	G	G	P	P	P
	G	W					
	G	G	W				
	G	G	G	W			
	G	G	G	G	W		
	G	W	W				
	G	G	W	W			
	G	G	G	W	W		
	G	G	G	G	W	W	
	G	W	W	W			
	G	G	W	W	W		
	G	G	G	W	W	W	
	G	G	G	G	W	W	W
	G	Y					
	G	G	Y				
	G	G	G	Y			
	G	G	G	G	Y		
	G	Y	Y				
	G	G	Y	Y			

	Sector 4 (Delta) Color Codes						
850 CDMA	Gray	R					
	Gray	R	R				
700	Gray	R	P				
	Gray	R	R	P			
	Gray	R	R	R	P		
	Gray	R	R	R	R	P	
850 LTE	Gray	R	P	P			
	Gray	R	R	P	P		
	Gray	R	R	R	P	P	
	Gray	R	R	R	R	P	P
700 / 850	Gray	R	P	P	P		
	Gray	R	R	P	P	P	
	Gray	R	R	R	P	P	P
	Gray	R	R	R	R	P	P
AWS	Gray	R	W				
	Gray	R	R	W			
	Gray	R	R	R	W		
	Gray	R	R	R	R	W	
PCS	Gray	R	W	W			
	Gray	R	R	W	W		
	Gray	R	R	R	W	W	
	Gray	R	R	R	R	W	W
AWS / PCS	Gray	R	W	W	W		
	Gray	R	R	W	W	W	
	Gray	R	R	R	W	W	W
	Gray	R	R	R	R	W	W
CBRS	Gray	R	Y				
	Gray	R	R	Y			
	Gray	R	R	R	Y		
	Gray	R	R	R	R	Y	
LAA	Gray	R	Y	Y			
	Gray	R	R	Y	Y		

	Sector 5 (Epsilon) Color Codes						
	Gray	B					
	Gray	B	B				
	Gray	B	P				
	Gray	B	B	P			
	Gray	B	B	B	P		
	Gray	B	B	B	B	P	
	Gray	B	P	P			
	Gray	B	B	P	P		
	Gray	B	B	B	P	P	
	Gray	B	B	B	B	P	P
	Gray	B	P	P	P		
	Gray	B	B	P	P	P	
	Gray	B	B	B	P	P	P
	Gray	B	B	B	B	P	P
	Gray	B	W				
	Gray	B	B	W			
	Gray	B	B	B	W		
	Gray	B	B	B	B	W	
	Gray	B	W	W			
	Gray	B	B	W	W		
	Gray	B	B	B	W	W	
	Gray	B	B	B	B	W	W
	Gray	B	W	W	W		
	Gray	B	B	W	W	W	
	Gray	B	B	B	W	W	W
	Gray	B	B	B	B	W	W
	Gray	B	Y				
	Gray	B	B	Y			
	Gray	B	B	B	Y		
	Gray	B	B	B	B	Y	
	Gray	B	Y	Y			
	Gray	B	B	Y	Y		

	Sector 6 (Zeta) Color Codes						
	Gray	G					
	Gray	G	G				
	Gray	G	P				
	Gray	G	G	P			
	Gray	G	G	G	P		
	Gray	G	G	G	G	P	
	Gray	G	P	P			
	Gray	G	G	P	P		
	Gray	G	G	G	P	P	
	Gray	G	G	G	G	P	P
	Gray	G	P	P	P		
	Gray	G	G	P	P	P	
	Gray	G	G	G	P	P	P
	Gray	G	G	G	G	P	P
	Gray	G	W				
	Gray	G	G	W			
	Gray	G	G	G	W		
	Gray	G	G	G	G	W	
	Gray	G	W	W			
	Gray	G	G	W	W		
	Gray	G	G	G	W	W	
	Gray	G	G	G	G	W	W
	Gray	G	W	W	W		
	Gray	G	G	W	W	W	
	Gray	G	G	G	W	W	W
	Gray	G	G	G	G	W	W
	Gray	G	Y				
	Gray	G	G	Y			
	Gray	G	G	G	Y		
	Gray	G	G	G	G	Y	
	Gray	G	Y	Y			
	Gray	G	G	Y	Y		

ATTACHMENT 5


INTERSTATE ROUTE 84
OLD RIDGEBURY ROAD
LARSON D
LAKEVIEW DRIVE
Parcel #: C150080000
Documents & Links
Assessment
Vision Online Property Records

18 OLD RIDGEBURY RD

Sales Print Map It

Location	18 OLD RIDGEBURY RD	**Mblu**	C15/ / 8/ /
Acct#		**Owner**	EAGLE PROPCO 10 LLC
Assessment	$6,967,700	**Appraisal**	$9,953,900
PID	4815	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$6,716,600	$3,237,300	$9,953,900
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$4,701,600	$2,266,100	$6,967,700

Owner of Record

Owner	EAGLE PROPCO 10 LLC	**Sale Price**	$5,847,160
Co-Owner	ATT: HERSA HOSPITALITY	**Book & Page**	2577/ 834
Address	510 WALNUT ST 9TH FLOOR PHILADELPHIA, PA 19106	**Sale Date**	07/19/2021
		Instrument	18

ATTACHMENT 6

WEST DANBURY

UNITED STATES POSTAL SERVICE®

Certificate of Mailing — Firm

Name and Address of Sender	TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here *Postmark with Date of Receipt.*
Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103	3	3	neopost 01/10/2022 US POSTAGE $002.99⁰ ZIP 06103 041L12203937
	Postmaster, per *(name of receiving employee)*		

OLD STATE HOUSE STATION 06103 JAN 10 2022 USPS

USPS® Tracking Number / Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	Dean Esposito, Mayor City of Danbury 155 Deer Hill Road Danbury, CT 06810				
2.	Sharon Calitro, Director of Planning and Zoning City of Danbury 155 Deer Hill Road Danbury, CT 06810				
3.	Eagle Propco 10 LLC Attn: Hersha Hospitality 510 Walnut Street, 9th Floor Philadelphia, PA 19106				
4.					
5.					
6.					

PS Form **3665**, January 2017 (Page 1 of 1) PSN 7530-17-000-5549

See Reverse for Instructions