EMPIRE telecom

September 20, 2016

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

Regarding:	Notice of Exempt Modification – Swap of 3 Antennas and add (3) RRUS-12s and RRUS-A2s
Property Address:	705 West Johnson Ave, Cheshire, CT (the "Property")
Applicant:	AT&T Mobility ("AT&T") AT&T Site: CT1212

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 140 foot Utility tower ("tower") at the above-referenced address, latitude 41.55604444, longitude -72.917425. AT&T's facility consists of nine (9) wireless telecommunications antennas at 97.1' feet. The tower is controlled and owned by Connecticut Light and Power d/b/a Eversource Energy. Assessor's information is attached hereto.

AT&T desires to modify its existing telecommunications facility by swapping three (3) antennas, and adding (3) RRUS-12s and (3) RRUS-A2s. The centerline height of said antennas is and will remain at 97.1' feet.

Please accept this application 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 the Town Manager of the Town of Cheshire, the Building Official of the Town of Cheshire, and the Zoning Enforcement Officer of the Town of Cheshire. A copy of this letter is also being sent to Eversource Energy, the owner of the structure that AT&T is located.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The planned modifications will not result in an increase in the height of the existing structure. AT&T's antennas and associated lines will be installed at 97.1 foot level of the 140 foot Utility tower.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore will not require an extension of the site boundary.
3. The proposed modification will not increase the noise level at the facility by six decibel or more, or to levels that exceed state and local criteria.

16 Esquire Road, Billerica, MA 01862 Phone 978-284-3906 Email: ncaplan@empiretelecomm.com

4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. An RF emissions calculation is attached.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (Please see attached Structural analysis completed by Centek Engineering dated August 1, 2016).

For the foregoing reasons AT&T respectfully requests that the proposed swap of 3 antennas, and the addition of (3) RRUS-12s and RRUS-A2s be allowed within the exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Nicole Caplan
Site Acquisition Specialist
Empire Telecom

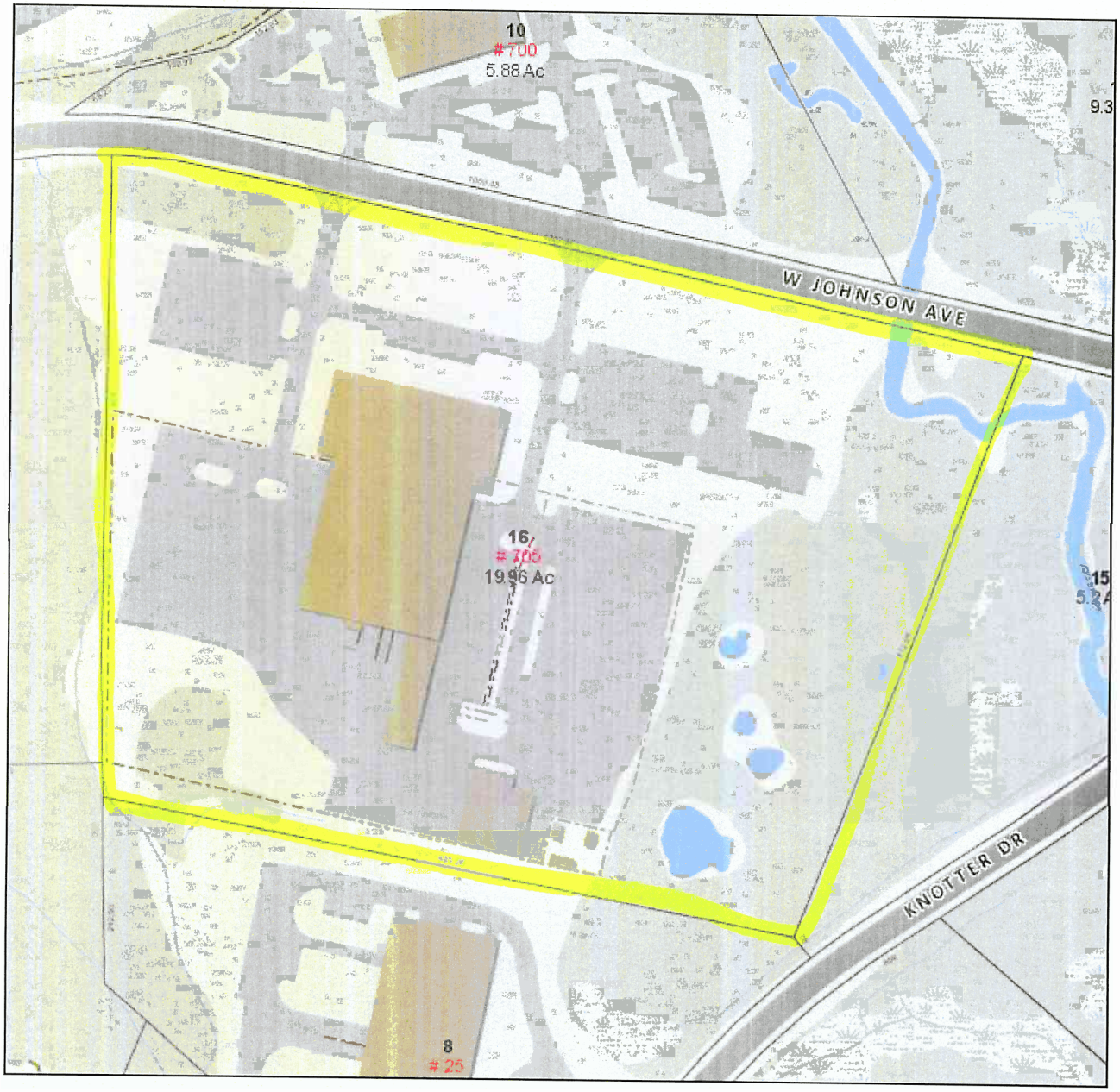
CC: Michael A. Milone, Town Manager, Town of Cheshire
Keith Darin, Building Official, Town of Cheshire
David Kehoss, Zoning Enforcement Officer, Town of Cheshire
Eversource Energy, c/o Robert Gray

16 Esquire Road, Billerica, MA 01862 Phone 978-284-3906 Email: ncaplan@empiretelecomm.com

Town of Cheshire

Geographic Information System (GIS)

Date Printed: 9/19/2016



MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of Cheshire and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 200 feet

0 200 Feet

N W E S

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2013.

Town of Cheshire

The bedding plant capital of Connecticut

Information on the Property Records for the Municipality of Cheshire was last updated on 9/17/2016.

Parcel Information

Location:	705 W JOHNSON AVE	Property Use:	Office	Primary Use:	Office Building
Unique ID:	00001900	Map Block Lot:	2 16	Acres:	19.96
Zone:	I-2	Volume / Page:	2227/0294	Developers Map / Lot:	173230
Census:	3432				

Value Information

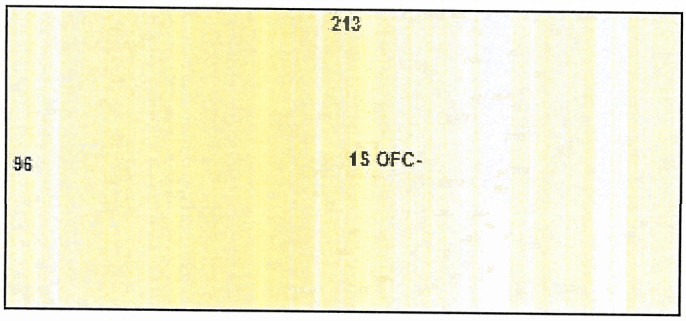
	Appraised Value	70% Assessed Value
Land	655,912	459,140
Buildings	2,386,380	1,670,470

	Appraised Value	70% Assessed Value
Detached Outbuildings	140,002	98,000
Total	3,182,294	2,227,610

Owner's Information

Owner's Data
CONN LIGHT & POWER CO P O BOX 270 HARTFORD CT 06141

Building 1

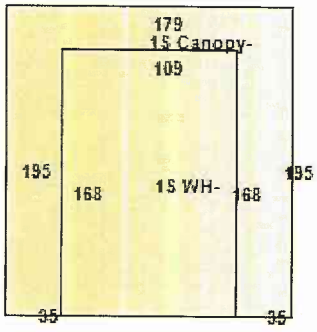


Category:	Office	Use:	Office Building	Stories:	1.00
Above Grade:	20,436	Below Grade:	0	Below Grade Finish:	0
Construction:	Average/Low	Year Built:	1978	Heating:	FHA
Fuel:	Heat Pump	Cooling Percent:	100%	Siding:	Glass/B. V. Solid
Roof Material:	Composite Built Up	Beds/Units:	0		

Special Features

Attached Components

Building 2



Category:	Industrial	Use:	Warehouse	Stories:	1.00
Above Grade:	18,319	Below Grade:	0	Below Grade Finish:	0
Construction:	Average	Year Built:	1978	Heating:	Electric Baseboard

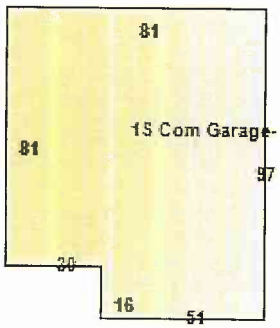
Fuel:		Cooling Percent:	0%	Siding:	Concrete Block
Roof Material:		Beds/Units:	0		

Special Features

Attached Components

Type:	Year Built:	Area:
Canopy	1978	16,593

Building 3



Category:	Automotive	Use:	Commercial Garage	Stories:	1.00
Above Grade:	7,396	Below Grade:	0	Below Grade Finish:	0
Construction:	Average	Year Built:	1978	Heating:	
Fuel:		Cooling Percent:	0%	Siding:	Concrete Block
Roof Material:		Beds/Units:	0		

Special Features

Attached Components

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Metal Canopy	1978			5,320
Fencing	1978			7,200
Fencing	1978			7,200
Fencing	1978			1,600
Paving	1978			132,780

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Valid Sale	Sale Price
CONN LIGHT & POWER CO	2227	0294	01/19/2016		No	$0
CONNECTICUT LIGHT AND POWER COMPANY THE	2227	294	07/21/2008	Warranty Deed	No	$790,220
INTERET REALTY CORP	321	173	12/30/1899		No	$0

WIRELESS COMMUNICATIONS FACILITY
CT1212 - LTE 2C
CHESHIRE - W. JOHNSON AVE. NU
705 W. JOHNSON AVE.
CHESHIRE, CT 06410

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT AND 2009 AMENDMENTS, INCLUDING THE TIA/EIA-222 REVISION "F" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2005 CONNECTICUT FIRE SAFETY CODE AND 2009 AMENDMENTS, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. THE COMPOUND, TOWER, PRIMARY GROUND RING, ELECTRICAL SERVICE TO THE METER BANK AND TELEPHONE SERVICE TO THE DEMARCATION POINT ARE PROVIDED BY SITE OWNER. AS BUILT FIELD CONDITIONS REGARDING THESE ITEMS SHALL BE CONFIRMED BY THE CONTRACTOR. 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, PLUMBING, ELECTRICAL AND HVAC. 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 AT&T 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. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

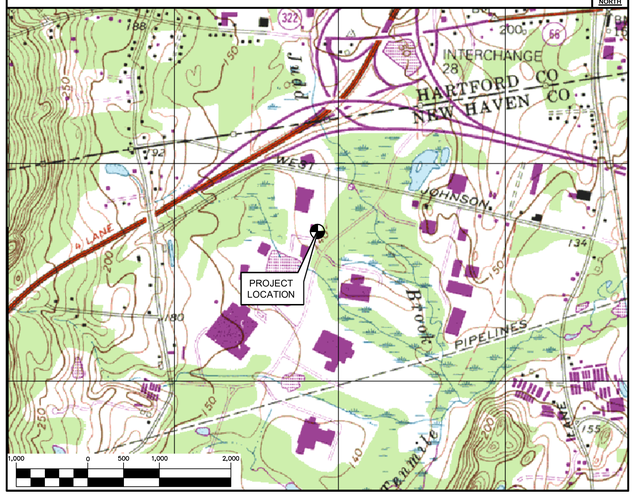
SITE DIRECTIONS

FROM: 500 ENTERPRISE DRIVE, ROCKY HILL, CONNECTICUT
TO: 705 W. JOHNSON AVE., CHESHIRE, CONNECTICUT

1.	HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD	0.31 MI
2.	TURN LEFT ONTO CAPITAL BLVD	0.27 MI
3.	TURN LEFT ONTO WEST ST	0.30 MI
4.	TURN LEFT TO MERGE ONTO I-91 S TOWARD NEW HAVEN	9.06 MI
5.	TURN LEFT TO MERGE ONTO I-691 W. EXIT 18 TOWARD MERDIAN/WATERBURY	6.84 MI
6.	TAKE CT-10 EXIT, EXIT 3 TOWARD MILLDALE/CHESHIRE	0.31 MI
7.	TURN LEFT ONTO HIGHLAND AVE/CT-10	0.39 MI
8.	TURN RIGHT ONTO W. JOHNSON AVE. DESTINATION IS ON THE LEFT	1.85 MI

VICINITY MAP

SCALE: 1" = 1000'



PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
   A. REMOVE AND REPLACE EXISTING POSITION 3 LTE ANTENNA FOR PROPOSED HEXPORT ANTENNA, (1) PER SECTOR.
   B. INSTALL (3) NEW RRUS-12+A2 BEHIND PROPOSED POSITION 2 ANTENNAS WITHIN EXISTING TOWER MOUNT.

PROJECT INFORMATION

AT&T SITE NUMBER:	CT1212
AT&T SITE NAME:	CHESHIRE - W. JOHNSON AVE. NU
SITE ADDRESS:	705 W. JOHNSON AVE. CHESHIRE, CT 06410
LESSEE/APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT. 06405
PROJECT COORDINATES:	LATITUDE: 41°-33'-21.01" N LONGITUDE: 72°-55'-01.94" W GROUND ELEVATION: ±143' AMSL COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
N-1	NOTES AND SPECIFICATIONS	0
C-1	PLANS, ELEVATION AND DETAILS	0
C-2	LTE 2C EQUIPMENT DETAILS	0
E-1	LTE SCHEMATIC DIAGRAM AND NOTES	0
E-2	LTE WIRING DIAGRAM	0
E-3	TYPICAL ELECTRICAL DETAILS	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	06/27/16	KAWJR	CAG	CONSTRUCTION DOCUMENTS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

at&t

EMPIRE telecom

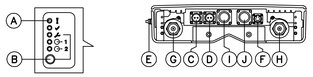
CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
CHESHIRE - W. JOHNSON AVE. NU
CT1212 - LTE 2C
705 W. JOHNSON AVE.
CHESHIRE, CT 06410

DATE: 06/23/16
SCALE: AS NOTED
JOB NO. 16071.10

TITLE SHEET

T-1

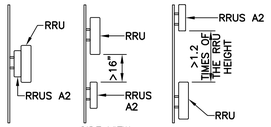


SIDE PANEL BOTTOM VIEW

CONNECTION INTERFACE

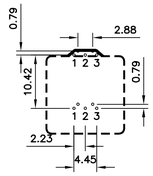
POSITION (ID)	DESCRIPTION	MARKING
A	OPTICAL INDICATORS	I, ↓, ↓, O-1, O-2
B	MAINTENANCE	
C	−48V DC POWER SUPPLY	POW IN
D	−48V DC POWER SUPPLY TO RRU	POW OUT
E	GROUNDING	⏚
F	RET	RET
G	ANTENNA B	B
H	ANTENNA A	A
I	OPTICAL CABLE 1	O-1
J	OPTICAL CABLE 2	O-2

NOTES:
1. STACKING OF RRU's IS NOT PERMITTED.
2. NO PAINTING OF RRU OR THE SOLAR SHIELD IS ALLOWED.
3. A SINGLE RRUS A2 CAN BE INSTALLED AS A STAND ALONE UNIT OR MOUNTED TO THE BACK OF ITS ASSOCIATED RRU.



SIDE VIEW

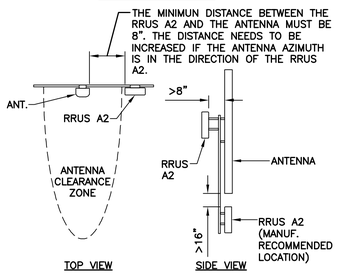
RRUS A2 MANUFACTURER INSTALLATION REQUIREMENTS



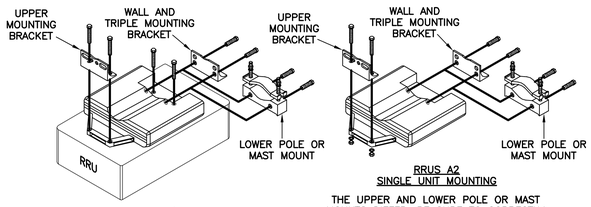
THE NUMBER OF BOLT HOLES DEPENDS ON THE WALL MATERIAL, AS SPECIFIED BY THE SITE ENGINEER. A MINIMUM OF TWO BOLT HOLES ARE RECOMMENDED FOR EACH BRACKET.

ONE OF THE FOLLOWING SOLUTIONS FOR HOLE POSITIONS MUST BE USED:
- 1, 3
- 1, 2, 3

WALL MOUNTING BRACKET INSTALLATION



TOP VIEW SIDE VIEW



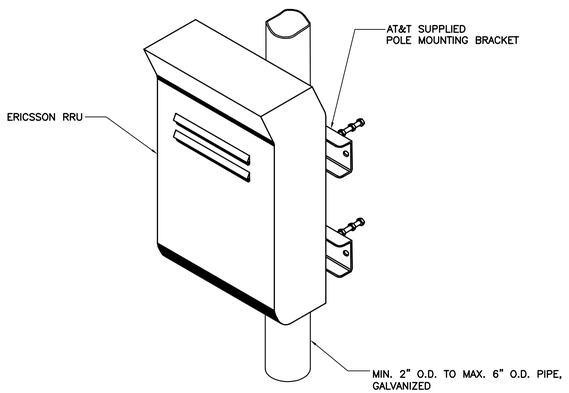
RRUS A2 W/ASSOCIATED RRU MOUNTING

RRUS A2 SINGLE UNIT MOUNTING

THE UPPER AND LOWER POLE OR MAST MOUNTS DIFFER, BE SURE TO CORRECTLY POSITION THE MOUNTS BEFORE INSTALLUATION.

1 N−1 ERICSSON RRU A2 DETAILS

NOT TO SCALE



ISOMETRIC VIEW

NOTES:
1. AT&T SHALL SUPPLY RRU, AND RRU POLE−MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE−MOUNTING BRACKET. CONTRACTOR SHALL INSTALLS RRU AND MAKES CABLE TERMINATIONS.
2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

2 N−1 TYPICAL RRUS MOUNTING DETAILS

SCALE: NTS

NOTES AND SPECIFICATIONS

DESIGN BASIS:

GOVERNING CODE: 2003 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2005 CT STATE BUILDING CODE AND 2009 AMENDMENTS.

1. DESIGN CRITERIA:
   - WIND LOAD: PER EIA/TIA 222 F−96 (ANTENNA MOUNTS): 85 MPH (FASTEST MILE), EQUIVALENT TO 105 MPH (3 SECOND GUST)
   - BUILDING CLASSIFICATION: II (BASED ON IBC TABLE 1604.5)
   - BASIC WIND SPEED (OTHER STRUCTURE): 100 MPH (3 SECOND GUST) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7−02) PER 2003 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT AND 2009 AMMENDMENT.
   - SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7−02 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
2. 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.
3. 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.
4. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
5. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
6. 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.
7. 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.
8. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE SHORING, BRACING, AND BARRICADES AS MAY BE REQUIRED FOR THE PROTECTION OF EXISTING PROPERTY, CONSTRUCTION WORKERS, AND FOR PUBLIC SAFETY.
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 SITE OPERATIONS, COORDINATE WORK WITH NORTHEAST UTILITIES
10. THE STRUCTURE IS DESIGNED TO BE SELF−SUPPORTING AND STABLE AFTER FOUNDATION REMEDIATION WORK IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS, WHICH MIGHT BE NECESSARY.
11. 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.
12. SHOP DRAWINGS, CONCRETE MIX DESIGNS, TEST REPORTS, AND OTHER SUBMITTALS PERTAINING TO STRUCTURAL WORK SHALL BE FORWARDED TO THE OWNER FOR REVIEW BEFORE FABRICATION AND/OR INSTALLATION IS MADE. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS AND COMPLETE DETAILS OF CONNECTIONS AS WELL AS MANUFACTURER'S SPECIFICATION DATA WHERE APPROPRIATE. SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE BEING SUBMITTED FOR REVIEW.
13. NO DRILLING WELDING OR TAPING ON CL&P OWNED EQUIPMENT.
14. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

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.

PAINT NOTES

PAINTING SCHEDULE:

1. ANTENNA PANELS:
   - A. SHERWIN WILLIAMS POLANE−B
   - B. COLOR TO BE MATCHED WITH EXISTING TOWER STRUCTURE.
2. COAXIAL CABLES:
   - A. ONE COAT OF DTM BONDING PRIMER (2−5 MILS. DRY FINISH)
   - B. TWO COATS OF DTM ACRYLIC PRIMER/FINISH (2.5−5 MILS. DRY FINISH)
   - C. COLOR TO BE FIELD MATCHED WITH EXISTING STRUCTURE.

EXAMINATION AND PREPARATION:

1. DO NOT APPLY PAINT IN SNOW, RAIN, FOG OR MIST OR WHEN RELATIVE HUMIDITY EXCEEDS 85%. DO NOT APPLY PAINT TO DAMP OR WET SURFACES.
2. VERIFY THAT SUBSTRATE CONDITIONS ARE READY TO RECEIVE WORK. EXAMINE SURFACE SCHEDULED TO BE FINISHED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY CONDITION THAT MAY POTENTIALLY AFFECT PROPER APPLICATION.
3. TEST SHOP APPLIED PRIMER FOR COMPATIBILITY WITH SUBSEQUENT COVER MATERIALS.
4. PERFORM PREPARATION AND CLEANING PROCEDURE IN STRICT ACCORDANCE WITH COATING MANUFACTURER'S INSTRUCTIONS FOR EACH SUBSTRATE CONDITION.
5. CORRECT DEFECTS AND CLEAN SURFACES WHICH AFFECT WORK OF THIS SECTION. REMOVE EXISTING COATINGS THAT EXHIBIT LOOSE SURFACE DEFECTS.
6. IMPERVIOUS SURFACE: REMOVE MILDEW BY SCRUBBING WITH SOLUTION OF TRI−SODIUM PHOSPHATE AND BLEACH. RINSE WITH CLEAN WATER AND ALLOW SURFACE TO DRY.
7. ALUMINUM SURFACE SCHEDULED FOR PAINT FINISH: REMOVE SURFACE CONTAMINATION BY STEAM OR HIGH−PRESSURE WATER. REMOVE OXIDATION WITH ACID ETCH AND SOLVENT WASHING. APPLY ETCHING PRIMER IMMEDIATELY FOLLOWING CLEANING.
8. FERROUS METALS: CLEAN UNGALVANIZED FERROUS METAL SURFACES THAT HAVE NOT BEEN SHOP COATED; REMOVE OIL, GREASE, DIRT, LOOSE MILL SCALE, AND OTHER FOREIGN SUBSTANCES. USE SOLVENT OR MECHANICAL CLEANING METHODS THAT COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL'S (SSPC) RECOMMENDATIONS. TOUCH UP BARE AREAS AND SHOP APPLIED PRIME COATS THAT HAVE BEEN DAMAGED. WIRE BRUSH, CLEAN WITH SOLVENTS RECOMMENDED BY PAINT MANUFACTURER, AND TOUCH UP WITH THE SAME PRIMER AS THE SHOP COAT.
9. GALVANIZED SURFACES: CLEAN GALVANIZED SURFACES WITH NON−PETROLEUM−BASED SOLVENTS SO SURFACE IS FREE OF OIL AND SURFACE CONTAMINANTS. REMOVE PRETREATMENT FROM GALVANIZED SHEET METAL FABRICATED FROM COIL STOCK BY MECHANICAL METHODS.
10. ANTENNA PANELS: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION. PANELS MUST BE WIPED WITH METHYL ETHYL KETONE (MEK).
11. COAXIAL CABLES: REMOVE ALL OIL, DUST, GREASE. DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION.

CLEANING:

1. COLLECT WASTE MATERIAL, WHICH MAY CONSTITUTE A FIRE HAZARD, PLACE IN CLOSED METAL CONTAINERS AND REMOVE DAILY FROM SITE.

APPLICATION:

1. APPLY PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY.
3. APPLY EACH COAT TO UNIFORM FINISH.
4. APPLY EACH COAT OF PAINT SLIGHTLY DARKER THAN PRECEDING COAT UNLESS OTHERWISE APPROVED.
5. SAND METAL LIGHTLY BETWEEN COATS TO ACHIEVE REQUIRED FINISH.
6. VACUUM CLEAN SURFACES FREE OF LOOSE PARTICLES. USE TACK CLOTH JUST PRIOR TO APPLYING NEXT COAT.
7. ALLOW APPLIED COAT TO DRY BEFORE NEXT COAT IS APPLIED.

COMPLETED WORK:

1. SAMPLES: PREPARE 24" X 24" SAMPLE AREA FOR REVIEW.
2. MATCH APPROVED SAMPLES FOR COLOR, TEXTURE AND COVERAGE. REMOVE REFINISH OR REPAINT WORK NOT IN COMPLIANCE WITH SPECIFIED REQUIREMENTS.

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SCALE: AS NOTED
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NOTES AND SPECIFICATIONS

N−1

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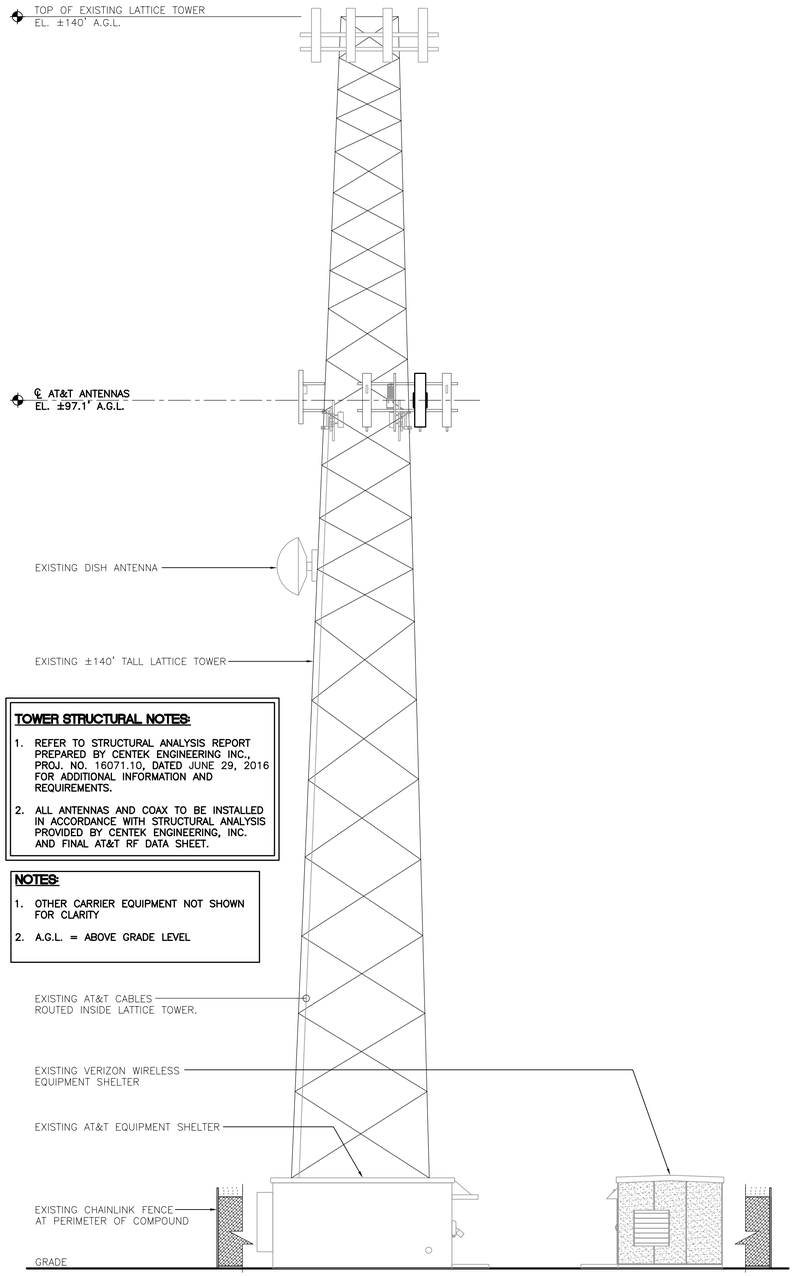


TOWER STRUCTURAL NOTES:

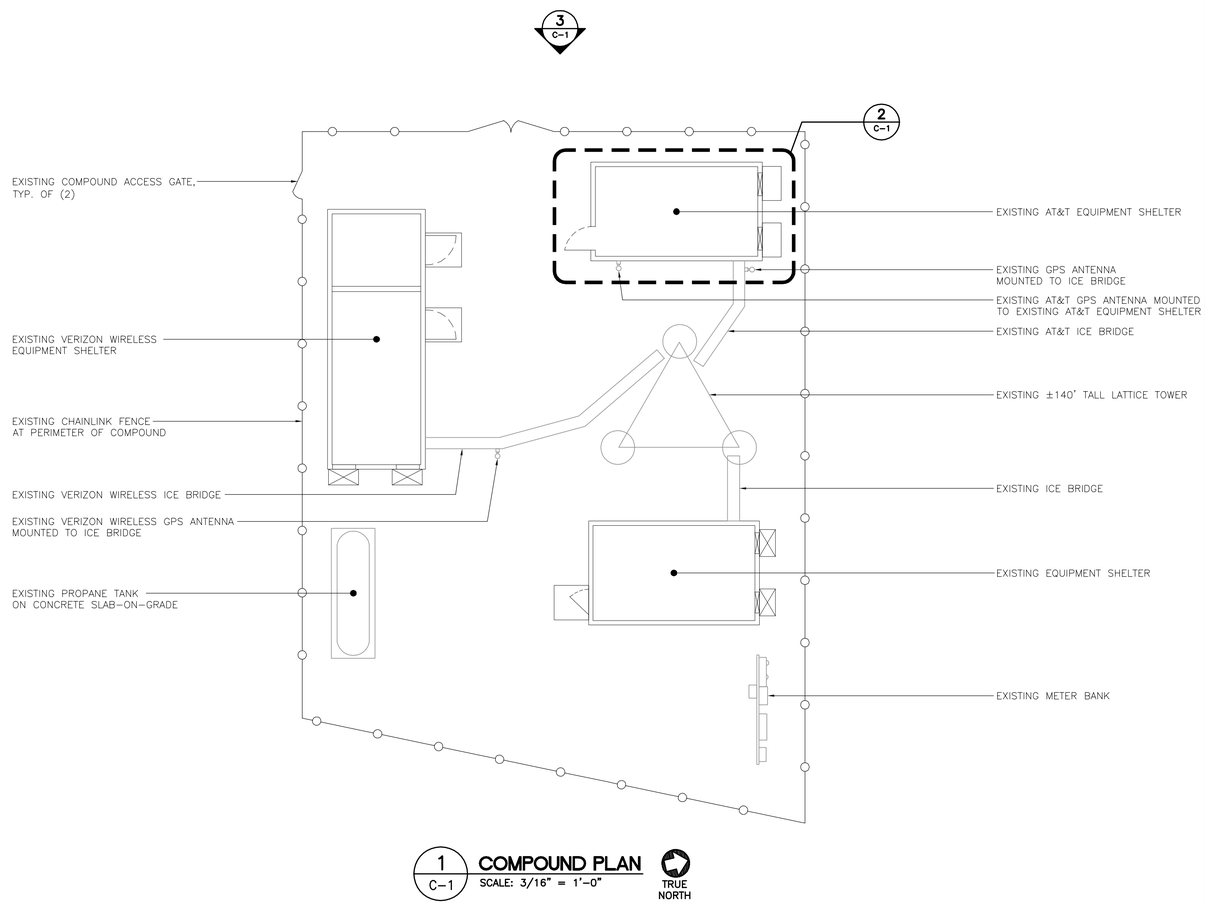
1. REFER TO STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING INC., PROJ. NO. 16071.10, DATED JUNE 29, 2016 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CENTEK ENGINEERING, INC. AND FINAL AT&T RF DATA SHEET.

NOTES:

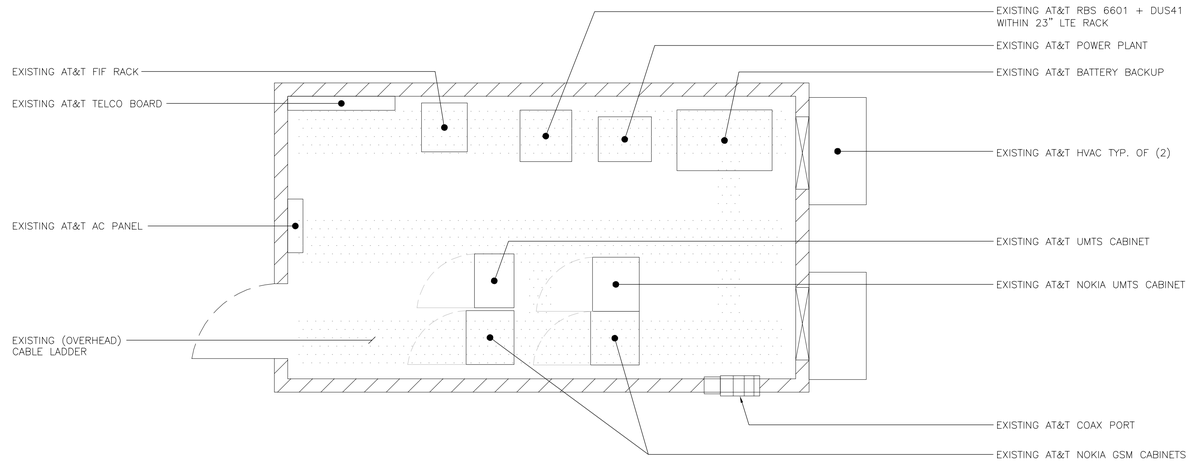
1. OTHER CARRIER EQUIPMENT NOT SHOWN FOR CLARITY
2. A.G.L. = ABOVE GRADE LEVEL

3 / C-1 **EAST TOWER ELEVATION**
SCALE: 1/8" = 1'

GRAPHIC SCALE
8 0 4 8 16 32
(IN FEET)
1 inch = 8 ft.



1 / C-1 **COMPOUND PLAN**
SCALE: 3/16" = 1'-0"
TRUE NORTH



2 / C-1 **EQUIPMENT ROOM PLAN**
SCALE: 3/4" = 1'-0"
TRUE NORTH

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PLANS, ELEVATION AND DETAILS

C-1

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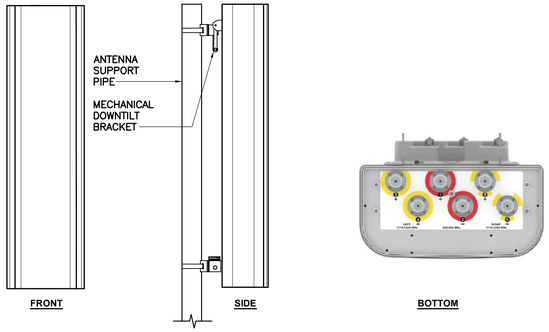
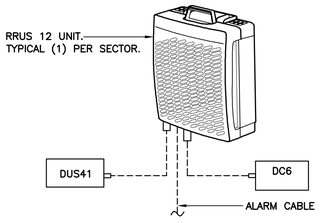


ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: CCI MODEL: HPA-65R-BUU-H6	72"L x 14.8"W x 9"D	51 LBS.

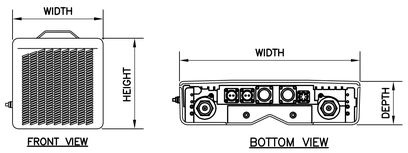
5 / C-2 PROPOSED ANTENNA DETAIL
SCALE: 1/2" = 1'-0"



RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS 12	20.4"L x 18.5"W x 7.5"D	50 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

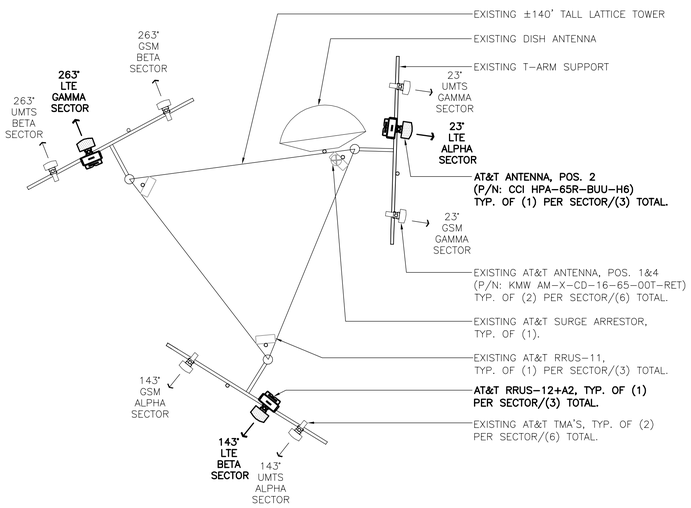
6 / C-2 ERICSSON RRUS 12 DETAIL
SCALE: 1" = 1'-0"



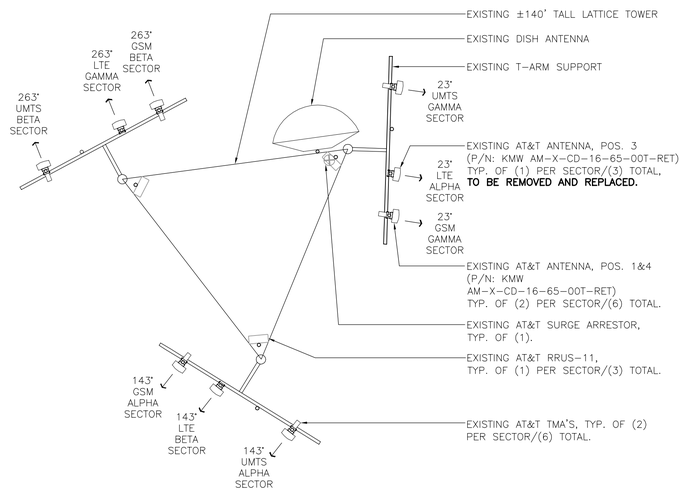
RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS A2	16.42"L x 15.19"W x 3.35"D	22.05 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

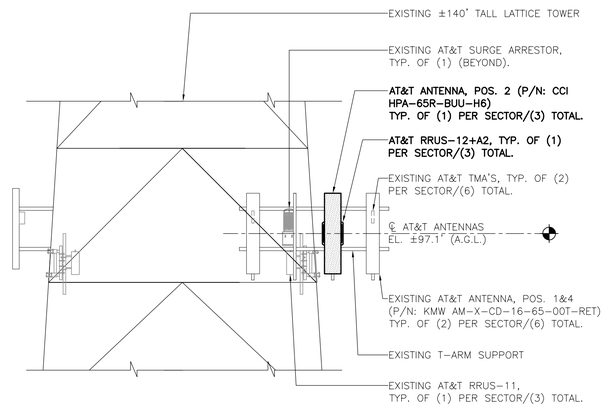
7 / C-2 ERICSSON RRUS A2 DETAIL
SCALE: 1" = 1'-0"



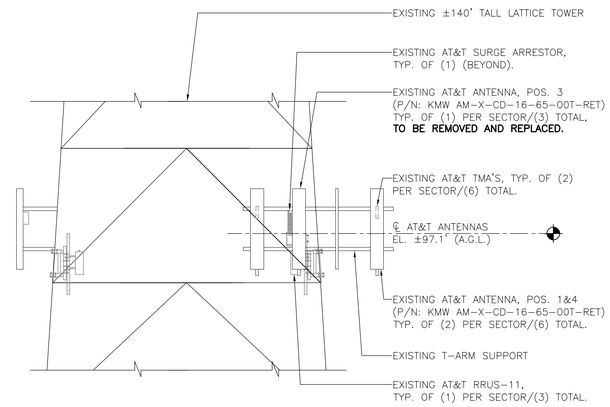
2 / C-2 PROPOSED ANTENNA PLAN
SCALE: 3/16" = 1'-0" NORTH



1 / C-2 EXISTING ANTENNA PLAN
SCALE: 3/16" = 1'-0" NORTH



4 / C-2 PROPOSED ANTENNA ELEVATION
SCALE: 3/16" = 1'-0"



3 / C-2 EXISTING ANTENNA ELEVATION
SCALE: 3/16" = 1'-0"

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LTE 2C EQUIPMENT DETAILS

C-2

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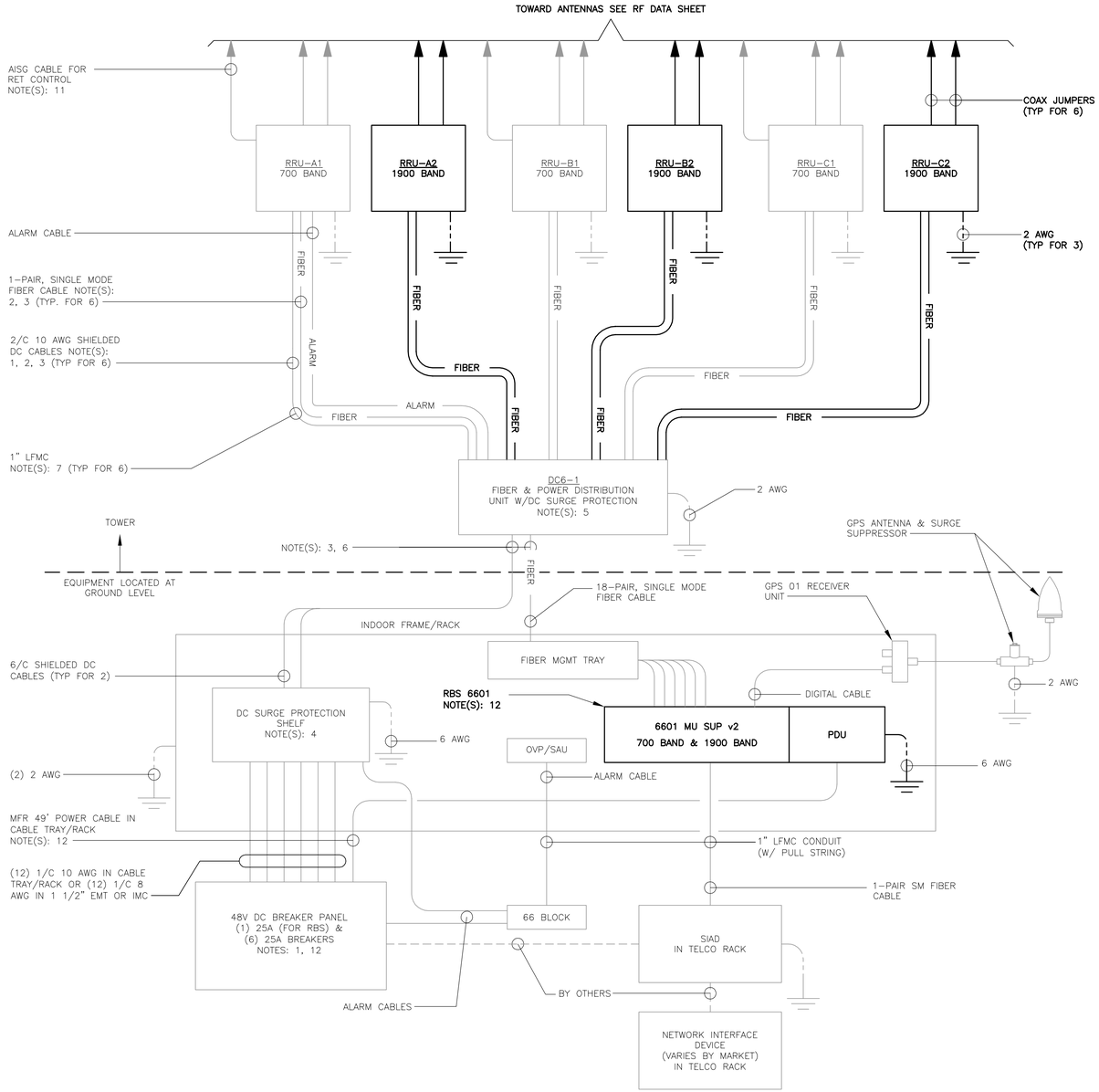

1 E-1 LTE SCHEMATIC DIAGRAM

NOT TO SCALE

LTE SCHEMATIC DIAGRAM NOTES:

1. BREAKERS TO BE TAGGED AND LOCKED OUT. A 20A (MIN.) OR 30A (MAX.) BREAKER FOR RRUs MAY BE SUBSTITUTED FOR THE RECOMMENDED 25A BREAKER. SIZE 12 CONDUCTORS MAY BE USED ONLY WITH 20A BREAKERS.
2. LEAVE COILED AND PROTECTED UNTIL TERMINATED.
3. DC AND FIBER CABLE SHALL BE ROUTED WITH THE EXISTING COAX CABLE.
4. DC SURGE PROTECTION SHELF SHALL BE RAYCAP DCx-48-60-RM.
5. FIBER & DC DISTRIBUTION BOX W/DC SURGE PROTECTION SHALL BE RAYCAP DC6-48-60-18-8F.
6. SUPPORT FIBER & DC POWER CABLES WITH SNAP-IN HANGERS SPACED NO GREATER THAN 3 FEET APART ON TOWER. SUPPORT FIBER AND DC POWER CABLES INSIDE MONOPOLE WITH CABLE HOISTING GRIPS AT 250 FT MAXIMUM INTERVALS. DRESS CABLES TO PREVENT CONTACT WITH ENTRANCE AND EXIT OPENINGS.
7. CONDUIT TO BE USED ON A TOWER IF THE RRU IS MORE THAN 10' FROM THE DISTRIBUTION UNITS. MAX CABLE LENGTH IS 16 FEET.
8. SINGLE-CONDUCTOR DC POWER CABLES SHALL BE TELCOFLEX® OR KS24194™, COPPER, UL LISTED RHH NON-HALOGEN, LOW SMOKE WITH BRAIDED COVER, TYPE TC (1/0 AND LARGER). UNLESS OTHERWISE NOTED, STRANDING SHALL BE CLASS B (TYPE III) FOR CABLES SIZES 14, 12 & 10 AWG AND CLASS I (TYPE IV) FOR SIZES 8 AWG AND LARGER. CABLES SHALL BE COLOR CODED RED FOR +24V, BLUE FOR -48V AND GRAY FOR 24V AND 48V RETURN CONDUCTORS. MULTI-CONDUCTOR DC POWER CABLES SHALL BE COPPER, CLASS B STRANDING WITH FLAME RETARDANT PVC JACKET, TYPE TC, UL LISTED FOR 90°C DRY/ 75°C WET INSTALLATION.
9. GROUNDING WIRES SHALL BE COPPER, GREEN THHN/THWN UL LISTED FOR 90°C DRY/75°C WET INSTALLATION. MINIMUM SIZE IS 6 AWG UNLESS NOTED OTHERWISE.
10. FIBER OPTIC CABLES SHALL BE INSTALLED IN FLEXIBLE CONDUIT AS SCOPED BY MARKET.
11. RET CONTROL FROM THE RRU IS AN OPTIONAL METHOD OF CONNECTION. REFER TO RF DATA SHEET FOR APPLICABILITY.
12. RBS 6601 VARIANT 2 REQUIRES A 25A BREAKER AND 10 AWG (MIN.) CONDUCTORS. REPLACE EXISTING 15A OR 20A BREAKERS AND 12 AWG CONDUCTORS WHEN UPGRADING AN EXISTING RBS 6601 VARIANT 1.

ELECTRICAL NOTES

1. PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL COORDINATE WITH OWNER FOR ALL CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND ALL MANUFACTURER DOCUMENTATION FOR ALL EQUIPMENT TO BE INSTALLED.
2. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH LOCAL BUILDING CODE, NATIONAL ELECTRIC CODE, OWNER AND MANUFACTURER'S SPECIFICATIONS.
3. CONNECT ALL NEW EQUIPMENT TO EXISTING TELCO AS REQUIRED BY MANUFACTURER.
4. MAINTAIN ALL CLEARANCES REQUIRED BY NEC AND EQUIPMENT MANUFACTURER.
5. PRIOR TO INSTALLATION CONTRACTOR SHALL MEASURE EXISTING ELECTRICAL LOAD AND VERIFY EXISTING AVAILABLE CAPACITY FOR PROPOSED INSTALLATION. IF INADEQUATE CAPACITY IS AVAILABLE, CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRIC UTILITY COMPANY TO UPGRADE EXISTING ELECTRIC SERVICE.
6. CONTRACTOR SHALL INSPECT EXISTING GROUNDING AND LIGHTNING PROTECTION SYSTEM AND ENSURE THAT IT IS IN COMPLIANCE WITH NEC, AND SITE OWNER'S SPECIFICATIONS. THE RESULTS OF THIS INSPECTION SHALL BE PRESENTED TO OWNERS REPRESENTATIVE, AND ANY DEFICIENCIES SHALL BE CORRECTED.
7. ALL TRANSMISSION TOWER SITES CONTAIN AN EXTENSIVE BURIED GROUNDING SYSTEM. ALL GROUNDING WORK MUST BE COORDINATED WITH, AND APPROVED BY, THE TOWER OWNER'S SITE REPRESENTATIVE. ALL OF THE TOWER OWNER'S SPECIFICATIONS MUST BE STRICTLY FOLLOWED.
8. PROVIDE AND INSTALL GROUND KITS FOR ALL NEW COAXIAL CABLES AND BOND TO EXISTING OWNERS GROUNDING SYSTEM PER OWNERS SPECIFICATIONS AND NEC.
9. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:
10. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.
11. 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.
12. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNER'S REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES AS MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS AS MAY BE REQUIRED BY THE LOCAL AUTHORITY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE SITE AND/OR BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.
15. 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.
16. 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.
17. 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.
18. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.
19. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122. (MIN. #12 AWG).
20. CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 5 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

   TEST 1: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

   THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

   1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
   2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
   3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. TESTING SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNERS CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	06/27/16	KAWJR	CAG	CONSTRUCTION DOCUMENTS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

CONNECTICUT LICENSED PROFESSIONAL ENGINEER CRAIG A. GAUDET 21521

at&t

EMPIRE telecom

CENTEK engineering
Centered on Solutions℠
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(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

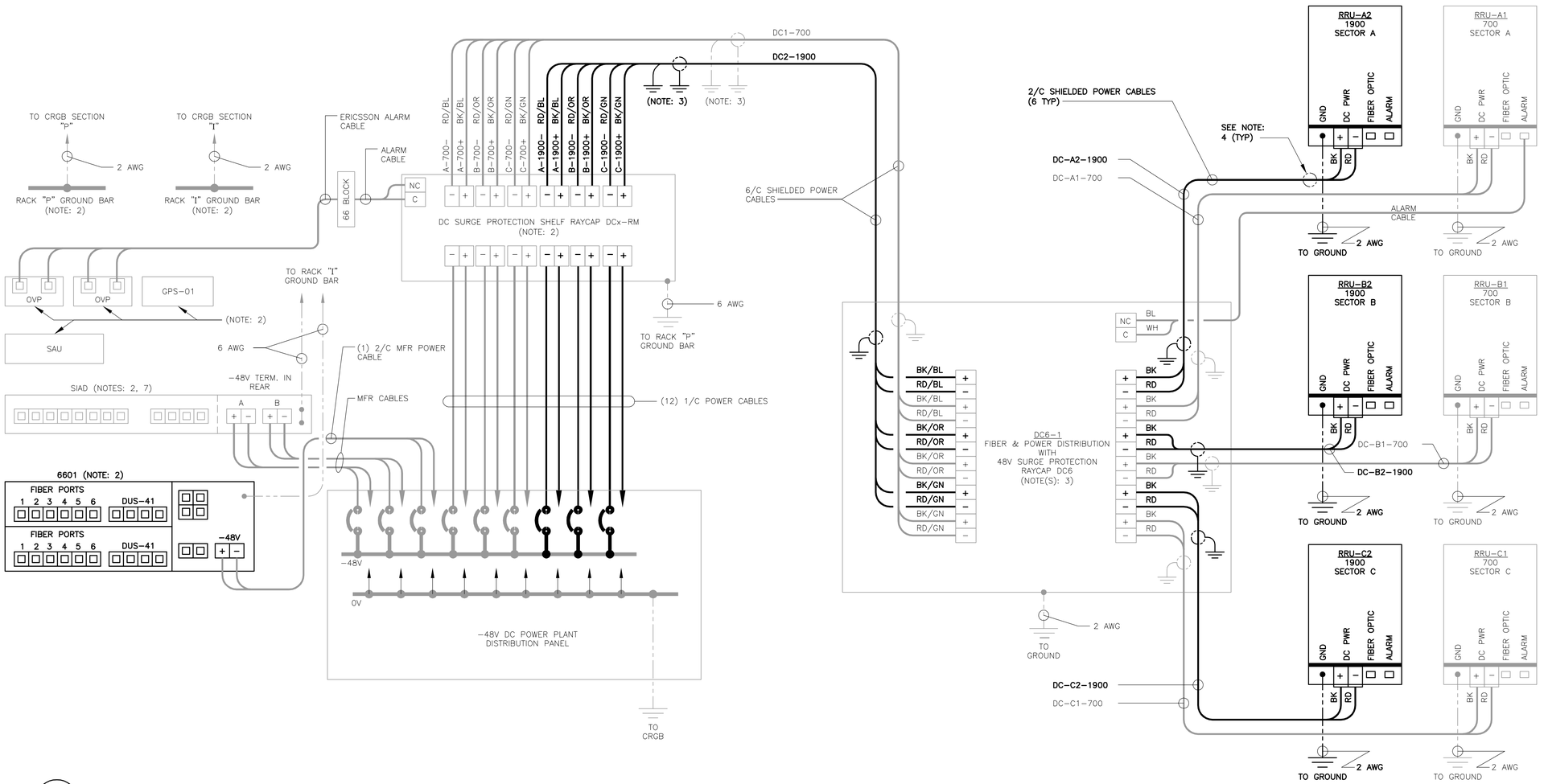
AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
CHESHIRE - W. JOHNSON AVE. NU
CT1212 - LTE 2C
705 W. JOHNSON AVE.
CHESHIRE, CT 06410

DATE: 06/23/16
SCALE: AS NOTED
JOB NO. 16071.10

LTE SCHEMATIC DIAGRAM AND NOTES

E-1

Sheet No. 5 of 7



1/E-2 LTE WIRING DIAGRAM

NOT TO SCALE

LTE WIRING DIAGRAM NOTES:

1. LABEL THE DC POWER CABLES AT BOTH ENDS OF EVERY WIRE AND IN ANY PULL BOX IF USED. LABEL SHALL BE DURABLE, SELF ADHESIVE, WRAPPED LONGITUDINALLY ALONG THE CABLE AND STATE THE SECTOR, FREQUENCY BAND AND POLARITY; I.E. "A-1900+". CABLE AND WIRE LABELS SHOWN ARE REPRESENTATIVE AND MAY BE MODIFIED AS DIRECTED BY AT&T.
2. INSTALL ON BASEBAND EQUIPMENT RACK.
3. THE BARE GROUND WIRE OF EACH MULTI-CONDUCTOR CABLE SHALL BE CONNECTED TO THE "P" GROUND BAR ON THE RACK. WHEN A SHIELDED CABLE IS USED, THE DRAIN WIRE ALSO SHALL BE CONNECTED TO THE "P" GROUND BAR.
4. CABLE GROUND WIRE AND SHIELD DRAIN WIRE TO BE LEFT UN-TERMINATED AT RRU AND DC POWER PLANT.
5. SEE LTE SCHEMATIC DIAGRAM DETAIL 1/E-1 FOR BREAKER RATING.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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CT1212 - LTE 2C

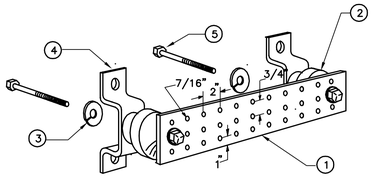
705 W. JOHNSON AVE.
CHESHIRE, CT 06410

DATE: 06/23/16
SCALE: AS NOTED
JOB NO. 16071.10

LTE WIRING DIAGRAM

E-2

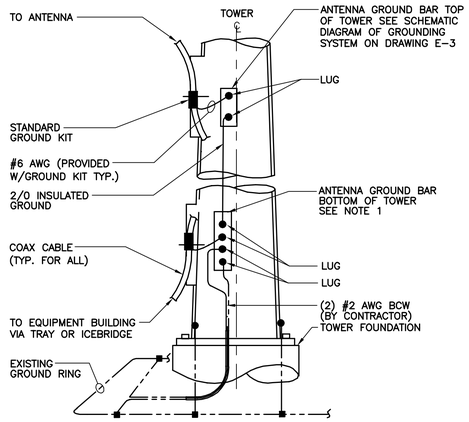
Sheet No. 6 of 7



LEGEND

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

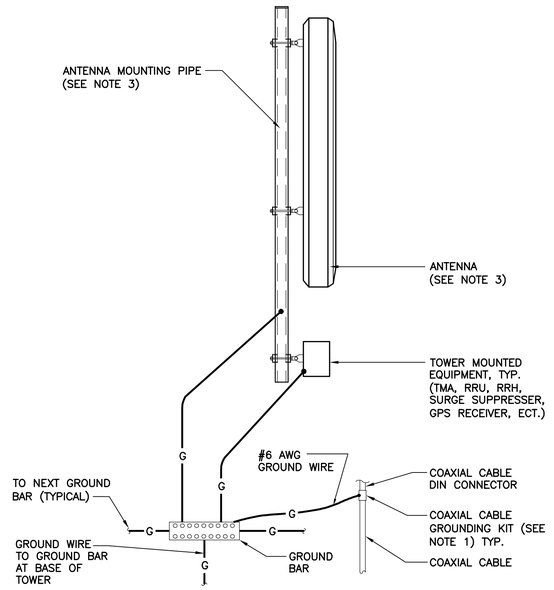
3 GROUND BAR DETAIL
E-3 NOT TO SCALE



NOTES:

1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

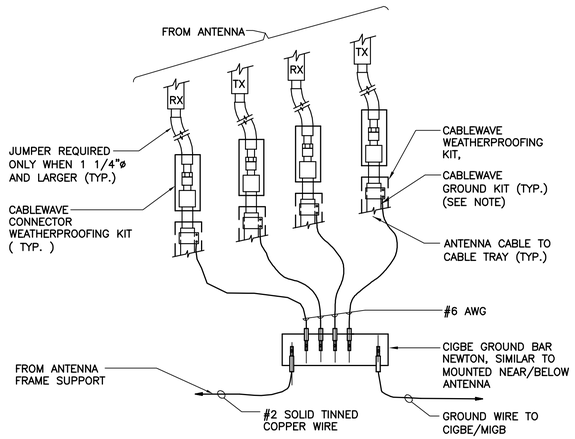
2 ANTENNA CABLE GROUNDING - TOWER
E-3 NOT TO SCALE



NOTES:

1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

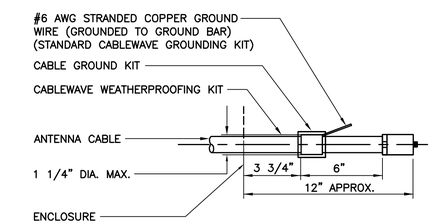
1 TYPICAL ANTENNA GROUNDING DETAIL
E-3 NOT TO SCALE



NOTE:

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

5 CONNECTION OF GROUND WIRES TO GROUND BAR
E-3 NOT TO SCALE



NOTE:

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

4 ANTENNA CABLE GROUNDING DETAIL
E-3 NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	06/27/16	KAWJR	CAG	CONSTRUCTION DOCUMENTS - ISSUED FOR CONSTRUCTION

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CHESHIRE, CT 06410

DATE: 06/23/16
SCALE: AS NOTED
JOB NO. 16071.10

TYPICAL ELECTRICAL DETAILS

E-3

Sheet No. 7 of 7

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

140' Existing Lattice Tower

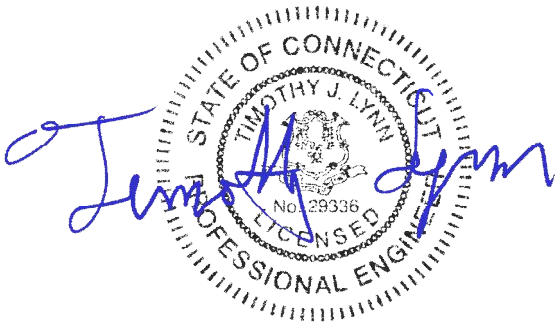
Proposed AT&T Mobility
Antenna Upgrade

AT&T Mobility Site Ref: CT1212

705 West Johnson Avenue
Cheshire, CT

CENTEK Project No. 16071.10

Date: June 29, 2016



Prepared for:

AT&T Mobility
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06067

Table of Contents

Introduction

The purpose of this report is to summarize the results of the non-linear, P-Δ structural analysis of the antenna installation proposed by AT&T Mobility on the existing lattice tower located in Cheshire, Connecticut.

The host tower is a 140-ft, three legged, lattice tower originally manufactured by Central Tower job no. CT2397 dated 10/3/2004. The tower geometry and structure member sizes were taken from the original design documents. The foundation information was obtained from the original design prepared by URS Corp. project no. 36917714 dated 10/28/2004.

Antenna and appurtenance inventory were taken from a previous structural analysis report prepared by Centek job no. 11118.068 dated August 9, 2012 and a AT&T RF sheet.

The tower consists of seven (7) vertical sections consisting of solid round pipe legs conforming to ASTM A572 Gr. 50 and lateral bracing conforming to ASTM A36. The vertical tower sections are connected by bolted flange plates with the diagonal and horizontal bracing to pipe legs consisting of bolted connections. The width of the tower face is 5-ft 0-in at the top and 14-ft 0-in at the bottom.

AT&T proposes the replacement of three (3) panel antennas mounted to the existing three (3) T-Frames and the installation of three (3) RRU's. Refer to the Antenna and Appurtenance Summary below for a detailed description of the proposed antenna and appurtenance configuration.

Antenna and Appurtenance Summary

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

- Northeast Utilities (Reserved):
  Antennas: Two (2) 1142-2C Omni-directional whip antennas leg mounted with an elevation of ±140-ft above grade level.
  Coax Cable: Two (2) 7/8" ∅ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- Northeast Utilities (Existing):
  Antennas: One (1) 1142-2C Omni-directional whip antenna leg mounted with an elevation of ±140-ft above grade level.
  Coax Cable: One (1) 7/8" ∅ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- Verizon (Existing):
  Antennas: Six (6) Antel LPA185080-12CF panel antennas, three (3) Andrew DB854DG65ESX panel antennas, two (2) Powerwave P65-16-XL-2 panel antennas and one (1) Antel BXA-70063/6CF panel antenna and six (6) RFS FD9R6004/2C-3L Diplexers mounted on three (3) 12-ft T-Frames with a RAD center elevation of ±138-ft above grade level.
  Coax Cable: Twelve (12) 1-5/8" ∅ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.

- Northeast Utilities (Reserved):
  Antennas: Two (2) 6-ft ∅ dishes leg mounted with an elevation of ±110-ft above grade level.
  Coax Cable: Two (2) EW63 cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- Northeast Utilities (Existing):
  Antennas: One (1) Andrew PL4-107 microwave dish leg mounted with an elevation of ±82-ft above grade level.
  Coax Cable: One (1) E65 cable running on a leg/face of the existing tower as specified in Section 3 of this report.
- AT&T (Existing to Remain):
  Antennas: Six (6) KMW AM-X-CD-16-65-00T panel antennas and six (6) CCI DTMABP7819VG12A TMA's mounted on three (3) 12-ft T-Frames with a RAD center elevation of ±98-ft above grade level.
  Appurtenances: Three (3) Ericsson RRUS-11 and one (1) Raycap DC6-48-60-18-8F surge arrestor leg mounted with an elevation of 95-ft above grade level.
  Coax Cable: Twelve (12) 1-5/8" ∅ coax cables, one (1) fiber cable and two (2) dc control cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- AT&T (Existing to Remove):
  Antennas: Three (3) KMW AM-X-CD-16-65-00T panel antennas mounted on three (3) 12-ft T-Frames with a RAD center elevation of ±98-ft above grade level.
- **AT&T (PROPOSED):**
  Antennas: Three (3) CCI HPA-65R-BUU-H6 panel antennas, three (3) Ericsson RRUS-12 remote radio heads, and three (3) Ericsson A2s mounted on three (3) 12-ft T-Frames with a RAD center elevation of ±98-ft above grade level.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- All coax cables should be routed as specified in section 3 of this report.

Analysis

The existing tower was analyzed using a comprehensive computer program entitled tnxTower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower legs, and the model assumes that the leg members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for 85mph basic wind speed (fastest mile) with no ice and 85mph with ½ inch accumulative ice to determine stresses in members as per guidelines of Northeast Utilities Substation Standard (NU SUB-090), TIA/EIA-222-F-96 entitled "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Allowable Stress Design (ASD).

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA/EIA-222-F, gravity loads of the tower structure and its components, and the application of ½" radial ice tower structure and its components.

Basic Wind Speed:	New Haven; v = 85 mph (fastest mile)	[Section 16 of TIA/EIA-222-F-96]
	NU SUB-090; v = 85 mph (fastest mile)	[Northeast Utilities Substation Standard 090]
	Cheshire; v = 100 mph (3 second gust) equivalent to v = 80 mph (fastest mile)	[Appendix K of the 2005 CT Building Code Supplement]
	NU–SUB-090 wind speed controls	
Load Cases:	Load Case 1; 85 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation. This load case typically controls the design.	[Northeast Utilities Substation Standard 090]
	Load Case 2; 85 mph wind speed w/ ½" radial ice plus gravity load – used in calculation of tower stresses. This load case typically controls the design of lattice towers.	[Northeast Utilities Substation Standard 090]
	Load Case 3; Seismic – not checked	[Section 1614.5 of State Bldg. Code 2005] does not control in the design of this structure type

Tower Capacity

Tower stresses were calculated utilizing the structural analysis software tnxTower. Allowable stresses were determined based on Table 5 of the TIA/EIA code with a 1/3 increase per Section 3.1.1.1 of the same code.

The tower deflection was evaluated with a wind velocity of 85 mph concurrent with 0.5" ice to determine twist (rotation) and sway (deflection) in accordance with NU SUB-90 requirements.

- Calculated stresses were found to be within allowable limits. In Load Case 2, per tnxTower "Section Capacity Table", this tower was found to be at **80.9%** of its total capacity.

Tower Section	Elevation	Stress Ratio (percentage of capacity)	Result
Diagonal (T1)	120'-0"-140'-0"	80.9%	**PASS**
Leg (T3)	80'-0"-100'-0"	58.9%	**PASS**
Bottom Girt (T1)	120'-0"-140'-0"	49.2%	**PASS**

- The tower combined deflection is **0.5439 degrees**.

Deflection Criteria	Proposed (degrees)	Allowable (degrees)	Result
Sway (Tilt)	0.5338	0.5	**n/a**
Twist	0.1047	0.5	**n/a**
Combined	0.5439	0.5	(1)

Note 1: Tower deflection exceeds acceptable value per NU SUB-090.

Foundation and Anchors

The existing foundation consists of three (3) 4.0-ft ∅ x 5.0-ft long piers on a 30.0-ft square x 2.5-ft thick reinforced concrete mat. The base of the tower is connected to the foundation by means of (6) 1.25"∅, ASTM A449 anchor bolts per leg embedded into the concrete foundation structure.

- The tower reactions developed from the governing Load Case 2 were used in the verification of the foundation:

Reactions	Vector	Proposed Base Reactions
Base	Shear	**27 kips**
	Compression	**38 kips**
	Moment	**2316 kip-ft**
Leg	Shear	**17 kips**
	Uplift	**177 kips**
	Compression	**204 kips**

- The anchor bolts were found to be within allowable limits.

Tower Component	Design Limit	Stress Ratio (percentage of capacity)	Result
Anchor Bolts	Tension	46.6%	**PASS**

- The foundation was found to be within allowable limits.

Foundation	Design Limit	IBC 2003/2005 CT State Building Code Section 3108.4.2 (FS)[1]	Proposed Loading (FS)[1]	Result
Reinforced Concrete Piers (3) and Mat	OM[2]	2.0	3.13	**PASS**

Note 1: FS denotes Factor of Safety
Note 2: OM denotes Overturning Moment.

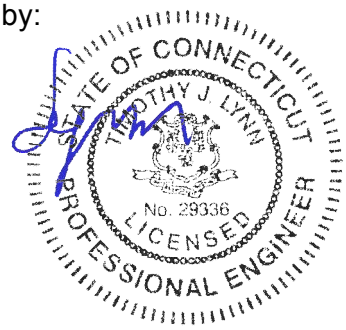
C o n c l u s i o n

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

The analysis is based, in part, on the information provided to this office by AT&T and Eversource. 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

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.

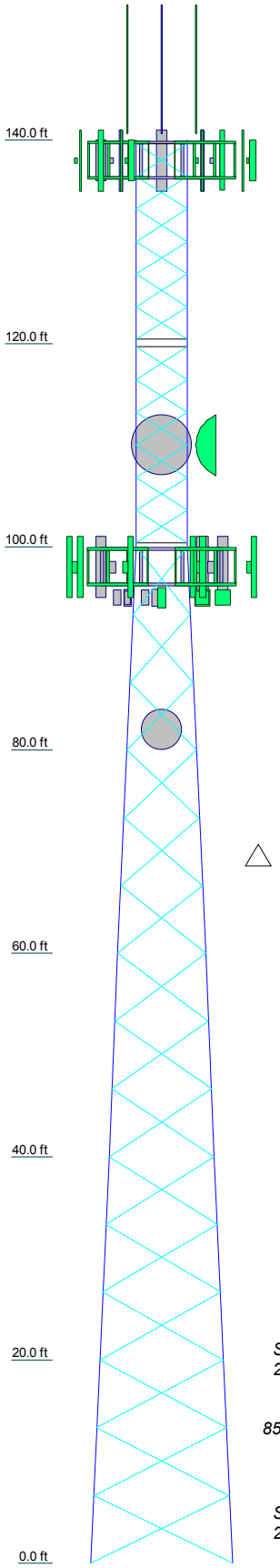
GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

tnxTower, is an integrated structural analysis and design software package for Designed specifically for the telecommunications industry, tnxTower, formerly RISATower, automates much of the tower analysis and design required by the TIA/EIA 222 Standard.

tnxTower Features:

- tnxTower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-G (2005) standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD 9th Edition or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- tnxTower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.

Section	T7	T6	T5	T4	T3	T2	T1
Legs	SR 4 1/2	SR 4 1/4	SR 4	SR 3 3/4	SR 3 1/2	SR 2 1/2	SR 1 3/4
Leg Grade	A572-50						
Diagonals	L3x3x3/16	L2 1/2x2 1/2x1/4	L2 1/2x2 1/2x3/16		L2x2x1/4	SR 7/8	SR 3/4
Diagonal Grade	A36						
Top Girts	N.A.					SR 7/8	SR 3/4
Bottom Girts	N.A.					SR 7/8	SR 3/4
Face Width (ft)	14	12.2	10.4	8.6	6.8	5	
# Panels @ (ft)	19.0 @ 4.2	3.9	3.2	2.8	2.5	1.5	0.9
Weight (K)							



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
1142-2C (NU Existing)	140	AM-X-CD-16-65-00T-RET(72") (ATI Existing)	98
1142-2C (NU Reserved)	140	HPA-65R-BUU-H6 (ATI Proposed)	98
1142-2C (NU Reserved)	140	AM-X-CD-16-65-00T-RET(72") (ATI Existing)	98
Pirod 12' T-Frame Sector Mount (1) (Verizon Existing)	138	AM-X-CD-16-65-00T-RET(72") (ATI Existing)	98
Pirod 12' T-Frame Sector Mount (1) (Verizon Existing)	138	HPA-65R-BUU-H6 (ATI Proposed)	98
Pirod 12' T-Frame Sector Mount (1) (Verizon Existing)	138	AM-X-CD-16-65-00T-RET(72") (ATI Existing)	98
DB854DG65ESX (Verizon Existing)	138	AM-X-CD-16-65-00T-RET(72") (ATI Existing)	98
LPA-185080/12CF (Verizon Existing)	138	HPA-65R-BUU-H6 (ATI Proposed)	98
P65-16-XL-2 (Verizon Existing)	138	AM-X-CD-16-65-00T-RET(72") (ATI Existing)	98
LPA-185080/12CF (Verizon Existing)	138	(2) DTMABP7819VG12A TMA (ATI Existing)	98
DB854DG65ESX (Verizon Existing)	138	(2) DTMABP7819VG12A TMA (ATI Existing)	98
LPA-185080/12CF (Verizon Existing)	138	(2) DTMABP7819VG12A TMA (ATI Existing)	98
BXA-70063/6CF (Verizon Existing)	138	RRUS-12 (ATI Proposed)	95
LPA-185080/12CF (Verizon Existing)	138	A2 (ATI Proposed)	95
DB854DG65ESX (Verizon Existing)	138	A2 (ATI Proposed)	95
LPA-185080/12CF (Verizon Existing)	138	A2 (ATI Proposed)	95
P65-16-XL-2 (Verizon Existing)	138	DC6-48-60-18-8F Surge Arrestor (ATI Existing)	95
LPA-185080/12CF (Verizon Existing)	138	RRUS-11 (ATI Existing)	95
(2) FD9R6004/2C-3L Diplexer (Verizon Existing)	138	RRUS-11 (ATI Existing)	95
(2) FD9R6004/2C-3L Diplexer (Verizon Existing)	138	RRUS-11 (ATI Existing)	95
(2) FD9R6004/2C-3L Diplexer (Verizon Existing)	138	RRUS-12 (ATI Proposed)	95
6 FT DISH (NU Reserved)	110	RRUS-12 (ATI Proposed)	95
6 FT DISH (NU Reserved)	110	PL4-107 (NU Existing)	82
Pirod 12' T-Frame Sector Mount (1) (ATI Existing)	98		
Pirod 12' T-Frame Sector Mount (1) (ATI Existing)	98		
Pirod 12' T-Frame Sector Mount (1) (ATI Existing)	98		

MATERIAL STRENGTH

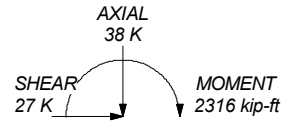
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

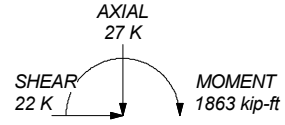
1. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
2. Tower is also designed for a 85 mph basic wind with 0.50 in ice.
3. Deflections are based upon a 85 mph wind.
4. TOWER RATING: 80.9%

MAX. CORNER REACTIONS AT BASE:
DOWN: 204 K
SHEAR: 15 K

UPLIFT: -177 K
SHEAR: 17 K



TORQUE 14 kip-ft
85 mph WIND - 0.5000 in ICE



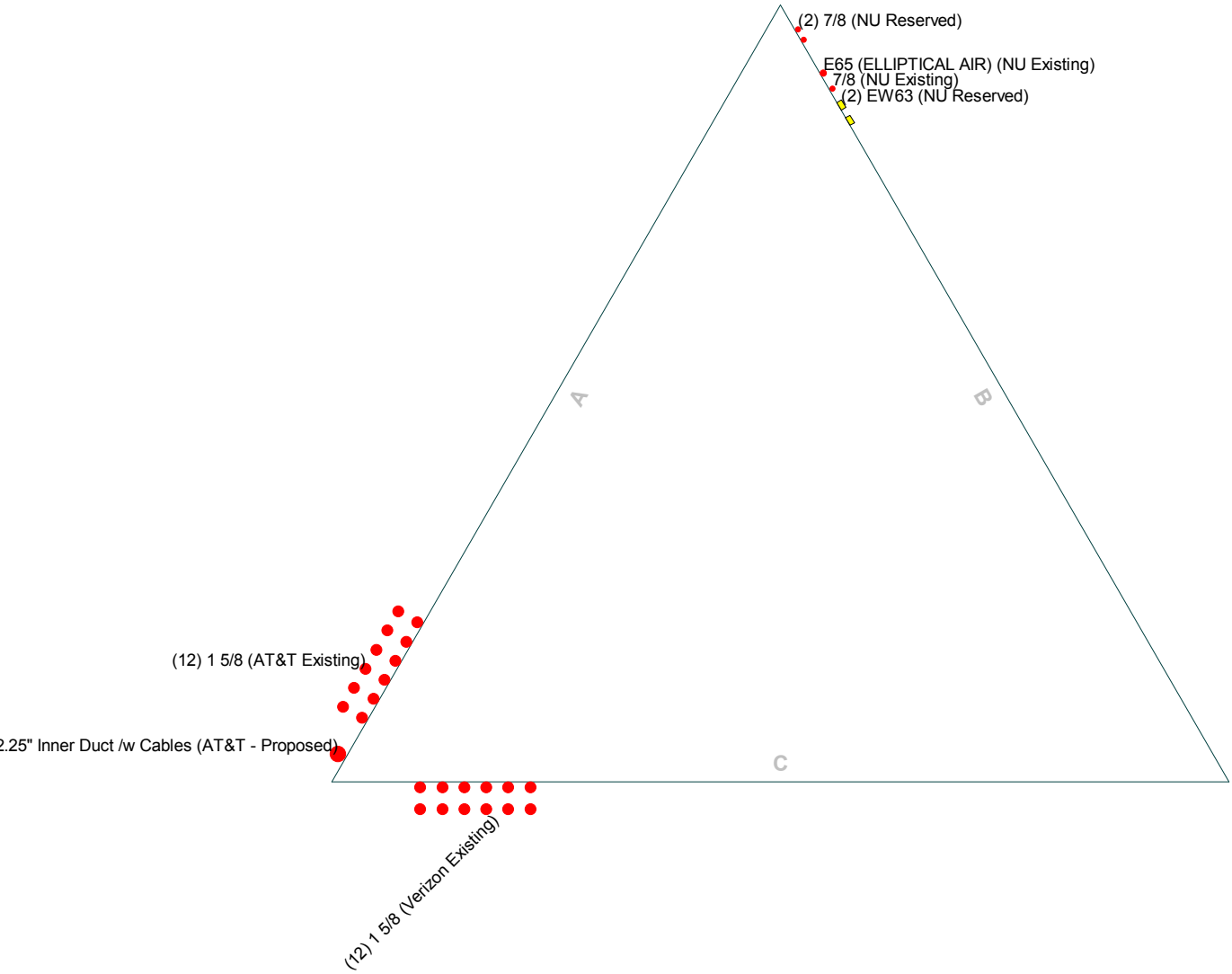
TORQUE 11 kip-ft
REACTIONS - 85 mph WIND

Centek Engineering Inc.
63-2 North Branford Rd.
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job: **16071.10 - CT1212**		
Project: ***140' Lattice Tower - 705 West Johnson Ave., Cheshire, CT***		
Client: AT&T Mobility	Drawn by: TJL	App'd:
Code: TIA/EIA-222-F	Date: 06/29/16	Scale: NTS
Path:		Dwg No. E-1

Feed Line Plan

Round Flat App In Face App Out Face



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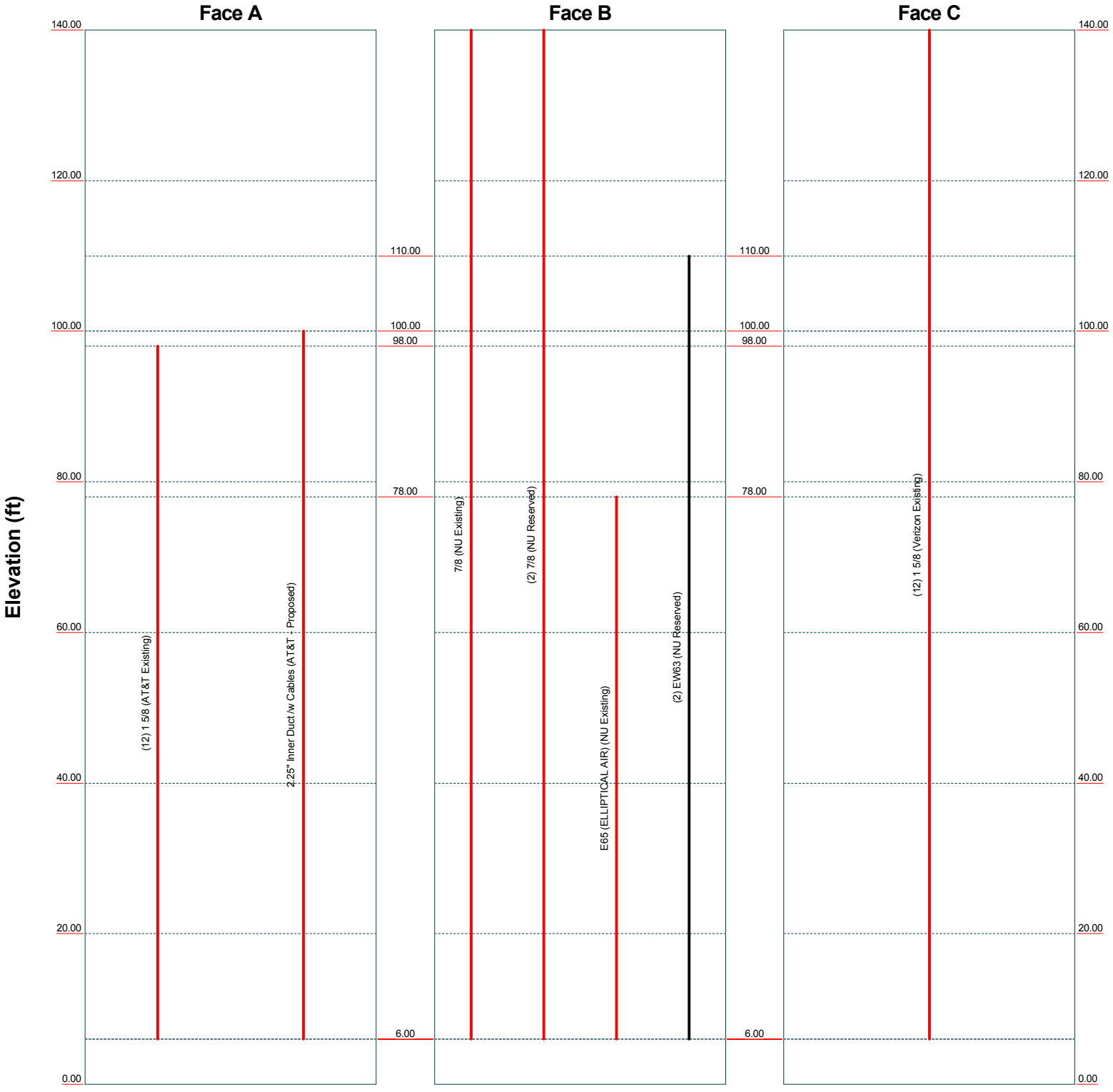
Project: ***140' Lattice Tower - 705 West Johnson Ave., Cheshire, CT***		
Client: AT&T Mobility	Drawn by: TJL	App'd:
Code: TIA/EIA-222-F	Date: 06/29/16	Scale: NTS
Path:		Dwg No. E-7

Feed Line Distribution Chart
0' - 140'

Round | Flat | App In Face | App Out Face | Truss Leg



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Code: TIA/EIA-222-F	Date: 06/29/16	Scale: NTS
Path:		Dwg No. E-7

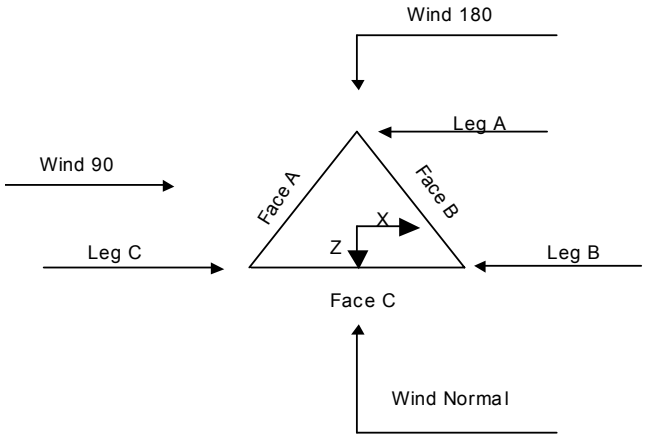
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 140.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 5.00 ft at the top and 14.00 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Basic wind speed of 85 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 85 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 85 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	√ Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	√ SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	√ All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-G Bracing Resist. Exemption
√ Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Use TIA-222-G Tension Splice Exemption
√ Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
√ SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric		



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	140.00-120.00			5.00	1	20.00
T2	120.00-100.00			5.00	1	20.00
T3	100.00-80.00			5.00	1	20.00
T4	80.00-60.00			6.80	1	20.00
T5	60.00-40.00			8.60	1	20.00
T6	40.00-20.00			10.40	1	20.00
T7	20.00-0.00			12.20	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	140.00-120.00	3.21	X Brace	No	No	4.5000	4.5000
T2	120.00-100.00	3.21	X Brace	No	No	4.5000	4.5000
T3	100.00-80.00	6.67	X Brace	No	No	0.0000	0.0000
T4	80.00-60.00	6.67	X Brace	No	No	0.0000	0.0000
T5	60.00-40.00	6.67	X Brace	No	No	0.0000	0.0000
T6	40.00-20.00	6.67	X Brace	No	No	0.0000	0.0000
T7	20.00-0.00	6.67	X Brace	No	No	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 140.00-120.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T2 120.00-100.00	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T3 100.00-80.00	Solid Round	3 1/2	A572-50 (50 ksi)	Single Angle	L2x2x1/4	A36 (36 ksi)
T4 80.00-60.00	Solid Round	3 3/4	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 60.00-40.00	Solid Round	4	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T6 40.00-20.00	Solid Round	4 1/4	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T7 20.00-0.00	Solid Round	4 1/2	A572-50 (50 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 140.00-120.00	Solid Round	3/4	A36 (36 ksi)	Solid Round	3/4	A36 (36 ksi)
T2 120.00-100.00	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1	30.0000	30.0000	36.0000
T2 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T7 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	Yes	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T6	Yes	Yes	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T7 20.00-0.00	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	U	Diagonal Net Width Deduct in	U	Top Girt Net Width Deduct in	U	Bottom Girt Net Width Deduct in	U	Mid Girt Net Width Deduct in	U	Long Horizontal Net Width Deduct in	U	Short Horizontal Net Width Deduct in	U
T1 140.00-120.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T2 120.00-100.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T3 100.00-80.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T4 80.00-60.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T5 60.00-40.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T6 40.00-20.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T7 20.00-0.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T1 140.00-120.00	Flange	0.0000 A325N	0	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 120.00-100.00	Flange	0.0000 A325N	0	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 100.00-80.00	Flange	0.7500 A325N	4	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 80.00-60.00	Flange	1.1250 A325N	6	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 60.00-40.00	Flange	1.1250 A325N	6	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 40.00-20.00	Flange	1.2500 A325N	6	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 20.00-0.00	Flange	1.2500 A325N	6	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8 (AT&T Existing)	A	Yes	Ar (CfAe)	98.00 - 6.00	0.0000	-0.36	12	6	1.9800	1.9800		1.04
1 5/8 (Verizon Existing)	C	Yes	Ar (CfAe)	140.00 - 6.00	0.0000	0.34	12	6	1.9800	1.9800		1.04
7/8 (NU Existing)	B	Yes	Ar (CfAe)	140.00 - 6.00	0.0000	-0.39	1	1	1.1100	1.1100		0.54
7/8 (NU Reserved)	B	Yes	Ar (CfAe)	140.00 - 6.00	0.0000	-0.46	2	2	1.1100	1.1100		0.54
E65 (ELLIPTICAL AIR) (NU Existing)	B	Yes	Ar (CfAe)	78.00 - 6.00	0.0000	-0.41	1	1	1.2000	1.2000		0.67
EW63 (NU Reserved)	B	Yes	Af (CfAe)	110.00 - 6.00	0.0000	-0.36	2	2	1.5742	1.5742	5.0668	0.51
2.25" Inner Duct /w Cables (AT&T - Proposed)	A	Yes	Ar (CfAe)	100.00 - 6.00	0.0000	-0.47	1	1	2.0000	3.0000		4.00

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	140.00-120.00	A	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	5.550	0.000	0.000	0.000	0.03
		C	19.800	0.000	0.000	0.000	0.25
T2	120.00-100.00	A	0.000	0.000	0.000	0.000	0.00
		B	5.550	2.624	0.000	0.000	0.04
		C	19.800	0.000	0.000	0.000	0.25
T3	100.00-80.00	A	22.820	0.000	0.000	0.000	0.30
		B	5.550	5.247	0.000	0.000	0.05
		C	19.800	0.000	0.000	0.000	0.25
T4	80.00-60.00	A	24.800	0.000	0.000	0.000	0.33
		B	7.350	5.247	0.000	0.000	0.06
		C	19.800	0.000	0.000	0.000	0.25
T5	60.00-40.00	A	24.800	0.000	0.000	0.000	0.33
		B	7.550	5.247	0.000	0.000	0.07
		C	19.800	0.000	0.000	0.000	0.25
T6	40.00-20.00	A	24.800	0.000	0.000	0.000	0.33
		B	7.550	5.247	0.000	0.000	0.07
		C	19.800	0.000	0.000	0.000	0.25
T7	20.00-0.00	A	17.360	0.000	0.000	0.000	0.23
		B	5.285	3.673	0.000	0.000	0.05
		C	13.860	0.000	0.000	0.000	0.17

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	140.00-120.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		10.550	0.000	0.000	0.000	0.09
		C		29.800	0.000	0.000	0.000	0.61
T2	120.00-100.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		10.550	3.735	0.000	0.000	0.13
		C		29.800	0.000	0.000	0.000	0.61
T3	100.00-80.00	A	0.500	33.487	0.000	0.000	0.000	0.67
		B		10.550	7.470	0.000	0.000	0.17
		C		29.800	0.000	0.000	0.000	0.61
T4	80.00-60.00	A	0.500	36.467	0.000	0.000	0.000	0.74
		B		13.850	7.470	0.000	0.000	0.20
		C		29.800	0.000	0.000	0.000	0.61
T5	60.00-40.00	A	0.500	36.467	0.000	0.000	0.000	0.74
		B		14.217	7.470	0.000	0.000	0.20
		C		29.800	0.000	0.000	0.000	0.61
T6	40.00-20.00	A	0.500	36.467	0.000	0.000	0.000	0.74
		B		14.217	7.470	0.000	0.000	0.20
		C		29.800	0.000	0.000	0.000	0.61
T7	20.00-0.00	A	0.500	25.527	0.000	0.000	0.000	0.52
		B		9.952	5.229	0.000	0.000	0.14
		C		20.860	0.000	0.000	0.000	0.43

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	140.00-120.00	A	0.000	0.000	0.000	0.000

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
		B	0.282	1.251	0.000	0.000
		C	1.006	3.533	0.000	0.000
T2	120.00-100.00	A	0.000	0.000	0.000	0.000
		B	0.484	1.885	0.000	0.000
		C	1.174	3.785	0.000	0.000
T3	100.00-80.00	A	0.000	1.269	1.729	2.538
		B	0.000	0.725	0.818	1.450
		C	0.000	1.129	1.501	2.258
T4	80.00-60.00	A	0.000	1.208	2.055	3.021
		B	0.000	0.743	1.044	1.858
		C	0.000	0.988	1.640	2.469
T5	60.00-40.00	A	0.000	1.115	1.896	2.787
		B	0.000	0.697	0.978	1.743
		C	0.000	0.911	1.514	2.278
T6	40.00-20.00	A	0.000	1.059	1.801	2.648
		B	0.000	0.662	0.929	1.655
		C	0.000	0.866	1.438	2.164
T7	20.00-0.00	A	0.000	0.716	1.461	2.149
		B	0.000	0.448	0.754	1.343
		C	0.000	0.585	1.167	1.756

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	140.00-120.00	-6.5802	3.8099	-5.2638	2.4475
T2	120.00-100.00	-5.2103	2.1164	-4.4942	1.3509
T3	100.00-80.00	-10.1607	3.0543	-10.1919	2.6721
T4	80.00-60.00	-11.7760	2.9319	-12.0515	2.4041
T5	60.00-40.00	-13.6312	3.3104	-14.0354	2.6884
T6	40.00-20.00	-15.2669	3.6957	-15.8062	3.0092
T7	20.00-0.00	-11.7333	2.8345	-12.5654	2.3872

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
1142-2C (NU Existing)	A	From Leg	1.00 0.00 7.00	0.0000	140.00	No Ice 1/2" Ice	2.09 3.37	2.09 3.37	0.02 0.04
1142-2C (NU Reserved)	B	From Leg	1.00 0.00 7.00	0.0000	140.00	No Ice 1/2" Ice	2.09 3.37	2.09 3.37	0.02 0.04
1142-2C (NU Reserved)	C	From Leg	1.00 0.00 7.00	0.0000	140.00	No Ice 1/2" Ice	2.09 3.37	2.09 3.37	0.02 0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Pirod 12' T-Frame Sector Mount (1) (AT&T Existing)	A	From Leg	2.00 0.00 0.00	0.0000	98.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
Pirod 12' T-Frame Sector Mount (1) (AT&T Existing)	B	From Leg	2.00 0.00 0.00	0.0000	98.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
Pirod 12' T-Frame Sector Mount (1) (AT&T Existing)	C	From Leg	2.00 0.00 0.00	0.0000	98.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
AM-X-CD-16-65-00T-RET(72") (AT&T Existing)	A	From Leg	4.00 -6.00 0.00	0.0000	98.00	No Ice 1/2" Ice	8.26 8.81	4.64 5.09	0.05 0.10
HPA-65R-BUU-H6 (AT&T Proposed)	A	From Leg	4.00 4.00 0.00	0.0000	98.00	No Ice 1/2" Ice	10.36 10.93	6.45 6.91	0.05 0.11
AM-X-CD-16-65-00T-RET(72") (AT&T Existing)	A	From Leg	4.00 6.00 0.00	0.0000	98.00	No Ice 1/2" Ice	8.26 8.81	4.64 5.09	0.05 0.10
AM-X-CD-16-65-00T-RET(72") (AT&T Existing)	B	From Leg	4.00 -6.00 0.00	0.0000	98.00	No Ice 1/2" Ice	8.26 8.81	4.64 5.09	0.05 0.10
HPA-65R-BUU-H6 (AT&T Proposed)	B	From Leg	4.00 4.00 0.00	0.0000	98.00	No Ice 1/2" Ice	10.36 10.93	6.45 6.91	0.05 0.11
AM-X-CD-16-65-00T-RET(72") (AT&T Existing)	B	From Leg	4.00 6.00 0.00	0.0000	98.00	No Ice 1/2" Ice	8.26 8.81	4.64 5.09	0.05 0.10
AM-X-CD-16-65-00T-RET(72") (AT&T Existing)	C	From Leg	4.00 -6.00 0.00	0.0000	98.00	No Ice 1/2" Ice	8.26 8.81	4.64 5.09	0.05 0.10
HPA-65R-BUU-H6 (AT&T Proposed)	C	From Leg	4.00 4.00 0.00	0.0000	98.00	No Ice 1/2" Ice	10.36 10.93	6.45 6.91	0.05 0.11
AM-X-CD-16-65-00T-RET(72") (AT&T Existing)	C	From Leg	4.00 6.00 0.00	0.0000	98.00	No Ice 1/2" Ice	8.26 8.81	4.64 5.09	0.05 0.10
(2) DTMABP7819VG12A TMA (AT&T Existing)	A	From Leg	4.00 0.00 0.00	0.0000	98.00	No Ice 1/2" Ice	1.59 1.76	0.58 0.70	0.02 0.03
(2) DTMABP7819VG12A TMA (AT&T Existing)	B	From Leg	4.00 0.00 0.00	0.0000	98.00	No Ice 1/2" Ice	1.59 1.76	0.58 0.70	0.02 0.03
(2) DTMABP7819VG12A TMA (AT&T Existing)	C	From Leg	4.00 0.00 0.00	0.0000	98.00	No Ice 1/2" Ice	1.59 1.76	0.58 0.70	0.02 0.03
RRUS-11 (AT&T Existing)	A	From Face	0.00 -6.00 0.00	0.0000	95.00	No Ice 1/2" Ice	2.99 3.23	1.25 1.41	0.05 0.07
RRUS-11 (AT&T Existing)	B	From Face	0.00 -6.00 0.00	0.0000	95.00	No Ice 1/2" Ice	2.99 3.23	1.25 1.41	0.05 0.07
RRUS-11 (AT&T Existing)	C	From Face	0.00 -6.00 0.00	0.0000	95.00	No Ice 1/2" Ice	2.99 3.23	1.25 1.41	0.05 0.07
RRUS-12 (AT&T Proposed)	A	From Face	0.00 -4.00 0.00	0.0000	95.00	No Ice 1/2" Ice	3.67 3.93	1.49 1.67	0.06 0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RRUS-12	B	From Face	0.00	0.0000	95.00	No Ice	3.67	1.49	0.06
(AT&T Proposed)			-4.00			1/2" Ice	3.93	1.67	0.08
			0.00						
RRUS-12	C	From Face	0.00	0.0000	95.00	No Ice	3.67	1.49	0.06
(AT&T Proposed)			-4.00			1/2" Ice	3.93	1.67	0.08
			0.00						
A2	A	From Face	0.00	0.0000	95.00	No Ice	2.42	0.54	0.02
(AT&T Proposed)			-4.00			1/2" Ice	2.63	0.67	0.03
			0.00						
A2	B	From Face	0.00	0.0000	95.00	No Ice	2.42	0.54	0.02
(AT&T Proposed)			-4.00			1/2" Ice	2.63	0.67	0.03
			0.00						
A2	C	From Face	0.00	0.0000	95.00	No Ice	2.42	0.54	0.02
(AT&T Proposed)			-4.00			1/2" Ice	2.63	0.67	0.03
			0.00						
DC6-48-60-18-8F Surge	C	From Face	0.00	0.0000	95.00	No Ice	2.23	2.23	0.02
Arrestor			0.00			1/2" Ice	2.45	2.45	0.04
(AT&T Existing)			0.00						
Pirod 12' T-Frame Sector	A	From Leg	2.00	0.0000	138.00	No Ice	13.60	13.60	0.47
Mount (1)			0.00			1/2" Ice	18.40	18.40	0.60
(Verizon Existing)			0.00						
Pirod 12' T-Frame Sector	B	From Leg	2.00	0.0000	138.00	No Ice	13.60	13.60	0.47
Mount (1)			0.00			1/2" Ice	18.40	18.40	0.60
(Verizon Existing)			0.00						
Pirod 12' T-Frame Sector	C	From Leg	2.00	0.0000	138.00	No Ice	13.60	13.60	0.47
Mount (1)			0.00			1/2" Ice	18.40	18.40	0.60
(Verizon Existing)			0.00						
DB854DG65ESX	A	From Leg	4.00	0.0000	138.00	No Ice	5.88	2.75	0.02
(Verizon Existing)			-6.00			1/2" Ice	6.28	3.06	0.05
			0.00						
LPA-185080/12CF	A	From Leg	4.00	0.0000	138.00	No Ice	3.53	4.57	0.01
(Verizon Existing)			-4.00			1/2" Ice	3.96	5.01	0.04
			0.00						
P65-16-XL-2	A	From Leg	4.00	0.0000	138.00	No Ice	8.40	4.12	0.02
(Verizon Existing)			0.00			1/2" Ice	8.95	4.56	0.06
			0.00						
LPA-185080/12CF	A	From Leg	4.00	0.0000	138.00	No Ice	3.53	4.57	0.01
(Verizon Existing)			4.00			1/2" Ice	3.96	5.01	0.04
			0.00						
DB854DG65ESX	B	From Leg	4.00	0.0000	138.00	No Ice	5.88	2.75	0.02
(Verizon Existing)			-6.00			1/2" Ice	6.28	3.06	0.05
			0.00						
LPA-185080/12CF	B	From Leg	4.00	0.0000	138.00	No Ice	3.53	4.57	0.01
(Verizon Existing)			-4.00			1/2" Ice	3.96	5.01	0.04
			0.00						
BXA-70063/6CF	B	From Leg	4.00	0.0000	138.00	No Ice	7.73	4.16	0.01
(Verizon Existing)			0.00			1/2" Ice	8.27	4.60	0.05
			0.00						
LPA-185080/12CF	B	From Leg	4.00	0.0000	138.00	No Ice	3.53	4.57	0.01
(Verizon Existing)			4.00			1/2" Ice	3.96	5.01	0.04
			0.00						
DB854DG65ESX	C	From Leg	4.00	0.0000	138.00	No Ice	5.88	2.75	0.02
(Verizon Existing)			-6.00			1/2" Ice	6.28	3.06	0.05
			0.00						
LPA-185080/12CF	C	From Leg	4.00	0.0000	138.00	No Ice	3.53	4.57	0.01
(Verizon Existing)			-4.00			1/2" Ice	3.96	5.01	0.04
			0.00						

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
P65-16-XL-2	C	From Leg	4.00	0.0000	138.00	No Ice	8.40	4.12	0.02
(Verizon Existing)			0.00			1/2" Ice	8.95	4.56	0.06
			0.00						
LPA-185080/12CF	C	From Leg	4.00	0.0000	138.00	No Ice	3.53	4.57	0.01
(Verizon Existing)			4.00			1/2" Ice	3.96	5.01	0.04
			0.00						
(2) FD9R6004/2C-3L	A	From Leg	4.00	0.0000	138.00	No Ice	0.37	0.08	0.00
Diplexer			0.00			1/2" Ice	0.45	0.14	0.01
(Verizon Existing)			0.00						
(2) FD9R6004/2C-3L	B	From Leg	4.00	0.0000	138.00	No Ice	0.37	0.08	0.00
Diplexer			0.00			1/2" Ice	0.45	0.14	0.01
(Verizon Existing)			0.00						
(2) FD9R6004/2C-3L	C	From Leg	4.00	0.0000	138.00	No Ice	0.37	0.08	0.00
Diplexer			0.00			1/2" Ice	0.45	0.14	0.01
(Verizon Existing)			0.00						

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
6 FT DISH	A	Paraboloid w/o	From	1.00	0.0000		110.00	6.00	No Ice	28.27	0.14
(NU Reserved)		Radome	Leg	0.00					1/2" Ice	29.05	0.29
				0.00							
6 FT DISH	B	Paraboloid w/o	From	1.00	0.0000		110.00	6.00	No Ice	28.27	0.14
(NU Reserved)		Radome	Leg	0.00					1/2" Ice	29.05	0.29
				0.00							
PL4-107	A	Paraboloid w/o	From	1.00	0.0000		82.00	4.00	No Ice	12.60	0.10
(NU Existing)		Radome	Leg	0.00					1/2" Ice	13.09	0.17
				0.00							

Tower Pressures - No Ice

$G_H = 1.138$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
T1	130.00	1.48	27	102.917	A	0.000	10.766	5.833	54.18	0.000	0.000
140.00-120.00					B	0.000	16.034		36.38	0.000	0.000
					C	0.000	29.560		19.73	0.000	0.000
T2	110.00	1.411	26	104.167	A	0.000	14.014	8.333	59.47	0.000	0.000
120.00-100.00					B	2.624	19.079		38.40	0.000	0.000
					C	0.000	32.640		25.53	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T3	90.00	1.332	25	123.839	A	6.763	34.502	11.682	28.31	0.000	0.000
100.00-80.00					B	12.921	17.232		38.74	0.000	0.000
					C	6.991	31.482		30.36	0.000	0.000
T4 80.00-60.00	70.00	1.24	23	160.256	A	10.173	37.317	12.517	26.36	0.000	0.000
					B	16.431	19.867		34.48	0.000	0.000
					C	10.587	32.317		29.17	0.000	0.000
T5 60.00-40.00	50.00	1.126	21	196.673	A	12.113	38.151	13.351	26.56	0.000	0.000
					B	18.278	20.901		34.08	0.000	0.000
					C	12.495	33.151		29.25	0.000	0.000
T6 40.00-20.00	30.00	1	18	233.091	A	14.094	38.986	14.186	26.73	0.000	0.000
					B	20.213	21.736		33.82	0.000	0.000
					C	14.457	33.986		29.28	0.000	0.000
T7 20.00-0.00	10.00	1	18	269.508	A	19.965	32.380	15.020	28.69	0.000	0.000
					B	24.346	20.305		33.64	0.000	0.000
					C	20.260	28.880		30.57	0.000	0.000

Tower Pressure - With Ice

$G_H = 1.138$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	130.00	1.48	27	0.5000	104.583	A	0.000	20.676	9.167	44.34	0.000	0.000
140.00-120.00						B	0.000	29.975		30.58	0.000	0.000
						C	0.000	46.943		19.53	0.000	0.000
T2	110.00	1.411	26	0.5000	105.833	A	0.000	23.839	11.667	48.94	0.000	0.000
120.00-100.00						B	3.735	32.504		32.19	0.000	0.000
						C	0.000	49.854		23.40	0.000	0.000
T3 100.00-80.00	90.00	1.332	25	0.5000	125.508	A	5.954	51.484	15.020	26.15	0.000	0.000
						B	14.512	29.091		34.45	0.000	0.000
						C	6.234	47.937		27.73	0.000	0.000
T4 80.00-60.00	70.00	1.24	23	0.5000	161.925	A	9.206	56.004	15.855	24.31	0.000	0.000
						B	17.839	33.852		30.67	0.000	0.000
						C	9.759	49.558		26.73	0.000	0.000
T5 60.00-40.00	50.00	1.126	21	0.5000	198.342	A	11.221	57.644	16.689	24.23	0.000	0.000
						B	19.736	35.812		30.04	0.000	0.000
						C	11.731	51.182		26.53	0.000	0.000
T6 40.00-20.00	30.00	1	18	0.5000	234.759	A	13.247	59.289	17.524	24.16	0.000	0.000
						B	21.709	37.436		29.63	0.000	0.000
						C	13.731	52.816		26.33	0.000	0.000
T7 20.00-0.00	10.00	1	18	0.5000	271.176	A	19.278	50.311	18.358	26.38	0.000	0.000
						B	25.312	35.004		30.44	0.000	0.000
						C	19.671	45.775		28.05	0.000	0.000

Tower Pressure - Service

$G_H = 1.138$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	130.00	1.48	27	102.917	A	0.000	10.766	5.833	54.18	0.000	0.000
140.00-120.00					B	0.000	16.034		36.38	0.000	0.000
					C	0.000	29.560		19.73	0.000	0.000
T2	110.00	1.411	26	104.167	A	0.000	14.014	8.333	59.47	0.000	0.000
120.00-100.00					B	2.624	19.079		38.40	0.000	0.000
					C	0.000	32.640		25.53	0.000	0.000
T3	90.00	1.332	25	123.839	A	6.763	34.502	11.682	28.31	0.000	0.000
100.00-80.00					B	12.921	17.232		38.74	0.000	0.000
					C	6.991	31.482		30.36	0.000	0.000
T4 80.00-60.00	70.00	1.24	23	160.256	A	10.173	37.317	12.517	26.36	0.000	0.000
					B	16.431	19.867		34.48	0.000	0.000
					C	10.587	32.317		29.17	0.000	0.000
T5 60.00-40.00	50.00	1.126	21	196.673	A	12.113	38.151	13.351	26.56	0.000	0.000
					B	18.278	20.901		34.08	0.000	0.000
					C	12.495	33.151		29.25	0.000	0.000
T6 40.00-20.00	30.00	1	18	233.091	A	14.094	38.986	14.186	26.73	0.000	0.000
					B	20.213	21.736		33.82	0.000	0.000
					C	14.457	33.986		29.28	0.000	0.000
T7 20.00-0.00	10.00	1	18	269.508	A	19.965	32.380	15.020	28.69	0.000	0.000
					B	24.346	20.305		33.64	0.000	0.000
					C	20.260	28.880		30.57	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.28	0.86	A	0.105	2.946	0.576	1	1	6.197	1.31	65.66	C
140.00-120.00			B	0.156	2.75	0.582	1	1	9.338			
			C	0.287	2.331	0.612	1	1	18.093			
T2	0.29	1.50	A	0.135	2.829	0.579	1	1	8.117	1.36	67.94	C
120.00-100.00			B	0.208	2.568	0.592	1	1	13.921			
			C	0.313	2.261	0.62	1	1	20.239			
T3	0.61	2.48	A	0.333	2.211	0.627	1	1	28.383	1.76	87.99	A
100.00-80.00			B	0.243	2.457	0.6	1	1	23.265			
			C	0.311	2.268	0.619	1	1	26.486			
T4	0.64	2.82	A	0.296	2.306	0.615	1	1	33.115	1.99	99.63	A
80.00-60.00			B	0.227	2.51	0.596	1	1	28.275			
			C	0.268	2.385	0.607	1	1	30.189			
T5	0.65	3.21	A	0.256	2.421	0.603	1	1	35.130	2.02	100.79	A
60.00-40.00			B	0.199	2.599	0.59	1	1	30.615			
			C	0.232	2.492	0.597	1	1	32.302			
T6	0.65	3.86	A	0.228	2.506	0.596	1	1	37.347	1.97	98.51	A
40.00-20.00			B	0.18	2.664	0.587	1	1	32.962			
			C	0.208	2.57	0.592	1	1	34.578			
T7 20.00-0.00	0.45	4.23	A	0.194	2.615	0.589	1	1	39.045	2.15	107.48	A
			B	0.166	2.715	0.584	1	1	36.204			
			C	0.182	2.656	0.587	1	1	37.211			
Sum Weight:	3.57	18.96						OTM	799.44 kip-ft	12.56		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.28	0.86	A	0.105	2.946	0.576	0.825	1	6.197	1.31	65.66	C
140.00-120.00			B	0.156	2.75	0.582	0.825	1	9.338			
			C	0.287	2.331	0.612	0.825	1	18.093			
T2	0.29	1.50	A	0.135	2.829	0.579	0.825	1	8.117	1.36	67.94	C
120.00-100.00			B	0.208	2.568	0.592	0.825	1	13.462			
			C	0.313	2.261	0.62	0.825	1	20.239			
T3	0.61	2.48	A	0.333	2.211	0.627	0.825	1	27.199	1.69	84.32	A
100.00-80.00			B	0.243	2.457	0.6	0.825	1	21.003			
			C	0.311	2.268	0.619	0.825	1	25.263			
T4	0.64	2.82	A	0.296	2.306	0.615	0.825	1	31.335	1.89	94.27	A
80.00-60.00			B	0.227	2.51	0.596	0.825	1	25.400			
			C	0.268	2.385	0.607	0.825	1	28.336			
T5	0.65	3.21	A	0.256	2.421	0.603	0.825	1	33.011	1.89	94.71	A
60.00-40.00			B	0.199	2.599	0.59	0.825	1	27.416			
			C	0.232	2.492	0.597	0.825	1	30.116			
T6	0.65	3.86	A	0.228	2.506	0.596	0.825	1	34.881	1.84	92.00	A
40.00-20.00			B	0.18	2.664	0.587	0.825	1	29.424			
			C	0.208	2.57	0.592	0.825	1	32.048			
T7 20.00-0.00	0.45	4.23	A	0.194	2.615	0.589	0.825	1	35.551	1.96	97.86	A
			B	0.166	2.715	0.584	0.825	1	31.943			
			C	0.182	2.656	0.587	0.825	1	33.666			
Sum Weight:	3.57	18.96						OTM	773.43 kip-ft	11.94		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.28	0.86	A	0.105	2.946	0.576	0.8	1	6.197	1.31	65.66	C
140.00-120.00			B	0.156	2.75	0.582	0.8	1	9.338			
			C	0.287	2.331	0.612	0.8	1	18.093			
T2	0.29	1.50	A	0.135	2.829	0.579	0.8	1	8.117	1.36	67.94	C
120.00-100.00			B	0.208	2.568	0.592	0.8	1	13.397			
			C	0.313	2.261	0.62	0.8	1	20.239			
T3	0.61	2.48	A	0.333	2.211	0.627	0.8	1	27.030	1.68	83.80	A
100.00-80.00			B	0.243	2.457	0.6	0.8	1	20.680			
			C	0.311	2.268	0.619	0.8	1	25.088			
T4	0.64	2.82	A	0.296	2.306	0.615	0.8	1	31.080	1.87	93.51	A
80.00-60.00			B	0.227	2.51	0.596	0.8	1	24.989			
			C	0.268	2.385	0.607	0.8	1	28.072			
T5	0.65	3.21	A	0.256	2.421	0.603	0.8	1	32.708	1.88	93.84	A
60.00-40.00			B	0.199	2.599	0.59	0.8	1	26.959			
			C	0.232	2.492	0.597	0.8	1	29.803			
T6	0.65	3.86	A	0.228	2.506	0.596	0.8	1	34.528	1.82	91.07	A
40.00-20.00			B	0.18	2.664	0.587	0.8	1	28.919			
			C	0.208	2.57	0.592	0.8	1	31.686			
T7 20.00-0.00	0.45	4.23	A	0.194	2.615	0.589	0.8	1	35.052	1.93	96.49	A
			B	0.166	2.715	0.584	0.8	1	31.335			
			C	0.182	2.656	0.587	0.8	1	33.159			
Sum Weight:	3.57	18.96						OTM	769.71 kip-ft	11.85		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.28	0.86	A	0.105	2.946	0.576	0.85	1	6.197	1.31	65.66	C
140.00-120.00			B	0.156	2.75	0.582	0.85	1	9.338			
			C	0.287	2.331	0.612	0.85	1	18.093			
T2	0.29	1.50	A	0.135	2.829	0.579	0.85	1	8.117	1.36	67.94	C
120.00-100.00			B	0.208	2.568	0.592	0.85	1	13.528			
			C	0.313	2.261	0.62	0.85	1	20.239			
T3	0.61	2.48	A	0.333	2.211	0.627	0.85	1	27.368	1.70	84.85	A
100.00-80.00			B	0.243	2.457	0.6	0.85	1	21.326			
			C	0.311	2.268	0.619	0.85	1	25.437			
T4	0.64	2.82	A	0.296	2.306	0.615	0.85	1	31.589	1.90	95.04	A
80.00-60.00			B	0.227	2.51	0.596	0.85	1	25.811			
			C	0.268	2.385	0.607	0.85	1	28.601			
T5	0.65	3.21	A	0.256	2.421	0.603	0.85	1	33.313	1.91	95.58	A
60.00-40.00			B	0.199	2.599	0.59	0.85	1	27.873			
			C	0.232	2.492	0.597	0.85	1	30.428			
T6	0.65	3.86	A	0.228	2.506	0.596	0.85	1	35.233	1.86	92.93	A
40.00-20.00			B	0.18	2.664	0.587	0.85	1	29.930			
			C	0.208	2.57	0.592	0.85	1	32.409			
T7 20.00-0.00	0.45	4.23	A	0.194	2.615	0.589	0.85	1	36.050	1.98	99.24	A
			B	0.166	2.715	0.584	0.85	1	32.552			
			C	0.182	2.656	0.587	0.85	1	34.172			
Sum Weight:	3.57	18.96						OTM	777.15 kip-ft	12.02		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.70	1.13	A	0.198	2.604	0.59	1	1	12.197	1.94	97.14	C
140.00-120.00			B	0.287	2.332	0.612	1	1	18.342			
			C	0.449	1.975	0.673	1	1	31.581			
T2	0.74	1.82	A	0.225	2.514	0.596	1	1	14.205	1.96	98.12	C
120.00-100.00			B	0.342	2.189	0.63	1	1	24.206			
			C	0.471	1.94	0.683	1	1	34.059			
T3	1.45	2.94	A	0.458	1.961	0.677	1	1	40.799	2.24	112.17	A
100.00-80.00			B	0.347	2.178	0.632	1	1	32.885			
			C	0.432	2.005	0.665	1	1	38.112			
T4	1.55	3.40	A	0.403	2.059	0.653	1	1	45.761	2.46	122.92	A
80.00-60.00			B	0.319	2.246	0.622	1	1	38.894			
			C	0.366	2.135	0.638	1	1	41.399			
T5	1.55	3.86	A	0.347	2.178	0.631	1	1	47.623	2.46	122.93	A
60.00-40.00			B	0.28	2.35	0.61	1	1	41.582			
			C	0.317	2.251	0.621	1	1	43.531			
T6	1.55	4.58	A	0.309	2.272	0.619	1	1	49.929	2.39	119.41	A
40.00-20.00			B	0.252	2.432	0.602	1	1	44.260			
			C	0.283	2.341	0.611	1	1	46.001			
T7 20.00-0.00	1.08	5.14	A	0.257	2.418	0.604	1	1	49.645	2.53	126.33	A
			B	0.222	2.523	0.595	1	1	46.148			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.241	2.464	0.6	1	1	47.122			
Sum Weight:	8.63	22.86						OTM	1062.27 kip-ft	15.98		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.70	1.13	A	0.198	2.604	0.59	0.825	1	12.197	1.94	97.14	C
140.00-120.00			B	0.287	2.332	0.612	0.825	1	18.342			
			C	0.449	1.975	0.673	0.825	1	31.581			
T2	0.74	1.82	A	0.225	2.514	0.596	0.825	1	14.205	1.96	98.12	C
120.00-100.00			B	0.342	2.189	0.63	0.825	1	23.552			
			C	0.471	1.94	0.683	0.825	1	34.059			
T3	1.45	2.94	A	0.458	1.961	0.677	0.825	1	39.757	2.19	109.31	A
100.00-80.00			B	0.347	2.178	0.632	0.825	1	30.345			
			C	0.432	2.005	0.665	0.825	1	37.021			
T4	1.55	3.40	A	0.403	2.059	0.653	0.825	1	44.150	2.37	118.59	A
80.00-60.00			B	0.319	2.246	0.622	0.825	1	35.772			
			C	0.366	2.135	0.638	0.825	1	39.691			
T5	1.55	3.86	A	0.347	2.178	0.631	0.825	1	45.659	2.36	117.86	A
60.00-40.00			B	0.28	2.35	0.61	0.825	1	38.128			
			C	0.317	2.251	0.621	0.825	1	41.478			
T6	1.55	4.58	A	0.309	2.272	0.619	0.825	1	47.611	2.28	113.87	A
40.00-20.00			B	0.252	2.432	0.602	0.825	1	40.461			
			C	0.283	2.341	0.611	0.825	1	43.598			
T7 20.00-0.00	1.08	5.14	A	0.257	2.418	0.604	0.825	1	46.271	2.35	117.75	A
			B	0.222	2.523	0.595	0.825	1	41.718			
			C	0.241	2.464	0.6	0.825	1	43.680			
Sum Weight:	8.63	22.86						OTM	1040.94 kip-ft	15.45		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.70	1.13	A	0.198	2.604	0.59	0.8	1	12.197	1.94	97.14	C
140.00-120.00			B	0.287	2.332	0.612	0.8	1	18.342			
			C	0.449	1.975	0.673	0.8	1	31.581			
T2	0.74	1.82	A	0.225	2.514	0.596	0.8	1	14.205	1.96	98.12	C
120.00-100.00			B	0.342	2.189	0.63	0.8	1	23.459			
			C	0.471	1.94	0.683	0.8	1	34.059			
T3	1.45	2.94	A	0.458	1.961	0.677	0.8	1	39.608	2.18	108.90	A
100.00-80.00			B	0.347	2.178	0.632	0.8	1	29.982			
			C	0.432	2.005	0.665	0.8	1	36.865			
T4	1.55	3.40	A	0.403	2.059	0.653	0.8	1	43.920	2.36	117.97	A
80.00-60.00			B	0.319	2.246	0.622	0.8	1	35.326			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
			C	0.366	2.135	0.638	0.8	1	39.447			
T5	1.55	3.86	A	0.347	2.178	0.631	0.8	1	45.379	2.34	117.14	A
60.00-40.00			B	0.28	2.35	0.61	0.8	1	37.634			
			C	0.317	2.251	0.621	0.8	1	41.185			
T6	1.55	4.58	A	0.309	2.272	0.619	0.8	1	47.279	2.26	113.08	A
40.00-20.00			B	0.252	2.432	0.602	0.8	1	39.918			
			C	0.283	2.341	0.611	0.8	1	43.255			
T7 20.00-0.00	1.08	5.14	A	0.257	2.418	0.604	0.8	1	45.789	2.33	116.52	A
			B	0.222	2.523	0.595	0.8	1	41.085			
			C	0.241	2.464	0.6	0.8	1	43.188			
Sum Weight:	8.63	22.86						OTM	1037.89 kip-ft	15.38		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.70	1.13	A	0.198	2.604	0.59	0.85	1	12.197	1.94	97.14	C
140.00-120.00			B	0.287	2.332	0.612	0.85	1	18.342			
			C	0.449	1.975	0.673	0.85	1	31.581			
T2	0.74	1.82	A	0.225	2.514	0.596	0.85	1	14.205	1.96	98.12	C
120.00-100.00			B	0.342	2.189	0.63	0.85	1	23.645			
			C	0.471	1.94	0.683	0.85	1	34.059			
T3	1.45	2.94	A	0.458	1.961	0.677	0.85	1	39.906	2.19	109.72	A
100.00-80.00			B	0.347	2.178	0.632	0.85	1	30.708			
			C	0.432	2.005	0.665	0.85	1	37.177			
T4	1.55	3.40	A	0.403	2.059	0.653	0.85	1	44.380	2.38	119.21	A
80.00-60.00			B	0.319	2.246	0.622	0.85	1	36.218			
			C	0.366	2.135	0.638	0.85	1	39.935			
T5	1.55	3.86	A	0.347	2.178	0.631	0.85	1	45.940	2.37	118.58	A
60.00-40.00			B	0.28	2.35	0.61	0.85	1	38.621			
			C	0.317	2.251	0.621	0.85	1	41.771			
T6	1.55	4.58	A	0.309	2.272	0.619	0.85	1	47.942	2.29	114.66	A
40.00-20.00			B	0.252	2.432	0.602	0.85	1	41.003			
			C	0.283	2.341	0.611	0.85	1	43.941			
T7 20.00-0.00	1.08	5.14	A	0.257	2.418	0.604	0.85	1	46.753	2.38	118.97	A
			B	0.222	2.523	0.595	0.85	1	42.351			
			C	0.241	2.464	0.6	0.85	1	44.171			
Sum Weight:	8.63	22.86						OTM	1043.99 kip-ft	15.53		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.28	0.86	A	0.105	2.946	0.576	1	1	6.197	1.31	65.66	C
140.00-120.00			B	0.156	2.75	0.582	1	1	9.338			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.287	2.331	0.612	1	1	18.093			
T2	0.29	1.50	A	0.135	2.829	0.579	1	1	8.117	1.36	67.94	C
120.00-100.00			B	0.208	2.568	0.592	1	1	13.921			
			C	0.313	2.261	0.62	1	1	20.239			
T3	0.61	2.48	A	0.333	2.211	0.627	1	1	28.383	1.76	87.99	A
100.00-80.00			B	0.243	2.457	0.6	1	1	23.265			
			C	0.311	2.268	0.619	1	1	26.486			
T4	0.64	2.82	A	0.296	2.306	0.615	1	1	33.115	1.99	99.63	A
80.00-60.00			B	0.227	2.51	0.596	1	1	28.275			
			C	0.268	2.385	0.607	1	1	30.189			
T5	0.65	3.21	A	0.256	2.421	0.603	1	1	35.130	2.02	100.79	A
60.00-40.00			B	0.199	2.599	0.59	1	1	30.615			
			C	0.232	2.492	0.597	1	1	32.302			
T6	0.65	3.86	A	0.228	2.506	0.596	1	1	37.347	1.97	98.51	A
40.00-20.00			B	0.18	2.664	0.587	1	1	32.962			
			C	0.208	2.57	0.592	1	1	34.578			
T7 20.00-0.00	0.45	4.23	A	0.194	2.615	0.589	1	1	39.045	2.15	107.48	A
			B	0.166	2.715	0.584	1	1	36.204			
			C	0.182	2.656	0.587	1	1	37.211			
Sum Weight:	3.57	18.96						OTM	799.44 kip-ft	12.56		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.28	0.86	A	0.105	2.946	0.576	0.825	1	6.197	1.31	65.66	C
140.00-120.00			B	0.156	2.75	0.582	0.825	1	9.338			
			C	0.287	2.331	0.612	0.825	1	18.093			
T2	0.29	1.50	A	0.135	2.829	0.579	0.825	1	8.117	1.36	67.94	C
120.00-100.00			B	0.208	2.568	0.592	0.825	1	13.462			
			C	0.313	2.261	0.62	0.825	1	20.239			
T3	0.61	2.48	A	0.333	2.211	0.627	0.825	1	27.199	1.69	84.32	A
100.00-80.00			B	0.243	2.457	0.6	0.825	1	21.003			
			C	0.311	2.268	0.619	0.825	1	25.263			
T4	0.64	2.82	A	0.296	2.306	0.615	0.825	1	31.335	1.89	94.27	A
80.00-60.00			B	0.227	2.51	0.596	0.825	1	25.400			
			C	0.268	2.385	0.607	0.825	1	28.336			
T5	0.65	3.21	A	0.256	2.421	0.603	0.825	1	33.011	1.89	94.71	A
60.00-40.00			B	0.199	2.599	0.59	0.825	1	27.416			
			C	0.232	2.492	0.597	0.825	1	30.116			
T6	0.65	3.86	A	0.228	2.506	0.596	0.825	1	34.881	1.84	92.00	A
40.00-20.00			B	0.18	2.664	0.587	0.825	1	29.424			
			C	0.208	2.57	0.592	0.825	1	32.048			
T7 20.00-0.00	0.45	4.23	A	0.194	2.615	0.589	0.825	1	35.551	1.96	97.86	A
			B	0.166	2.715	0.584	0.825	1	31.943			
			C	0.182	2.656	0.587	0.825	1	33.666			
Sum Weight:	3.57	18.96						OTM	773.43 kip-ft	11.94		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.28	0.86	A	0.105	2.946	0.576	0.8	1	6.197	1.31	65.66	C
140.00-120.00			B	0.156	2.75	0.582	0.8	1	9.338			
			C	0.287	2.331	0.612	0.8	1	18.093			
T2	0.29	1.50	A	0.135	2.829	0.579	0.8	1	8.117	1.36	67.94	C
120.00-100.00			B	0.208	2.568	0.592	0.8	1	13.397			
			C	0.313	2.261	0.62	0.8	1	20.239			
T3	0.61	2.48	A	0.333	2.211	0.627	0.8	1	27.030	1.68	83.80	A
100.00-80.00			B	0.243	2.457	0.6	0.8	1	20.680			
			C	0.311	2.268	0.619	0.8	1	25.088			
T4	0.64	2.82	A	0.296	2.306	0.615	0.8	1	31.080	1.87	93.51	A
80.00-60.00			B	0.227	2.51	0.596	0.8	1	24.989			
			C	0.268	2.385	0.607	0.8	1	28.072			
T5	0.65	3.21	A	0.256	2.421	0.603	0.8	1	32.708	1.88	93.84	A
60.00-40.00			B	0.199	2.599	0.59	0.8	1	26.959			
			C	0.232	2.492	0.597	0.8	1	29.803			
T6	0.65	3.86	A	0.228	2.506	0.596	0.8	1	34.528	1.82	91.07	A
40.00-20.00			B	0.18	2.664	0.587	0.8	1	28.919			
			C	0.208	2.57	0.592	0.8	1	31.686			
T7 20.00-0.00	0.45	4.23	A	0.194	2.615	0.589	0.8	1	35.052	1.93	96.49	A
			B	0.166	2.715	0.584	0.8	1	31.335			
			C	0.182	2.656	0.587	0.8	1	33.159			
Sum Weight:	3.57	18.96						OTM	769.71 kip-ft	11.85		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.28	0.86	A	0.105	2.946	0.576	0.85	1	6.197	1.31	65.66	C
140.00-120.00			B	0.156	2.75	0.582	0.85	1	9.338			
			C	0.287	2.331	0.612	0.85	1	18.093			
T2	0.29	1.50	A	0.135	2.829	0.579	0.85	1	8.117	1.36	67.94	C
120.00-100.00			B	0.208	2.568	0.592	0.85	1	13.528			
			C	0.313	2.261	0.62	0.85	1	20.239			
T3	0.61	2.48	A	0.333	2.211	0.627	0.85	1	27.368	1.70	84.85	A
100.00-80.00			B	0.243	2.457	0.6	0.85	1	21.326			
			C	0.311	2.268	0.619	0.85	1	25.437			
T4	0.64	2.82	A	0.296	2.306	0.615	0.85	1	31.589	1.90	95.04	A
80.00-60.00			B	0.227	2.51	0.596	0.85	1	25.811			
			C	0.268	2.385	0.607	0.85	1	28.601			
T5	0.65	3.21	A	0.256	2.421	0.603	0.85	1	33.313	1.91	95.58	A
60.00-40.00			B	0.199	2.599	0.59	0.85	1	27.873			
			C	0.232	2.492	0.597	0.85	1	30.428			
T6	0.65	3.86	A	0.228	2.506	0.596	0.85	1	35.233	1.86	92.93	A
40.00-20.00			B	0.18	2.664	0.587	0.85	1	29.930			
			C	0.208	2.57	0.592	0.85	1	32.409			
T7 20.00-0.00	0.45	4.23	A	0.194	2.615	0.589	0.85	1	36.050	1.98	99.24	A
			B	0.166	2.715	0.584	0.85	1	32.552			
			C	0.182	2.656	0.587	0.85	1	34.172			
Sum Weight:	3.57	18.96						OTM	777.15	12.02		

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
									kip-ft			

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	14.44					
Bracing Weight	4.52					
Total Member Self-Weight	18.96			4.46	10.53	
Total Weight	26.93			4.46	10.53	
Wind 0 deg - No Ice		-1.09	-21.77	-1845.26	129.82	-11.29
Wind 30 deg - No Ice		10.18	-17.72	-1506.21	-856.16	-8.82
Wind 45 deg - No Ice		14.48	-14.19	-1203.44	-1229.47	-6.68
Wind 60 deg - No Ice		17.46	-10.16	-865.94	-1484.91	-3.65
Wind 90 deg - No Ice		20.24	0.02	6.17	-1714.05	2.51
Wind 120 deg - No Ice		18.06	12.21	1064.25	-1510.10	8.10
Wind 135 deg - No Ice		14.07	15.92	1391.34	-1187.82	9.13
Wind 150 deg - No Ice		9.91	19.00	1647.94	-829.98	9.81
Wind 180 deg - No Ice		0.13	21.30	1846.42	-3.57	8.68
Wind 210 deg - No Ice		-9.66	18.66	1610.37	824.49	5.78
Wind 225 deg - No Ice		-14.46	15.25	1318.19	1252.83	3.76
Wind 240 deg - No Ice		-18.60	11.27	961.15	1591.17	3.19
Wind 270 deg - No Ice		-20.63	-0.68	-69.89	1778.11	-0.38
Wind 300 deg - No Ice		-18.06	-10.65	-919.76	1570.99	-5.03
Wind 315 deg - No Ice		-15.12	-14.68	-1256.93	1321.36	-7.21
Wind 330 deg - No Ice		-11.15	-18.10	-1547.19	983.85	-8.90
Member Ice	3.90					
Total Weight Ice	38.25			9.76	24.27	
Wind 0 deg - Ice		-1.12	-26.64	-2275.95	146.88	-14.26
Wind 30 deg - Ice		12.64	-21.99	-1879.92	-1061.07	-11.46
Wind 45 deg - Ice		17.97	-17.68	-1507.40	-1525.88	-8.84
Wind 60 deg - Ice		21.75	-12.64	-1080.17	-1851.02	-5.16
Wind 90 deg - Ice		25.16	0.02	11.54	-2137.28	2.54
Wind 120 deg - Ice		22.25	14.69	1291.65	-1871.52	9.58
Wind 135 deg - Ice		17.55	19.46	1711.24	-1482.99	11.31
Wind 150 deg - Ice		12.36	23.31	2036.21	-1034.08	12.44
Wind 180 deg - Ice		0.13	26.28	2293.84	9.76	11.69
Wind 210 deg - Ice		-12.11	22.95	1997.58	1055.30	8.32
Wind 225 deg - Ice		-17.95	18.77	1636.03	1576.66	5.83
Wind 240 deg - Ice		-22.81	13.72	1185.67	1981.70	4.68
Wind 270 deg - Ice		-25.56	-0.70	-66.66	2230.01	-0.34
Wind 300 deg - Ice		-22.36	-13.15	-1135.52	1966.40	-6.52
Wind 315 deg - Ice		-18.64	-18.18	-1562.40	1647.24	-9.32
Wind 330 deg - Ice		-13.64	-22.38	-1922.06	1219.23	-11.49
Total Weight	26.93			4.46	10.53	
Wind 0 deg - Service		-1.09	-21.77	-1850.47	118.88	-11.29
Wind 30 deg - Service		10.18	-17.72	-1511.42	-867.10	-8.82
Wind 45 deg - Service		14.48	-14.19	-1208.65	-1240.42	-6.68
Wind 60 deg - Service		17.46	-10.16	-871.15	-1495.85	-3.65
Wind 90 deg - Service		20.24	0.02	0.96	-1724.99	2.51
Wind 120 deg - Service		18.06	12.21	1059.03	-1521.04	8.10
Wind 135 deg - Service		14.07	15.92	1386.12	-1198.77	9.13
Wind 150 deg - Service		9.91	19.00	1642.73	-840.92	9.81
Wind 180 deg - Service		0.13	21.30	1841.21	-14.51	8.68

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 210 deg - Service		-9.66	18.66	1605.16	813.55	5.78
Wind 225 deg - Service		-14.46	15.25	1312.97	1241.89	3.76
Wind 240 deg - Service		-18.60	11.27	955.93	1580.23	3.19
Wind 270 deg - Service		-20.63	-0.68	-75.10	1767.16	-0.38
Wind 300 deg - Service		-18.06	-10.65	-924.97	1560.04	-5.03
Wind 315 deg - Service		-15.12	-14.68	-1262.15	1310.42	-7.21
Wind 330 deg - Service		-11.15	-18.10	-1552.40	972.90	-8.90

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 45 deg - No Ice
5	Dead+Wind 60 deg - No Ice
6	Dead+Wind 90 deg - No Ice
7	Dead+Wind 120 deg - No Ice
8	Dead+Wind 135 deg - No Ice
9	Dead+Wind 150 deg - No Ice
10	Dead+Wind 180 deg - No Ice
11	Dead+Wind 210 deg - No Ice
12	Dead+Wind 225 deg - No Ice
13	Dead+Wind 240 deg - No Ice
14	Dead+Wind 270 deg - No Ice
15	Dead+Wind 300 deg - No Ice
16	Dead+Wind 315 deg - No Ice
17	Dead+Wind 330 deg - No Ice
18	Dead+Ice+Temp
19	Dead+Wind 0 deg+Ice+Temp
20	Dead+Wind 30 deg+Ice+Temp
21	Dead+Wind 45 deg+Ice+Temp
22	Dead+Wind 60 deg+Ice+Temp
23	Dead+Wind 90 deg+Ice+Temp
24	Dead+Wind 120 deg+Ice+Temp
25	Dead+Wind 135 deg+Ice+Temp
26	Dead+Wind 150 deg+Ice+Temp
27	Dead+Wind 180 deg+Ice+Temp
28	Dead+Wind 210 deg+Ice+Temp
29	Dead+Wind 225 deg+Ice+Temp
30	Dead+Wind 240 deg+Ice+Temp
31	Dead+Wind 270 deg+Ice+Temp
32	Dead+Wind 300 deg+Ice+Temp
33	Dead+Wind 315 deg+Ice+Temp
34	Dead+Wind 330 deg+Ice+Temp
35	Dead+Wind 0 deg - Service
36	Dead+Wind 30 deg - Service
37	Dead+Wind 45 deg - Service
38	Dead+Wind 60 deg - Service
39	Dead+Wind 90 deg - Service
40	Dead+Wind 120 deg - Service
41	Dead+Wind 135 deg - Service
42	Dead+Wind 150 deg - Service
43	Dead+Wind 180 deg - Service
44	Dead+Wind 210 deg - Service

Comb. No.	Description
45	Dead+Wind 225 deg - Service
46	Dead+Wind 240 deg - Service
47	Dead+Wind 270 deg - Service
48	Dead+Wind 300 deg - Service
49	Dead+Wind 315 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	140 - 120	Leg	Max Tension	27	20.67	-0.01	0.40
			Max. Compression	30	-23.64	0.43	-0.25
			Max. Mx	31	-0.88	-0.81	-0.00
			Max. My	27	-1.46	0.02	0.81
			Max. Vy	31	-2.26	0.46	-0.06
			Max. Vx	19	-2.42	-0.02	0.50
		Diagonal	Max Tension	28	2.58	0.00	0.00
			Max. Compression	28	-2.58	0.00	0.00
			Max. Mx	30	0.08	-0.00	0.00
			Max. My	28	-2.00	-0.00	0.00
			Max. Vy	29	-0.00	-0.00	0.00
			Max. Vx	20	0.00	-0.00	-0.00
		Top Girt	Max Tension	5	0.07	0.00	0.00
			Max. Compression	19	-0.08	0.00	0.00
			Max. Mx	18	-0.01	0.01	0.00
			Max. My	19	0.03	0.00	-0.00
			Max. Vy	18	-0.01	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Bottom Girt	Max Tension	27	0.92	0.00	0.00
			Max. Compression	30	-0.91	0.00	0.00
			Max. Mx	18	0.01	0.01	0.00
			Max. My	19	0.49	0.00	-0.00
			Max. Vy	18	-0.01	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
T2	120 - 100	Leg	Max Tension	27	55.91	0.03	0.17
			Max. Compression	30	-60.76	1.59	-0.94
			Max. Mx	24	-60.19	-1.60	-0.93
			Max. My	19	-60.25	-0.01	1.85
			Max. Vy	30	-4.74	1.59	-0.94
			Max. Vx	19	-5.50	-0.01	1.85
		Diagonal	Max Tension	26	3.90	0.00	0.00
			Max. Compression	26	-3.89	0.00	0.00
			Max. Mx	29	2.61	-0.00	-0.00
			Max. My	31	-3.46	-0.00	0.00
			Max. Vy	29	0.01	-0.00	-0.00
			Max. Vx	31	-0.00	-0.00	0.00
		Top Girt	Max Tension	19	0.83	0.00	0.00
			Max. Compression	22	-0.83	0.00	0.00
			Max. Mx	18	-0.00	0.01	0.00
			Max. My	19	-0.44	0.00	0.00
			Max. Vy	18	-0.01	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
		Bottom Girt	Max Tension	30	0.37	0.00	0.00
			Max. Compression	22	-0.47	0.00	0.00
			Max. Mx	18	-0.03	0.01	0.00
			Max. My	19	-0.26	0.00	-0.00
			Max. Vy	18	-0.01	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	19	0.00	0.00	0.00
T3	100 - 80	Leg	Max Tension	27	84.06	-0.14	-0.03
			Max. Compression	30	-93.77	0.22	-0.09
			Max. Mx	19	-65.24	1.85	0.01
			Max. My	20	-3.46	-0.05	1.25
			Max. Vy	27	-1.22	-1.82	0.01
			Max. Vx	26	-0.98	0.10	-0.68
		Diagonal	Max Tension	20	4.86	0.00	0.00
			Max. Compression	20	-4.89	0.00	0.00
			Max. Mx	30	3.49	0.02	-0.00
			Max. My	20	-4.47	-0.00	0.01
			Max. Vy	32	0.01	0.02	0.00
			Max. Vx	20	-0.00	0.00	0.00
T4	80 - 60	Leg	Max Tension	27	112.95	-0.21	-0.03
			Max. Compression	30	-126.00	0.20	-0.02
			Max. Mx	27	94.34	-0.32	-0.03
			Max. My	26	-9.97	0.04	-0.33
			Max. Vy	27	-0.06	-0.32	-0.03
			Max. Vx	26	-0.08	0.04	-0.33
		Diagonal	Max Tension	20	4.57	0.00	0.00
			Max. Compression	20	-4.65	0.00	0.00
			Max. Mx	30	3.71	0.03	0.00
			Max. My	20	-4.59	-0.00	0.01
			Max. Vy	27	0.02	0.03	-0.00
			Max. Vx	20	-0.00	0.00	0.00
T5	60 - 40	Leg	Max Tension	27	136.32	-0.10	-0.03
			Max. Compression	30	-153.37	0.12	-0.02
			Max. Mx	27	136.11	-0.41	-0.04
			Max. My	26	-16.65	-0.14	-0.29
			Max. Vy	22	0.09	-0.40	0.02
			Max. Vx	26	0.07	-0.14	-0.29
		Diagonal	Max Tension	20	4.44	0.00	0.00
			Max. Compression	20	-4.50	0.00	0.00
			Max. Mx	27	3.14	0.03	-0.00
			Max. My	19	-4.15	0.01	0.01
			Max. Vy	27	0.02	0.03	-0.00
			Max. Vx	19	-0.00	0.00	0.00
T6	40 - 20	Leg	Max Tension	27	156.88	-0.62	-0.03
			Max. Compression	30	-177.50	0.84	-0.01
			Max. Mx	24	-174.17	0.85	0.01
			Max. My	26	-16.96	-0.14	-0.29
			Max. Vy	22	-0.21	-0.62	0.01
			Max. Vx	26	-0.07	-0.14	-0.29
		Diagonal	Max Tension	20	4.70	0.00	0.00
			Max. Compression	20	-5.03	0.00	0.00
			Max. Mx	27	2.66	0.05	-0.01
			Max. My	19	-4.71	0.03	0.01
			Max. Vy	27	0.03	0.05	-0.01
			Max. Vx	19	-0.00	0.00	0.00
T7	20 - 0	Leg	Max Tension	27	173.30	0.98	-0.02
			Max. Compression	30	-201.54	-0.00	0.00
			Max. Mx	24	-188.79	1.44	0.02
			Max. My	26	-23.29	1.21	-0.48
			Max. Vy	22	-0.39	-1.32	0.01
			Max. Vx	26	-0.12	1.21	-0.48
		Diagonal	Max Tension	20	6.02	0.00	0.00
			Max. Compression	20	-5.77	0.00	0.00
			Max. Mx	27	2.02	0.08	-0.01
			Max. My	19	-5.39	0.05	0.01
			Max. Vy	27	0.03	0.08	-0.01
			Max. Vx	19	-0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	30	203.77	12.58	-7.52
	Max. H_x	30	203.77	12.58	-7.52
	Max. H_z	21	-158.92	-13.59	8.75
	Min. Vert	22	-164.54	-14.27	8.49
	Min. H_x	22	-164.54	-14.27	8.49
	Min. H_z	30	203.77	12.58	-7.52
Leg B	Max. Vert	24	200.26	-12.82	-7.00
	Max. H_x	32	-175.10	14.98	8.37
	Max. H_z	33	-169.89	14.46	8.40
	Min. Vert	32	-175.10	14.98	8.37
	Min. H_x	24	200.26	-12.82	-7.00
	Min. H_z	24	200.26	-12.82	-7.00
Leg A	Max. Vert	19	201.03	-0.57	14.63
	Max. H_x	30	-85.33	1.62	-9.70
	Max. H_z	19	201.03	-0.57	14.63
	Min. Vert	27	-177.01	0.46	-17.36
	Min. H_x	22	102.11	-1.58	6.22
	Min. H_z	27	-177.01	0.46	-17.36

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	26.93	0.00	0.00	4.46	10.53	0.00
Dead+Wind 0 deg - No Ice	26.93	-1.09	-21.77	-1849.36	130.13	-11.32
Dead+Wind 30 deg - No Ice	26.93	10.18	-17.72	-1509.57	-858.06	-8.84
Dead+Wind 45 deg - No Ice	26.93	14.48	-14.19	-1206.13	-1232.21	-6.69
Dead+Wind 60 deg - No Ice	26.93	17.46	-10.16	-867.88	-1488.22	-3.65
Dead+Wind 90 deg - No Ice	26.93	20.24	0.02	6.18	-1717.87	2.53
Dead+Wind 120 deg - No Ice	26.93	18.06	12.21	1066.61	-1513.45	8.13
Dead+Wind 135 deg - No Ice	26.93	14.07	15.92	1394.44	-1190.47	9.16
Dead+Wind 150 deg - No Ice	26.93	9.91	19.00	1651.62	-831.83	9.84
Dead+Wind 180 deg - No Ice	26.93	0.13	21.30	1850.53	-3.58	8.71
Dead+Wind 210 deg - No Ice	26.93	-9.66	18.66	1613.95	826.33	5.80
Dead+Wind 225 deg - No Ice	26.93	-14.46	15.25	1321.11	1255.63	3.77
Dead+Wind 240 deg - No Ice	26.93	-18.60	11.27	963.26	1594.70	3.19
Dead+Wind 270 deg - No Ice	26.93	-20.63	-0.68	-70.05	1782.07	-0.39
Dead+Wind 300 deg - No Ice	26.93	-18.06	-10.65	-921.81	1574.49	-5.05
Dead+Wind 315 deg - No Ice	26.93	-15.12	-14.68	-1259.73	1324.31	-7.23
Dead+Wind 330 deg - No Ice	26.93	-11.15	-18.10	-1550.64	986.05	-8.93
Dead+Ice+Temp	38.25	0.00	0.00	9.77	24.28	-0.00
Dead+Wind 0 deg+Ice+Temp	38.25	-1.12	-26.64	-2282.78	147.34	-14.33
Dead+Wind 30 deg+Ice+Temp	38.25	12.64	-21.99	-1885.59	-1064.27	-11.50
Dead+Wind 45 deg+Ice+Temp	38.25	17.97	-17.68	-1511.95	-1530.48	-8.86
Dead+Wind 60 deg+Ice+Temp	38.25	21.75	-12.64	-1083.44	-1856.61	-5.17
Dead+Wind 90 deg+Ice+Temp	38.25	25.16	0.02	11.58	-2143.73	2.56

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 120 deg+Ice+Temp	38.25	22.25	14.69	1295.53	-1877.15	9.64
Dead+Wind 135 deg+Ice+Temp	38.25	17.55	19.46	1716.39	-1487.46	11.38
Dead+Wind 150 deg+Ice+Temp	38.25	12.36	23.31	2042.34	-1037.20	12.51
Dead+Wind 180 deg+Ice+Temp	38.25	0.13	26.28	2300.74	9.78	11.75
Dead+Wind 210 deg+Ice+Temp	38.25	-12.11	22.95	2003.57	1058.47	8.37
Dead+Wind 225 deg+Ice+Temp	38.25	-17.95	18.77	1640.94	1581.40	5.85
Dead+Wind 240 deg+Ice+Temp	38.25	-22.81	13.72	1189.19	1987.64	4.69
Dead+Wind 270 deg+Ice+Temp	38.25	-25.56	-0.70	-66.87	2236.71	-0.37
Dead+Wind 300 deg+Ice+Temp	38.25	-22.36	-13.15	-1138.94	1972.32	-6.58
Dead+Wind 315 deg+Ice+Temp	38.25	-18.64	-18.18	-1567.11	1652.20	-9.39
Dead+Wind 330 deg+Ice+Temp	38.25	-13.64	-22.38	-1927.84	1222.90	-11.57
Dead+Wind 0 deg - Service	26.93	-1.09	-21.77	-1849.36	130.13	-11.32
Dead+Wind 30 deg - Service	26.93	10.18	-17.72	-1509.57	-858.06	-8.84
Dead+Wind 45 deg - Service	26.93	14.48	-14.19	-1206.13	-1232.21	-6.69
Dead+Wind 60 deg - Service	26.93	17.46	-10.16	-867.88	-1488.22	-3.65
Dead+Wind 90 deg - Service	26.93	20.24	0.02	6.18	-1717.87	2.53
Dead+Wind 120 deg - Service	26.93	18.06	12.21	1066.61	-1513.45	8.13
Dead+Wind 135 deg - Service	26.93	14.07	15.92	1394.44	-1190.47	9.16
Dead+Wind 150 deg - Service	26.93	9.91	19.00	1651.62	-831.83	9.84
Dead+Wind 180 deg - Service	26.93	0.13	21.30	1850.53	-3.58	8.71
Dead+Wind 210 deg - Service	26.93	-9.66	18.66	1613.95	826.33	5.80
Dead+Wind 225 deg - Service	26.93	-14.46	15.25	1321.11	1255.63	3.77
Dead+Wind 240 deg - Service	26.93	-18.60	11.27	963.26	1594.70	3.19
Dead+Wind 270 deg - Service	26.93	-20.63	-0.68	-70.05	1782.07	-0.39
Dead+Wind 300 deg - Service	26.93	-18.06	-10.65	-921.81	1574.49	-5.05
Dead+Wind 315 deg - Service	26.93	-15.12	-14.68	-1259.73	1324.31	-7.23
Dead+Wind 330 deg - Service	26.93	-11.15	-18.10	-1550.64	986.05	-8.93

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-26.93	0.00	0.00	26.93	0.00	0.000%
2	-1.09	-26.93	-21.77	1.09	26.93	21.77	0.000%
3	10.18	-26.93	-17.72	-10.18	26.93	17.72	0.000%
4	14.48	-26.93	-14.19	-14.48	26.93	14.19	0.000%
5	17.46	-26.93	-10.16	-17.46	26.93	10.16	0.000%
6	20.24	-26.93	0.02	-20.24	26.93	-0.02	0.000%
7	18.06	-26.93	12.21	-18.06	26.93	-12.21	0.000%
8	14.07	-26.93	15.92	-14.07	26.93	-15.92	0.000%
9	9.91	-26.93	19.00	-9.91	26.93	-19.00	0.000%
10	0.13	-26.93	21.30	-0.13	26.93	-21.30	0.000%
11	-9.66	-26.93	18.66	9.66	26.93	-18.66	0.000%
12	-14.46	-26.93	15.25	14.46	26.93	-15.25	0.000%
13	-18.60	-26.93	11.27	18.60	26.93	-11.27	0.000%
14	-20.63	-26.93	-0.68	20.63	26.93	0.68	0.000%
15	-18.06	-26.93	-10.65	18.06	26.93	10.65	0.000%
16	-15.12	-26.93	-14.68	15.12	26.93	14.68	0.000%
17	-11.15	-26.93	-18.10	11.15	26.93	18.10	0.000%
18	0.00	-38.25	0.00	0.00	38.25	0.00	0.000%
19	-1.12	-38.25	-26.64	1.12	38.25	26.64	0.000%
20	12.64	-38.25	-21.99	-12.64	38.25	21.99	0.000%
21	17.97	-38.25	-17.68	-17.97	38.25	17.68	0.000%
22	21.75	-38.25	-12.64	-21.75	38.25	12.64	0.000%
23	25.16	-38.25	0.02	-25.16	38.25	-0.02	0.000%
24	22.25	-38.25	14.69	-22.25	38.25	-14.69	0.000%
25	17.55	-38.25	19.46	-17.55	38.25	-19.46	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
26	12.36	-38.25	23.31	-12.36	38.25	-23.31	0.000%
27	0.13	-38.25	26.28	-0.13	38.25	-26.28	0.000%
28	-12.11	-38.25	22.95	12.11	38.25	-22.95	0.000%
29	-17.95	-38.25	18.77	17.95	38.25	-18.77	0.000%
30	-22.81	-38.25	13.72	22.81	38.25	-13.72	0.000%
31	-25.56	-38.25	-0.70	25.56	38.25	0.70	0.000%
32	-22.36	-38.25	-13.15	22.36	38.25	13.15	0.000%
33	-18.64	-38.25	-18.18	18.64	38.25	18.18	0.000%
34	-13.64	-38.25	-22.38	13.64	38.25	22.38	0.000%
35	-1.09	-26.93	-21.77	1.09	26.93	21.77	0.000%
36	10.18	-26.93	-17.72	-10.18	26.93	17.72	0.000%
37	14.48	-26.93	-14.19	-14.48	26.93	14.19	0.000%
38	17.46	-26.93	-10.16	-17.46	26.93	10.16	0.000%
39	20.24	-26.93	0.02	-20.24	26.93	-0.02	0.000%
40	18.06	-26.93	12.21	-18.06	26.93	-12.21	0.000%
41	14.07	-26.93	15.92	-14.07	26.93	-15.92	0.000%
42	9.91	-26.93	19.00	-9.91	26.93	-19.00	0.000%
43	0.13	-26.93	21.30	-0.13	26.93	-21.30	0.000%
44	-9.66	-26.93	18.66	9.66	26.93	-18.66	0.000%
45	-14.46	-26.93	15.25	14.46	26.93	-15.25	0.000%
46	-18.60	-26.93	11.27	18.60	26.93	-11.27	0.000%
47	-20.63	-26.93	-0.68	20.63	26.93	0.68	0.000%
48	-18.06	-26.93	-10.65	18.06	26.93	10.65	0.000%
49	-15.12	-26.93	-14.68	15.12	26.93	14.68	0.000%
50	-11.15	-26.93	-18.10	11.15	26.93	18.10	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000001
3	Yes	4	0.00000001	0.00000001
4	Yes	4	0.00000001	0.00000001
5	Yes	4	0.00000001	0.00000001
6	Yes	4	0.00000001	0.00000001
7	Yes	4	0.00000001	0.00000001
8	Yes	4	0.00000001	0.00000001
9	Yes	4	0.00000001	0.00000001
10	Yes	4	0.00000001	0.00000001
11	Yes	4	0.00000001	0.00000001
12	Yes	4	0.00000001	0.00000001
13	Yes	4	0.00000001	0.00000001
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00000001
16	Yes	4	0.00000001	0.00000001
17	Yes	4	0.00000001	0.00000001
18	Yes	4	0.00000001	0.00000001
19	Yes	4	0.00000001	0.00000001
20	Yes	4	0.00000001	0.00000001
21	Yes	4	0.00000001	0.00000001
22	Yes	4	0.00000001	0.00000001
23	Yes	4	0.00000001	0.00000001
24	Yes	4	0.00000001	0.00000001
25	Yes	4	0.00000001	0.00000001
26	Yes	4	0.00000001	0.00000001

27	Yes	4	0.00000001	0.00000001
28	Yes	4	0.00000001	0.00000001
29	Yes	4	0.00000001	0.00000001
30	Yes	4	0.00000001	0.00000001
31	Yes	4	0.00000001	0.00000001
32	Yes	4	0.00000001	0.00000001
33	Yes	4	0.00000001	0.00000001
34	Yes	4	0.00000001	0.00000001
35	Yes	4	0.00000001	0.00000001
36	Yes	4	0.00000001	0.00000001
37	Yes	4	0.00000001	0.00000001
38	Yes	4	0.00000001	0.00000001
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00000001
41	Yes	4	0.00000001	0.00000001
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00000001
44	Yes	4	0.00000001	0.00000001
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00000001
47	Yes	4	0.00000001	0.00000001
48	Yes	4	0.00000001	0.00000001
49	Yes	4	0.00000001	0.00000001
50	Yes	4	0.00000001	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	140 - 120	6.415	43	0.4205	0.0828
T2	120 - 100	4.658	43	0.3771	0.0750
T3	100 - 80	3.141	46	0.2932	0.0623
T4	80 - 60	1.983	46	0.2252	0.0503
T5	60 - 40	1.115	46	0.1583	0.0369
T6	40 - 20	0.513	46	0.0986	0.0230
T7	20 - 0	0.159	40	0.0457	0.0121

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
140.00	1142-2C	43	6.415	0.4205	0.0828	72644
138.00	Pirod 12' T-Frame Sector Mount (1)	43	6.235	0.4174	0.0821	72644
110.00	6 FT DISH	46	3.857	0.3368	0.0690	14428
98.00	Pirod 12' T-Frame Sector Mount (1)	46	3.009	0.2853	0.0611	12282
95.00	RRUS-11	46	2.819	0.2742	0.0592	12900
82.00	PL4-107	46	2.084	0.2316	0.0515	16857

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	140 - 120	8.070	30	0.5338	0.1047
T2	120 - 100	5.839	30	0.4773	0.0954
T3	100 - 80	3.921	30	0.3687	0.0797
T4	80 - 60	2.469	30	0.2821	0.0641
T5	60 - 40	1.385	30	0.1981	0.0470
T6	40 - 20	0.635	30	0.1231	0.0293
T7	20 - 0	0.195	30	0.0570	0.0153

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
140.00	1142-2C	30	8.070	0.5338	0.1047	56300
138.00	Pirod 12' T-Frame Sector Mount (1)	30	7.842	0.5297	0.1039	56300
110.00	6 FT DISH	30	4.825	0.4251	0.0880	11057
98.00	Pirod 12' T-Frame Sector Mount (1)	30	3.755	0.3586	0.0781	9443
95.00	RRUS-11	30	3.516	0.3444	0.0757	9957
82.00	PL4-107	30	2.595	0.2902	0.0657	13365

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	140	Diagonal	A325N	0.7500	1	2.58	9.28	0.278 ✓	1.333	Bolt Shear
T2	120	Diagonal	A325N	0.7500	1	3.90	9.28	0.420 ✓	1.333	Bolt Shear
T3	100	Leg	A325N	0.7500	4	15.24	19.43	0.785 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.7500	1	4.86	8.16	0.596 ✓	1.333	Member Bearing
T4	80	Leg	A325N	1.1250	6	15.72	43.74	0.359 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.7500	1	4.57	6.12	0.747 ✓	1.333	Member Bearing
T5	60	Leg	A325N	1.1250	6	20.21	43.74	0.462 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.7500	1	4.44	6.12	0.726 ✓	1.333	Member Bearing
T6	40	Leg	A325N	1.2500	6	23.93	54.00	0.443 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.7500	1	4.70	8.16	0.576 ✓	1.333	Member Bearing
T7	20	Leg	A325N	1.2500	6	27.02	54.00	0.500 ✓	1.333	Bolt Tension
		Diagonal	A325N	0.7500	1	6.02	6.12	0.984 ✓	1.333	Member Bearing

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	140 - 120	1 3/4	20.00	3.21	88.0 K=1.00	17.365	2.4053	-23.64	41.77	0.566 ✔
T2	120 - 100	2 1/2	20.00	3.21	61.6 K=1.00	22.442	4.9087	-60.76	110.16	0.551 ✔
T3	100 - 80	3 1/2	20.03	6.68	91.6 K=1.00	16.602	9.6211	-93.77	159.73	0.587 ✔
T4	80 - 60	3 3/4	20.03	6.68	85.4 K=1.00	17.901	11.0447	-126.00	197.71	0.637 ✔
T5	60 - 40	4	20.03	6.68	80.1 K=1.00	18.991	12.5664	-153.37	238.65	0.643 ✔
T6	40 - 20	4 1/4	20.03	6.68	75.4 K=1.00	19.917	14.1863	-177.50	282.55	0.628 ✔
T7	20 - 0	4 1/2	20.03	6.68	71.2 K=1.00	20.713	15.9043	-201.54	329.43	0.612 ✔

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	140 - 120	3/4	5.94	2.88	166.1 K=0.90	5.412	0.4418	-2.58	2.39	1.079 ✔
T2	120 - 100	7/8	5.94	2.85	140.5 K=0.90	7.560	0.6013	-3.89	4.55	0.856 ✔
T3	100 - 80	L2x2x1/4	9.31	4.53	138.9 K=1.00	7.736	0.9380	-4.59	7.26	0.633 ✔
T4	80 - 60	L2 1/2x2 1/2x3/16	10.65	5.18	125.6 K=1.00	9.468	0.9020	-4.48	8.54	0.525 ✔
T5	60 - 40	L2 1/2x2 1/2x3/16	12.10	5.90	142.9 K=1.00	7.309	0.9020	-4.38	6.59	0.664 ✔
T6	40 - 20	L2 1/2x2 1/2x1/4	13.64	6.65	162.6 K=1.00	5.646	1.1900	-5.03	6.72	0.748 ✔
T7	20 - 0	L3x3x3/16	14.70	7.17	144.4 K=1.00	7.157	1.0900	-5.77	7.80	0.740 ✔

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	140 - 120	3/4	5.00	4.85	217.5 K=0.70	3.158	0.4418	-0.08	1.40	0.060 ✔
T2	120 - 100	KL/R > 200 (C) - 4 7/8	5.00	4.79	184.0	4.411	0.6013	-0.83	2.65	0.312

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
					K=0.70					✔

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	140 - 120	3/4	5.00	4.85	217.5 K=0.70	3.158	0.4418	-0.91	1.40	0.655 ✔
T2	120 - 100	KL/R > 200 (C) - 8 7/8	5.00	4.79	184.0 K=0.70	4.411	0.6013	-0.47	2.65	0.177 ✔

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	140 - 120	1 3/4	20.00	3.21	88.0	30.000	2.4053	20.67	72.16	0.286 ✔
T2	120 - 100	2 1/2	20.00	3.21	61.6	30.000	4.9087	55.91	147.26	0.380 ✔
T3	100 - 80	3 1/2	20.03	6.68	91.6	30.000	9.6211	84.06	288.63	0.291 ✔
T4	80 - 60	3 3/4	20.03	6.68	85.4	30.000	11.0447	112.95	331.34	0.341 ✔
T5	60 - 40	4	20.03	6.68	80.1	30.000	12.5664	136.32	376.99	0.362 ✔
T6	40 - 20	4 1/4	20.03	6.68	75.4	30.000	14.1863	156.88	425.59	0.369 ✔
T7	20 - 0	4 1/2	20.03	6.68	71.2	30.000	15.9043	173.29	477.13	0.363 ✔

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	140 - 120	3/4	5.94	2.88	184.6	21.600	0.4418	2.58	9.54	0.270 ✔
T2	120 - 100	7/8	5.94	2.85	156.2	21.600	0.6013	3.90	12.99	0.300

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T3	100 - 80	L2x2x1/4	8.90	4.33	88.1	21.600	0.9380	4.86	20.26	0.240 ✔
T4	80 - 60	L2 1/2x2 1/2x3/16	9.74	4.74	75.2	21.600	0.9020	4.57	19.48	0.234 ✔
T5	60 - 40	L2 1/2x2 1/2x3/16	12.10	5.90	93.0	21.600	0.9020	4.44	19.48	0.228 ✔
T6	40 - 20	L2 1/2x2 1/2x1/4	13.12	6.40	101.9	21.600	1.1900	4.70	25.70	0.183 ✔
T7	20 - 0	L3x3x3/16	15.24	7.44	96.8	21.600	1.0900	6.02	23.54	0.256 ✔

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	140 - 120	3/4	5.00	4.85	310.7	21.600	0.4418	0.07	9.54	0.008 ✔
T2	120 - 100	7/8	5.00	4.79	262.9	21.600	0.6013	0.83	12.99	0.064 ✔

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	140 - 120	3/4	5.00	4.85	310.7	21.600	0.4418	0.92	9.54	0.096 ✔
T2	120 - 100	7/8	5.00	4.79	262.9	21.600	0.6013	0.37	12.99	0.028 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T1	140 - 120	Leg	1 3/4	1	-23.64	55.68	42.5	Pass
T2	120 - 100	Leg	2 1/2	46	-60.76	146.85	41.4	Pass
T3	100 - 80	Leg	3 1/2	91	-93.77	212.92	44.0 58.9 (b)	Pass
T4	80 - 60	Leg	3 3/4	112	-126.00	263.55	47.8	Pass
T5	60 - 40	Leg	4	133	-153.37	318.12	48.2	Pass
T6	40 - 20	Leg	4 1/4	154	-177.50	376.64	47.1	Pass
T7	20 - 0	Leg	4 1/2	175	-201.54	439.13	45.9	Pass
T1	140 - 120	Diagonal	3/4	15	-2.58	3.19	80.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T2	120 - 100	Diagonal	7/8	57	-3.89	6.06	64.2	Pass
T3	100 - 80	Diagonal	L2x2x1/4	98	-4.59	9.67	47.5	Pass
T4	80 - 60	Diagonal	L2 1/2x2 1/2x3/16	119	-4.48	11.38	39.4	Pass
							56.0 (b)	
T5	60 - 40	Diagonal	L2 1/2x2 1/2x3/16	140	-4.38	8.79	49.8	Pass
							54.5 (b)	
T6	40 - 20	Diagonal	L2 1/2x2 1/2x1/4	161	-5.03	8.96	56.1	Pass
T7	20 - 0	Diagonal	L3x3x3/16	188	-5.77	10.40	55.5	Pass
							73.8 (b)	
T1	140 - 120	Top Girt	3/4	4	-0.08	1.86	4.5	Pass
T2	120 - 100	Top Girt	7/8	50	-0.83	3.54	23.4	Pass
T1	140 - 120	Bottom Girt	3/4	8	-0.91	1.86	49.2	Pass
T2	120 - 100	Bottom Girt	7/8	53	-0.47	3.54	13.3	Pass
							Summary	
						Leg (T3)	58.9	Pass
						Diagonal (T1)	80.9	Pass
						Top Girt (T2)	23.4	Pass
						Bottom Girt (T1)	49.2	Pass
						Bolt Checks	73.8	Pass
						RATING =	**80.9**	**Pass**

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Subject:	Anchor Bolt Analysis
Location:	Cheshire, CT
Rev. 0: 6/29/16	Prepared by: T.J.L. Checked by: C.F.C. Job No. 16071.10

Tower Anchor Bolt Analysis

Max Leg Reactions:

Uplift = $Uplift := 177 \cdot kips$ (User Input)

Shear = $Shear := 17 \cdot kips$ (User Input)

Compression = $Compression := 204 \cdot kips$ (User Input)

Anchor Bolt Data:

Use ASTM A449 (Per Central Tower Drawing CT2397-1)

Number of Anchor Bolts = $N := 6$ (User Input)

Bolt Ultimate Strength = $F_u := 105ksi$ (User Input)

Bolt Yield Strength = $F_y := 81ksi$ (User Input)

Diameter of Bolts = $D := 1.25in$ (User Input)

Threads per Inch = $n := 7$ (User Input)

Coefficient of Friction = $\mu := 0.5$ (User Input)

Anchor Bolt Area:

Net Area of Bolt = $A_n := \frac{\pi}{4} \cdot \left(D - \frac{0.974 \cdot in}{n} \right)^2 = 0.969 \cdot in^2$ (ASCE 10-97 Eq. 7.4-3)

Check Anchor Bolt Area:

Based on the ASCE 10-97 Design of Latticed Steel Transmission Structures

Required Area = $A_{s1} := \frac{Uplift}{F_y} + \frac{Shear}{\mu \cdot .85 \cdot F_y} = 2.7 \cdot in^2$ (ASCE 10-97 Eq. 7.4-2)

$A_{s2} := \left[\frac{Shear - (0.3 \cdot Compression)}{\mu \cdot .85 \cdot F_y} \right] = -1.284 \cdot in^2$ (ASCE 10-97 Eq. 7.4-4)

Provided Area = $A_{sprovided} := A_n \cdot N = 5.8 \cdot in^2$

$Condition1 := if\left(\frac{A_{s1}}{A_{sprovided}} \le 1.00, "OK", "Overstressed" \right)$

Condition1 = "OK"

$Condition2 := if\left(\frac{A_{s2}}{A_{sprovided}} \le 1.00, "OK", "Overstressed" \right)$

Condition2 = "OK"

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Subject:	FOUNDATION ANALYSIS
Location:	Cheshire, CT
Rev. 0: 6/29/16	Prepared by: T.J.L. Checked by: C.F.C. Job No. 16071.10

Mat Foundation Analysis:

Input Data:

Tower Data

Overturning Moment =	$OM := 2316 \cdot ft \cdot kips$	(User Input from tnxTower)	
Shear Force =	$S_t := 27 \cdot kip$	(User Input from tnxTower)	
Axial Force =	$WT_t := 38 \cdot kip$	(User Input from tnxTower)	
Max Compression Force =	$C_t := 204 \cdot kip$	(User Input from tnxTower)	
Max Uplift Force =	$U_t := 177 \cdot kip$	(User Input from tnxTower)	
Tower Height =	$H_t := 140 \cdot ft$	(User Input)	
Tower Width =	$W_t := 14 \cdot ft$	(User Input)	
Tower Position on Foundation (1=offset, 2=centered) =	$Pos_t := 1$	(User Input)	

Footing Data:

Overall Depth of Footing =	$D_f := 7.0 \cdot ft$	(User Input)	
Thickness of Footing =	$T_f := 2.5 \cdot ft$	(User Input)	
Width of Footing =	$W_f := 30 \cdot ft$	(User Input)	
Length of Pier =	$L_p := 5.0 \cdot ft$	(User Input)	
Extension of Pier Above Grade =	$L_{pag} := 0.5 \cdot ft$	(User Input)	
Diameter of Pier =	$d_p := 4.0 \cdot ft$	(User Input)	

Material Properties:

Concrete Compressive Strength =	$f_c := 4000 \cdot psi$	(User Input)	
Steel Reinforcment Yield Strength =	$f_y := 60000 \cdot psi$	(User Input)	
Internal Friction Angle of Soil =	$\Phi_s := 34 \cdot deg$	(User Input)	
Allowable Soil Bearing Capacity =	$q_s := 3000 \cdot psf$	(User Input)	
Unit Weight of Soil =	$\gamma_{soil} := 125 \cdot pcf$	(User Input)	
Unit Weight of Concrete =	$\gamma_{conc} := 150 \cdot pcf$	(User Input)	
Foundation Bouyancy =	$Bouyancy := 1$	(User Input)	(Yes=1 / No=0)
Depth to Neglect =	$n := 0 \cdot ft$	(User Input)	
Cohesion of Clay Type Soil =	$c := 0 \cdot ksf$	(User Input)	(Use 0 for Sandy Soil)
Seismic Zone Factor =	$Z := 2$	(User Input)	(UBC-1997 Fig 23-2)
Coefficient of Friction Between Concrete =	$\mu := 0.45$	(User Input)	

Pier Reinforcement:

Bar Size =	$BS_{pier} := 7$	(User Input)	
Bar Diameter =	$d_{bpier} := 0.875 \cdot in$	(User Input)	
Number of Bars =	$NB_{pier} := 26$	(User Input)	
Clear Cover of Reinforcement =	$Cvr_{pier} := 3.0 \cdot in$	(User Input)	
Reinforcement Location Factor =	$\alpha_{pier} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Coating Factor =	$\beta_{pier} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Concrete Strength Factor =	$\lambda_{pier} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Reinforcement Size Factor =	$\gamma_{pier} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Diameter of Tie =	$d_{Tie} := 3 \cdot in$	(User Input)	

Pad Reinforcement:

Bar Size =	$BS_{top} := 10$	(User Input)	(Top of Pad)
Bar Diameter =	$d_{btop} := 1.27 \cdot in$	(User Input)	(Top of Pad)
Number of Bars =	$NB_{top} := 29$	(User Input)	(Top of Pad)
Bar Size =	$BS_{bot} := 10$	(User Input)	(Bottom of Pad)
Bar Diameter =	$d_{bbot} := 1.27 \cdot in$	(User Input)	(Bottom of Pad)
Number of Bars =	$NB_{bot} := 29$	(User Input)	(Bottom of Pad)
Clear Cover of Reinforcement =	$Cvr_{pad} := 3.0 \cdot in$	(User Input)	
Reinforcement Location Factor =	$\alpha_{pad} := 1.3$	(User Input)	(ACI-2008 12.2.4)
Coating Factor =	$\beta_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Concrete Strength Factor =	$\lambda_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)
Reinforcement Size Factor =	$\gamma_{pad} := 1.0$	(User Input)	(ACI-2008 12.2.4)

Calculated Factors:

Pier Reinforcement Bar Area =

$$A_{bpier} := \frac{\pi \cdot d_{bpier}^2}{4} = 0.601 \cdot in^2$$

Pad Top Reinforcement Bar Area =

$$A_{btop} := \frac{\pi \cdot d_{btop}^2}{4} = 1.267 \cdot in^2$$

Pad Bottom Reinforcement Bar Area =

$$A_{bbot} := \frac{\pi \cdot d_{bbot}^2}{4} = 1.267 \cdot in^2$$

Coefficient of Lateral Soil Pressure =

$$K_p := \frac{1 + \sin(\Phi_s)}{1 - \sin(\Phi_s)} = 3.537$$

Load Factor =

$$LF := \begin{cases} 1.333 & \text{if } H_t \le 700 \cdot ft \\ 1.7 & \text{if } H_t \ge 1200 \cdot ft \\ 1.333 + \left(\frac{H_t - 700ft}{1200ft - 700ft} \right) \cdot 0.4 & \text{otherwise} \end{cases} = 1.333$$

Stability of Footing:

Adjusted Concrete Unit Weight = $\gamma_c := if(Bouyancy = 1, \gamma_{conc} - 62.4pcf, \gamma_{conc}) = 87.6 \cdot pcf$

Adjusted Soil Unit Weight = $\gamma_s := if(Bouyancy = 1, \gamma_{soil} - 62.4pcf, \gamma_{soil}) = 62.6 \cdot pcf$

Passive Pressure = $P_{pn} := K_p \cdot \gamma_s \cdot n + c \cdot 2 \cdot \sqrt{K_p} = 0 \cdot ksf$

$P_{pt} := K_p \cdot \gamma_s \cdot (D_f - T_f) + c \cdot 2 \cdot \sqrt{K_p} = 0.996 \cdot ksf$

$P_{top} := if[n < (D_f - T_f), P_{pt}, P_{pn}] = 0.996 \cdot ksf$

$P_{bot} := K_p \cdot \gamma_s \cdot D_f + c \cdot 2 \cdot \sqrt{K_p} = 1.55 \cdot ksf$

$P_{ave} := \frac{P_{top} + P_{bot}}{2} = 1.273 \cdot ksf$

$T_p := if[n < (D_f - T_f), T_f, (D_f - n)] = 2.5$

$A_p := W_f \cdot T_p = 75$

Ultimate Shear = $S_u := P_{ave} \cdot A_p = 95.489 \cdot kip$

Weight of Concrete Pad = $WT_{pad} := \left(W_f^2 \cdot T_f\right) \cdot \gamma_c = 197.1 \cdot kip$

Weight of Concrete Piers = $WT_{pier} := 3 \cdot \left[\left(L_p \cdot \frac{d_p^2 \cdot \pi}{4}\right) \cdot \gamma_c\right] = 16.512 \cdot kip$

Total Weight of Concrete = $WT_c := WT_{pad} + WT_{pier} = 214 \cdot kip$

Weight of Soil Above Footing = $WT_{s1} := \left(W_f^2 - 3 \cdot \frac{d_p^2 \cdot \pi}{4}\right) \cdot (L_p - L_{pag}) \cdot \gamma_s = 243 \cdot kip$

Weight of Soil Back Face = $WT_{s2} := \left[\frac{\tan(\Phi_s) \cdot (D_f)^2}{2} \cdot W_f\right] \cdot \gamma_s = 31 \cdot kip$

Tower Offset = $X_{t1} := \left[\frac{W_f}{2} - \frac{(W_t \cdot \cos(30 \cdot deg))}{2}\right]$ $X_{t2} := \frac{W_f}{2} - \frac{(W_t \cdot \cos(30 \cdot deg))}{3}$

$X_t := if(Pos_t, X_{t1}, X_{t2}) = 8.938$

$X_{off} := \frac{W_f}{2} - \left[\frac{(W_t \cdot \cos(30 \cdot deg))}{3} + X_t\right] = 2.021$

Resisting Moment = $M_r := (WT_c + WT_{s1}) \cdot \frac{W_f}{2} + S_u \cdot \frac{T_f}{3} + WT_{s2} \cdot \left[W_f + \frac{\tan(\Phi_s) \cdot (L_p - L_{pag})}{3}\right] = 7890 \cdot kip$

Overturning Moment = $M_{ot} := OM + S_t \cdot (L_p + T_f) = 2518.5 \cdot kip \cdot ft$

Factor of Safety Actual = $FS := \frac{M_r}{M_{ot}} = 3.13$

Factor of Safety Required = $FS_{req} := 2$

$OverTurning\_Moment\_Check := if(FS \geq FS_{req}, "Okay", "No Good")$

$OverTurning\_Moment\_Check = "Okay"$

Bearing Pressure Caused by Footing:

Total Load = $Load_{tot} := WT_c + WT_{s1} + WT_t = 495 \cdot kip$

Area of the Mat = $A_{mat} := W_f^{\,2} = 900$

Section Modulus of Mat = $S := \frac{W_f^{\,3}}{6} = 4500 \cdot ft^3$

Maximum Pressure in Mat = $P_{max} := \frac{Load_{tot}}{A_{mat}} + \frac{M_{ot}}{S} = 1.109 \cdot ksf$

$Max\_Pressure\_Check := if(P_{max} < q_s, "Okay", "No Good")$

Max_Pressure_Check = "Okay"

Minimum Pressure in Mat = $P_{min} := \frac{Load_{tot}}{A_{mat}} - \frac{M_{ot}}{S} = -0.01 \cdot ksf$

$Min\_Pressure\_Check := if[(P_{min} \geq 0) \cdot (P_{min} < q_s), "Okay", "No Good"]$

Min_Pressure_Check = "No Good"

Distance to Resultant of Pressure Distribution = $X_p := \frac{P_{max}}{\frac{P_{max} - P_{min}}{W_f}} \cdot \frac{1}{3} = 9.909$

Distance to Kern = $X_k := \frac{W_f}{6} = 5$

Since Resultant Force is Not in Kern, Area to which Pressure is Applied Must be Reduced.

Eccentricity = $e := \frac{M_{ot}}{Load_{tot}} = 5.093$

Adjusted Soil Pressure = $P_a := \frac{2 \cdot Load_{tot}}{3 \cdot W_f \cdot \left(\frac{W_f}{2} - e\right)} = 1.109 \cdot ksf$

$q_{adj} := if(P_{min} < 0, P_a, P_{max}) = 1.109 \cdot ksf$

$Pressure\_Check := if(q_{adj} < q_s, "Okay", "No Good")$

Pressure_Check = "Okay"

Concrete Bearing Capacity:

Strength Reduction Factor = $\Phi_c := 0.65$ (ACI-2008 9.3.2.2)

Bearing Strength Between Pier and Pad = $P_b := \Phi_c \cdot 0.85 \cdot f_c \cdot \frac{\pi \cdot d_p^{\,2}}{4} = 3.999 \times 10^3 \cdot kips$ (ACI-2008 10.14)

$Bearing\_Check := if(P_b > LF \cdot C_t, "Okay", "No Good")$

Bearing_Check = "Okay"

Shear Strength of Concrete:

Beam Shear: (Critical section located at a distance d from the face of Pier) (ACI 11.3.1.1)

$\phi_c := 0.85$ (ACI 9.3.2.5)

$d := T_f - Cvr_{pad} - \frac{d_{bbot}}{2} = 26.365 \cdot in$

$FL := \frac{C_t}{W_f^2} = 0.2267 \cdot ksf$

$V_{req} := LF \cdot FL \cdot \left(X_t - 0.5 \cdot d_p - d\right) \cdot W_f = 42.972 \cdot kip$

$V_{Avail} := \phi_c \cdot 2 \cdot \sqrt{f_c \cdot psi} \cdot W_f \cdot d = 1020 \cdot kip$ (ACI-2008 11.2.1.1)

$Beam\_Shear\_Check := if\left(V_{req} < V_{Avail}, "Okay", "No Good"\right)$

Beam_Shear_Check = "Okay"

Punching Shear: (Critical Section Located at a distance of d/2 from the face of pier) (ACI 11.11.1.2)

Critical Perimeter of Punching Shear = $b_o := \left(d_p + d\right) \cdot \pi = 19.5$

Required Shear Strength = $V_{req} := LF \cdot FL \cdot \left[W_f^2 - \left(d_p + d\right)^2 \cdot \frac{\pi}{4}\right] = 262.8 \cdot kips$

Available Shear Strength = $V_{Avail} := \phi_c \cdot 4 \cdot \sqrt{f_c \cdot psi} \cdot b_o \cdot d = 1324.5 \cdot kip$ (ACI-2008 11.11.2.1)

$Punching\_Shear\_Check := if\left(V_{req} < V_{Avail}, "Okay", "No Good"\right)$

Punching_Shear_Check = "Okay"

Steel Reinforcement in Pad:

Required Reinforcement for Bending:

Strength Reduction Factor = $\phi_m := .90$ (ACI-2008 9.3.2.1)

$$M_{nT} := LF\cdot\left[U_t\cdot\left(W_t\cdot\sin(60\cdot deg) - \frac{d_p}{2}\right) + S_t\cdot\left(D_f + L_{pag}\right)\right] - WT_t\cdot X_{off} = 2582\cdot ft\cdot k$$

$$M_{nS} := -1\cdot\left[\frac{1}{2}\cdot\left(\frac{W_f}{2} + \frac{W_t}{3}\cdot\cos(30\cdot deg) - \frac{d_p}{2}\right)^2\cdot W_t\cdot\left[\gamma_s\cdot\left(T_p - T_f\right)\right] + WT_{s2}\cdot\left[\frac{W_f}{2} + \frac{W_t}{3}\cdot\cos(30\cdot deg) - \frac{d_p}{2} + \left(D_f - n\right)\cdot\tan\left(\Phi_s\right)\right]\right] = -6$$

$$M_{nC} := -1\cdot\left[\frac{1}{2}\cdot\left(\frac{W_f}{2} + \frac{W_t}{3}\cdot\cos(30\cdot deg) - \frac{d_p}{2}\right)^2\cdot W_t\cdot\left(\gamma_c\cdot T_f\right)\right]$$

Design Moment = $M_n := \frac{M_{nT} + M_{nS} + M_{nC}}{\phi_m} = 1623.65\cdot kips\cdot ft$

$$\beta := \begin{cases} 0.85 & \text{if } 2500\cdot psi \le f_c \le 4000\cdot psi \\ 0.65 & \text{if } f_c > 8000\cdot psi \\ \left[\left[0.85 - \left[\frac{\left(\frac{f_c}{psi} - 4000\right)}{1000}\right]\cdot 0.5\right]\right] & \text{otherwise} \end{cases} = 0.85$$

(ACI-200810.2.7.3)

$b_{eff} := W_t\cdot\cos(30\cdot deg) + d_p = 193.492\cdot in$

$d := T_f - Cvr_{pad} - d_{bbot} = 25.73\cdot in$

$A_s := \frac{M_n}{\left(f_y\cdot d\right)} = 12.621\cdot in^2$

$a := \frac{A_s\cdot f_y}{\beta\cdot f_c\cdot b_{eff}} = 1.151\cdot in$

$A_s := \frac{M_n}{f_y\cdot\left(d - \frac{a}{2}\right)} = 12.909\cdot in^2$

$\rho := \frac{A_s}{b_{eff}\,d} = 0.00259$

Required Reinforcement for Temperature and Shrinkage:

$$\rho_{sh} := \begin{cases} .0018 & \text{if } f_y \geq 60000 \cdot psi \\ .0020 & \text{otherwise} \end{cases} = 0.0018 \qquad \text{(ACI -2008 7.12.2.1)}$$

Check Bottom Bars:

$$As := \begin{cases} \left(\rho \cdot b_{eff} \cdot d\right) & \text{if } \left(\rho \cdot b_{eff} \cdot d\right) > \rho_{sh} \cdot \frac{b_{eff}}{2} \cdot d \\ \rho_{sh} \cdot \frac{b_{eff}}{2} \cdot d & \text{otherwise} \end{cases} = 12.909 \cdot in^2$$

$$As_{prov} := A_{bbot} \cdot NB_{bot} = 36.7 \cdot in^2$$

$$Pad\_Reinforcement\_Bot := if\left(As_{prov} > As, "Okay", "No Good"\right)$$

Pad_Reinforcement_Bot = "Okay"

Check top Bars:

$$As := if\left(\rho \geq \rho_{sh}, A_s, \rho_{sh} \cdot \frac{b_{eff}}{2} \cdot d\right) = 12.9 \cdot in^2$$

$$As_{prov} := A_{btop} \cdot NB_{top} = 36.7 \cdot in^2$$

$$Pad\_Reinforcement\_Top := if\left(As_{prov} > As, "Okay", "No Good"\right)$$

Pad_Reinforcement_Top = "Okay"

Developement Length Pad Reinforcement:

Bar Spacing =

$$B_{sPad} := \frac{W_f - 2 \cdot Cvr_{pad} - NB_{bot} \cdot d_{bbot}}{NB_{bot} - 1} = 11.33 \cdot in$$

Spacing or Cover Dimension =

$$c := if\left(Cvr_{pad} < \frac{B_{sPad}}{2}, Cvr_{pad}, \frac{B_{sPad}}{2}\right) = 3 \cdot in$$

Transverse Reinforcement Index =

$$k_{tr} := 0 \qquad \text{(ACI-2008 12.2.3)}$$

$$L_{dbt} := \frac{3 \cdot f_y \cdot \alpha_{pad} \cdot \beta_{pad} \cdot \gamma_{pad} \cdot \lambda_{pad}}{40 \cdot \sqrt{f_c \cdot psi} \cdot c,} \cdot d_{bbot} = 47 \cdot in$$

Minimum Development Length =

$$L_{dbmin} := 12 \cdot in \qquad \text{(ACI-2008 12.2.1)}$$

$$L_{dbtCheck} := if\left(L_{dbt} \geq L_{dbmin}, "Use\ L.dbt", "Use\ L.dbmin"\right) = "Use\ L.dbt"$$

Available Length in Pad =

$$L_{Pad} := \frac{W_f}{2} - \frac{W_t}{2} - Cvr_{pad} = 93 \cdot in$$

$$Lpad\_Check := if\left(L_{Pad} > L_{dbt}, "Okay", "No Good"\right)$$

Lpad_Check = "Okay"

Steel Reinforcement in Pier:

Area of Pier = $A_p := \frac{\pi \cdot d_p^2}{4} = 1809.56 \cdot in^2$

$A_{smin} := 0.01 \cdot 0.5 \cdot A_p = 9.05 \cdot in^2$ (ACI-2008 10.8.4 & 10.9.1)

$A_{sprov} := NB_{pier} \cdot A_{bpier} = 15.63 \cdot in^2$

$Steel\_Area\_Check := if(A_{sprov} > A_{smin}, "Okay", "No Good")$

Steel_Area_Check = "Okay"

Bar Spacing In Pier = $B_{sPier} := \frac{d_p \cdot \pi}{NB_{pier}} - d_{bpier} = 4.925 \cdot in$

Diameter of Reinforcement Cage = $Diam_{cage} := d_p - 2 \cdot Cvr_{pier} = 42 \cdot in$

Maximum Moment in Pier = $M_p := \left[S_t \cdot \left(L_p + \frac{A_{BP}}{2} \right) \right] \cdot LF = 2312.4 \cdot in \cdot kips$

Pier Check evaluated from outside program and results are listed below;

$(D \ N \ n \ P_u \ M_{xu}) := \left(d_p \cdot 12 \ \ NB_{pier} \ \ BS_{pier} \ \ \frac{C_t \cdot 1.333}{kips} \ \ \frac{M_p}{in \cdot kips} \right)$

$(D \ N \ n \ P_u \ M_{xu}) = (48 \ \ 26 \ \ 7 \ \ 271.9 \ \ 2312.4)$

$(\phi P_n \ \ \phi M_{xn} \ \ f_{sp} \ \ \rho) := (0 \ \ 0 \ \ 0 \ \ 0)$

$(\phi P_n \ \ \phi M_{xn} \ \ f_{sp} \ \ \rho) := \phi P'_n(D, N, n, P_u, M_{xu})^T$

$(\phi P_n \ \ \phi M_{xn} \ \ f_{sp} \ \ \rho) = (2367.5 \ \ 20132.8 \ \ -37.9 \ \ 0)$

$Axial\_Load\_Check := if(\phi P_n \geq P_u, "Okay", "No Good")$

Axial_Load_Check = "Okay"

$Bending\_Check := if(\phi M_{xn} \geq M_{xu}, "Okay", "No Good")$

Bending_Check = "Okay"

Development Length Pier Reinforcement:

Available Length in Foundation:

$L_{pier} := L_p - Cvr_{pier} = 57 \cdot in$

$L_{pad} := T_f - Cvr_{pad} = 27 \cdot in$

Tension: (ACI-2008 12.2.3)

Spacing or Cover Dimension =

$c := if\left(Cvr_{pier} < \frac{B_{sPier}}{2}, Cvr_{pier}, \frac{B_{sPier}}{2}\right) = 2.462 \cdot in$

Transverse Reinforcement =

$k_{tr} := 0$ (ACI-2008 12.2.3)

$L_{dbt} := \frac{3 \cdot f_y \alpha_{pier} \cdot \beta_{pier} \cdot \gamma_{pier} \cdot \lambda_{pier}}{40 \cdot \sqrt{f_c \cdot psi} \cdot \left(\frac{c + k_{tr}}{d_{bpier}}\right)} \cdot d_{bpier} = 22.12 \cdot in$

Minimum Development Length =

$L_{dh} := \frac{1200 \cdot d_{bpier}}{\sqrt{\frac{f_c}{psi}}} \cdot .7 = 11.621 \cdot in$ (ACI 12.2.1)

Pier reinforcement bars are standard 90 degree hooks and therefore developement in the pad is computed as follows:

$L_{db} := \max\left(L_{dbt}, L_{dbmin}\right)$

$L_{tension\_Check} := if\left(L_{pier} + L_{pad} > L_{dbt}, "Okay", "No Good"\right)$

$L_{tension\_Check} = "Okay"$

Compression: (ACI-2008 12.3.2)

$L_{dbc1} := \frac{.02 \cdot d_{bpier} \cdot f_y}{\sqrt{f_c \cdot psi}} = 16.602 \cdot in$

$L_{dbmin} := 0.0003 \cdot \frac{in^2}{lb} \cdot \left(d_{bpier} \cdot f_y\right) = 15.75 \cdot in$

$L_{dbc} := if\left(L_{dbc1} \geq L_{dbmin}, L_{dbc1}, L_{dbmin}\right) = 16.602 \cdot in$

$L_{compression\_Check} := if\left(L_{pier} + L_{pad} > L_{dbc}, "Okay", "No Good"\right)$

$L_{compression\_Check} = "Okay"$

Tie Size and Spacing in Column:

Minimum Tie Size = $Tie_{min} := if(BS_{pier} \le 10, 3, 4) = 3$

Used #3 Ties

Seismic Factor = $z := if(Z \le 2, 1, 0.5) = 1$ (ACI-2008 21.10.5)

$s_{lim1} := 16 \cdot d_{bpier} \cdot z = 14 \cdot in$

$s_{lim2} := \frac{48 \cdot d_{Tie}}{8} \cdot z = 18 \cdot in$

$s_{lim3} := D_f \cdot z = 84 \cdot in$

$s_{lim4} := 18in$

Maximum Spacing = $s_{tie} := \min\left(\begin{pmatrix} s_{lim1} \\ s_{lim2} \\ s_{lim3} \\ s_{lim4} \end{pmatrix}\right) = 14 \cdot in$

Number of Ties Required = $n_{tie} := \frac{L_{pier} - 3 \cdot in}{s_{tie}} + 1 = 4.857$

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	CTV1212	DATE:	03/22/2016	RF DESIGN ENG:	Omair Mohammed	RF PERF ENG:		RFDS PROGRAM TYPE:	2017 LTE Next Carrier
ISSUE:	Bronze Standard	Approved? (Y/N):	Yes	RF DESIGN PHONE:	860-721-4315	RF PERF PHONE:		RFDS TECHNOLOGY:	LTE 2C
REVISION:	Preliminary	RF MANAGER:	Cameron Syme	RF DESIGN EMAIL:	OM636A@US.ATT.COM	RF PERF EMAIL:		State:	Final
INITIATIVE /PROJECT:	LTE 2C w/ Bronze Standard Configuration					TRIDENT:		Status:	RF Approval
						GSM FREQUENCY:	850	RFDS ID:	1123239
						UMTS FREQUENCY:	850, 1900	RFDS Version:	1.00
						LTE FREQUENCY:	700, 1900	Created By:	om636a
								Date Created:	3/16/2016 1:24:34 PM
								Date Updated:	3/23/2016 1:19:40 PM
								Updated By:	om636a
						I-PLAN JOB # 1:	NER-RCTB-12-04675	IPLAN PRD GRP || SUB GRP #1:	LTE Next Carrier || LTE 2C
						I-PLAN JOB # 2:		IPLAN PRD GRP || SUB GRP #2:	
						I-PLAN JOB # 3:		IPLAN PRD GRP || SUB GRP #3:	
						I-PLAN JOB # 4:		IPLAN PRD GRP || SUB GRP #4:	

Section 2 - LOCATION INFORMATION

USID:	61207	FA LOCATION CODE:	10035403	LOCATION NAME:	CHESHIRE CT- W. JOHNSON AVE NU	ORACLE PTN # 1:		PACE JOB # 1:	MRCTB018189
REGION:	NORTHEAST	MARKET CLUSTER:	NEW ENGLAND	MARKET:	CONNECTICUT	ORACLE PTN # 2:		PACE JOB # 2:	
ADDRESS:	705 WEST JOHNSON AVENUE	CITY:	CHESHIRE	STATE:	CT	ORACLE PTN # 3:		PACE JOB # 3:	
ZIP CODE:	06410	COUNTY:	NEW HAVEN	MSA / RSA:		ORACLE PTN # 4:		PACE JOB # 4:	
LATITUDE (D-M-S):	41d 33m21.38004s	LONGITUDE (D-M-S):	-72d -55m-4.35684s	LAT (DEC. DEG.):	41.5559389	SEARCH RING NAME:			
DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:	CELL SITE #1212. TAKE ROUTE 691 EITHER EAST OR WEST, AND GET OFF EXIT 3 (ROUTE 10). GO SOUTH FOR APPROXIMATELY 1/10 MILE TO THE FIRST LIGHT (WEST JOHNSON ROAD). GO RIGHT FOR APPROXIMATELY 1.5 MILES (GOING THROUGH 2 STOP SIGNS), TO THE NORTHEAST UTILITIES SERVICE CENTER ON THE LEFT. SITE IS THROUGH THE ELECTRIC GATE STRAIGHT AHEAD.ONCE AT GATE PRESS THE CALL BUTTON AND 001 FOR STORE ROOM. LET THEM KNOW WHO YOU ARE AND THAT YOU ARE THERE FOR THE CELL SITE. GATE AT TOWER 0043 OUT OF HOURS: CALL 860-665-5900 AND GIVE YOUR LAST 4 DIGITS OF YOUR SS#. YOU MUST BE ON THE LIST FOR AFTER HOURS ACCESS.					SEARCH RING ID:		CASPR INITIATIVE # 1:	
						BTA:		CASPR INITIATIVE # 2:	
						LONG (DEC. DEG.):	-72.9178769	CASPR INITIATIVE # 3:	
						BORDER CELL WITH CONTOUR COORD:		CASPR INITIATIVE # 4:	
						AM STUDY REQ'D (Y/N):	No		
						FREQ COORD:			

Section 3 - LICENSE COVERAGE/FILING INFORMATION

CGSA - NO FILING TRIGGERED (Yes/No):	No	CGSA LOSS:		PCS REDUCED - UPS ZIP:		CGSA CALL SIGNS:	z_KNLB312,z_KNLB312,z_KNLB312
CGSA - MINOR FILING NEEDED (Yes/No)::	No	CGSA EXT AGMT NEEDED:		PCS POPS REDUCED:			
CGSA - MAJOR FILING NEEDED (Yes/No):	Yes	CGSA SCORECARD UPDATED:					

Section 4 - TOWER/REGULATORY INFORMATION

STRUCTURE AT&T OWNED?:	Yes	GROUND ELEVATION (ft):		STRUCTURE TYPE:	SELF SUPPORT	MARKET LOCATION 700 MHz Band:		
ADDITIONAL REGULATORY?:	Yes	HEIGHT OVERALL (ft):	100.00	FCC ASR NUMBER:		MARKET LOCATION 850 MHz Band:		
SUB-LEASE RIGHTS?:	Yes	STRUCTURE HEIGHT (ft):	100.00			MARKET LOCATION 1900 MHz Band:		
LIGHTING TYPE:	NOT REQUIRED					MARKET LOCATION AWS Band:		
						MARKET LOCATION WCS Band:		
						MARKET LOCATION Future Band:		

Section 5 - E-911 INFORMATION - existing

		PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:		
SECTOR A	E-911	CT-CONNECTICUT STATE POLICE-A TROOP	1315		INTRADO_MIAMI		0				
SECTOR B		CT-CONNECTICUT STATE POLICE-A TROOP	1315		INTRADO_MIAMI		0				
SECTOR C		CT-CONNECTICUT STATE POLICE-A TROOP	1315		INTRADO_MIAMI		0				
SECTOR D											
SECTOR E											
SECTOR F											
OMNI											

Section 5 - E-911 INFORMATION - final

		PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:		
SECTOR A	E-911	CT-CONNECTICUT STATE POLICE-A TROOP	1315		INTRADO_MIAMI		0				
SECTOR B		CT-CONNECTICUT STATE POLICE-A TROOP	1315		INTRADO_MIAMI		0				
SECTOR C		CT-CONNECTICUT STATE POLICE-A TROOP	1315		INTRADO_MIAMI		0				
SECTOR D											
SECTOR E											
SECTOR F											
OMNI											

Section 6 - RBS GENERAL INFORMATION - existing

	GSM 1ST RBS	GSM 2ND RBS	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS							
RBS ID:	100030	100031	210595	281261	366917							
CTS COMMON ID:	049D1212	318D1212	CTV1212	CTU1212	CTL01212							
BTA/TID:	049G	049P	318U	318W	318L							
4-DIGIT SITE ID:	1212	1212	1212	1212	1212							
COW OR TOY?:	No	No	No	No	No							
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED							
SITE TYPE:	BTS-CONVENTIONAL	BTS-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL							
BTS LOCATION ID:	GROUND	GROUND	INTERNAL	INTERNAL	INTERNAL							
ORIGINATING CO:	CINGULAR	CINGULAR	CINGULAR	CINGULAR	CINGULAR							
CELLULAR NETWORK:	GOLD	GOLD	GOLD	GOLD	GOLD							
OPS DISTRICT:	SOUTH	CT-SOUTH	CT SOUTH-WEST	CT SOUTH-WEST	CT-SOUTH							
RF DISTRICT:	SOUTH	NPO TRIAGE	BRIDGEPORT	BRIDGEPORT	NPO TRIAGE							
OPS ZONE:	NE_CT_S_NHVN_NE_CS	NE_CT_S_NHVN_NE_CS	NE_CT_S_NHVN_NE_CS	NE_CT_S_NHVN_NE_CS	NE_CT_S_NHVN_NE_CS							
RF ZONE:	BCT02 - MIDDLESEX	HOTSEAT	BBP05	BBP05	HOTSEAT							
BASE STATION TYPE:	BASE	BASE	BASE	OVERLAY	BASE							
EQUIPMENT NAME:	CHESHIRE CT- W. JOHNSON AVE NU	CHESHIRE CT- W. JOHNSON AVE NU	CHESHIRE CT- W. JOHNSON AVE NU	CHESHIRE CT- W. JOHNSON AVE NU	CHESHIRE CT- W. JOHNSON AVE NU							
DISASTER PRIORITY:	0	0	0	0	3							

Section 6 - RBS GENERAL INFORMATION - final

	GSM 1ST RBS	GSM 2ND RBS	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS							
RBS ID:	100030	100031	210595	281261	366917							
CTS COMMON ID:	049D1212	318D1212	CTV1212	CTU1212	CTL01212							
BTA/TID:	049G	049P	318U	318W	318L							
4-DIGIT SITE ID:	1212	1212	1212	1212	1212							
COW OR TOY?:	No	No	No	No	No							
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED							
SITE TYPE:	BTS-CONVENTIONAL	BTS-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL							
BTS LOCATION ID:	GROUND	GROUND	INTERNAL	INTERNAL	INTERNAL							
ORIGINATING CO:	CINGULAR	CINGULAR	CINGULAR	CINGULAR	CINGULAR							
CELLULAR NETWORK:	GOLD	GOLD	GOLD	GOLD	GOLD							
OPS DISTRICT:	CT-South	CT-South	CT-South	CT-South	CT-South							
RF DISTRICT:	NPO Triage	NPO Triage	Bridgeport	Bridgeport	NPO Triage							
OPS ZONE:	NE_CT_S_NHVN_NE_CS	NE_CT_S_NHVN_NE_CS	NE_CT_S_NHVN_NE_CS	NE_CT_S_NHVN_NE_CS	NE_CT_S_NHVN_NE_CS							
RF ZONE:	Hotseat	Hotseat	BBP05	BBP05	Hotseat							
BASE STATION TYPE:	BASE	BASE	BASE	OVERLAY	BASE							
EQUIPMENT NAME:	CHESHIRE CT- W. JOHNSON AVE NU	CHESHIRE CT- W. JOHNSON AVE NU	CHESHIRE CT- W. JOHNSON AVE NU	CHESHIRE CT- W. JOHNSON AVE NU	CHESHIRE CT- W. JOHNSON AVE NU							
DISASTER PRIORITY:	0	0	0	0	3							

Section 7 - RBS SPECIFIC INFORMATION - existing

	GSM 1ST RBS	GSM 2ND RBS	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS							
MSC:												
BSC/RNC/MME POOL ID:	BRIDGEPORT BSC 05	BRIDGEPORT BSC 05	BRIDGEPORT CT RNC002	BRIDGEPORT CT RNC002	FF01							
LAC:	05014	05014	05998	05998								
RAC:												
EQUIPMENT VENDOR:	NOKIA	NOKIA	ERICSSON	ERICSSON	ERICSSON							
EQUIPMENT TYPE:	ULTRASITE	ULTRASITE	3206 INDOOR	3206 INDOOR	6601 INDOOR MU							
BASEBAND CONFIGURATION:												
LOCATION:												
CABINET LOCATION:												
MARKET STATE CODE:					CT							
AGPS:	Yes	Yes	Yes	Yes	Yes							
NODE B NUMBER:	0	0	0	0	1212							
PARENT NAME:	BRIDGEPORT BSC 05	BRIDGEPORT BSC 05	BRIDGEPORT CT RNC002	BRIDGEPORT CT RNC002	FF01							

Section 7 - RBS SPECIFIC INFORMATION - final

	GSM 1ST RBS	GSM 2ND RBS	UMTS 1ST RBS	UMTS 2ND RBS	LTE 1ST RBS							
MSC:												
BSC/RNC/MME POOL ID:	BRPTCTBSC05	BRPTCTBSC05	BRPTCT04RNC002	BRPTCT04RNC002	FF01							
LAC:	05014	05014	05998	05998								
RAC:												
EQUIPMENT VENDOR:	NOKIA	NOKIA	ERICSSON	ERICSSON	ERICSSON							
EQUIPMENT TYPE:	ULTRASITE	ULTRASITE	3206 INDOOR	3206 INDOOR	6601 INDOOR MU							
BASEBAND CONFIGURATION:												
LOCATION:												
CABINET LOCATION:												
MARKET STATE CODE:					CT							
AGPS:	Yes	Yes	Yes	Yes	Yes							
NODE B NUMBER:	0	0	0	0	1212							
PARENT NAME:	BRIDGEPORT BSC 05	BRIDGEPORT BSC 05	BRIDGEPORT CT RNC002	BRIDGEPORT CT RNC002								

Section 8 - RBS INDIVIDUAL INFORMATION - existing

	GSM 1ST 850	GSM 1ST 1900	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900																		
RBS ID:	100030	100031	210595	281261	366917																			
CELL ID/BCF:	049D1212	049D1212	CTV1212	CTV1212	CTL01212																			
CTS COMMON ID:	049D1212	318D1212	CTV1212	CTU1212	CTL01212																			

Section 8 - RBS INDIVIDUAL INFORMATION - final

	GSM 1ST 850	GSM 1ST 1900	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900																		
RBS ID:	100030	100031	210595	281261	366917	366917																		
CELL ID/BCF:	049D1212	049D1212	CTV1212	CTV1212	CTL01212	CTL01212																		
CTS COMMON ID:	049D1212	318D1212	CTV1212	CTU1212	CTL01212	CTL01212																		

Section 9 - SOFT SECTOR ID - existing

	GSM 1ST 850	GSM 1ST 1900	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900																			
USEID (excluding Hard Sector)	61207.850.25G.1	61207.1900.25G.1	61207.850.3G.1	61207.1900.3G.2	61207.700.4G.1																				
SECTOR A SOFT SECTOR ID	318G12121	318P12121	CTV12121	CTU12127	CTL01212_7A_1																				
SECTOR B	318G12122	318P12122	CTV12122	CTU12128	CTL01212_7B_1																				
SECTOR C	318G12123	318P12123	CTV12123	CTU12129	CTL01212_7C_1																				
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									

Section 9 - SOFT SECTOR ID - final

	GSM 1ST 850	GSM 1ST 1900	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900																			
USEID (excluding Hard Sector)	61207.850.25G.1	61207.1900.25G.1	61207.850.3G.1	61207.1900.3G.2	61207.700.4G.1	61207.1900.4G.tmp1																			
SECTOR A SOFT SECTOR ID	318G12121	318P12121	CTV12121	CTU12127	CTL01212_7A_1	CTL01212_9A_1																			
SECTOR B	318G12122	318P12122	CTV12122	CTU12128	CTL01212_7B_1	CTL01212_9B_1																			
SECTOR C	318G12123	318P12123	CTV12123	CTU12129	CTL01212_7C_1	CTL01212_9C_1																			
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									

Section 9 - Cell Number - existing

	GSM 1ST 850	GSM 1ST 1900	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900																			
USEID (excluding Hard Sector)	61207.850.25G.1	61207.1900.25G.1	61207.850.3G.1	61207.1900.3G.2	61207.700.4G.1																				
SECTOR A CELL NUMBER	0	0	0	0	15																				
SECTOR B	0	0	0	0	16																				
SECTOR C	0	0	0	0	17																				
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									

Section 9 - Cell Number - final

	GSM 1ST 850	GSM 1ST 1900	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900																			
USEID (excluding Hard Sector)	61207.850.25G.1	61207.1900.25G.1	61207.850.3G.1	61207.1900.3G.2	61207.700.4G.1	61207.1900.4G.tmp1																			
SECTOR A CELL NUMBER	0	0	0	0	15	8																			
SECTOR B	0	0	0	0	16	9																			
SECTOR C	0	0	0	0	17	10																			
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									

Section 10 - CID/SAC - existing

		GSM 1ST 850	GSM 1ST 1900	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900																				
SECTOR A	CID/SAC	12121	12121	12121	12127																						
SECTOR B		12122	12122	12122	12128																						
SECTOR C		12123	12123	12123	12129																						
SECTOR D																											
SECTOR E																											
SECTOR F																											
OMNI																											

Section 10 - CID/SAC - final

		GSM 1ST 850	GSM 1ST 1900	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900																				
SECTOR A	CID/SAC	12121	12121	12121	12127																						
SECTOR B		12122	12122	12122	12128																						
SECTOR C		12123	12123	12123	12129																						
SECTOR D																											
SECTOR E																											
SECTOR F																											
OMNI																											

Section 11 - CURRENT RADIO COUNTS existing

		GSM 1ST 850	GSM 1ST 1900	GSM 2ND 850	GSM 2ND 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	UMTS 3RD 1900	UMTS 4TH 850	UMTS 4TH 1900	UMTS 5TH 850	UMTS 5TH 1900	UMTS 6TH 850	UMTS 6TH 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 1ST FUTURE		
SECTOR A	RADIO COUNTS																								
SECTOR B																									
SECTOR C																									
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									
																		LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 2ND FUTURE		
SECTOR A	RADIO COUNTS																								
SECTOR B																									
SECTOR C																									
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									

Section 12 - CURRENT T1 COUNTS existing

	GSM 1st Cabinet	GSM 2nd Cabinet	UMTS 1st Cabinet	UMTS 2nd Cabinet	UMTS 3rd Cabinet	UMTS 4th Cabinet	UMTS 5th Cabinet	UMTS 6th Cabinet	LTE 1st Cabinet	LTE 2nd Cabinet	LTE 3rd Cabinet	LTE 4th Cabinet
# T1s												
LINK PROFILE												
RF COMBINING												
FIBER or ETHERNET?												
Tx Board Model												
Tx Board QTY												
RAX/ECU Board Model												
RAX/ECU Board QTY												
BBU Board Model												
BBU Board QTY												
RRU - location												
FIBER JUMPER												
DC CABLE												
DC/Fiber Dem. Box												
Bundled Fiber Cable												
Bundled DC Cable												

Section 13 - NEW/PROPOSED RADIO COUNTS

	GSM 1ST 850	GSM 1ST 1900	GSM 2ND 850	GSM 2ND 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	UMTS 3RD 1900	UMTS 4TH 850	UMTS 4TH 1900	UMTS 5TH 850	UMTS 5TH 1900	UMTS 6TH 850	UMTS 6TH 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 1ST FUTURE		
SECTOR A RADIO COUNTS																								
SECTOR B																								
SECTOR C																								
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								
																	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 2ND FUTURE		
SECTOR A RADIO COUNTS																								
SECTOR B																								
SECTOR C																								
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 14 - NEW/PROPOSED T1 COUNTS

	GSM 1st Cabinet	GSM 2nd Cabinet	UMTS 1st Cabinet	UMTS 2nd Cabinet	UMTS 3rd Cabinet	UMTS 4th Cabinet	UMTS 5th Cabinet	UMTS 6th Cabinet	LTE 1st Cabinet	LTE 2nd Cabinet	LTE 3rd Cabinet	LTE 4th Cabinet
# T1s												
LINK PROFILE												
RF COMBINING												
FIBER or ETHERNET?												
Tx Board Model												
Tx Board QTY												
RAX/ECU Board Model												
RAX/ECU Board QTY												
BBU Board Model												
BBU Board QTY												
RRU - location												
FIBER JUMPER												
DC CABLE												
DC/Fiber Dem. Box												
Bundled Fiber Cable												
Bundled DC Cable												

Section 15A - CURRENT SECTOR/CELL INFORMATION - SECTOR A (OR OMNI)

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	AM-X-CD-16-65-00T-RET		AM-X-CD-16-65-00T-RET	AM-X-CD-16-65-00T-RET			
ANTENNA VENDOR	KMW		KMW	KMW			
ANTENNA SIZE (H x W x D)	72X11.8X5.9		72X11.8X5.9	72X11.8X5.9			
ANTENNA WEIGHT	48.5		48.5	48.5			
AZIMUTH	143		23	143			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	97.1		97.1	97.1			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0		0	0			
FEEDER AMOUNT	2			2			
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	2 KATHREIN 860-10025		Internal	2 KATHREIN 860-10025			
SURGE ARRESTOR (QTY/MODEL)			1 DC/Fiber Squid				
DIPLEXER (QTY/MODEL)	2 Powerwave / CM1007-DBPXBC-003			2 Powerwave / CM1007-DBPXBC-003			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)			LTE RRH	1 KATHREIN 860-10006			
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1 CCI DTMABP7819VG12A Twin PCS w/ 700-850BP (850)			1 CCI DTMABP7819VG12A Twin PCS w/ 700-850BP (850)			
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 Polyphaser 1000860			AiSG Diplexer			
PDU FOR TMAS (QTY/MODEL)	1 LGP 12104 (1900 AND 850 Bypass TMA)						
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1 RRUS-11				
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component1 (QTY/MODEL)							
Additional Component2 (QTY/MODEL)							
Additional Component3 (QTY/MODEL)							
Local Market Note1							
Local Market Note2							
Local Market Note3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1		61207.A.850.3G.1	CTV12121	CTV12121		UMTS 850	AM-X-CD-16-65-00T-RET_850MHz_02DT	16.1		2	None	RFS 1-5/8 (850)	115.029443									
	PORT 3		61207.A.1900.3G.2	CTU12127	CTU12127		UMTS 1900	AM-X-CD-16-65-00T-RET_1920MHz_00DT	17.29		0	None	RFS 1-5/8 (1900)	115.029443									
ANTENNA POSITION 3	PORT 1		61207.A.700.4G.1	CTL01212_7A_1	CTL01212_7A_1		LTE 700	AM-X-CD-16-65-00T-RET_725MHz_04DT	15.6		4	Top	Fiber	0									
ANTENNA POSITION 4	PORT 1		61207.A.850.25G.1	318G12121	318G12121		GSM 850	XDUO1416-80-0C	13.8		0	None	1-5/8 at 850 MHz	115.029443					12.58	177.01			

Section 15B - CURRENT SECTOR/CELL INFORMATION - SECTOR B

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	AM-X-CD-16-65-00T-RET		AM-X-CD-16-65-00T-RET	AM-X-CD-16-65-00T-RET			
ANTENNA VENDOR	KMW		KMW	KMW			
ANTENNA SIZE (H x W x D)	72X11.8X5.9		72X11.8X5.9	72X11.8X5.9			
ANTENNA WEIGHT	48.5		48.5	48.5			
AZIMUTH	263		143	263			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	97.1		97.1	97.1			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0		0	0			
FEEDER AMOUNT	2			2			
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	2 KATHREIN 860-10025		Internal	2 KATHREIN 860-10025			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)	2 Powerwave / CM1007-DBPXBC-003			2 Powerwave / CM1007-DBPXBC-003			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)			LTE RRH				
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1 CCI DTMABP7819VG12A Twin PCS w/ 700-850BP (850)			1 CCI DTMABP7819VG12A Twin PCS w/ 700-850BP (850)			
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 Polyphaser 1000860			AiSG Diplexer			
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1 RRUS-11				
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component1 (QTY/MODEL)							
Additional Component2 (QTY/MODEL)							
Additional Component3 (QTY/MODEL)							
Local Market Note1							
Local Market Note2							
Local Market Note3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1		61207.B.850.3G.1	CTV12122	CTV12122		UMTS 850	AM-X-CD-16-65-00T-RET_850MHz_02DT	16.1		2	None	RFS 1-5/8 (850)	115.029443										
	PORT 3		61207.B.1900.3G.2	CTU12128	CTU12128		UMTS 1900	AM-X-CD-16-65-00T-RET_1920MHz_00DT	17.29		0	None	RFS 1-5/8 (1900)	115.029443										
ANTENNA POSITION 3	PORT 1		61207.B.700.4G.1	CTL01212_7B_1	CTL01212_7B_1		LTE 700	AM-X-CD-16-65-00T-RET_725MHz_02DT	15.6		2	Top	Fiber	0										
ANTENNA POSITION 4	PORT 1		61207.B.850.25G.1	318G12122	318G12122		GSM 850	XDUO1416-80-0C	13.8		0	None	1-5/8 at 850 MHz	115.029443					12.58	177.01				

Section 15C - CURRENT SECTOR/CELL INFORMATION - SECTOR C

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	AM-X-CD-16-65-00T-RET		AM-X-CD-16-65-00T-RET	AM-X-CD-16-65-00T-RET			
ANTENNA VENDOR	KMW		KMW	KMW			
ANTENNA SIZE (H x W x D)	72X11.8X5.9		72X11.8X5.9	72X11.8X5.9			
ANTENNA WEIGHT	48.5		48.5	48.5			
AZIMUTH	23		263	23			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	97.1		97.1	97.1			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0		0	0			
FEEDER AMOUNT	2			2			
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	2 KATHREIN 860-10025		Internal	2 KATHREIN 860-10025			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)	2 Powerwave / CM1007-DBPXBC-003			2 Powerwave / CM1007-DBPXBC-003			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)			LTE RRH				
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1 CCI DTMABP7819VG12A Twin PCS w/ 700-850BP (850)			1 CCI DTMABP7819VG12A Twin PCS w/ 700-850BP (850)			
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 Polyphaser 1000860			AiSG Diplexer			
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)			1 RRUS-11				
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component1 (QTY/MODEL)							
Additional Component2 (QTY/MODEL)							
Additional Component3 (QTY/MODEL)							
Local Market Note1							
Local Market Note2							
Local Market Note3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1		61207.C.850.3G.1	CTV12123	CTV12123		UMTS 850	AM-X-CD-16-65-00T-RET_850MHz_02DT	16.1		2	None	RFS 1-5/8 (850)	115.029443									
	PORT 3		61207.C.1900.3G.2	CTU12129	CTU12129		UMTS 1900	AM-X-CD-16-65-00T-RET_1920MHz_00DT	17.29		0	None	RFS 1-5/8 (1900)	115.029443									
ANTENNA POSITION 3	PORT 1		61207.C.700.4G.1	CTL01212_7C_1	CTL01212_7C_1		LTE 700	AM-X-CD-16-65-00T-RET_725MHz_07DT	15.6		7	Top	Fiber	0									
ANTENNA POSITION 4	PORT 1		61207.C.850.25G.1	318G12123	318G12123		GSM 850	XDUO1416-80-0C	13.8		0	None	1-5/8 at 850 MHz	115.029443					12.58	177.01			

Section 16A - NEW/PROPOSED SECTOR/CELL INFORMATION - SECTOR A (OR OMNI)

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		HPA-65R-BUU-H6					
ANTENNA VENDOR		CCI Products					
ANTENNA SIZE (H x W x D)		72X14.8X9					
ANTENNA WEIGHT		51					
AZIMUTH		23					
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		97.1					
ANTENNA TIP HEIGHT		100.1					
MECHANICAL DOWNTILT		0					
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Internal					
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 RRUS-12+RRUS-A2					
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component1 (QTY/MODEL)							
Additional Component2 (QTY/MODEL)							
Additional Component3 (QTY/MODEL)							
Local Market Note1	LTE 2C Bronze Standard- Replace existing LTE Antenna with Hex por Antenna and Install at Pos 2- Add LTE 1900 RRUS-12+A2- DUL to DUS upgrade						
Local Market Note2							
Local Market Note3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 2	PORT 3		61207.A.1900.4G.1	CTL01212_9A_1	CTL01212_9A_1		LTE 1900	HPA-65R-BUU-H6_1930MHz_06DT	17.18	23	6	Top	Fiber	0						3258.367		3	

Section 16B - NEW/PROPOSED SECTOR/CELL INFORMATION - SECTOR B

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		HPA-65R-BUU-H6					
ANTENNA VENDOR		CCI Products					
ANTENNA SIZE (H x W x D)		72X14.8X9					
ANTENNA WEIGHT		51					
AZIMUTH		143					
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		97.1					
ANTENNA TIP HEIGHT		100.1					
MECHANICAL DOWNTILT		0					
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Internal					
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 RRUS-12+RRUS-A2					
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component1 (QTY/MODEL)							
Additional Component2 (QTY/MODEL)							
Additional Component3 (QTY/MODEL)							
Local Market Note1	LTE 2C Bronze Standard- Replace existing LTE Antenna with Hex por Antenna and Install at Pos 2- Add LTE 1900 RRUS-12+A2- DUL to DUS upgrade						
Local Market Note2							
Local Market Note3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 2	PORT 3		61207.B.1900.4G.1	CTL01212_9B_1	CTL01212_9B_1		LTE 1900	HPA-65R-BUU-H6_1930MHz_04DT	17.15	143	4	Top	Fiber	0						3258.367		11	

Section 16C - NEW/PROPOSED SECTOR/CELL INFORMATION - SECTOR C

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		HPA-65R-BUU-H6					
ANTENNA VENDOR		CCI Products					
ANTENNA SIZE (H x W x D)		72X14.8X9					
ANTENNA WEIGHT		51					
AZIMUTH		263					
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		97.1					
ANTENNA TIP HEIGHT		100.1					
MECHANICAL DOWNTILT		0					
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Internal					
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 RRUS-12+RRUS-A2					
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component1 (QTY/MODEL)							
Additional Component2 (QTY/MODEL)							
Additional Component3 (QTY/MODEL)							
Local Market Note1	LTE 2C Bronze Standard- Replace existing LTE Antenna with Hex por Antenna and Install at Pos 2- Add LTE 1900 RRUS-12+A2- DUL to DUS upgrade						
Local Market Note2							
Local Market Note3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 2	PORT 3		61207.C.1900.4G.1	CTL01212_9C_1	CTL01212_9C_1		LTE 1900	HPA-65R-BUU-H6_1930MHz_02DT	16.85	263	2	Top	Fiber	0						3258.367		19	

Section 17A - FINAL SECTOR/CELL INFORMATION - SECTOR A (OR OMNI)

ANTENNA COMMON FIELDS	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	AM-X-CD-16-65-00T-RET		HPA-65R-BUU-H6				AM-X-CD-16-65-00T-RET							
ANTENNA VENDOR	KMW		CCI Products				KMW							
ANTENNA SIZE (H x W x D)	72X11.8X5.9		72X14.8X9				72X11.8X5.9							
ANTENNA WEIGHT	48.5		51				48.5							
AZIMUTH	143		23				143							
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	97.1		97.1				97.1							
ANTENNA TIP HEIGHT	100.1		100.1				100.1							
MECHANICAL DOWNTILT	0		0				0							
FEEDER AMOUNT	2						2							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)	2	KATHREIN 860-10025		Internal			2	KATHREIN 860-10025						
SURGE ARRESTOR (QTY/MODEL)			1	DC/Fiber Squid										
DIPLEXER (QTY/MODEL)	2	Powerwave / CM1007-DBPXBC-003					2	Powerwave / CM1007-DBPXBC-003						
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)				LTE RRH			1	KATHREIN 860-10006						
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	1	CCI DTMABP7819VG12A Twin PCS w/ 700-850BP (850)					1	CCI DTMABP7819VG12A Twin PCS w/ 700-850BP (850)						
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	Polyphaser 1000860						AiSG Diplexer						
PDU FOR TMAS (QTY/MODEL)	1	LGP 12104 (1900 AND 850 Bypass TMA)												
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)			1	RRUS-11										
RRH - 850 band (QTY/MODEL)														
RRH - 1900 band (QTY/MODEL)			1	RRUS-12+RRUS-A2										
RRH - AWS band (QTY/MODEL)														
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
Additional Component1 (QTY/MODEL)														
Additional Component2 (QTY/MODEL)														
Additional Component3 (QTY/MODEL)														
Local Market Note1	LTE 2C Bronze Standard- Replace existing LTE Antenna with Hex por Antenna and Install at Pos 2- Add LTE 1900 RRUS-12+A2- DUL to DUS upgrade													
Local Market Note2														
Local Market Note3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1	61207.A.850.3G.1	61207.A.850.3G.1	CTV12121	CTV12121		UMTS 850	AM-X-CD-16-65-00T-RET_850MHz_02DT	16.1	143	2	None	RFS 1-5/8 (850)	115.029443						561.05		1	
	PORT 3	61207.A.1900.25G.1,61207.A.1900.3G.2	61207.A.1900.3G.2	CTU12127	CTU12127		UMTS 1900	AM-X-CD-16-65-00T-RET_1920MHz_00DT	17.29	143	0	None	RFS 1-5/8 (1900)	115.029443						699.84		2	
ANTENNA POSITION 2	PORT 1	61207.A.700.4G.1	61207.A.700.4G.1	CTL01212_7A_1	CTL01212_7A_1		LTE 700	HPA-65R-BUU-H6_719MHz_04DT	14.16	23	4	Top	Fiber	0						827.9421		3	
	PORT 3	61207.A.1900.4G.tmp1	61207.A.1900.4G.1	CTL01212_9A_1	CTL01212_9A_1		LTE 1900	HPA-65R-BUU-H6_1930MHz_06DT	17.18	23	6	Top	Fiber	0						3258.367		3	

ANTENNA POSITION 4	**PORT 1**	61207.A.850.25G.1	61207.A.850.25G.1	318G12121	318G12121		GSM 850	XDUO1416-80-0C	13.8	143	0	None	1-5/8 at 850 MHz	115.029443					12.58	177.01		7	

Section 17B - FINAL SECTOR/CELL INFORMATION - SECTOR B

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	AM-X-CD-16-65-00T-RET	HPA-65R-BUU-H6		AM-X-CD-16-65-00T-RET			
ANTENNA VENDOR	KMW	CCI Products		KMW			
ANTENNA SIZE (H x W x D)	72X11.8X5.9	72X14.8X9		72X11.8X5.9			
ANTENNA WEIGHT	48.5	51		48.5			
AZIMUTH	263	143		263			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	97.1	97.1		97.1			
ANTENNA TIP HEIGHT	100.1	100.1		100.1			
MECHANICAL DOWNTILT	0	0		0			
FEEDER AMOUNT	2			2			
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	2 KATHREIN 860-10025	Internal		2 KATHREIN 860-10025			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)	2 Powerwave / CM1007-DBPXBC-003			2 Powerwave / CM1007-DBPXBC-003			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		LTE RRH					
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1 CCI DTMABP7819VG12A Twin PCS w/ 700-850BP (850)			1 CCI DTMABP7819VG12A Twin PCS w/ 700-850BP (850)			
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 Polyphaser 1000860			AiSG Diplexer			
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 RRUS-11					
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 RRUS-12+RRUS-A2					
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component1 (QTY/MODEL)							
Additional Component2 (QTY/MODEL)							
Additional Component3 (QTY/MODEL)							
Local Market Note1	LTE 2C Bronze Standard- Replace existing LTE Antenna with Hex por Antenna and Install at Pos 2- Add LTE 1900 RRUS-12+A2- DUL to DUS upgrade						
Local Market Note2							
Local Market Note3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1	61207.B.850.3G.1	61207.B.850.3G.1	CTV12122	CTV12122		UMTS 850	AM-X-CD-16-65-00T-RET_850MHz_02DT	16.1	263	2	None	RFS 1-5/8 (850)	115.029443						561.05		9	
	PORT 3	61207.B.1900.3G.2	61207.B.1900.3G.2	CTU12128	CTU12128		UMTS 1900	AM-X-CD-16-65-00T-RET_1920MHz_00DT	17.29	263	0	None	RFS 1-5/8 (1900)	115.029443						699.84		10	
ANTENNA POSITION 2	PORT 1	61207.B.700.4G.1	61207.B.700.4G.1	CTL01212_7B_1	CTL01212_7B_1		LTE 700	HPA-65R-BUU-H6_719MHz_02DT	14.28	143	2	Top	Fiber	0						827.9421		11	
	PORT 3	61207.B.1900.4G.tmp1	61207.B.1900.4G.1	CTL01212_9B_1	CTL01212_9B_1		LTE 1900	HPA-65R-BUU-H6_1930MHz_04DT	17.15	143	4	Top	Fiber	0						3258.367		11	

ANTENNA POSITION 4	**PORT 1**	61207.B.850.25G.1,61207.B.1900.25G.1	61207.B.850.25G.1	318G12122	318G12122		GSM 850	XDUO1416-80-0C	13.8	263	0	None	1-5/8 at 850 MHz	115.029443					12.58	177.01		15	

Section 17C - FINAL SECTOR/CELL INFORMATION - SECTOR C

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	AM-X-CD-16-65-00T-RET	HPA-65R-BUU-H6		AM-X-CD-16-65-00T-RET			
ANTENNA VENDOR	KMW	CCI Products		KMW			
ANTENNA SIZE (H x W x D)	72X11.8X5.9	72X14.8X9		72X11.8X5.9			
ANTENNA WEIGHT	48.5	51		48.5			
AZIMUTH	23	263		23			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	97.1	97.1		97.1			
ANTENNA TIP HEIGHT	100.1	100.1		100.1			
MECHANICAL DOWNTILT	0	0		0			
FEEDER AMOUNT	2			2			
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	2 KATHREIN 860-10025	Internal		2 KATHREIN 860-10025			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)	2 Powerwave / CM1007-DBPXBC-003			2 Powerwave / CM1007-DBPXBC-003			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		LTE RRH					
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1 CCI DTMABP7819VG12A Twin PCS w/ 700-850BP (850)			1 CCI DTMABP7819VG12A Twin PCS w/ 700-850BP (850)			
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 Polyphaser 1000860			AiSG Diplexer			
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 RRUS-11					
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 RRUS-12+RRUS-A2					
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component1 (QTY/MODEL)							
Additional Component2 (QTY/MODEL)							
Additional Component3 (QTY/MODEL)							
Local Market Note1	LTE 2C Bronze Standard- Replace existing LTE Antenna with Hex por Antenna and Install at Pos 2- Add LTE 1900 RRUS-12+A2- DUL to DUS upgrade						
Local Market Note2							
Local Market Note3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1	61207.C.850.3G.1	61207.C.850.3G.1	CTV12123	CTV12123		UMTS 850	AM-X-CD-16-65-00T-RET_850MHz_02DT	16.1	23	2	None	RFS 1-5/8 (850)	115.029443						561.05		17	
	PORT 3	61207.C.1900.3G.2	61207.C.1900.3G.2	CTU12129	CTU12129		UMTS 1900	AM-X-CD-16-65-00T-RET_1920MHz_00DT	17.29	23	0	None	RFS 1-5/8 (1900)	115.029443						699.84		18	
ANTENNA POSITION 2	PORT 1	61207.C.700.4G.1	61207.C.700.4G.1	CTL01212_7C_1	CTL01212_7C_1		LTE 700	HPA-65R-BUU-H6_719MHz_07DT	14.03	263	7	Top	Fiber	0						827.9421		19	
	PORT 3	61207.C.1900.4G.tmp1	61207.C.1900.4G.1	CTL01212_9C_1	CTL01212_9C_1		LTE 1900	HPA-65R-BUU-H6_1930MHz_02DT	16.85	263	2	Top	Fiber	0						3258.367		19	

ANTENNA POSITION 4	**PORT 1**	61207.C.850.25G.1,61207.C.1900.25G.1	61207.C.850.25G.1	318G12123	318G12123		GSM 850	XDUO1416-80-0C	13.8	23	0	None	1-5/8 at 850 MHz	115.029443					12.58	177.01		23	

Diagram - Sector	A	Diagram File Name - CT1212_ABC_LTE2C_BrStd_Rev1.vsd					
Atoll Site Name -	CTV1212	Location Name -	CHESHIRE CT- W. JOHNSON AVE NU	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments:							

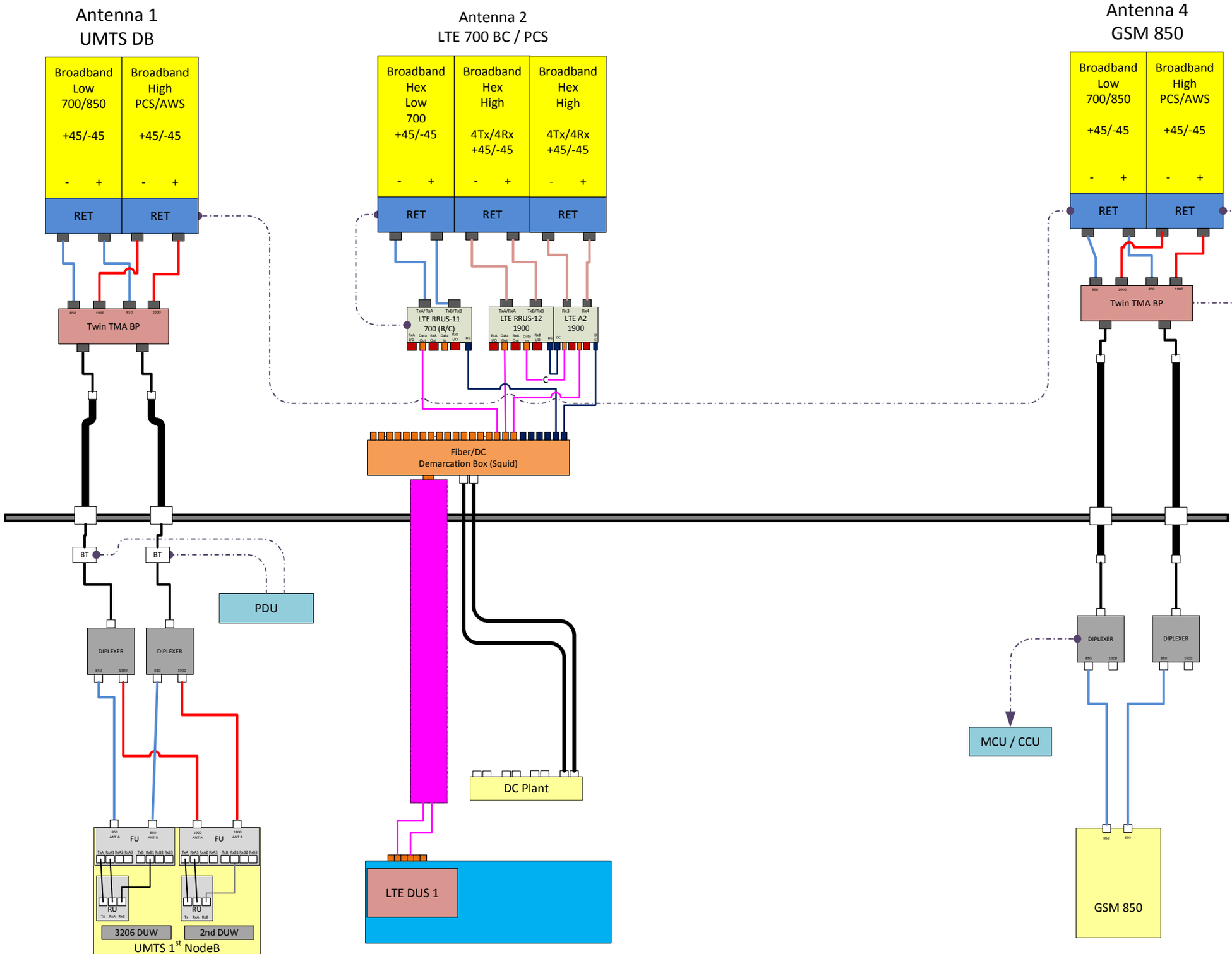


Diagram - Sector	B	Diagram File Name - CT1212_ABC_LTE2C_BrStd_Rev1.vsd					
Atoll Site Name -	CTV1212	Location Name -	CHESHIRE CT- W. JOHNSON AVE NU	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments:							

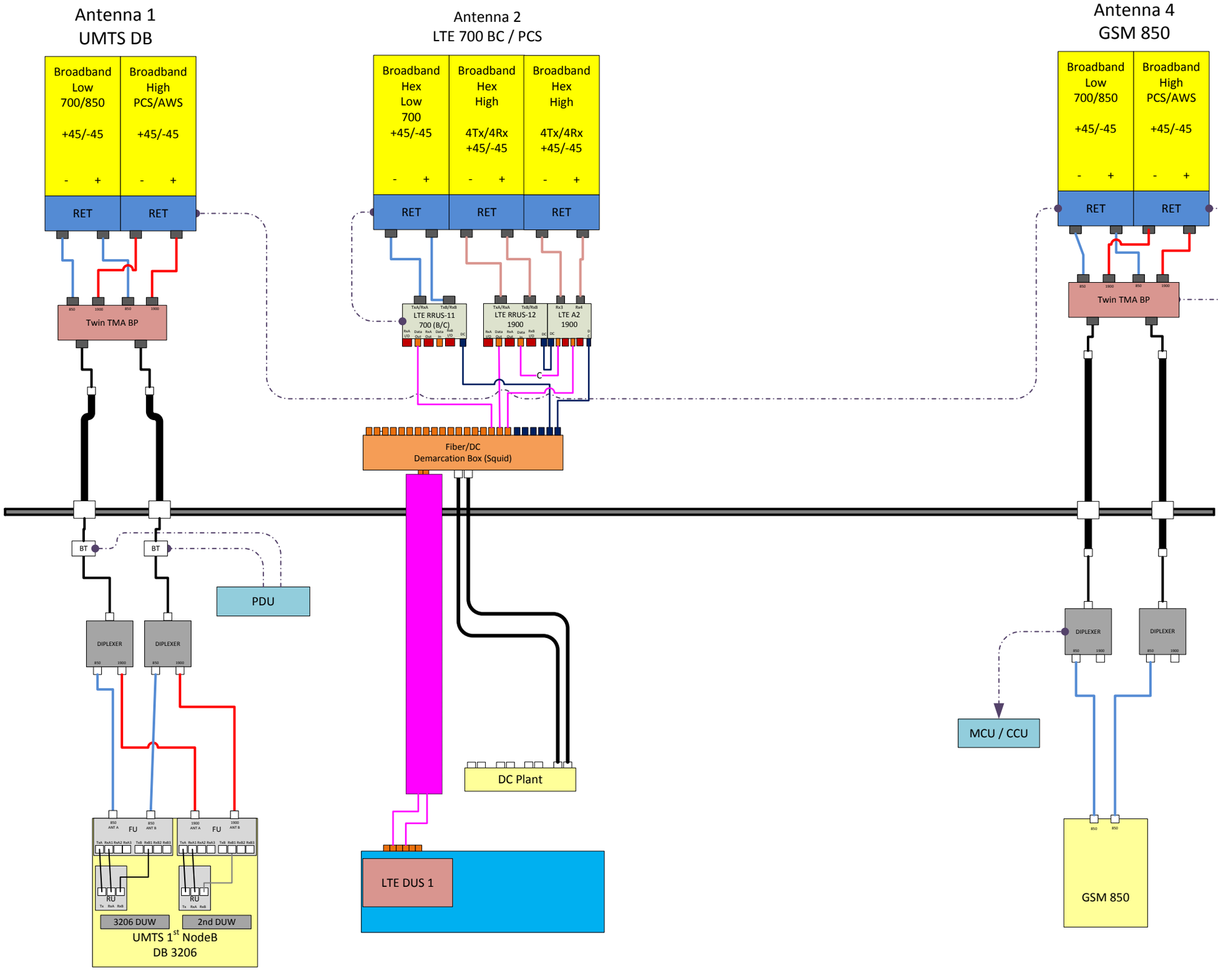
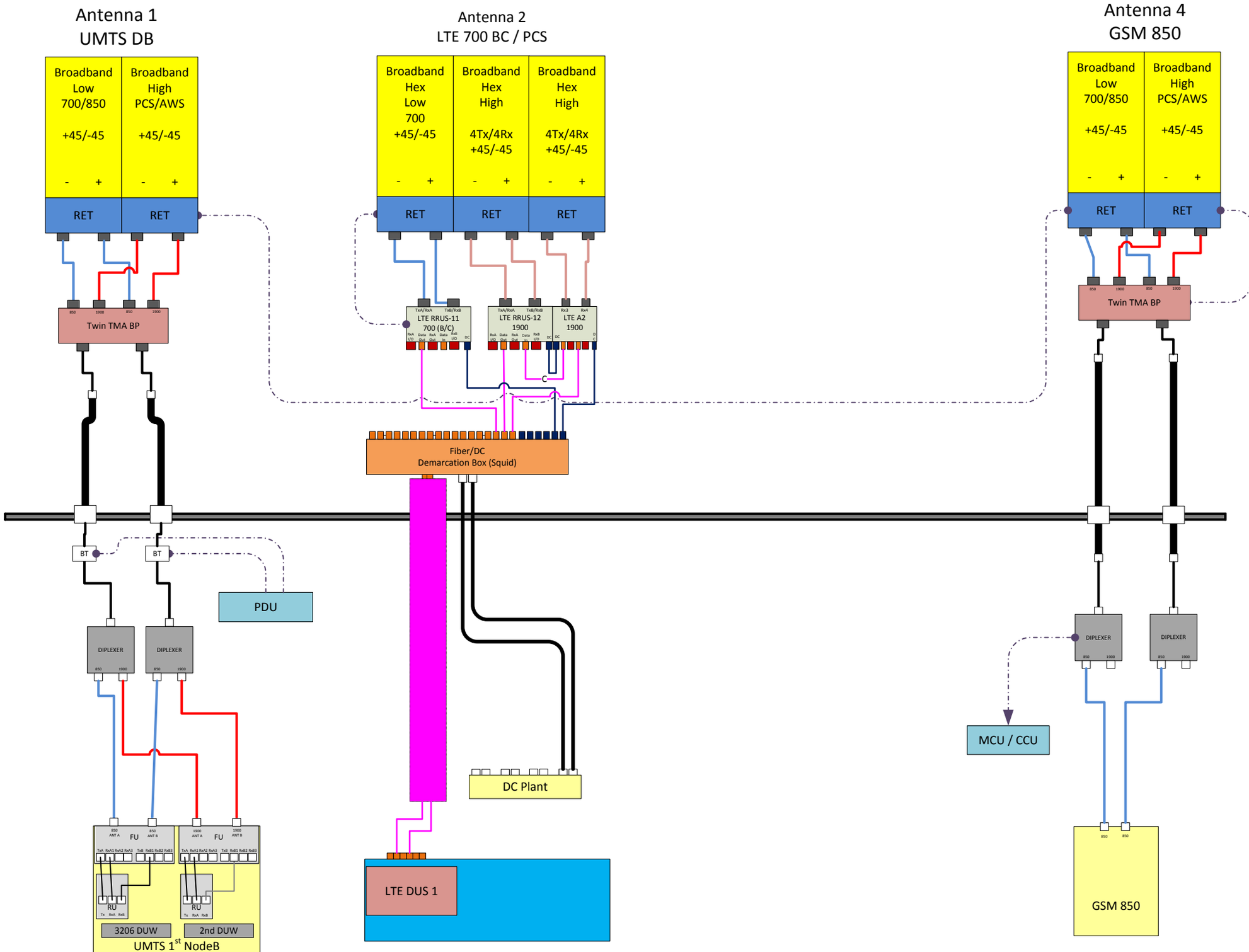


Diagram - Sector	C	Diagram File Name - CT1212_ABC_LTE2C_BrStd_Rev1.vsd					
Atoll Site Name -	CTV1212	Location Name -	CHESHIRE CT- W. JOHNSON AVE NU	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments:							

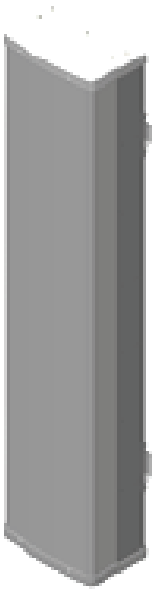


NOTES			
Date Time (Central)	Version	ATTUID	Note
3/22/2016 9:15:14 AM	1.00	dr701e	Updated RFDS with PACE number

WORKFLOW SUMMARY						
Date	FROM State / Status	FROM ATTUID	TO State / Status	TO ATTUID	Operation	Comments
03/23/2016	Preliminary / In Progress	om636a	Preliminary / Submitted for Approval	AB014M	Promote	LTE Preliminary RFDS
04/14/2016	Preliminary / Submitted for Approval	AB014M	Preliminary / Approved	BG144B	Promote	
05/16/2016	Preliminary / Approved	BG144B	Final / RF Approval	om636a	Promote	CoP // Add XMU (Discussed during scoping)

HexPort Multi-Band Antenna

Model HPA-65R-BUU-H6



The CCI Hexport Multi-Band Antenna Array is an industry first 6-port antenna with full WCS Band Coverage. With four high band ports and two low band ports, our hexport antenna is ready for 4X4 high band MIMO.

Modern networks demand high performance, consequently CCI has incorporated several new and innovative design techniques to provide an antenna with excellent side-lobe performance, sharp elevation beams, and high front to back ratio.

Multiple networks can now be connected to a single antenna, reducing tower loading and leasing expense, while decreasing deployment time and installation cost.

Full band capability for 700 MHz , Cellular 850 MHz, PCS 1900 MHz, AWS 1710/2170 MHz and WCS 2300 MHz coverage in a single enclosure.

Hexport Multi-Band Antenna Array

Benefits

- **Includes WCS Band**
- **Reduces tower loading**
- **Frees up space for tower mounted E-nodes**
- **Single radome with six ports**
- **All Band design simplifies radio assignments**
- **Sharp elevation beam eases network planning**

Features

- High Band Ports include WCS Band
- Four High Band ports with two Low Band ports in one antenna
- Sharp elevation beam
- Excellent elevation side-lobe performance
- Excellent MIMO performance due to array spacing
- Excellent PIM Performance
- A multi-network solution in one radome

Applications

- 4x4 MIMO on High Band and 2x2 MIMO on Low Band
- Adding additional capacity without adding additional antennas
- Adding WCS Band without increasing antenna count

ISO 9001:2008
Quality Management Systems
Système de Qualité
www.ca.sgs.com

HexPort Multi-Band Antenna

Model HPA-65R-BUU-H6

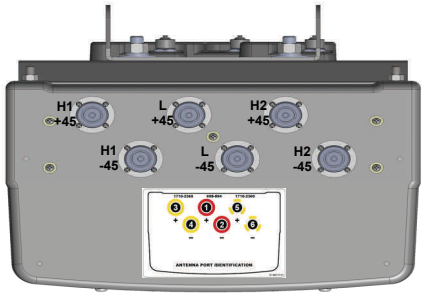
HPA-65R Multi-Band Antenna

Electrical Specifications

Frequency Range	2 X Low Band Ports which cover the full range from 698-894 MHz		4 X High Band Ports which cover the full range from 1710-2360 MHz			
	698-806 MHz	824-894 MHz	1850-1990 MHz	1710-1755/2110-2170 MHz		2305-2360 MHz
Gain	14.1 dBi	14.8 dBi	16.9 dBi	16.3 dBi	17.2 dBi	17.4 dBi
Azimuth Beamwidth (-3dB)	66°	65°	61°	66°	62°	57°
Elevation Beamwidth (-3dB)	12.5°	10.5°	5.7°	6.3°	5.1°	4.5°
Electrical Downtilt	0° to 10°	0° to 10°	0° to 8°	0° to 8°	0° to 8°	0° to 8°
Elevation Sidelobes (1st Upper)	< -17 dB	< -19 dB	< -19 dB	< -18 dB	< -18 dB	< -17 dB
Front-to-Back Ratio @180°	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Front-to-Back Ratio over ± 20°	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Cross-Polar Discrimination (at Peak)	> 25 dB	> 20 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Cross-Polar Discrimination (at ± 60°)	> 17 dB	> 14 dB	> 17 dB	> 17 dB	> 17 dB	> 17 dB
Cross-Polar Port-to-Port Isolation	> 25 dB	> 25 dB	> 26 dB	> 25 dB	> 26 dB	> 26 dB
VSWR	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1	< 1.5:1
Passive Intermodulation (2x20W)	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc	≤ -150dBc
Input Power	500 Watts CW	500 Watts CW	300 Watts CW	300 Watts CW	300 Watts CW	300 Watts CW
Polarization	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°	Dual Pol 45°
Input Impedance	50 Ohms	50 Ohms	50 Ohms	50 Ohms	50 Ohms	50 Ohms
Lightning Protection	DC Ground	DC Ground	DC Ground	DC Ground	DC Ground	DC Ground

Mechanical Specifications

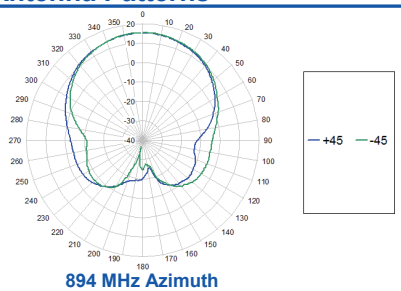
Dimensions (LxWxD)	72.0 x 14.8 x 9.0 inches (1828 x 376 x 229 mm)
Survival Wind Speed	> 150 mph
Front Wind Load	247 lbs (1099 N) @ 100 mph (161 kph)
Side Wind Load	165 lbs (735 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	9.7 ft^2 (0.90 m^2)
Weight (without Mounting)	51 lbs (23 kg)
RET System Weight	5.0 lbs (2.3 kg)
Connector	6; 7-16 DIN female long neck
Mounting Pole	2-5 inches (5-12 cm)



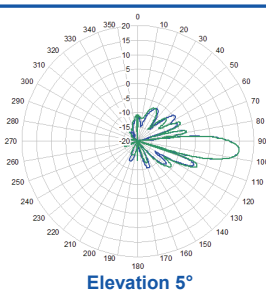
Bottom View

Rear View

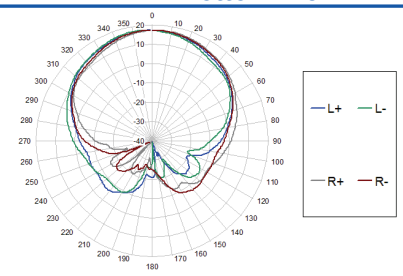
Antenna Patterns*



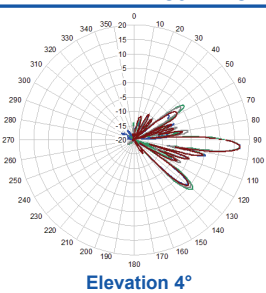
894 MHz Azimuth



Elevation 5°



1920 MHz Azimuth



Elevation 4°

*Typical antenna patterns. For detail information on antenna pattern, please contact us at info@cciproducts.com. All specifications are subject to change without notice.

RRUS 11

Frequency (AT&T)
- ✓ Band 12 (Lower 700 MHz)
- ✓ Band 4 (AWS, 17/2100 MHz) — 2Q2011

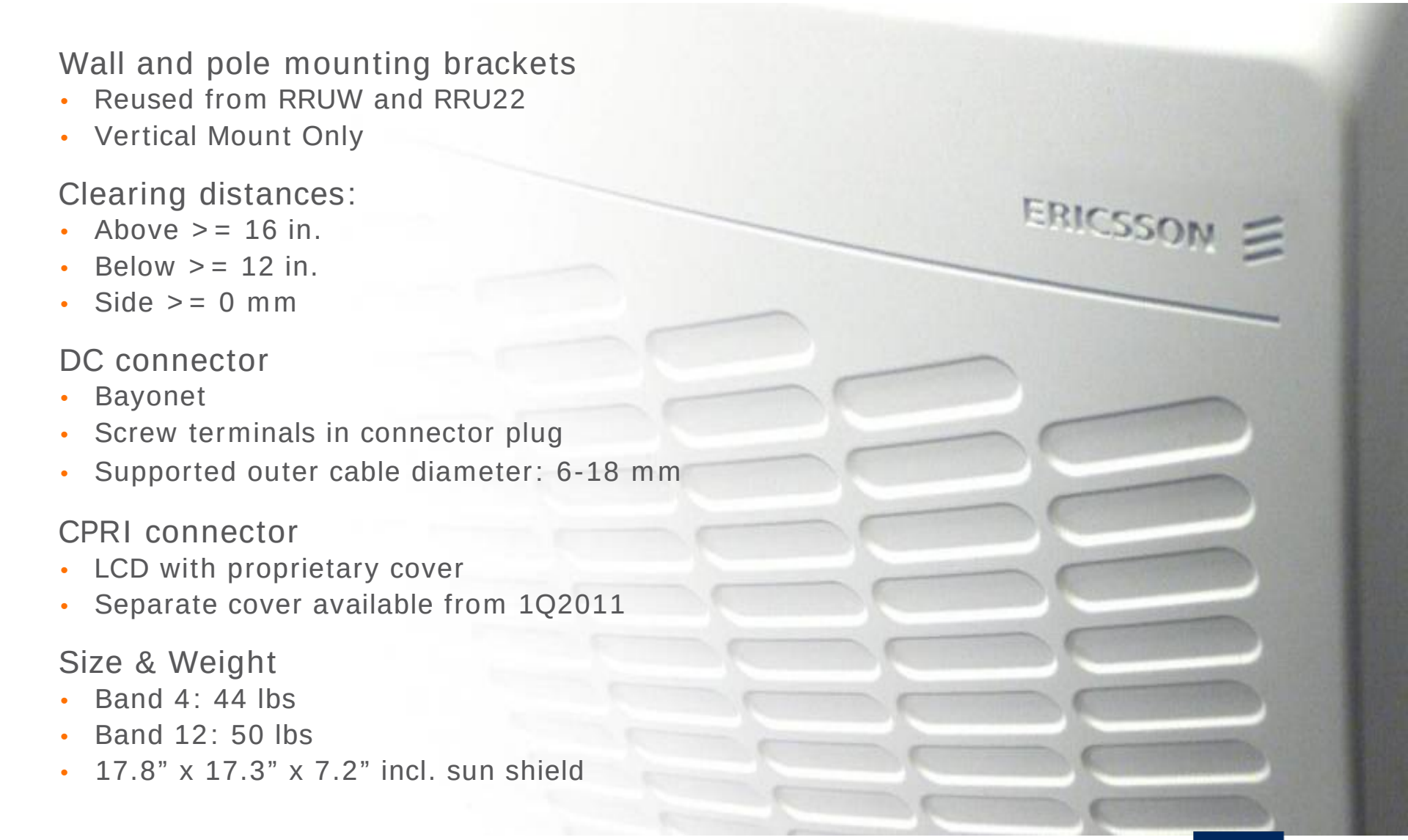
RF Characteristics
- ✓ Output power: 2x30 Watts
- ✓ 2x2 MIMO Capable
- ✓ IBW of 20 MHz
- ✓ Rx Sens.: Better than -105 dBm (5 MHz)

RET/TMA Support
- ✓ AISG 2.0 Compatible
- ✓ Via RET Port and Centre Conductor
- ✓ Cascading
- ✓ 30 VDC Bias

Environmental
- ✓ Self Convection
- ✓ Temperature -40 to 131 F

Power
- ✓ Input voltage: -48 VDC or AC (exemption)
- ✓ Fuse size: 13 – 32 A
  - Recommended: 25 A
- ✓ Power Consumption:
  - Typical 200 Watts
  - Max 310 Watts
  - Excl. RET and TMA load

RRUS 11 Mechanics



Wall and pole mounting brackets
- Reused from RRUW and RRU22
- Vertical Mount Only

Clearing distances:
- Above >= 16 in.
- Below >= 12 in.
- Side >= 0 mm

DC connector
- Bayonet
- Screw terminals in connector plug
- Supported outer cable diameter: 6-18 mm

CPRI connector
- LCD with proprietary cover
- Separate cover available from 1Q2011

Size & Weight
- Band 4: 44 lbs
- Band 12: 50 lbs
- 17.8” x 17.3” x 7.2” incl. sun shield

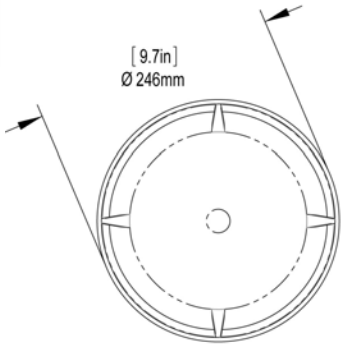
DC6-48-60-18-8F

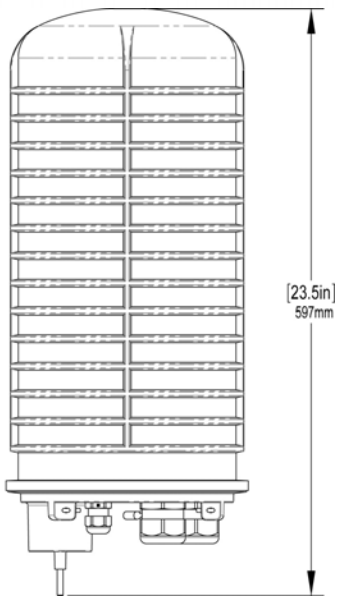
DC Surge Suppression Solution

The DC6-48-60-18 is a dual chambered, DC surge suppression system for use in multi-circuit, Distributed Antenna Systems. The system will protect up to 6 Remote Radio Heads from voltage surges and lightning, and connect up to 18 fiber pairs. The system is enclosed in a NEMA 4 rated, waterproof enclosure.

FEATURES

- Protects up to 6 Remote Radio Heads, each with its own protection circuit.
- Flexible design allows for installation at the top of a tower for Remote Radio Head protection.
- Includes fiber connections for up to 18 pairs of fiber.
- LED indicators on individual circuits provide visual indication of suppressor status.
- Form 'C' relays allow for remote monitoring of the suppressor status.
- Patented Strikesorb technology provides over 60 kA of surge current capacity per circuit.
- Strikesorb suppression modules are fully recognized to UL 1449-3rd Edition Safety Standard, meeting all intermediate and high current fault requirements to facilitate use in OEM applications.
- Raycap recommends that DC protection system be installed within 2 meters or 6 feet of the radio.
- Dome design is lightweight and aerodynamic providing maximum flexibility for installation on top of towers.





Raycap

Phone 208.777.1166 Toll Free 800.890.2569 Fax 208.777.4466 www.raycapsurgeprotection.com

DC6-48-60-18-8F

DC Power Surge Protection

Electrical Specifications	
Model Number	DC6-48-60-18-8F
Nominal Operating Voltage	48 VDC
Nominal Discharge Current (I_n)	20 kA 8/20 µs
Maximum Discharge Current (I_{max}) per NEMA LS-1	60 kA 8/20 µs
Maximum Continuous Operating Voltage (U_c)	75 VDC
Voltage Protection Rating	400 V

Mechanical Specifications	
Suppression Connection Method	Compression lug, #2-#14 AWG Copper, #2-#12 Aluminum
Fiber Connection Method	LC-LC Single mode duplex
Environmental Rating	IP 68, 7m 72hrs
Operating Temperature	-40° C to + 80° C
Storage Temperature	-70° C to + 80° C
Cold Temperature Cycling	IEC 61300-2-22e -30° C to + 60° C 200 hrs @ 5 psi
Resistance to Aggressive Materials	CEI IEC 61073-2 including acids and bases
UV Protection	ISO 4892-2 Method A Xenon-Arc 2160 hrs
Weight	20 lbs without Mounting Bracket

STANDARDS

Strikesorb modules are compliant to the following Surge Protection Device (SPD) Standards:

- ANSI/UL 1449 – 3rd Edition
- IEEE C62.41
- NEMA LS-1, IEC 61643-1:2005 2nd Edition:2005
- IEC 61643-12
- EN 61643-11:2002 (including A11:2007)

GS-07F-0435V

Certified to ISO 9001:2000

TÜV Rheinland of North America

Raycap, Inc. 806 W. Clearwater Loop • Post Falls • Idaho • 83854 • USA
Phone 208.777.1166 • Toll Free 800.890.2569 • Fax 208.777.4466 • www.raycapsurgeprotection.com

EBI Consulting
environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

AT&T Existing Facility

Site ID: CT1212

Cheshire - W. Johnson Ave. NU
705 W. Johnson Ave.
Cheshire, CT 06410

July 7, 2016

EBI Project Number: 6216003132

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	10.30 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

July 7, 2016

AT&T Mobility – New England
Attn: Cameron Syme, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT1212 – Cheshire - W. Johnson Ave. NU**

EBI Consulting was directed to analyze the proposed AT&T facility located at **705 W. Johnson Ave., Cheshire, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **705 W. Johnson Ave., Cheshire, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 UMTS channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (700 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 GSM channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

7) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antennas used in this modeling are the **KMW AM-X-CD-16-65-00T-RET and the CCI HPA-65R-BUU-H6** for transmission in the 700 MHz, 850 MHz and 1900 MHz (PCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerlines of the proposed antennas are **97.1 feet** above ground level (AGL) for **Sector A**, **97.1 feet** above ground level (AGL) for **Sector B** and **97.1 feet** above ground level (AGL) for Sector C.

10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

AT&T Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	KMW AM-X-CD-16-65-00T-RET	Make / Model:	KMW AM-X-CD-16-65-00T-RET	Make / Model:	KMW AM-X-CD-16-65-00T-RET
Gain:	13.85 / 15.25 dBd	Gain:	13.85 / 15.25 dBd	Gain:	13.85 / 15.25 dBd
Height (AGL):	**97.1 feet**	Height (AGL):	**97.1 feet**	Height (AGL):	**97.1 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts
ERP (W):	3,465.76	ERP (W):	3,465.76	ERP (W):	3,465.76
Antenna A1 MPE%	**1.98 %**	Antenna B1 MPE%	**1.98 %**	Antenna C1 MPE%	**1.98 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	CCI HPA-65R-BUU-H6	Make / Model:	CCI HPA-65R-BUU-H6	Make / Model:	CCI HPA-65R-BUU-H6
Gain:	11.95 / 14.75 dBd	Gain:	11.95 / 14.75 dBd	Gain:	11.95 / 14.75 dBd
Height (AGL):	**97.1 feet**	Height (AGL):	**97.1 feet**	Height (AGL):	**97.1 feet**
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts
ERP (W):	5,462.56	ERP (W):	5,462.56	ERP (W):	5,462.56
Antenna A2 MPE%	**3.30 %**	Antenna B2 MPE%	**3.30 %**	Antenna C2 MPE%	**3.30 %**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	KMW AM-X-CD-16-65-00T-RET	Make / Model:	KMW AM-X-CD-16-65-00T-RET	Make / Model:	KMW AM-X-CD-16-65-00T-RET
Gain:	13.85 dBd	Gain:	13.85 dBd	Gain:	13.85 dBd
Height (AGL):	**97.1 feet**	Height (AGL):	**97.1 feet**	Height (AGL):	**97.1 feet**
Frequency Bands	850 MHz	Frequency Bands	850 MHz	Frequency Bands	850 MHz
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	60 Watts	Total TX Power(W):	60 Watts	Total TX Power(W):	60 Watts
ERP (W):	1,455.97	ERP (W):	1,455.97	ERP (W):	1,455.97
Antenna A3 MPE%	**1.11 %**	Antenna B3 MPE%	**1.11 %**	Antenna C3 MPE%	**1.11 %**

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max per sector	**6.39 %**
CL&P whip	0.05 %
CL&P whip	0.23 %
CL&P microwave	0.00 %
Future CL&P whip	0.48 %
MetroPCS	0.94 %
Verizon Wireless	2.21 %
Site Total MPE %:	**10.30 %**

AT&T Sector A Total:	6.39 %
AT&T Sector B Total:	6.39 %
AT&T Sector C Total:	6.39 %
Site Total:	10.30 %

AT&T _ Max Values Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	727.98	97.1	6.31	850 MHz	567	1.11 %
AT&T 1900 MHz (PCS) UMTS	2	1,004.90	97.1	8.71	1900 MHz (PCS)	1000	0.87 %
AT&T 700 MHz LTE	2	940.05	97.1	8.14	700 MHz	467	1.74 %
AT&T 1900 MHz (PCS) LTE	2	1,791.23	97.1	15.52	1900 MHz (PCS)	1000	1.55 %
AT&T 850 MHz GSM	2	727.98	97.1	6.31	850 MHz	567	1.11 %
						Total:	**6.39 %**

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	6.39 %
Sector B:	6.39 %
Sector C:	6.39 %
AT&T Maximum Total (per sector):	6.39 %
Site Total:	10.30 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **10.30 %** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.