November 3, 2023

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

Re: Notice of Exempt Modification New Cingular Wireless PCS LLC ("AT&T") Site CT1845
5 Tall Pines Drive, Weston, CT 06883 (the "Property")
Latitude: 41-11-40.65 N Longitude: 73-20-52.92 W

Dear Ms. Bachman:

AT&T currently maintains (12) antennas at the 95'cl level on the existing 81' electric transmission structure #917 ("Structure") located at 5 Tall Pines Drive, Weston, CT. The Structure is owned by Connecticut Light & Power ("Eversource") and the property is owned by Dean & Victoria Carpenter. AT&T intends on modifying its Facility by removing all (12) antennas & equipment from the existing Structure and placing (3) TPA65R-BU8DA-K, (3) AIR6449 B77D, (3) AIR6419 B77G antennas, and (3) OPA65R-BU8DA antennas at the 120'cl level on the 125' replacement Structure. The AIR6449 B77D & AIR6419 B77G antennas are stacked one on top of the other. (6) TMA2124F03V5-2D and (6) TMAT192123B68-31 TMAs will be added to the new Structure as well. The height of AT&Ts existing antennas is 95' and the new antennas is 120' cl.

This modification may include B2, B5, B17, B14, B29, B30, B66 & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

The AT&T facility received CT Siting Council ("Council") approval in Petition 1386 on January 30, 2020. The Council approved Eversource's Structure replacement under Petition 1549 on February 16, 2023. The approvals contained no conditions that could feasibly be violated by this modification, including facility height or mounting restrictions. AT&Ts modification complies with the above-mentioned approvals.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies ("R.C.S.A") §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A §16-50j-72(b)(2). In accordance with to R.C.S.A §16-50j-73, a copy of this letter is being sent to the Honorable Samantha Nestor, First Selectwoman, Town of Weston, as elected official, Mr. James Pjura, Zoning/Code Enforcement Officer, Town of Weston, Dean & Victoria Carpenter, the property owners and Eversource, the Structure owner.

The planned modification of the facility falls squarely within those activities explicitly provided for in R.C.S.A §16-50j-72(b)(2). Specifically:

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require an extension of the site boundary.

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

4. The operation of the modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

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

6. The existing structure and foundation can support the proposed loading.

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

Sincerely,

Hollis M. Redding

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

Enclosures

Cc: Honorable Samantha Nestor, First Selectwoman, Town of Weston
Mr. James Pjura, Zoning/Code Enforcement Officer, Town of Weston
Dean & Victoria Carpenter, the property owners
Connecticut Light & Power (''Eversource"), the Structure owner

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

Calculated Radio Frequency Emissions Report

CT1845

5 Tall Pines Drive, Weston, CT 06883

November 2, 2023

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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed installation of AT&T antenna arrays to be mounted at 120' AGL on a replacement tower located at 5 Tall Pines Drive in Weston, CT. The coordinates of the tower are 41° 11' 40.65" N, 73° 20' 52.92" W.

AT&T is proposing the following:

1) Install twelve (12) multi-band antennas (four (4) per sector) to support its commercial LTE network and the FirstNet National Public Safety Broadband Network ("NPSBN").

This report considers the planned antenna configuration for AT&T[1] to derive the resulting % MPE of its proposed installation.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment C of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment C contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

[1] As referenced to AT&T's Radio Frequency Design Sheet, dated 10/18/2023

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

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

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{\left(H^2 + V^2\right)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Off Beam Loss is determined by the selected antenna patterns

GRF = Ground Reflection Factor of 1.6

These calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the final installations.

4. Antenna Inventory

Table 1 below outlines AT&T's proposed antenna configuration for the site. The associated data sheets and antenna patterns for these specific antenna models are included in Attachments C.

Operator	Sector / Call Sign	TX Freq (MHz)	Power at Antenna (Watts)	Ant Gain (dBi)	Power EIRP (Watts)	Antenna Model	Beam Width	Mech. Tilt	Length (ft)	Antenna Centerline Height (ft)
AT&T	Alpha / 30°	700	160	15.6	5809	TPA65R-BU8D	74	0	8.0	120
		1900	160	18.3	10817		67			
		2100	240	18.0	15143		63			
		700	160	15.7	5945	OPA65R-BU8D	75	0	8.0	120
		850	160	16.6	7313		63			
		2300	100	18.3	6761		54			
		3500	54	25.65	19833	AIR 6419	11	0	2.35	120
		3700	87	25.65	31954	AIR 6449	11	0	2.53	120
	Beta / 150°	700	160	15.6	5809	TPA65R-BU8D	74	0	8.0	120
		1900	160	18.3	10817		67			
		2100	240	18.0	15143		63			
		700	160	15.7	5945	OPA65R-BU8D	75	0	8.0	120
		850	160	16.6	7313		63			
		2300	100	18.3	6761		54			
		3500	54	25.65	19833	AIR 6419	11	0	2.35	120
		3700	87	25.65	31954	AIR 6449	11	0	2.53	120
	Gamma / 270°	700	160	15.6	5809	TPA65R-BU8D	74	0	8.0	120
		1900	160	18.3	10817		67			
		2100	240	18.0	15143		63			
		700	160	15.7	5945	OPA65R-BU8D	75	0	8.0	120
		850	160	16.6	7313		63			
		2300	100	18.3	6761		54			
		3500	54	25.65	19833	AIR 6419	11	0	2.35	120
		3700	87	25.65	31954	AIR 6449	11	0	2.53	120

Table 1: Proposed Antenna Inventory[2] [3]

[2] AT&T's Radio Frequency Design Sheet, dated 10/18/2023

[3] Transmit power assumes 0 dB of cable loss.

5. Calculation Results

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

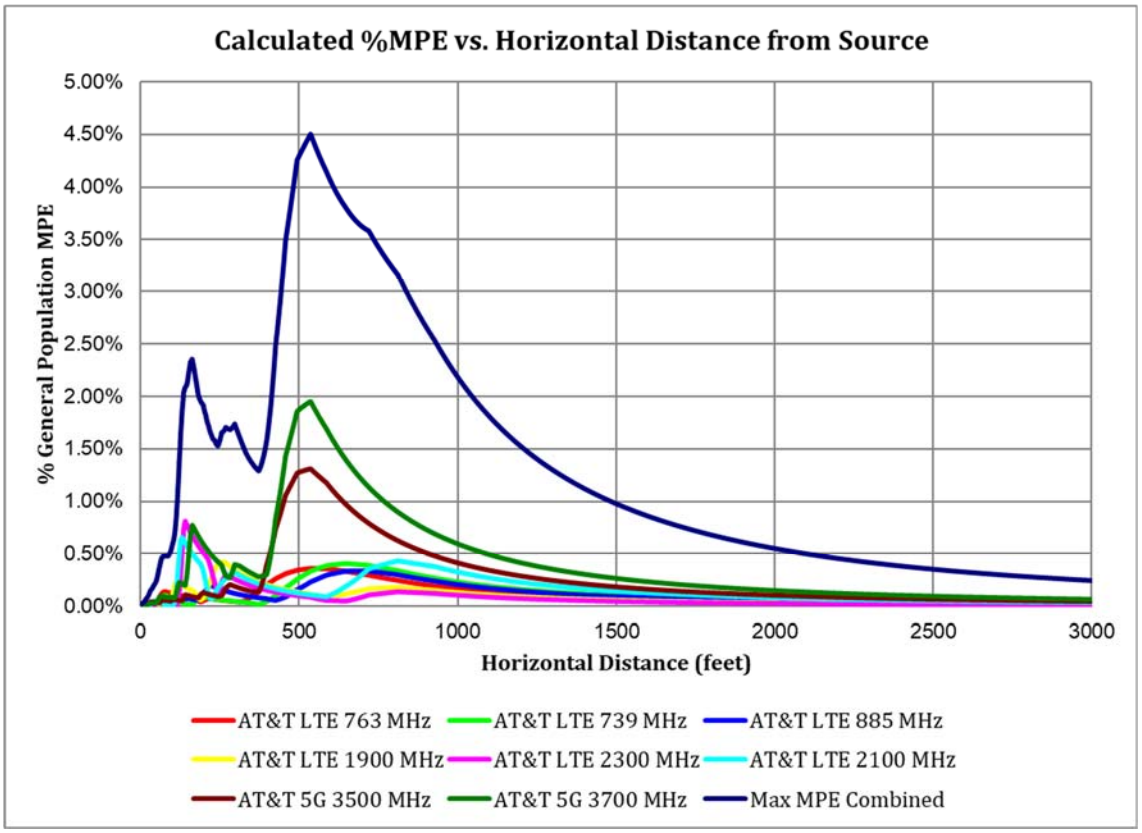


Figure 1: Graph of General Population % MPE vs. Distance

The highest percent of MPE (4.50% of the General Population limit) is calculated to occur at a horizontal distance of 536 feet from antennas. Please note that the percent of MPE calculations close to the site take into account off beam loss, which is determined from the vertical pattern of the antennas used. Therefore, RF power density levels may increase as the distance from the site increases. At distances of approximately 1500 feet and beyond, one would now be in the main beam of the antenna pattern and off beam loss is no longer considered. Beyond this point, RF levels become calculated solely on distance from the site and the percent of MPE decreases significantly as distance from the site increases.

Table 2 below lists percent of MPE values as well as the associated parameters that were included in the calculations. The highest percent of MPE value was calculated to occur at a horizontal distance of 536 feet from the site (reference Figure 1).

As stated in Section 3, all calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. In addition, a six-foot height offset was considered in this analysis to account for average human height. As a result, the predicted signal levels are significantly higher than the actual signal levels will be from the final configuration. The results presented in Figure 1 and Table 2 assume level ground elevation from the base of the tower out to the horizontal distances calculated.

Carrier	Number of Transmitters	Power out of Base Station Per Transmitter (Watts)	Antenna Height (Feet)	Distance to the Base of Antennas (Feet)	Power Density (mW/cm^2)	Limit (mW/cm^2)	% MPE
AT&T 5G 3500 MHz	1	54.0	120.0	536	0.013100	1.000	1.31%
AT&T 5G 3700 MHz	1	87.0	120.0	536	0.019513	1.000	1.95%
AT&T LTE 1900 MHz	1	160.0	120.0	536	0.001166	1.000	0.12%
AT&T LTE 2100 MHz	1	240.0	120.0	536	0.001091	1.000	0.11%
AT&T LTE 2300 MHz	1	100.0	120.0	536	0.000876	1.000	0.09%
AT&T LTE 739 MHz	1	160.0	120.0	536	0.001645	0.493	0.33%
AT&T LTE 763 MHz	1	160.0	120.0	536	0.001836	0.509	0.36%
AT&T LTE 885 MHz	1	160.0	120.0	536	0.001371	0.590	0.23%
						Total	**4.50%**

Table 2: Maximum Percent of General Population Exposure Values

6. Conclusion

The above analysis verifies that RF exposure levels from the site with AT&T's proposed antenna configuration will be well below the maximum permissible levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using the conservative calculation methods and parameters detailed above, the maximum cumulative percent of MPE in consideration of all transmitters is calculated to be **4.50% of the FCC limit (General Population/Uncontrolled)**. This maximum cumulative percent of MPE value is calculated to occur 536 feet away from the site.

7. Statement of Certification

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

Report Prepared By: Ram Acharya
RF Engineer
C Squared Systems, LLC

October 30, 2023
Date

Reviewed/Approved By: Martin J. Lavin
Senior RF Engineer
C Squared Systems, LLC

November 2, 2023
Date

Attachment A: References

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

IEEE C95.1-2005, IEEE Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz IEEE-SA Standards Board

IEEE C95.3-2002 (R2008), IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz-300 GHz IEEE-SA Standards Board

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

(A) Limits for Occupational/Controlled Exposure[4]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[5]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 3: FCC Limits for Maximum Permissible Exposure

[4] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

[5] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

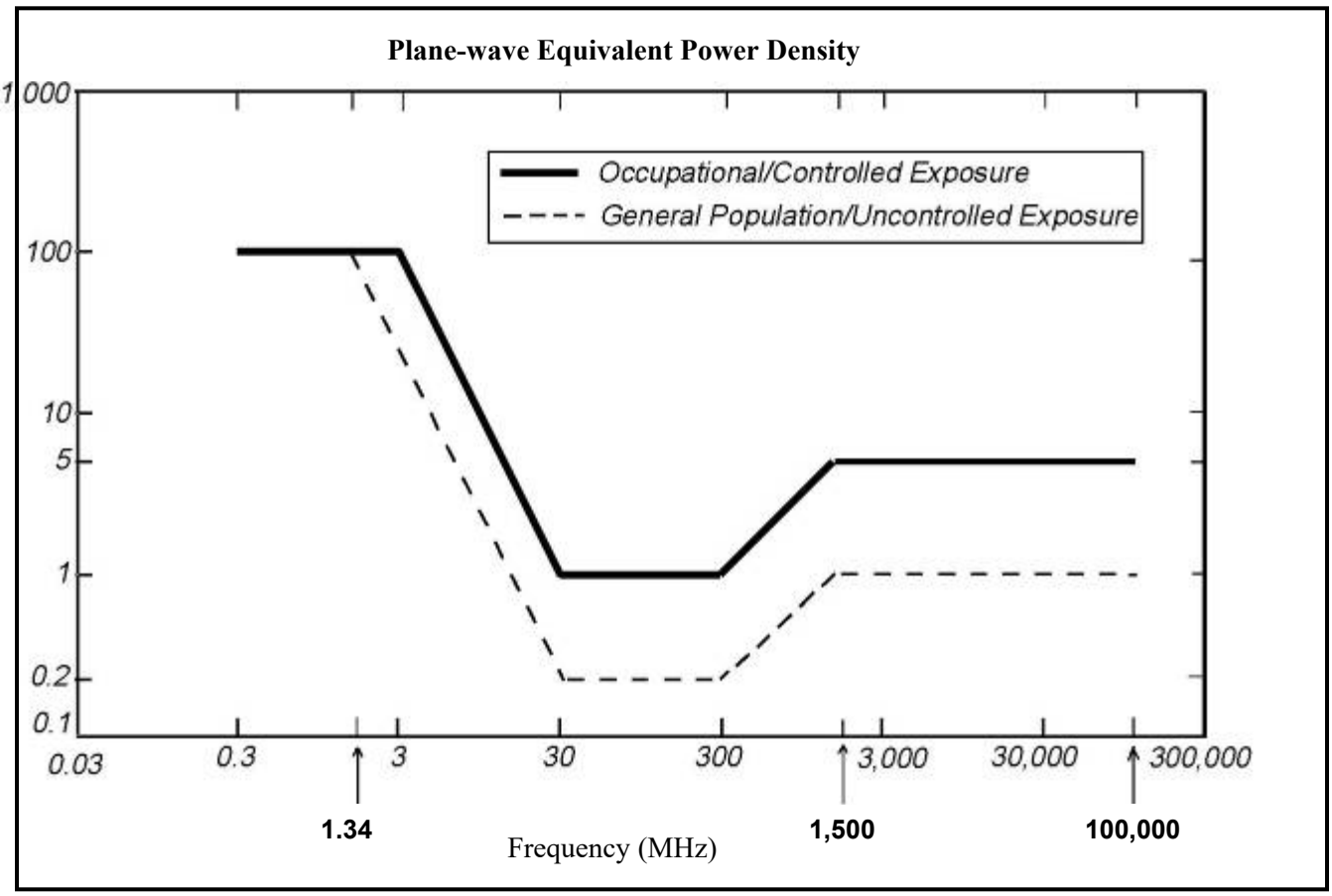
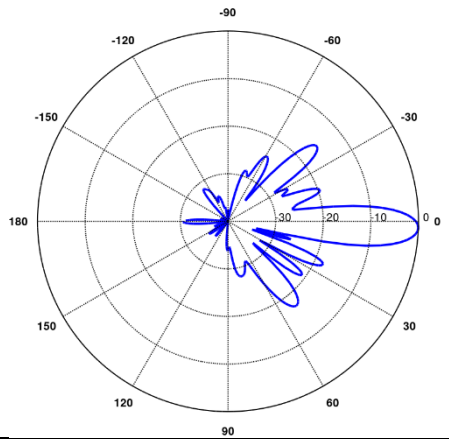


Figure 2: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

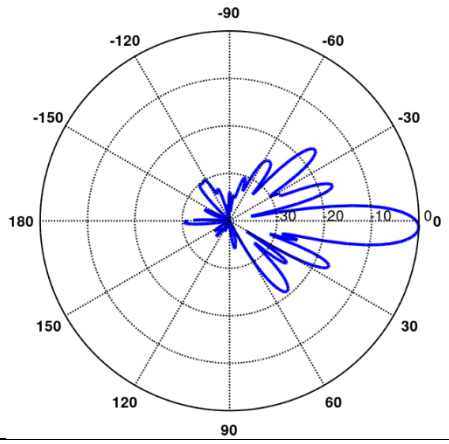
700 MHz

Manufacturer:	CCI
Model #:	TPA65R-BU8DA
Frequency Band:	698-806 MHz
Gain:	15.6 dBi
Vertical Beamwidth:	9.5°
Horizontal Beamwidth:	74°
Polarization:	Dual Linear 45°
Dimensions (L x W x D):	96” x 20.7” x 7.7”



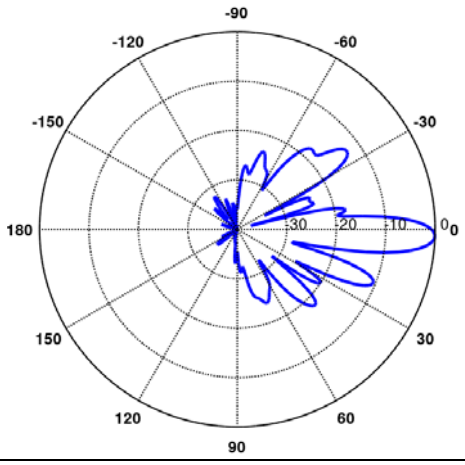
700 MHz

Manufacturer:	CCI
Model #:	OPA65R-BU8D
Frequency Band:	698-806 MHz
Gain:	15.7 dBi
Vertical Beamwidth:	9.5°
Horizontal Beamwidth:	75°
Polarization:	Dual Linear 45°
Dimensions (L x W x D):	96” x 20.7” x 7.7”



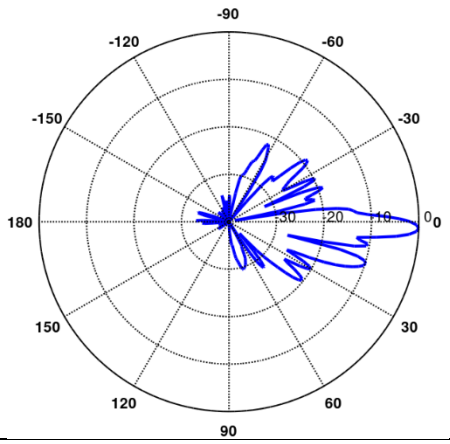
850 MHz

Manufacturer:	CCI
Model #:	TPA65R-BU8DA
Frequency Band:	824-896 MHz
Gain:	16.6 dBi
Vertical Beamwidth:	8.0°
Horizontal Beamwidth:	63°
Polarization:	Dual Linear 45°
Dimensions (L x W x D):	96” x 20.7” x 7.7”



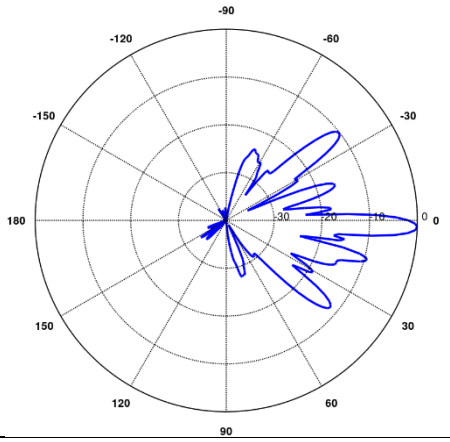
1900 MHz

Manufacturer:	CCI
Model #:	OPA65R-BU8D
Frequency Band:	1850-1990 MHz
Gain:	17.9 dBi
Vertical Beamwidth:	5.1°
Horizontal Beamwidth:	67°
Polarization:	Dual Linear 45°
Dimensions (L x W x D):	96” x 20.7” x 7.7”



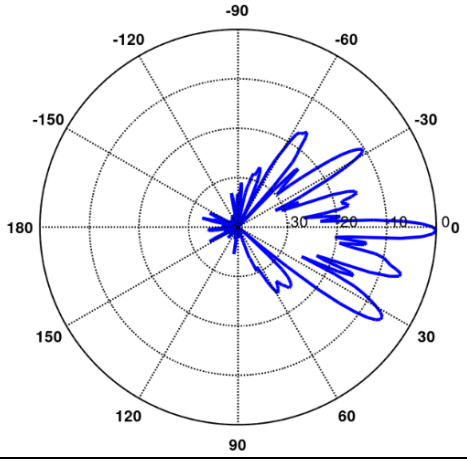
2100 MHz

Manufacturer:	CCI
Model #:	TPA65R-BU8DA
Frequency Band:	1920-2180 MHz
Gain:	18.3 dBi
Vertical Beamwidth:	4.7°
Horizontal Beamwidth:	67°
Polarization:	Dual Linear 45°
Dimensions (L x W x D):	96” x 20.7” x 7.7”



2300 MHz

Manufacturer:	CCI
Model #:	OPA65R-BU8D
Frequency Band:	2300-2400 MHz
Gain:	18.3 dBi
Vertical Beamwidth:	4.1°
Horizontal Beamwidth:	54°
Polarization:	Dual Linear 45°
Dimensions (L x W x D):	96” x 20.7” x 7.7”



CTL01845 - WESTON TALL PINES DRIVE
NEW EVERSOURCE STRUCT. NO. 19775
5 TALL PINES DRIVE
WESTON, CT 06883

RFDS GENERAL INFORMATION

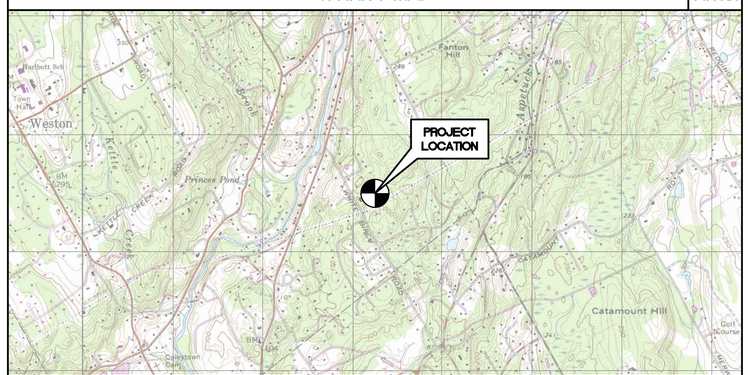
CELL SITE RF MODIFICATIONS:	5G NR Radio || 5G NR 1SR CBAND 5G NR Radio || 5G NR 1SR CBAND 5G NR Radio || 5G NR 1SR
PACE ID:	PACE JOB #1 – MRCTB067553 PACE JOB #2 – MRCTB067551 PACE JOB #3 – MRCTB067558
FA LOCATION CODE:	12685511

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "H" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2022 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. 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.
5. 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 AND ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.
11. 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.
12. 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.
13. 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.
14. 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.
15. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
16. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
17. 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.
18. 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.
19. 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.
20. 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.
21. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUITS AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND CONFIRMED WITH THE PROJECT MANAGER AND OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK
22. 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.
23. 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. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
24. CONTRACTOR SHALL COMPLY WITH THE OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
25. THE COUNTY/CITY/TOWN MAY MAKE PERIODIC FIELD INSPECTIONS TO ENSURE COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS, AND CONTRACT DOCUMENTS.
26. THE COUNTY/CITY/TOWN MUST BE NOTIFIED (2) WORKING DAYS PRIOR TO CONCEALMENT/BURIAL OF ANY SYSTEM OR MATERIAL THAT WILL PREVENT THE DIRECT INSPECTION OF MATERIALS, METHODS OR WORKMANSHIP. EXAMPLES OF THESE PROCESSES ARE BACKFILLING A GROUND RING OR TOWER FOUNDATION, POURING TOWER FOUNDATIONS, BURYING GROUND RODS, PLATES OR GRIDS, ETC. THE CONTRACTOR MAY PROCEED WITH THE SCHEDULED PROCESS (2) WORKING DAYS AFTER PROVIDING NOTICE UNLESS NOTIFIED OTHERWISE BY THE COUNTY/CITY/TOWN.
27. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF ENGINEER ON RECORD, PRIOR TO THE COMMENCEMENT OF ANY WORK.

SITE LOCATION MAP — N.T.S.

VICINITY MAP — N.T.S.



SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SITE COORDINATES: LATITUDE: 41°-10'-52.45" N
LONGITUDE: 73°-23'-35.61" W
GROUND ELEVATION: 323.87'± AMSL

NORTH

PROJECT SUMMARY

THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:

1. INSTALL NEW SITE PRO ANTENNA PLATFORM FRAME.
2. INSTALL (3) NEW TPA65R-BU8DA-K ANTENNAS.
3. INSTALL (3) NEW AIR6449 B77D ANTENNAS.
3. INSTALL (3) NEW AIR6419 B77G ANTENNAS.
3. INSTALL (3) NEW OPA65R-BU8DA ANTENNAS.
4. INSTALL (3) NEW 4426 B66 RADIOS AT GRADE.
5. INSTALL (1) DC6 SQUID AT TOWER.
6. INSTALL (12) TSXDC-4310FM SURGE ARRESTORS AT GRADE.
7. INSTALL (12) CBC61923T-DS AND (6) DBC0115F1V91-2 DIPLEXERS AT GRADE.
8. INSTALL (6) TMA2124F03V5-2D AND (6) TMAT192123B68-31 TMAs AT TOWER
9. INSTALL NEW CABLE ICE BRIDGE FROM EXISTING EQUIPMENT LOCATION TO NEW UTILITY POLE LOCATION.
10. INSTALL (24) 1-5/8" COAX CABLES (REMOVE EXISTING COAX)
11. INSTALL (1) FIBER CABLE
12. INSTALL (2) DC CABLES
13. ADD (1) 6651 BB
14. ADD (1) 6651+XCEDE CABLE

PROJECT INFORMATION

SITE NAME:	WESTON TALL PINES DRIVE
SITE ADDRESS:	EVERSOURCE STRUCT. NO. 19775 5 TALL PINES DRIVE WESTON, CT 06883
PROPERTY OWNER:	EVERSOURCE 107 SELDEN STREET BERLIN, CT 06037
LESSEE/TENANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
CONTACT PERSON:	TARAH NOLAN SAI GROUP (603) 212-5049
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD ROAD, BRANFORD, CT 06405 (203) 488-0580
TOWER COORDINATES:	LATITUDE: 41°-11'-40.65" N LONGITUDE: 73°-20'-52.92" W GROUND ELEVATION: 204.37'± AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

SHEET. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
N-1	GENERAL NOTES AND ANTENNA SCHEDULE	0
C-1	COMPOUND PLAN AND ELEVATION	0
C-2	EQUIPMENT PLAN, ANTENNA PLAN AND ELEVATION	0
C-3	TYPICAL EQUIPMENT DETAILS	0
C-4	TYPICAL EQUIPMENT DETAILS	0
C-5	RF PLUMBING DIAGRAM	0
E-1	ELECTRICAL GROUNDING PLAN AND RISER DIAGRAM	0
E-2	TYPICAL ELECTRICAL DETAILS	0
E-3	ELECTRICAL SPECIFICATIONS	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	10/23/23	ASC	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

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AT&T MOBILITY

WESTON TALL PINES DRIVE
SITE NUMBER: CT1845
5 TALL PINES DRIVE
WESTON, CT 06883

DATE: 09/05/23
SCALE: AS NOTED
JOB NO. 22007.09

TITLE SHEET

T-1

Sheet No. 1 of 10

NOTES AND SPECIFICATIONS:

DESIGN BASIS:

GOVERNING CODE: 2021 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2022 CONNECTICUT STATE BUILDING CODE.

1. DESIGN CRITERIA:

- RISK CATEGORY II (BASED ON IBC TABLE 1604.5)
- NOMINAL DESIGN SPEED: 117 MPH (Vasd)
  (EXPOSURE B/ IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-16).

SITE NOTES

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
4. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
5. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "H" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2022 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. 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.
5. 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 AND ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.
11. 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.
12. 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.
13. 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.
14. 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.
15. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
16. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
17. 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.
18. 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.
19. 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.
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ANTENNA/APPURTENANCE SCHEDULE

SECTOR	EXISTING/PROPOSED	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	(E/P) RRU (AT GRADE) (QTY)	(E/P) TMA (AT ANTENNA)/DIPLEXER (AT GRADE) (QTY)	(QTY) PROPOSED HYBRID/COAX
A2	PROPOSED	CCI (TPA65R-BU8DA-K)	96 x 21 x 7.8	120'	30°	(E) 4478 B14 (1), (E) 4415 B25 (1), (P) 4426 B66 (1)	(P) TMA2124F03V5-2D (2), (P) CBC61923T-DS (4)	(24) 1 5/8" COAX (±220 FT) (2) DC CABLE (±220 FT) (1) FIBER CABLE(±220 FT)
A3	PROPOSED	ERICSSON (AIR6419 B77G)/(AIR6449 B77D)	31 x 16.1 x 7.3 / 30.6 x 15.9 x 10.6	120'	30°			
A4	PROPOSED	CCI (OPA-65R-BU8DA)	96 x 21 x 7.8	120'	30°	(E) 4449 B5/B12 (1), (E) 4415 B30 (1)	(P) TMAT192123B68-31-43 (2), (P) DBC0115F1V91-2 (2)	
B2	PROPOSED	CCI (TPA65R-BU8DA-K)	96 x 21 x 7.8	120'	150°	(E) 4478 B14 (1), (E) 4415 B25 (1), (P) 4426 B66 (1)	(P) TMA2124F03V5-2D (2), (P) CBC61923T-DS (4)	
B3	PROPOSED	ERICSSON (AIR6419 B77G)/(AIR6449 B77D)	31 x 16.1 x 7.3 / 30.6 x 15.9 x 10.6	120'	150°			
B4	PROPOSED	CCI (OPA-65R-BU8DA-K)	96 x 21 x 7.8	120'	150°	(E) 4449 B5/B12 (1), (E) 4415 B30 (1)	(P) TMAT192123B68-31-43 (2), (P) DBC0115F1V91-2 (2)	
C2	PROPOSED	CCI (TPA65R-BU8DA-K)	96 x 21 x 7.8	120'	270°	(E) 4478 B14 (1), (E) 4415 B25 (1), (P) 4426 B66 (1)	(P) TMA2124F03V5-2D (2), (P) CBC61923T-DS (4)	
C3	PROPOSED	ERICSSON (AIR6419 B77G)/(AIR6449 B77D)	31 x 16.1 x 7.3 / 30.6 x 15.9 x 10.6	120'	270°			
C4	PROPOSED	CCI (OPA-65R-BU8DA-K)	96 x 21 x 7.8	120'	270°	(E) 4449 B5/B12 (1), (E) 4415 B30 (1)	(P) TMAT192123B68-31-43 (2), (P) DBC0115F1V91-2 (2)	

NOTE:
ALL HYBRID/COAX LENGTHS TO BE MEASURED AND VERIFIED IN FIELD BEFORE ORDERING

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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SITE NUMBER: CT1845
5 TALL PINES DRIVE
WESTON, CT 06883

DATE: 09/05/23
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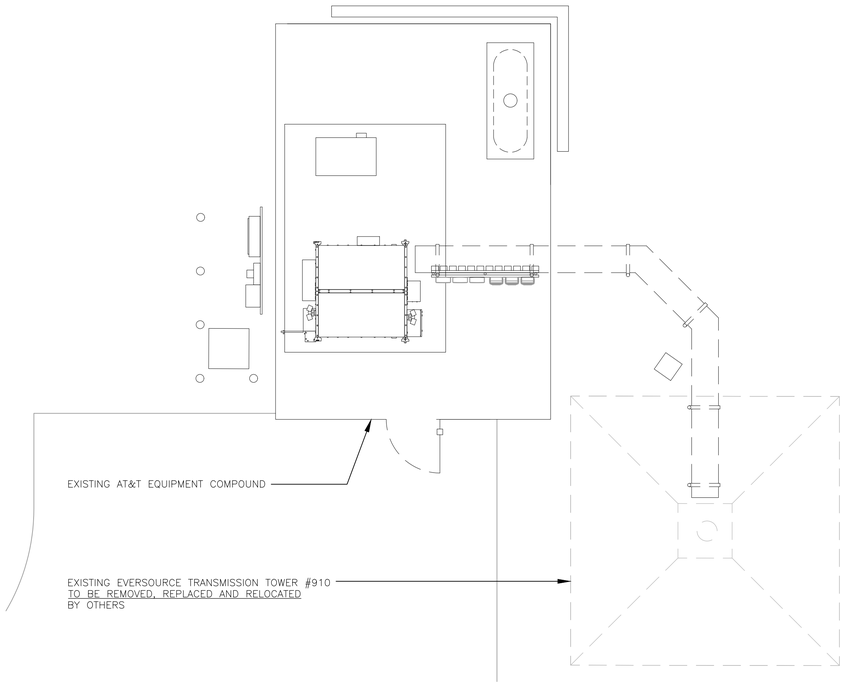
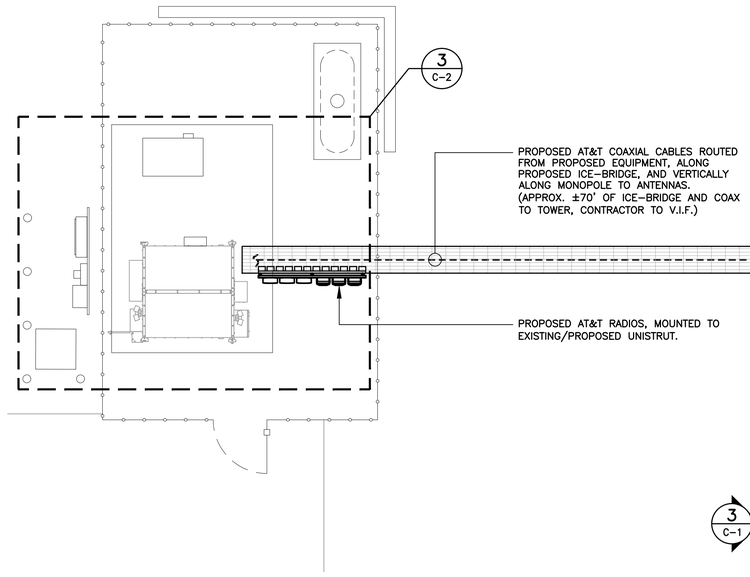
JOB NO. 22007.09

GENERAL NOTES AND ANTENNA SCHEDULE

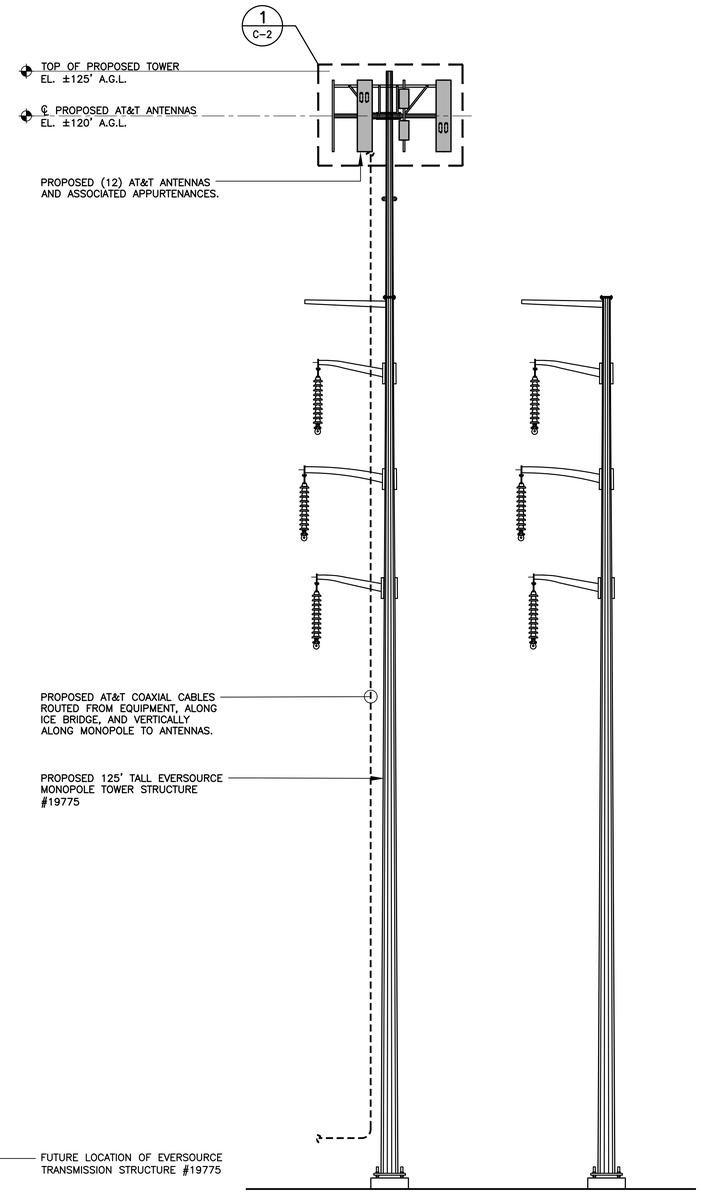
N-1



1 C-1 **COMPOUND PLAN - EXISTING**
SCALE: 1/4" = 1'
TRUE NORTH



2 C-1 **COMPOUND PLAN - PROPOSED**
SCALE: 1/4" = 1'
TRUE NORTH



NOTE: GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

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

STRUCTURAL COMPLIANCE

ANTENNA MOUNTS

A STRUCTURAL ANALYSIS OF THE ANTENNA MOUNTS WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING..

REFER TO THE ANTENNA MOUNT ANALYSIS REPORT PREPARED BY "TEP OPCO, LLC" (PROJECT # 326577.848400) DATED 05/02/23 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

TOWER AND TOWER FOUNDATION

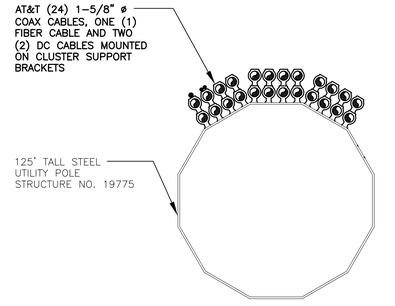
A STRUCTURAL ANALYSIS OF THE TOWER AND TOWER FOUNDATION WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING.

REFER TO THE STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING (PROJECT # 22007.09) DATED 08/07/23 REV.2 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

NOTE: NO EQUIPMENT SHALL BE INSTALLED ON THE HOSTING STRUCTURE WITHOUT A PASSING STRUCTURAL ANALYSIS REPORT AND CONTRACTOR PRIOR CONFIRMATION THAT ANY AND ALL REQUISITE MODIFICATIONS HAVE BEEN COMPLETED.

NOTE:

COAX IS TO BE INSTALLED SUCH THAT IT DOESN'T EXTEND BEYOND THE BACK SURFACE OF THE POLE BY MORE THAN 1'-0" (MAXIMUM)



4 C-1 **COAX CABLE RUN**
SCALE: NOT TO SCALE

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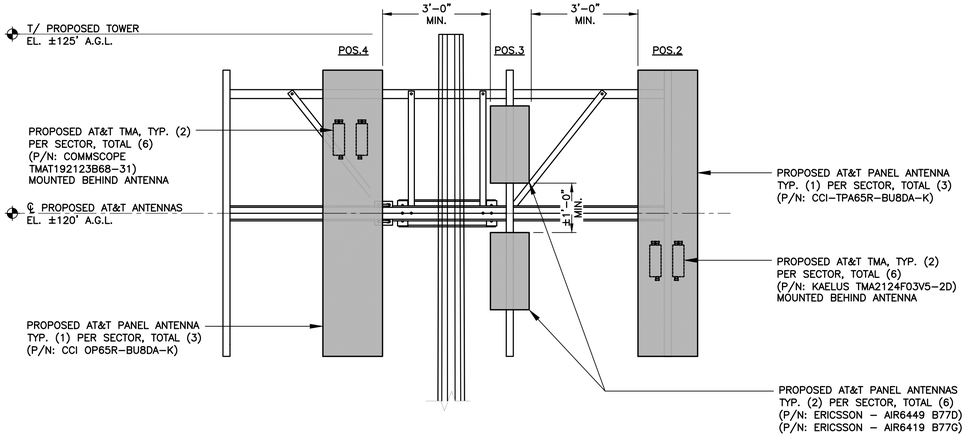
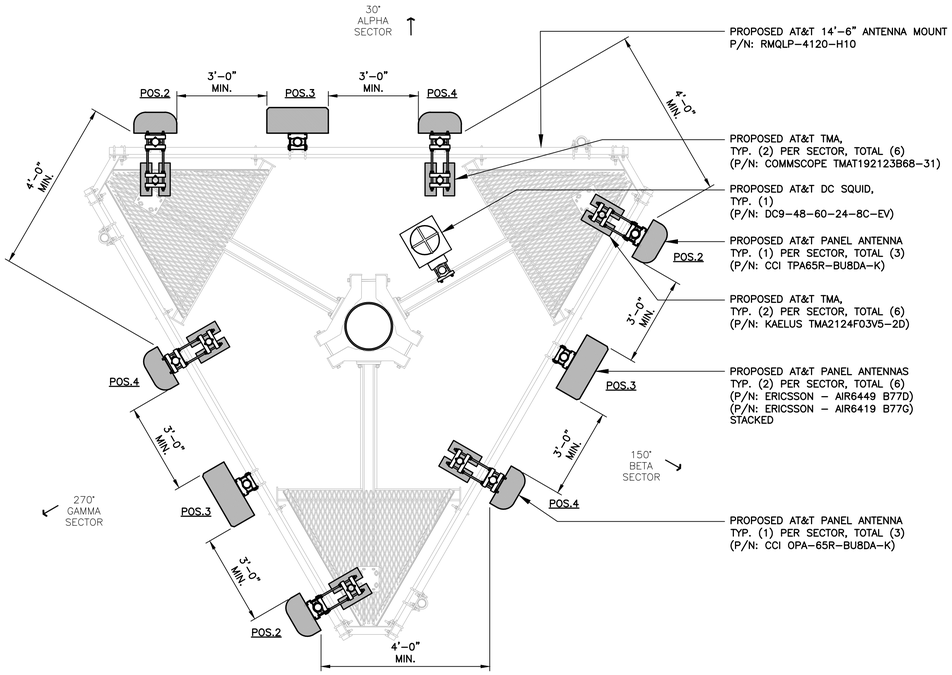
COMPOUND PLAN AND ELEVATION

C-1

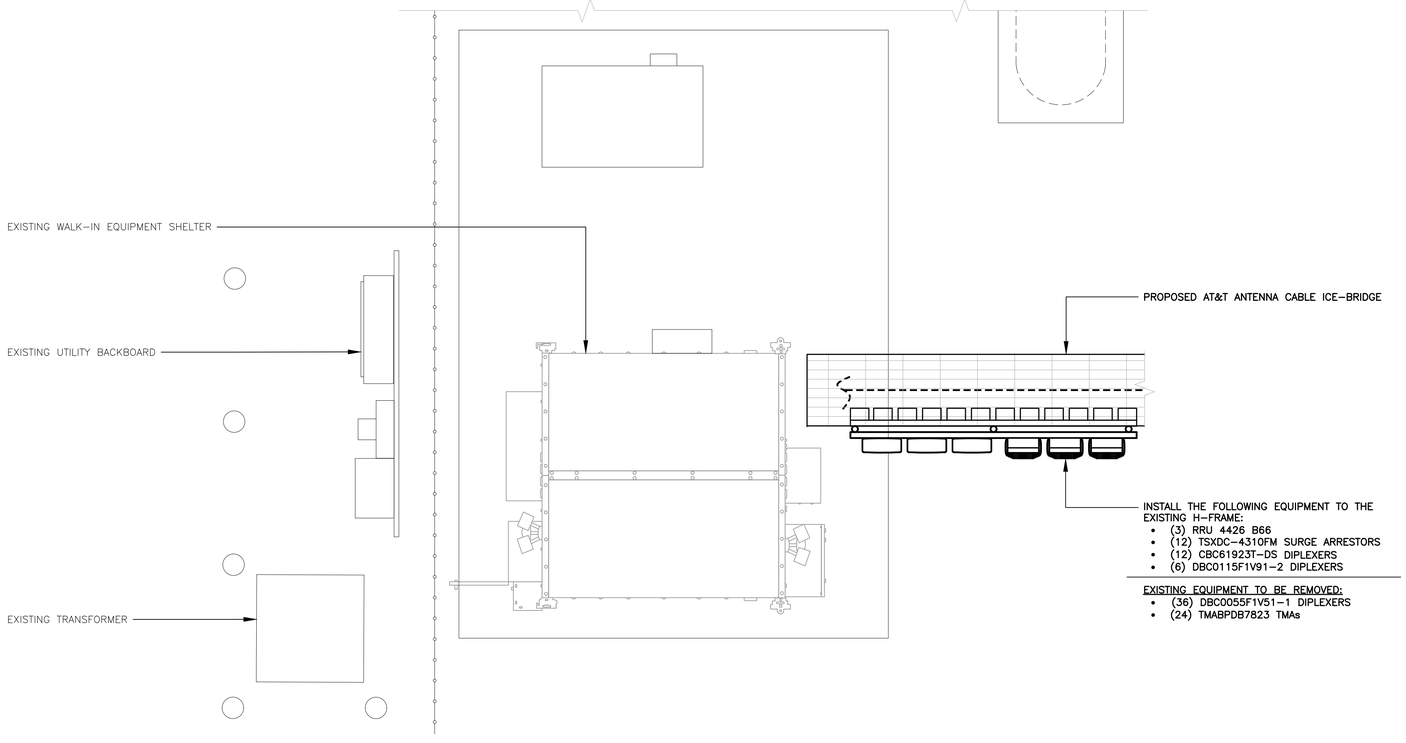
Sheet No. 4 of 10



1 C-2 **TYPICAL ANTENNA CONFIGURATION ELEVATION**
SCALE: 1/2" = 1' - 0"



2 C-2 **ANTENNA CONFIGURATION PLAN**
SCALE: 1/2" = 1' - 0"
TRUE NORTH



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

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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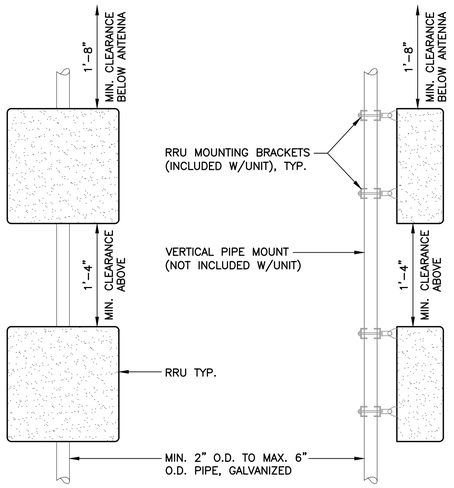
EQUIPMENT PLAN, ANTENNA PLAN AND ELEVATION

C-2

Sheet No. 4 of 10

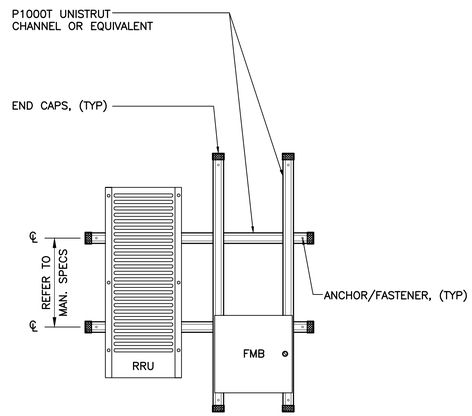


NOTES: (PIPE MOUNTING)

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.
2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

1 C-3 TYPICAL RRU MOUNTING DETAILS

SCALE: NOT TO SCALE



NOTES: (UNISTRUT MOUNTING)

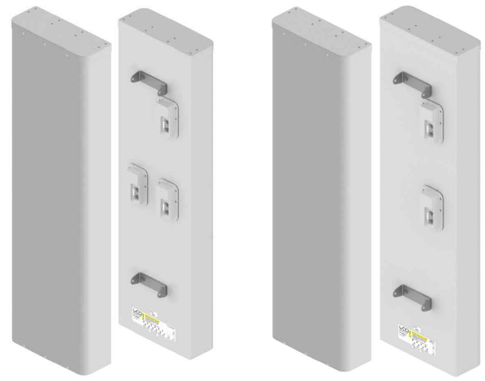
1. INSTALL A MINIMUM OF (2) ANCHORS PER UNISTRUT (± 16"o/c MIN).
2. MOUNT RRU TO UNISTRUT WITH 3/8"ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS. TYPICAL FOUR PER BRACKET.
3. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

RRU 4426 B66A

RRU (REMOTE RADIO UNIT)		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: 4426 B66	14.9"H x 13.2"W x 5.8"D	±48 LBS.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.		

2 C-3 PROPOSED RRU DETAILS

SCALE: NOT TO SCALE

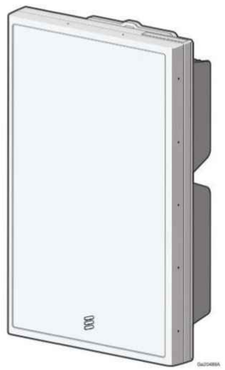


TPA65R-BU8D OPA65R-BU8D

SECTOR ANTENNAS		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: CCI MODEL: TPA65R-BU8D	96"H x 20.7"W x 7.7"D	±87.1 LBS.
MAKE: CCI MODEL: OPA65R-BU8D	96"H x 20.7"W x 7.7"D	±78.4 LBS.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.		

3 C-3 PROPOSED ANTENNA DETAIL

SCALE: NOT TO SCALE

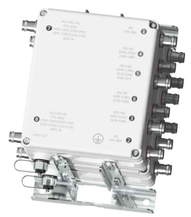


AIR6449 B77D / AIR6419 B77G

SECTOR ANTENNAS		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: AIR6419 B77G	31.1"H x 16.1"W x 7.3"D	±55.4 LBS.
MAKE: ERICSSON MODEL: AIR6449 B77D	30.6"H x 15.9"W x 10.6"D	±95.5 LBS.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.		

4 C-3 PROPOSED ANTENNA DETAIL

SCALE: NOT TO SCALE



TMA2124F03V5-2D

TMAT192123B68-31

TMA (SINGLE UNIT)		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: KAELUS MODEL: TMA2124F03V5-2D	9.7"H x 10.4"W x 8.3"D	±35.0 LBS
MAKE: COMMSCOPE MODEL: TMAT192123B68-31	9.7"H x 10.4"W x 8.3"D	±35.0 LBS
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.		

5 C-3 PROPOSED TMA DETAIL

SCALE: NOT TO SCALE

DBC0115F1V91-1

CBC61923T-DS

DIPLEXER (SINGLE UNIT)		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: KAELUS MODEL: DBC0115F1V91-1	4.3"H x 5.6"W x 2.6"D	±3.5 LBS
MAKE: COMMSCOPE MODEL: CBC61923T-DS	6.9"H x 7.8"W x 4.2"D	±3.5 LBS
CONNECTORS: LONG NECK 4.3-10 FEMALE		

6 C-3 PROPOSED DIPLEXER DETAIL

SCALE: NOT TO SCALE

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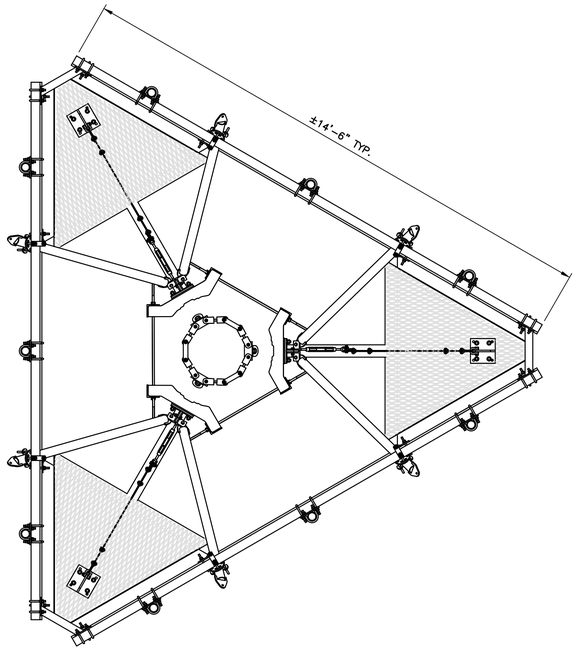
TYPICAL EQUIPMENT DETAILS

C-3

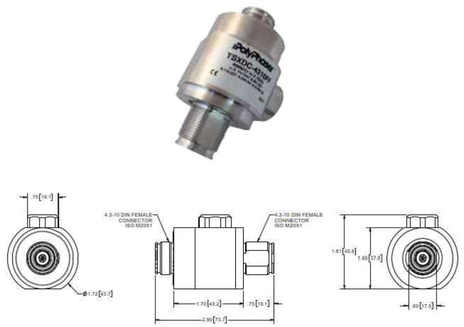
Sheet No. 5 of 10



SITEPRO1:
RMQLP-4120-H10

1 C-4 PLATFORM ANTENNA MOUNT DETAIL

SCALE: NOT SCALE

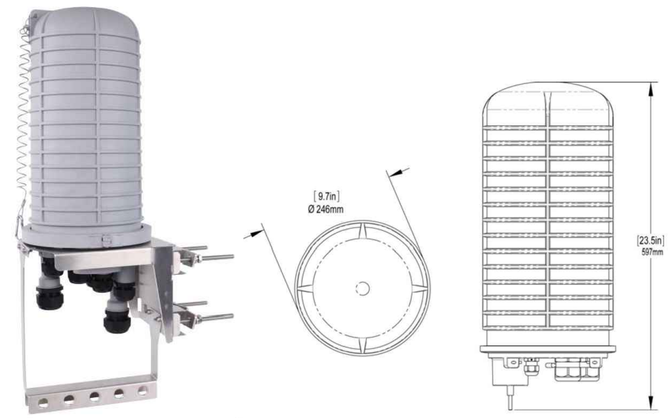


TSXDC-4310FM

SURGE ARRESTOR	
EQUIPMENT	DIMENSIONS
MAKE: POLYPHASER MODEL: TSXDC-4310FM	2.9"H x 1.81"W x 1.72"D

2 C-4 SURGE ARRESTOR DETAIL

SCALE: NOT TO SCALE

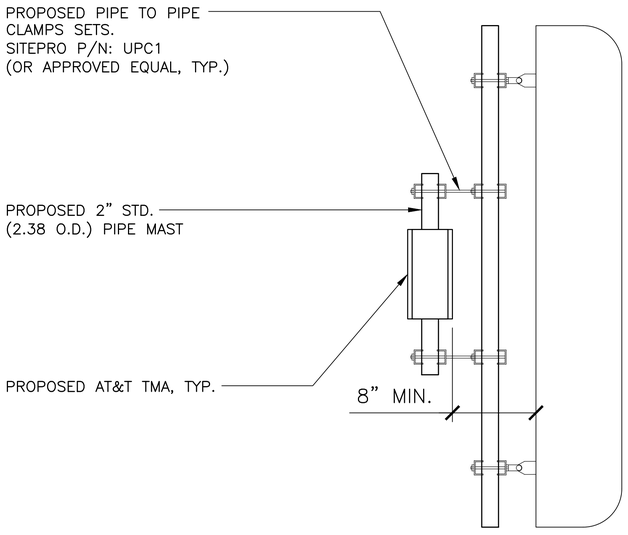


DC6-48-60-18-8F

DC/FIBER SQUID		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RAYCAP MODEL: DC6-48-60-18-8F	23.5"H x 9.7"D	±20 LBS

3 C-4 DC/FIBER SQUID DETAIL

SCALE: NOT TO SCALE



4 C-4 TYPICAL TMA MOUNTING DETAIL

SCALE: NOT TO SCALE

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TYPICAL EQUIPMENT DETAILS

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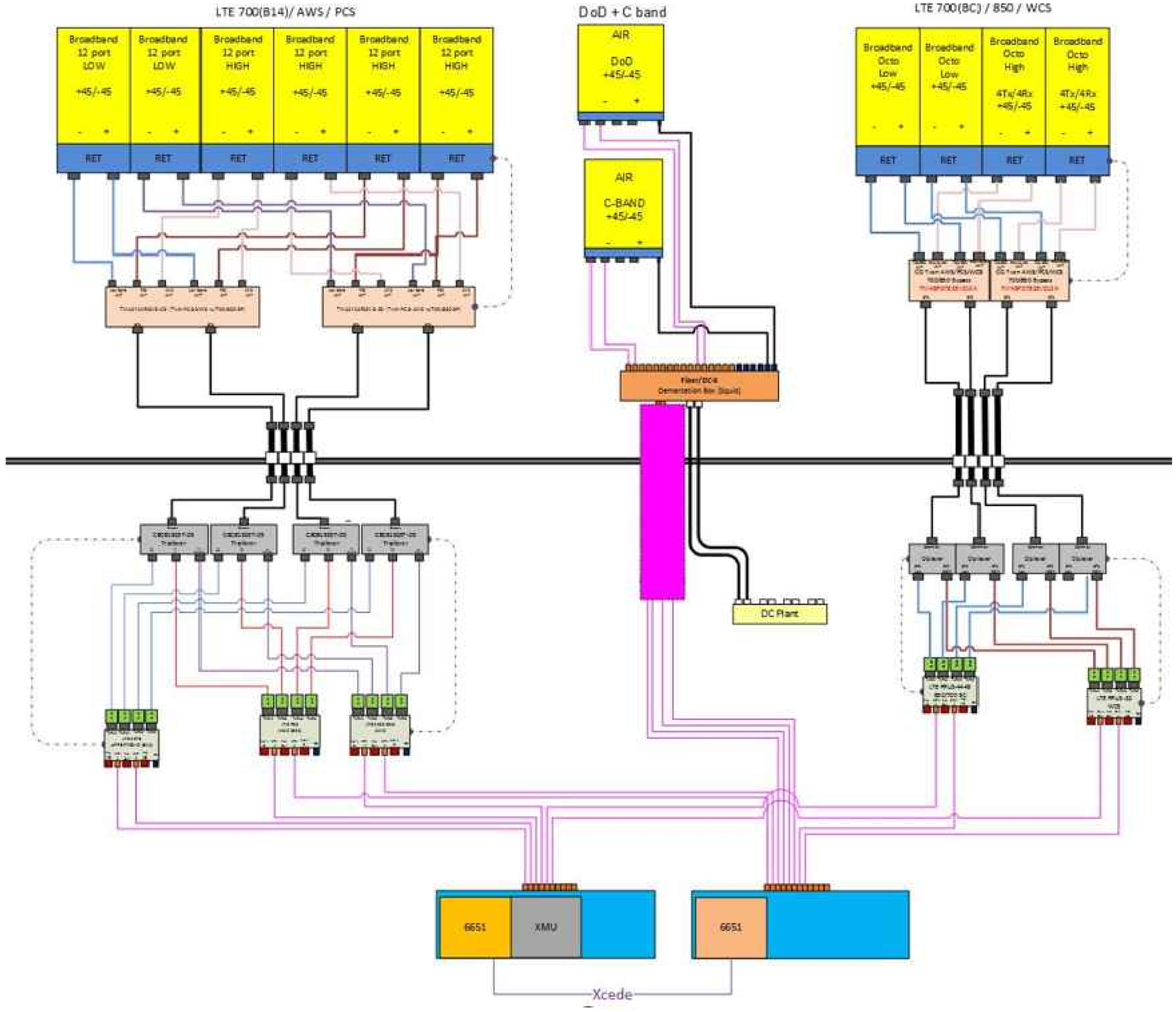

ALPHA/BETA/GAMMA SECTOR

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RF PLUMBING DIAGRAM

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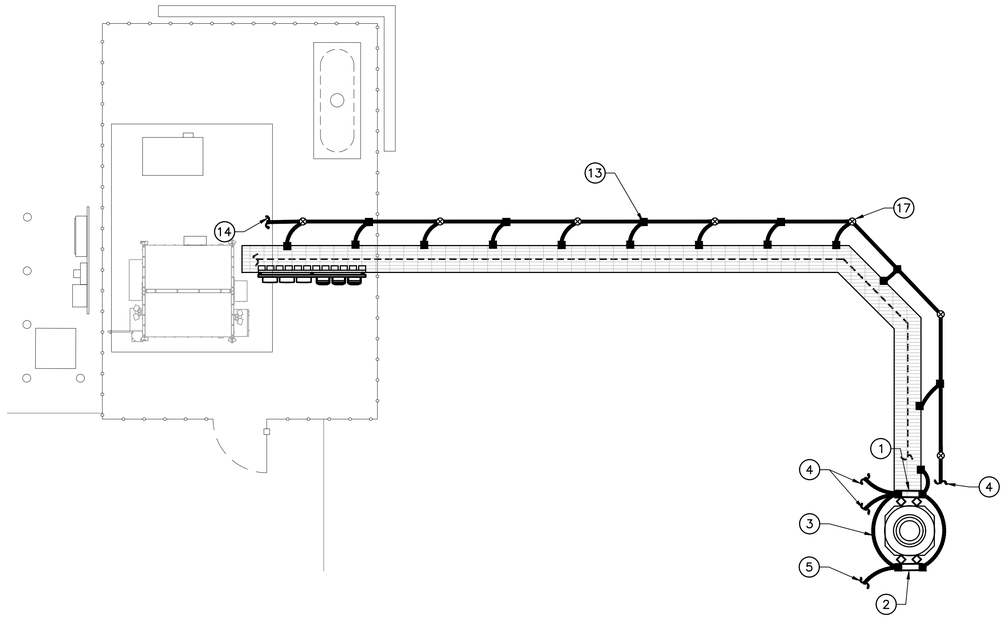


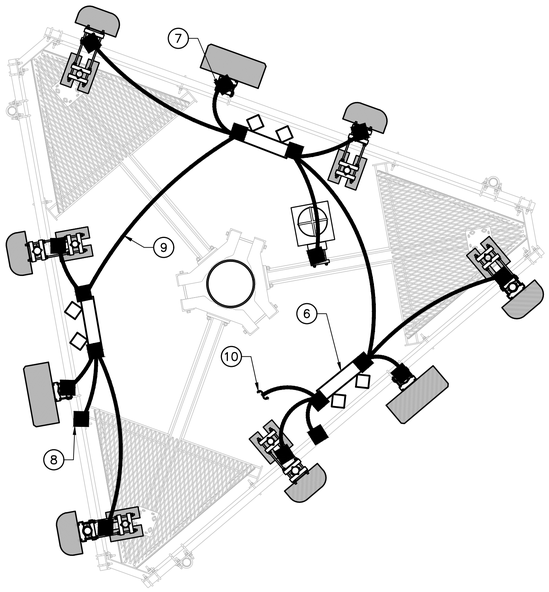
1 E-1 **ELECTRICAL GROUNDING PLAN**
SCALE: 1/4" = 1'

GROUNDING PLAN NOTES

1. LOWER TOWER MOUNTED GROUND BAR.
2. UPPER TOWER MOUNTED GROUND BAR.
3. BOND UPPER TOWER MOUNTED GROUND BAR TO LOWER TOWER MOUNTED GROUND BAR (2) # 2/0 GROUND LEADS.
4. BOND TO EXISTING TOWER GROUND RING.
5. BOND UPPER TOWER MOUNTED GROUND BAR TO SECTOR GROUND BAR TYP.
6. SECTOR GROUND BAR TYP.
7. BOND ANTENNA MOUNTING PIPES TO SECTOR GROUND BAR. (TYPICAL)
8. BOND SECTOR GROUND BAR TO TOWER STEEL. (TYPICAL)
9. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
10. BOND TO UPPER TOWER MOUNTED GROUND BAR.
11. NEW EQUIPMENT GROUND BAR.
12. BOND ALL RADIO EQUIPMENT TO NEW GROUND BAR PER MANUFACTURERS SPECIFICATIONS (TYP). ALL CONNECTIONS NOT SHOWN FOR CLARITY
13. BOND EACH SECTION OF ICE BRIDGE TO GROUND. (TYP)
14. BOND TO EXISTING PLATFORM GROUND RING.
15. #2/0 AWG GREEN INSULATED
16. #6 AWG
17. GROUND ROD PER DETAILS (TYP)

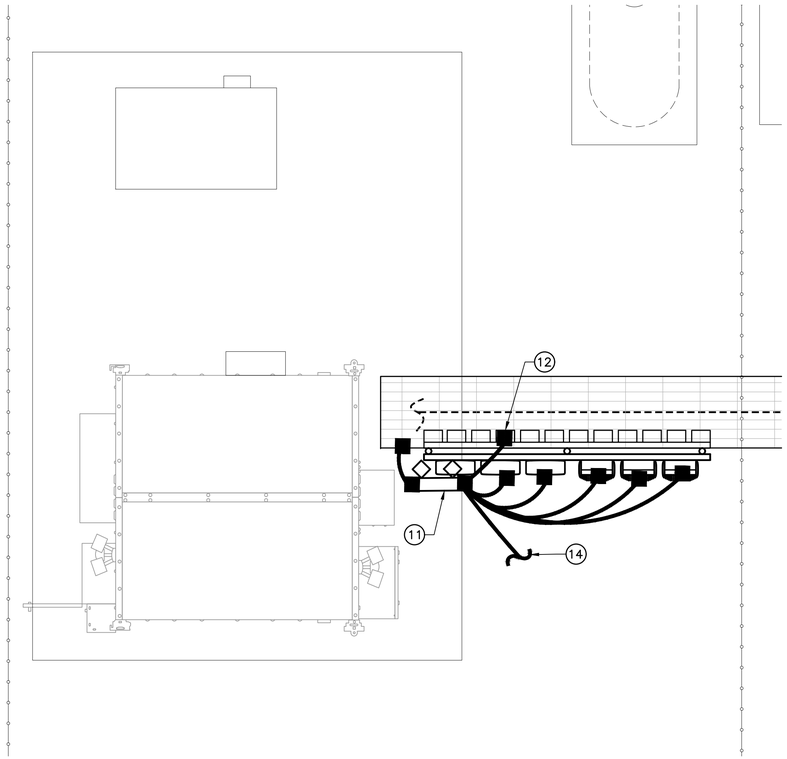
GENERAL NOTES:

1. ALL SURGE SUPPRESSION EQUIPMENT SHALL BE BONDED TO GROUND PER MANUFACTURER'S SPECIFICATIONS
2. UNLESS OTHERWISE NOTED OR REQUIRED BY CODE, GROUND CONDUCTORS SHOWN SHALL BE #2 AWG (SOLID TINNED BCW – EXTERIOR; STRANDED GREEN INSULATED – INTERIOR).
3. BOND CABLE TRAY AND ICE BRIDGE SECTIONS TOGETHER WITH #6 AWG STRANDED GREEN INSULATED JUMPERS.
4. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
5. BOND ALL EQUIPMENT CABINETS AND BATTERY CABINETS TO GROUND PER MANUFACTURER'S SPECIFICATIONS.
6. ALL BONDS TO TOWER SHALL BE MADE IN STRICT ACCORDANCE WITH SPECIFICATIONS OF TOWER MANUFACTURER OR STRUCTURAL ENGINEER.
7. REFER TO GROUNDING PLAN FOR LOCATION OF GROUNDING DEVICES.
8. REFER TO ALL ELECTRICAL AND GROUNDING DETAILS.
9. COORDINATE ALL TOWER MOUNTED EQUIPMENT WITH OWNER.
10. ALL TOWER MOUNTED AMPLIFIERS AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS.
11. ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.
12. COORDINATE WITH EVERSOURCE TRANSMISSION DEPARTMENT REPRESENTATIVE TO DETERMINE ADDITIONAL GROUNDING REQUIREMENTS. PROVIDE ALL REQUIRED ELEMENTS TO MEET EVERSOURCE APPROVAL.
13. COORDINATE WITH TOWER OWNER BEFORE INSTALLING ANY GROUNDING ELEMENTS ON TOWER OR BONDING TO EXISTING TOWER GROUND RING.
14. BOND NEW FENCE POSTS TO EXISTING COMPOUND GROUND RING.



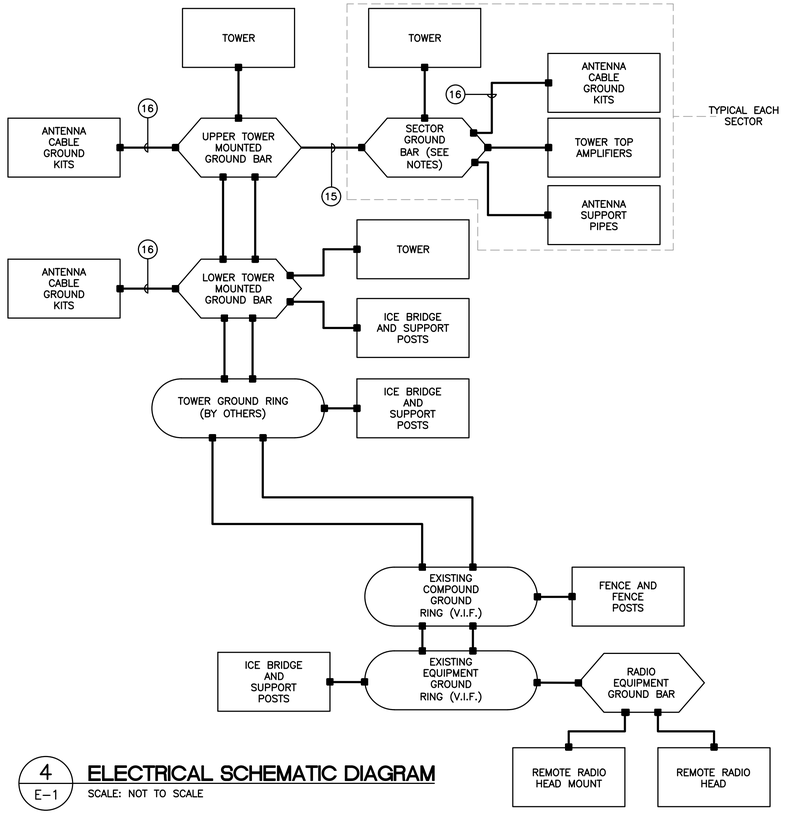
2 E-1 **ANTENNA GROUNDING PLAN**
SCALE: 1/2" = 1' – 0"

TRUE NORTH



3 E-1 **EQUIPMENT GROUNDING PLAN**
SCALE: 1/2" = 1' – 0"

TRUE NORTH



4 E-1 **ELECTRICAL SCHEMATIC DIAGRAM**
SCALE: NOT TO SCALE

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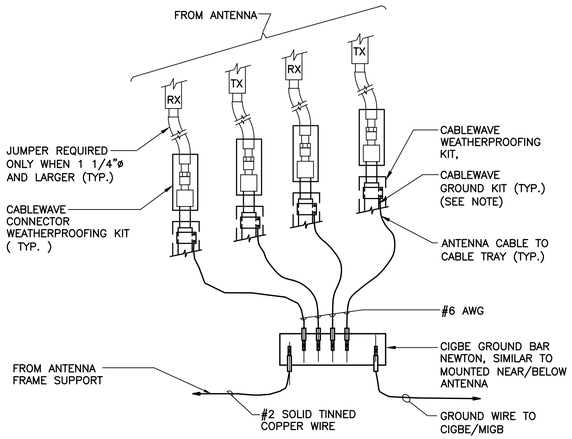
ELECTRICAL GROUNDING PLAN AND RISER DIAGRAM

E-1

Sheet No. 8 of 10

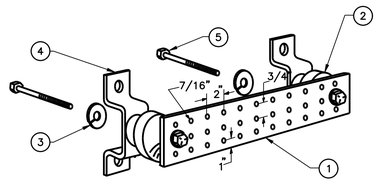


NOTES:

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

1 E-2 CONNECTION OF GROUND WIRES TO GROUND BAR

SCALE: NOT TO SCALE

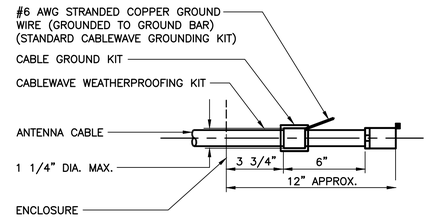


NOTES

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

2 E-2 GROUND BAR DETAIL

SCALE: NOT TO SCALE

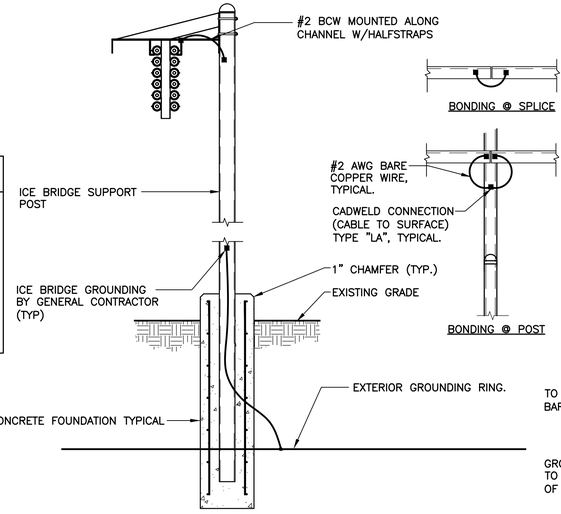


NOTES:

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

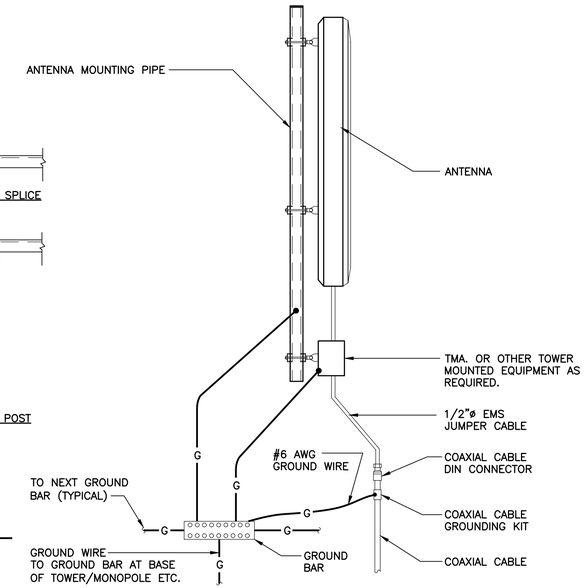
3 E-2 ANTENNA CABLE GROUNDING DETAIL

SCALE: NOT TO SCALE



4 E-2 ICE BRIDGE BONDING DETAIL

SCALE: NOT TO SCALE

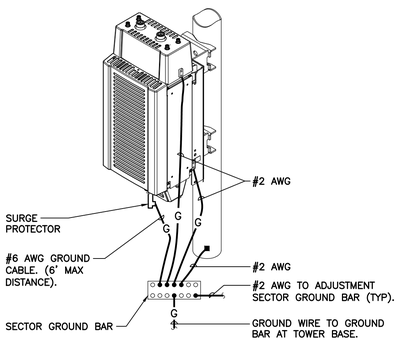


5 E-2 TYPICAL ANTENNA GROUNDING DETAIL

SCALE: NOT TO SCALE

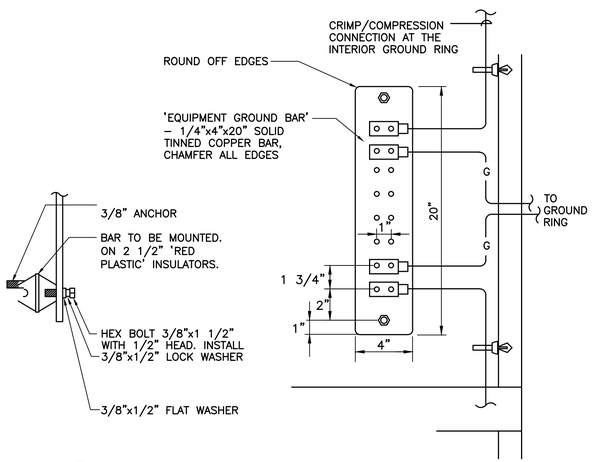
EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:

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



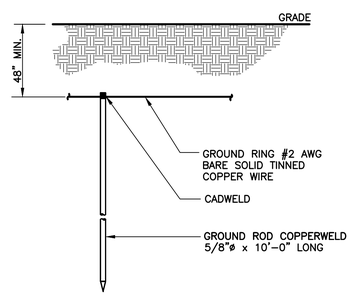
6 E-2 RRH POLE MOUNT GROUNDING

SCALE: NOT TO SCALE



7 E-2 EQUIPMENT GROUND BAR DETAIL

SCALE: NOT TO SCALE

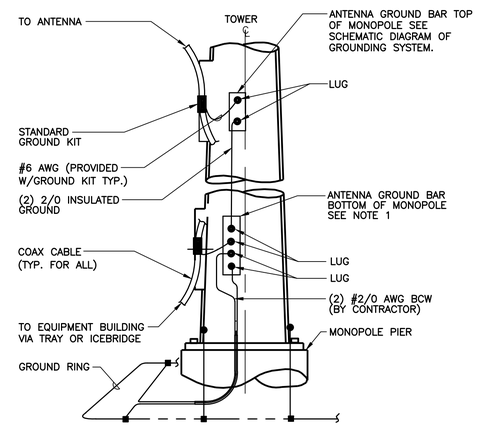


NOTES:

1. USE GROUND PLATE DETAIL IF 10 FT. GROUND ROD DEPTH CANNOT BE ACHIEVED DUE TO LEDGE CONDITION OR IF EXISTING TOWER FOUNDATION IS ENCOUNTERED.

8 E-2 GROUND ROD DETAIL

SCALE: 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.

9 E-2 ANTENNA CABLE GROUNDING

SCALE: NOT TO SCALE

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TYPICAL ELECTRICAL DETAILS

E-2

Sheet No. 9 of 10

ELECTRICAL SPECIFICATIONS

SECTION 16010

1.02. GENERAL REQUIREMENTS

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

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

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

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

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

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

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

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

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

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

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

L. PROVIDE TEMPORARY POWER AND LIGHTING IN WORK AREAS AS REQUIRED.

M. SHOP DRAWINGS:

1. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS ON ALL EQUIPMENT AND MATERIALS PROPOSED FOR USE ON THIS PROJECT, GIVING ALL DETAILS, WHICH INCLUDE DIMENSIONS, CAPACITIES, ETC.

2. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF ALL TEST REPORTS CALLED FOR IN THE SPECIFICATIONS AND DRAWINGS.

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

SECTION 16111

1.01. CONDUITS

A. MINIMUM CONDUIT SIZE FOR BRANCH CIRCUITS, LOW VOLTAGE CONTROL AND ALARM CIRCUITS SHALL BE 3/4". CONDUITS SHALL BE PROPERLY FASTENED AS REQUIRED BY THE N.E.C.

B. THE INTERIOR OF RACEWAYS/ENCLOSURES INSTALLED UNDERGROUND SHALL BE CONSIDERED TO BE WET LOCATION, INSULATED CONDUCTORS SHALL BE LISTED FOR USE IN WET LOCATIONS. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

C. CONDUIT INSTALLED UNDERGROUND SHALL BE INSTALLED TO MEET MINIMUM COVER REQUIREMENTS OF TABLE 300.5.

D. PROVIDE RIGID GALVANIZED STEEL CONDUIT (RMC) FOR THE FIRST 10 FOOT SECTION WHEN LEAVING A BUILDING OR SECTIONS PASSING THROUGH FLOOR SLABS

E. ONLY LISTED PVC CONDUIT AND FITTINGS ARE PERMITTED FOR THE INSTALLATION OF ELECTRICAL CONDUCTORS, SUITABLE FOR UNDERGROUND APPLICATIONS.

CONDUIT SCHEDULE SECTION 16111

CONDUIT TYPE	NEC REFERENCE	APPLICATION	MIN. BURIAL DEPTH (PER NEC TABLE 300.5) [2][3]
EMT	ARTICLE 358	INTERIOR CIRCUITING, EQUIPMENT ROOMS, SHELTERS	N/A
RMC, RIGID GALV. STEEL	ARTICLE 344, 300.5, 300.50	ALL INTERIOR/ EXTERIOR CIRCUITING, ALL UNDERGROUND INSTALLATIONS.	6 INCHES
PVC, SCHEDULE 40	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE NOT SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
PVC, SCHEDULE 80	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
LIQUID TIGHT FLEX. METAL	ARTICLE 350	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A
FLEX. METAL	ARTICLE 348	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A

[1] PHYSICAL DAMAGE IS SUBJECT TO THE AUTHORITY HAVING JURISDICTION.

[2] UNDERGROUND CONDUIT INSTALLED UNDER ROADS, HIGHWAYS, DRIVEWAYS, PARKING LOTS SHALL HAVE MINIMUM DEPTH OF 24".

[3] WHERE SOLID ROCK PREVENTS COMPLIANCE WITH MINIMUM COVER DEPTHS, WIRING SHALL BE INSTALLED IN PERMITTED RACEWAY FOR DIRECT BURIAL. THE RACEWAY SHALL BE COVERED BY A MINIMUM OF 2" OF CONCRETE EXTENDING DOWN TO ROCK.

SECTION 16123

1.01. CONDUCTORS

A. 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:

	120/208/240V	277/480V
LINE	COLOR	COLOR
A	BLACK	BROWN
B	RED	ORANGE
C	BLUE	YELLOW
N	CONTINUOUS WHITE	GREY
G	CONTINUOUS GREEN	GREEN WITH YELLOW STRIPE

B. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.

SECTION 16450

1.01. GROUNDING

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

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

C. EQUIPMENT GROUNDING CONDUCTOR:

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

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

3. EACH FEEDER OR BRANCH CIRCUIT SHALL HAVE EQUIPMENT GROUND CONDUCTOR(S) INSTALLED IN THE SAME RACEWAY(S).

D. CELLULAR GROUNDING SYSTEM:

CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 10 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

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

1. GROUND BARS

2. EXTERIOR GROUNDING (WHERE REQUIRED DUE TO MEASURED AC RESISTANCE GREATER THAN SPECIFIED).

3. ANTENNA GROUND CONNECTIONS AND PLATES.

E. CONTRACTOR, AFTER COMPLETION OF THE COMPLETE GROUNDING SYSTEM BUT PRIOR TO CONCEALMENT/BURIAL OF SAME, SHALL NOTIFY OWNER'S PROJECT ENGINEER WHO WILL HAVE A DESIGN ENGINEER VISIT SITE AND MAKE A VISUAL INSPECTION OF THE GROUNDING GRID AND CONNECTIONS OF THE SYSTEM.

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

SECTION 16960

1.01. 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. THESE TESTS SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNER'S CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION REPRESENTATIVE AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM'S 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.

SECTION 16961

1.01. TESTS BY CONTRACTOR

A. ALL TESTS AS REQUIRED UPON COMPLETION OF WORK, SHALL BE MADE BY THIS CONTRACTOR. THESE SHALL BE CONTINUITY AND INSULATION TESTS; TEST TO DETERMINE THE QUALITY OF MATERIALS, ETC. AND SHALL BE MADE IN ACCORDANCE WITH N.E.C. RECOMMENDATIONS. ALL FEEDERS AND BRANCH CIRCUIT WIRING (EXCEPT CLASS 2 SIGNAL CIRCUITS) MUST BE TESTED FREE FROM SHORT CIRCUIT AND GROUND FAULT CONDITIONS AT 500V IN A REASONABLY DRY AMBIENT OF APPROXIMATELY 70 DEGREES F.

B. CONTRACTOR SHALL PERFORM LOAD PHASE BALANCING TESTS. CIRCUITS SHALL BE CONNECTED TO THE PANELBOARDS SO THAT THE NEW LOAD IS DISTRIBUTED AS EQUALLY AS POSSIBLE BETWEEN EACH LOAD AND NEUTRAL. 10% SHALL BE CONSIDERED AS A REASONABLE AND ACCEPTABLE ALLOWANCE. BRANCH CIRCUITS SHALL BE BALANCED ON THEIR OWN PANELBOARDS; FEEDER LOADS SHALL, IN TURN, BE BALANCED ON THE SERVICE EQUIPMENT. REASONABLE LOAD TEST SHALL BE ARRANGED TO VERIFY LOAD BALANCE IF REQUESTED BY THE ENGINEER.

C. ALL TESTS, UPON REQUEST, SHALL BE REPEATED IN THE PRESENCE OF OWNER'S REPRESENTATIVE. ALL TESTS SHALL BE DOCUMENTED AND TURNED OVER TO OWNER. OWNER SHALL HAVE THE AUTHORITY TO STOP ANY OF THE WORK NOT BEING PROPERLY INSTALLED. ALL SUCH DETECTED WORK SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER AND THE TESTS SHALL BE REPEATED.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	10/23/23	TGK	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

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

SITE NUMBER: CT1847

WESTON TALL PINES DRIVE

5 TALL PINES DRIVE
WESTON, CT 06883

DATE: 09/05/23
SCALE: AS NOTED
JOB NO. 22007.09

ELECTRICAL SPECIFICATIONS

E-3

Sheet No. 10 of 10

CENTEK engineering

Centered on Solutions℠

Structural Analysis of Utility Pole

AT&T Site Ref: CT1845

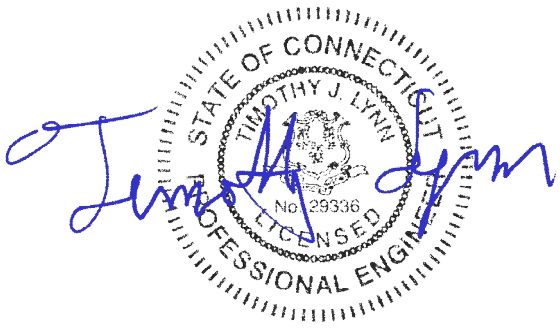
Eversource Structure No. 19775
125' Tall Electric Transmission Pole

5 Tall Pines Drive
Weston, CT

CENTEK Project No. 22007.09

~~Date: May 12, 2023~~
Rev 2: August 7, 2023

Max Stress Ratio = 66.8%



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 analyze the 125' utility pole located in Weston, CT for the proposed antenna and equipment upgrade by AT&T.

The loads consist of the following:

- **AT&T (Final Configuration):**
  Antennas: Three (3) CCI TPA65R-BU8D panel antennas, three (3) Ericsson AIR6419 panel antennas, three (3) Ericsson AIR6449 panel antennas, three (3) CCI OPA65R-BU8D panel antennas, six (6) Commscope TMAT192123B68-31 TMAs, six (6) Kaelus TMA2124F03V5-2D TMAs and one (1) DC6-48-60-18 surge arrestor mounted on one (1) Platform (SitePro p/n RMQLP-4120-H10) to the utility pole with a RAD center elevation of 120-ft above grade.
  Cables: Twenty-four (24) 1-5/8" ∅ coax cables, one (1) fiber cable and two (2) DC cables mounted to the outside of the pole as indicated in Section 4 of this report.

Primary assumptions used in the analysis

- Design steel stresses are defined by AISC-LRFD 14th edition for design of the antenna Mast and antenna supporting elements.
- ASCE Manual No. 48-19, "Design of Steel Transmission Pole Structures", defines allowable steel stresses for evaluation of the utility pole.
- All utility pole members are adequately protected to prevent corrosion of steel members.
- All proposed antenna mounts are modeled as listed above.
- Pipe mast will be properly installed and maintained.
- No residual stresses exist due to incorrect pole erection.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds conform to the requirements of AWS D1.1.
- Pipe mast and utility pole will be in plumb condition.
- Utility pole was properly installed and maintained and all members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
- Any deviation from the analyzed loading will require a new analysis for verification of structural adequacy.

A n a l y s i s

Structural analysis of the utility pole was independently completed using the current version of PLSPole computer program licensed to CENTEK Engineering, Inc.

NESC prescribed loads for the proposed wireless equipment were calculated to analyze the utility tower. Section 5 of this report details these loads.

D e s i g n B a s i s

Our analysis was performed in accordance with ASCE 48-19, “Design of Steel Transmission Pole Structures”, NESC C2-2023 and Eversource Design Criteria.

- UTILITY POLE ANALYSIS

  The purpose of this analysis is to determine the adequacy of the existing utility pole to support the proposed antenna loads. The loading and design requirements were analyzed in accordance with the Eversource Design Criteria Table, NESC C2-2023 ~ Construction Grade B, and ASCE Manual No. 48-19.

  Load cases considered:

  Load Case 1: NESC Heavy Wind
  Wind Pressure…….. 4.0 psf
  Radial Ice Thickness……. 0.5”
  Vertical Overload Capacity Factor……. 1.50
  Wind Overload Capacity Factor……. 2.50
  Wire Tension Overload Capacity Factor…… 1.65

  Load Case 2: NESC Extreme Wind
  Wind Speed……. 110 mph (1)
  Radial Ice Thickness……. 0”

  Load Case 3: NESC Extreme Ice w/ Wind
  Wind Pressure…….. 6.4 psf
  Radial Ice Thickness……. 0.75”
  Vertical Overload Capacity Factor……. 1.0
  Wind Overload Capacity Factor……. 1.0

  Note 1: NESC C2-2023, Section25, Rule 250C: Extreme Wind Loading, 1.25 x Gust Response Factor (wind speed: 3-second gust)

R e s u l t s

- UTILITY POLE

This analysis finds that the subject utility pole is adequate to support the proposed antenna mast and related appurtenances. The pole stresses meet the requirements set forth by the ASCE Manual No. 48-19, "Design of Steel Transmission Pole Structures", for the applied NESC Heavy and Hi-Wind load cases. The detailed analysis results are provided in Section 6 of this report. The analysis results are summarized as follows:

A maximum usage of **60.8%** occurs in the utility pole base plate under the **NESC Extreme** loading condition.

POLE SECTION:

The utility pole was found to be within allowable limits.

Tower Section	Elevation	Stress Ratio (% of capacity)	Result
Section 4	0.00' -53.00' (AGL)	59.88%	**PASS**

BASE PLATE:

The base plate was found to be within allowable limits from the PLS output.

Tower Component	Design Limit	Stress Ratio (percentage of capacity)	Result
Base Plate	Bending	60.8%	**PASS**

FLANGE:

The flange bolts and flange plate were found to be within allowable limits.

Tower Component	Design Limit	Stress Ratio (% of capacity)	Result
Flange Bolts	Tension	49.9%	**PASS**
Flange Plate	Bending	50.5%	**PASS**

- FOUNDATION AND ANCHORS

The base of the tower is connected to the foundation by means of (24) 2.25"∅, ASTM A615-75 anchor bolts embedded into the concrete foundation structure. Review of the foundation consisted of a comparison of the base reactions obtained from the proposed tower analysis and the original foundation design.

BASE REACTIONS:

From PLS-Pole analysis of utility pole based on NESC/Eversource prescribed loads.

Load Case	Shear	Axial	Moment
NESC Heavy Wind	42.77 kips	77.67 kips	3606.89 ft-kips
NESC Extreme Wind	61.71 kips	43.40 kips	5199.20 ft-kips
NESC Extreme Ice w/ Wind	40.94 kips	61.75 kips	3525.69 ft-kips

Note 1 – 10% increase to be applied to tower base reactions for foundation verification per OTRM 051

ANCHOR BOLTS:

The anchor bolts were found to be within allowable limits.

Tower Component	Design Limit	Stress Ratio (% of capacity)	Result
Anchor Bolts	Tension	55.4%	**PASS**

FOUNDATION:

Force	Original Design Loading	Proposed Loading	Result
Moment	8,557 ft-kips	5,720 ft-kips	**PASS**
Shear	99.8 kips	67.9 kips	**PASS**

Note 1: Taken from Sabre design calculations.
Note 2: 10% increase applied to PLS base reactions used in foundation verification per OTRM 051.

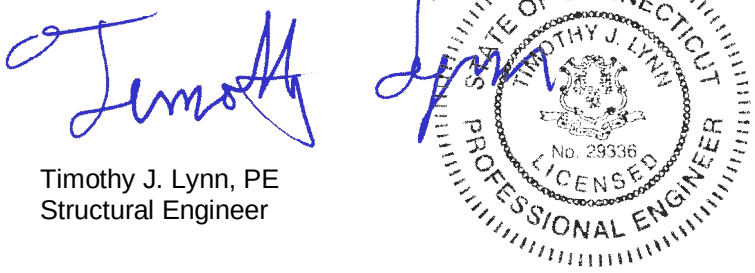
Conclusion

This analysis shows that the subject utility pole **is adequate** to support the proposed equipment upgrade.

The analysis is based, in part on the information provided to this office by Eversource and AT&T. 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 are performed, results obtained, and recommendations made 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 ~ PLS-POLE

PLS-POLE provides all of the capabilities a structural engineer requires to design transmission, substation or communications structures. It does so using a simple easy to use graphical interface that rests upon our time tested finite element engine. Regardless of whether you want to model a simple wood pole or a guyed steel X-Frame; PLS-POLE can handle the job simply, reliably and efficiently.

Modeling Features:

- Structures are made of standard reusable components that are available in libraries. You can easily create your own libraries or get them from a manufacturer
- Structure models are built interactively using interactive menus and graphical commands
- Automatic generation of underlying finite element model of structure
- Steel poles can have circular, 4, 6, 8, 12, 16, or 18-sided, regular, elliptical or user input cross sections (flat-to-flat or tip-to-tip orientations)
- Steel and concrete poles can be selected from standard sizes available from manufacturers
- Automatic pole class selection
- Cross brace position optimizer
- Capability to specify pole ground line rotations
- Capability to model foundation displacements
- Can optionally model foundation stiffness
- Guys are easily handled (modeled as exact cable elements in nonlinear analysis)
- Powerful graphics module (members color-coded by stress usage)
- Graphical selection of joints and components allows graphical editing and checking
- Poles can be shown as lines, wire frames or can be rendered as 3-d polygon surfaces

Analysis Features:

- Automatic distribution of loads in 2-part suspension insulators (v-strings, horizontal vees, etc.)
- Design checks for ASCE, ANSI/TIA/EIA 222 (Revisions F and G) or other requirements
- Automatic calculation of dead and wind loads
- Automated loading on structure (wind, ice and drag coefficients) according to:
    - ASCE 74-1991
    - NESC 2002
    - NESC 2007
    - IEC 60826:2003
    - EN50341-1:2001 (CENELEC)
    - EN50341-3-9:2001 (UK NNA)
    - EN50341-3-17:2001 (Portugal NNA)
    - ESAA C(b)1-2003 (Australia)
    - TPNZ (New Zealand)
    - REE (Spain)
    - EIA/TIA 222-F
    - ANSI/TIA 222-G
    - CSA S37-01
- Automated microwave antenna loading as per EIA/TIA 222-F and ANSI/TIA 222-G
- Detects buckling by nonlinear analysis

Results Features:

- Detects buckling by nonlinear analysis
- Easy to interpret text, spreadsheet and graphics design summaries
- Automatic determination of allowable wind and weight spans
- Automatic determination of interaction diagrams between allowable wind and weight spans
- Automatic tracking of part numbers and costs

Criteria for Design of PCS Facilities On or Extending Above Metal Electric Transmission Towers & Analysis of Transmission Towers Supporting PCS Masts (1)

Introduction

This criteria is the result from an evaluation of the methods and loadings specified by the separate standards, which are used in designing telecommunications towers and electric transmission towers. That evaluation is detailed elsewhere, but in summary; the methods and loadings are significantly different. This criteria specifies the manner in which the appropriate standard is used to design PCS facilities including masts and brackets (hereafter referred to as "masts"), and to evaluate the electric transmission towers to support PCS masts. The intent is to achieve an equivalent level of safety and security under the extreme design conditions expected in Connecticut and Massachusetts.

ANSI Standard TIA-222-H covering the design of telecommunications structures specifies LRFD design approach. This approach applies the loads from extreme weather loading conditions, and designs the structure so that it does not exceed code defined percentage of failure strength.

ANSI Standard C2-2023 (National Electrical Safety Code) covering the design of electric transmission metal structures is based upon an ultimate strength/yield stress design approach. This approach applies a multiplier (overload capacity factor) to the loads possible from extreme weather loading conditions, and designs the structure so that it does not exceed its ultimate strength (yield stress).

Each standard defines the details of how loads are to be calculated differently. Most of the Eversource effort in "unifying" both codes was to establish what level of strength each approach would provide, and then increasing the appropriate elements of each to achieve a similar level of security under extreme weather loadings.

Two extreme weather conditions are considered. The first is an extreme wind condition (hurricane) based upon a 1700-year recurrence for TIA-22-H risk category III and a 100-year recurrence for NESC Grade B. The second is a winter condition combining wind and ice loadings.

The following sections describe the design criteria for any PCS mast extending above the top of an electric transmission tower, and the analysis criteria for evaluating the loads on the transmission tower from such a mast from the lower portions of such a mast, and loads on the pre-existing electric lower portions of such a mast, and loads on the pre-existing electric transmission tower and the conductors it supports.

Note 1: Prepared from documentation provide from Northeast Utilities.

P C S M a s t

The PCS facility (mast, external cable/trays, including the initial and any planned future support platforms, antennas, etc. extending the full height above the top level of the electric transmission structure) shall be designed in accordance with the provisions of TIA 222-H:

E L E C T R I C T R A N S M I S S I O N T O W E R

The electric transmission tower shall be analyzed using yield stress theory in accordance with the attached table titled “Eversource Design Criteria”. This specifies uniform loadings (different from the TIA loadings) on the each of the following components of the installed facility:

- PCS mast for its total height above ground level, including the initial and planned future support platforms, antennas, etc. above the top of an electric transmission structure.
- Conductors are related devices and hardware.
- Electric transmission structure. The loads from the PCS facility and from the electric conductors shall be applied to the structure at conductor and PCS mast attachment points, where those load transfer to the tower.

The uniform loadings and factors specified for the above components in the table are based upon the National Electrical Safety Code 2023 Edition Extreme Wind (Rule 250C), Combined Ice and Wind (Rule 250B-Heavy) and Extreme Ice w/ Wind (Rule 250D) Loadings. These provide equivalent loadings compared to TIA and its loads and factors with the exceptions noted above. (Note that the NESC does not require the projected wind surfaces of structures and equipment to be increased by the ice covering.)

In the event that the electric transmission tower is not sufficient to support the additional loadings of the PCS mast, reinforcement will be necessary to upgrade the strength of the overstressed members.

Attachment A
Eversource Design Criteria

		Attachment A ES Design Criteria	Basic Wind Speed	Pressure	Height Factor	Gust Factor	Load or Stress Factor	Force Coef. - Shape Factor
			V (MPH)	Q (PSF)	Kz	Gh		
Ice Condition	TIA/EIA	Antenna Mount	TIA	TIA (0.75Wi)	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	TIA
	NESC Heavy	Tower/Pole Analysis with antennas extending above top of Tower/Pole (Yield Stress)	-----	4	1	1	2.5	1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole (on two faces)	-----	4	1	1	2.5	1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor Loads Provided by ES					
High Wind Condition	TIA/EIA	Antenna Mount	85	TIA	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	TIA
	NESC Extreme Wind	Tower/Pole Analysis with antennas extending above top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250C: Extreme Wind Loading Apply a 1.25 x Gust Response Factor to all telecommunication equipment projected above top of tower/pole and apply a 1.0 x Gust Response Factor to the tower/pole structure					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250C: Extreme Wind Loading Height above ground is based on overall height to top of tower/pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor Loads Provided by ES					
NESC Extreme Ice with Wind Condition*		Tower/Pole Analysis with antennas extending above top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250D: Extreme Ice with Wind Loading 4 PSF Wind Load 1.25 x Gust Response Factor Apply a 1.25 x Gust Response Factor to all telecommunication equipment projected above top of tower/pole and apply a 1.0 x Gust Response Factor to the tower/pole structure					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250D: Extreme Ice with Wind Loading 4 PSF Wind Load Height above ground is based on overall height to top of tower/pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor Loads Provided by ES					
		*Only for structures installed after 2007						

determined from NESC applied loading conditions (not TIA Loads) on the structure and mount as specified below, and shall include the wireless communication mast and antenna loads per NESC criteria)

The strength reduction factor obtained from the field investigation shall be applied to the members or connections that are showing signs of deterioration from their original condition With the written approval of Eversource Transmission Line Engineering on a case by case the existing structures may be analyzed initially using the current NESC code, then it is permitted to use the original design code with the original conductor load should the existing tower fail the current NESC code.

The structure shall be analyzed using yield stress theory in accordance with Attachment A, "Eversource Design Criteria." This specifies uniform loadings (different from the TIA loadings) on each of the following components of the installed facility:

a) Wireless communication mast for its total height above ground level, including the initial and any planned future equipment (Support Platforms, Antennas, TMA's etc.) above the top of an electric transmission structure.

b) Conductors and related devices and hardware (wire loads will be provided by Eversource).

c) Electric Transmission Structure

i) The loads from the wireless communication equipment components based on NESC and Eversource Criteria in Attachment A, and from the electric conductors shall be applied to the structure at conductor and wireless communication mast attachment points, where those loads transfer to the tower. ii)

ii) Shape Factor Multiplier:

NESC Structure Shape	Cd
Polyround (for polygonal steel poles)	1.3
Flat	1.6
Open Lattice	3.2
Pole with Coaxial Cable	See Below Table

iii) When Coaxial Cables are mounted alongside the pole structure, the shape multiplier shall be:

Mount Type	Cable Cd	Pole Cd
Coaxial Cables on outside periphery (One layer)	1.45	1.45
Coaxial Cables mounted on stand offs	1.6	1.6

d) The uniform loadings and factors specified for the above components in Attachment A, "Eversource Design Criteria" are based upon the National Electric Safety Code 2007 Edition Extreme Wind (Rule 250C) and Combined Ice and Wind (Rule 250B-Heavy) Loadings. These provide equivalent loadings compared to the TIA and its loads and factors with the exceptions noted above.

Northeast Utilities System

Wire Loads

Project Name	1714/1720/1222 Line Rebuild		
Work Order	80060915		
Structure #	PCS-1 (19775 / 19775A)		
Line #	1714/1720		
Prepared By	GJG	Date	6/3/2022
Checked By	JFAP	Date	6/3/2022

Structure Data

Structure Height (AGL)	125	Load Zone	Central CT
# of Circuits	1	Insulation Type	Suspension (Concrete Foundation
Insulator Weight	150	Broken Wire Side	Back
Broken Wire Side	Left	Structure Type	Single Circuit Steel Pole (Vert)

Wire Data

Circuit #	Left	Right
Shield Wire	FOCAS-120	
Conductor	FALCON/ACSS	
# of Conductors	1	

Line Geometry

	Circuit 1			Circuit 2		
	Ahead	Back	Total	Ahead	Back	Total
Wind Span	225	225	450			0
Weight Span	350	350	700			0
Minimum Line Angle	3	3	6			0
Maximum Line Angle	15	15	30			0

Wire Tensions

	Left Circuit		Right Circuit		
	Ahead	Back	Ahead	Back	
NESC Rule 250B	14000	14000			Conductor
NESC Rule 250C	13749	13749			
NESC Rule 250D	17458	17458			
60°F, No wind or ice	7363	7363			
NESC Rule 250B	6000	6000			Shield Wire
NESC Rule 250C	6349	6349			
NESC Rule 250D	7976	7976			
60°F, No wind or ice	2304	2304			

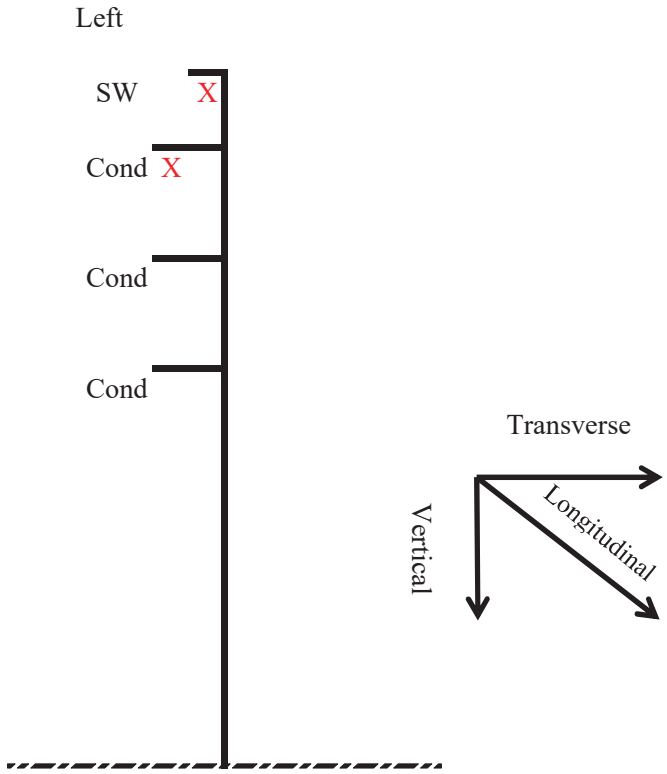
All Loads include Overload Factors but not Pole Shape Factors

Load Case	Description
1	NESC Rule 250B; 0°F, ½" of ice, 4 psf wind
2	NESC Rule 250C; (Extreme Wind Loading)
3	NESC Rule 250C; Extreme Wind Longtitudinal On The Pole Only
4	NESC Rule 250D; 15°F 1" of ice, 4 psf or NU Ice Case; 32°F 1" Ice
5	NESC Rule 250B with no OLFs (Service Load)
6	60°F, No wind or Ice (Deflection)
7a	NESC Rule 250B/261C Broken Wire Case (Broken SW and Borken Conductor)
7b	NESC Rule 250B/261C Broken Wire Case (Broken SW or Broken Phase)

Northeast Utilities System

Wire Loads
Load Tree

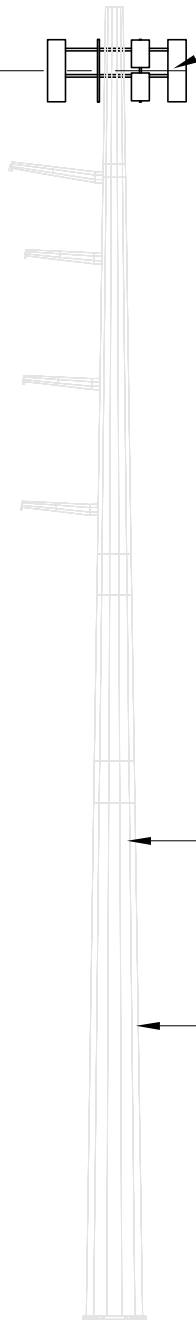
Project Number
1714/1720/1222 Line Re
Structure Number
PCS-1 (19775 / 19775A)
Line Number
1714/1720



Single Circuit Steel Pole (Vert) Configuration
X Denotes Broken Wire Location. This attachment receives case 7 loads. All others receive Case 1 Loads for Case 7

	Case	Vertical	Transverse	Longitudinal
Conductor	1	3929.0595	9026.0016	0
	2	1728.98	9291.0061	0
	3	1728.98	3811.3693	0
	4	3945.166	9608.6758	0
	5	2619.373	7668.6833	0
	6	1728.98	3811.3693	0
	7a	1964.5298	4513.0008	15378.895
	7b	1964.5298	4513.0008	15378.895
Shield Wire	Case	Vertical	Transverse	Longitudinal
	1	1352.4378	4068.1614	0
	2	362.6	4172.0842	0
	3	362.6	1192.6382	0
	4	1876.0504	4539.3814	0
	5	901.6252	3366.5285	0
	6	362.6	1192.6382	0
	7a	676.2189	2034.0807	6590.9549
	7b	676.2189	2034.0807	6590.9549

℄ EL. AT&T ANTENNAS ±120'–0" AGL



AT&T (FINAL CONFIG.):
THREE (3) CCI TPA65R–BU8DA PANEL ANTENNAS, THREE (3) ERICSSON AIR6419 PANEL ANTENNAS, THREE (3) ERICSSON AIR6449 PANEL ANTENNAS, THREE (E) CCI OPA65R–BU8D PANEL ANTENNAS, SIX (6) COMMSCOPE TMAT192123B68–31 TMAs, SIX (6) KAELUS TMA2124F03V5–2D TMAs AND ONE (1) DC6 SURGE ARRESTOR MOUNTED ON SITEPRO RMQLP–4120–H10 PLATFORM.

125' TALL STEEL UTILITY POLE STRUCTURE NO. 19775

AT&T (24) 1–5/8" ø COAX CABLES, ONE (1) FIBER CABLE AND TWO (2) DC CABLES MOUNTED ON CLUSTER SUPPORT BRACKETS

1
SK–1

TOWER ELEVATION

SCALE: NOT TO SCALE

REVISIONS		
00	5/12/23	ISSUED FOR REVIEW
01	6/2/23	CONSTRUCTION

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CT1845
STRUCTURE 19775

5 TALL PINES DRIVE
WESTON, CT

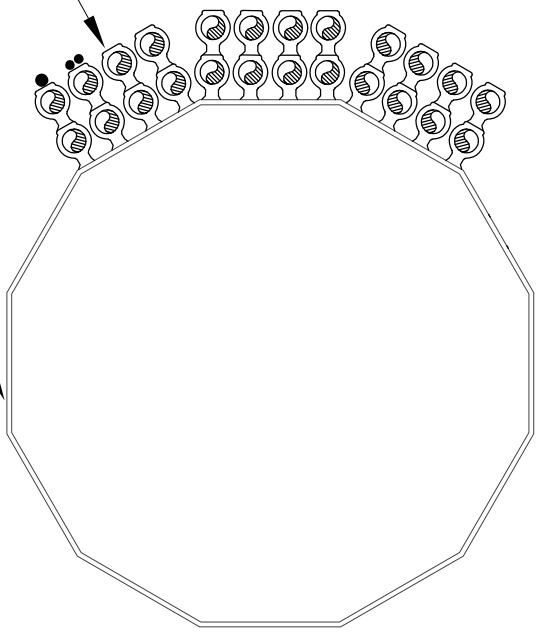
PROJECT NO:	22007.09
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	5/12/23

TOWER ELEVATION

SK-1

DWG. 1 OF 2

AT&T (24) 1–5/8" ø COAX CABLES, ONE (1) FIBER CABLE AND TWO (2) DC CABLES MOUNTED ON CLUSTER SUPPORT BRACKETS



125' TALL STEEL UTILITY POLE STRUCTURE NO. 19775

1 / SK–2 COAX CABLE PLAN

SCALE: NOT TO SCALE

REVISIONS		
00	5/12/23	ISSUED FOR REVIEW
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CT1845
STRUCTURE 19775

5 TALL PINES DRIVE
WESTON, CT

PROJECT NO:	22007.09
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	5/12/23

FEELINE PLAN

SK-2

DWG. 2 OF 2

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Subject: Loads - Structure #19775

Location: Weston, CT

Rev. 1: 6/2/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 22007.09

Basic Components

Heavy Wind Pressure =	$p := 4.00 \cdot psf$	(User Input NESC 2023 Figure 250-1 & Table 250-1)
Basic Windspeed =	$V := 110$ mph	(User Input)
Radial Ice Thickness =	$Ir := 0.50 \cdot in$	(User Input NESC 2023 Figure 250-1 & Table 250-1)
Radial Ice Density =	$Id := 56.0 \cdot pcf$	(User Input)

Factors for Extreme Wind Calculation

Elevation of Top of Mast Above Grade =	$TME := 125$ ft	(User Input)
Multiplier Gust Response Factor =	$m := 1.25$	(User Input - Only for NESC Extreme wind case)
Velocity Pressure Coefficient =	$Kz := 2.01 \cdot \left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.326$	(NESC 2023 Table 250-2)
Turbulence Intensity Constant =	$C_{exp} := 0.2$	(NESC 2023 Table 250-3)
Integral Length Scale of Turbulence Constant =	$L_s := 220$	(NESC 2023 Table 250-3)
Effective Height =	$z_s := 0.67 \cdot TME = 83.75$	(NESC 2023 Table 250-3)
Turbulence Intensity =	$I_z := C_{exp} \cdot \left(\frac{33}{z_s}\right)^{\frac{1}{6}} = 0.171$	(NESC 2023 Table 250-3)
Response Term =	$B_t := \left[\frac{1}{\left[1 + \left(0.56 \cdot \frac{z_s}{L_s}\right)\right]}\right]^{0.5} = 0.908$	(NESC 2023 Table 250-3)
Gust Response Factor =	$Grf := \frac{\left[1 + \left(4.61 \cdot I_z \cdot B_t\right)\right]}{\left(1 + 6.1 \cdot I_z\right)} = 0.84$	(NESC 2023 Table 250-3)
Wind Pressure =	$qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot psf = 34.5 \cdot psf$	(NESC 2023 Section 250.C.1)

NESC Extreme Ice w/ Wind Components

Heavy Wind Pressure =	$p_{ex} := 6.4 \cdot psf$	(User Input NESC 2023 Figure 250-3 & Table 250-4)
Radial Ice Thickness =	$Ir_{ex} := 0.75 \cdot in$	(User Input NESC 2023 Figure 250-3)

Shape Factors

Shape Factor for Round Members =	$Cd_R := 1.3$	(User Input)
Shape Factor for Flat Members =	$Cd_F := 1.6$	(User Input)
Shape Factor for Coax Cables Attached to Outside of Pole =	$Cd_{coax} := 1.6$	(User Input)

Overload Factors

Overload Factors for Wind Loads:

NESC Heavy Loading =	**2.5**	(User Input)
NESC Extreme Loading =	**1.0**	(User Input)
NESC Extreme Ice with Wind Loading =	**1.0**	(User Input)

Overload Factors for Vertical Loads:

NESC Heavy Loading =	**1.5**	(User Input)
NESC Extreme Loading =	**1.0**	(User Input)
NESC Extreme Ice with Wind Loading =	**1.0**	(User Input)

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	CCI TPA65-BU8D	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 96 \cdot in$	(User Input)
Antenna Width =	$W_{ant} := 20.7 \cdot in$	(User Input)
Antenna Thickness =	$T_{ant} := 7.7 \cdot in$	(User Input)
Antenna Weight =	$WT_{ant} := 90 \cdot lb$	(User Input)
Number of Antennas =	$N_{ant} := 3$	(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant1} := WT_{ant} \cdot N_{ant} = 270 lb$

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 15301 \cdot in^3$

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 3011 \cdot in^3$

Weight of Ice on Each Antenna = $W_{ICEant} := V_{ice} \cdot Id = 98 lb$

Weight of Ice on All Antennas = $Wt_{ice.ant1} := W_{ICEant} \cdot N_{ant} = 293 lb$

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 4612 \cdot in^3$

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := V_{ice.ex} \cdot Id = 149 lb$

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant1} := W_{ICE.exant} \cdot N_{ant} = 448 lb$

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 14.6 ft^2$

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 43.9 ft^2$

Total Antenna Wind Force w/ Ice = $Fi_{ant1} := p \cdot Cd_F \cdot A_{ICEant} = 281 lb$

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := L_{ant} \cdot W_{ant} = 13.8 ft^2$

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 41.4 ft^2$

Total Antenna Wind Force = $F_{ant1} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 2857 lb$

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 15 ft^2$

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 45.1 ft^2$

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant1} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} = 462 lb$

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Subject: Loads - Structure #19775

Location: Weston, CT

Rev. 1: 6/2/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 22007.09

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	Ericsson AIR6419 (Future)	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 31.1 \cdot in$	(User Input)
Antenna Width =	$W_{ant} := 16.1 \cdot in$	(User Input)
Antenna Thickness =	$T_{ant} := 7.3 \cdot in$	(User Input)
Antenna Weight =	$WT_{ant} := 56 \cdot lb$	(User Input)
Number of Antennas =	$N_{ant} := 3$	(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant2} := WT_{ant} \cdot N_{ant} = 168 lb$

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 3655 \cdot in^3$

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 901 \cdot in^3$

Weight of Ice on Each Antenna = $W_{ICEant} := V_{ice} \cdot Id = 29 lb$

Weight of Ice on All Antennas = $Wt_{ice.ant2} := W_{ICEant} \cdot N_{ant} = 88 lb$

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 1394 \cdot in^3$

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := V_{ice.ex} \cdot Id = 45 lb$

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant2} := W_{ICE.exant} \cdot N_{ant} = 136 lb$

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 3.8 ft^2$

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 11.4 ft^2$

Total Antenna Wind Force w/ Ice = $Fi_{ant2} := p \cdot Cd_F \cdot A_{ICEant} = 73 lb$

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := L_{ant} \cdot W_{ant} = 3.5 ft^2$

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 10.4 ft^2$

Total Antenna Wind Force = $F_{ant2} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 720 lb$

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 4 ft^2$

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 12 ft^2$

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant2} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} = 122 lb$

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Subject: Loads - Structure #19775

Location: Weston, CT

Rev. 1: 6/2/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 22007.09

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	Ericsson AIR6449	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 30.6 \cdot in$	(User Input)
Antenna Width =	$W_{ant} := 15.9 \cdot in$	(User Input)
Antenna Thickness =	$T_{ant} := 10.6 \cdot in$	(User Input)
Antenna Weight =	$WT_{ant} := 96 \cdot lb$	(User Input)
Number of Antennas =	$N_{ant} := 3$	(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant3} := WT_{ant} \cdot N_{ant} = 288 lb$

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 5157 \cdot in^3$

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 1038 \cdot in^3$

Weight of Ice on Each Antenna = $W_{ICEant} := V_{ice} \cdot Id = 34 lb$

Weight of Ice on All Antennas = $Wt_{ice.ant3} := W_{ICEant} \cdot N_{ant} = 101 lb$

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 1601 \cdot in^3$

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := V_{ice.ex} \cdot Id = 52 lb$

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant3} := W_{ICE.exant} \cdot N_{ant} = 156 lb$

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 3.7 ft^2$

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 11.1 ft^2$

Total Antenna Wind Force w/ Ice = $Fi_{ant3} := p \cdot Cd_F \cdot A_{ICEant} = 71 lb$

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := L_{ant} \cdot W_{ant} = 3.4 ft^2$

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 10.1 ft^2$

Total Antenna Wind Force = $F_{ant3} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 699 lb$

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 3.9 ft^2$

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 11.6 ft^2$

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant3} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} = 119 lb$

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	CCI OPA65-BU8D	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 96 \cdot in$	(User Input)
Antenna Width =	$W_{ant} := 21 \cdot in$	(User Input)
Antenna Thickness =	$T_{ant} := 7.8 \cdot in$	(User Input)
Antenna Weight =	$WT_{ant} := 80 \cdot lb$	(User Input)
Number of Antennas =	$N_{ant} := 3$	(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant4} := WT_{ant} \cdot N_{ant} = 240 lb$

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 15725 \cdot in^3$

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 3054 \cdot in^3$

Weight of Ice on Each Antenna = $W_{ICEant} := V_{ice} \cdot Id = 99 lb$

Weight of Ice on All Antennas = $Wt_{ice.ant4} := W_{ICEant} \cdot N_{ant} = 297 lb$

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 4677 \cdot in^3$

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := V_{ice.ex} \cdot Id = 152 lb$

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant4} := W_{ICE.exant} \cdot N_{ant} = 455 lb$

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 14.8 ft^2$

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 44.5 ft^2$

Total Antenna Wind Force w/ Ice = $Fi_{ant4} := p \cdot Cd_F \cdot A_{ICEant} = 285 lb$

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := L_{ant} \cdot W_{ant} = 14 ft^2$

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 42 ft^2$

Total Antenna Wind Force = $F_{ant4} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 2898 lb$

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 15.2 ft^2$

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 45.7 ft^2$

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant4} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} = 468 lb$

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Subject:	Loads - Structure #19775
Location:	Weston, CT
Rev. 1: 6/2/23	Prepared by: T.J.L Checked by: C.F.C. Job No. 22007.09

Development of Wind & Ice Load on Antennas

Antenna Data:	(AT&T)	
Antenna Model =	Commscope TMAT192123B68-31	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 9.37 \cdot in$	(User Input)
Antenna Width =	$W_{ant} := 11.142 \cdot in$	(User Input)
Antenna Thickness =	$T_{ant} := 3.819 \cdot in$	(User Input)
Antenna Weight =	$WT_{ant} := 23 \cdot lb$	(User Input)
Number of Antennas =	$N_{ant} := 6$	(User Input)
Gravity Load (without ice)		
Weight of All Antennas =	$Wt_{ant5} := WT_{ant} \cdot N_{ant} = 138 lb$	
Gravity Load (ice only)		
Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 399 \cdot in^3$	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 208 \cdot in^3$	
Weight of Ice on Each Antenna =	$W_{ICEant} := V_{ice} \cdot Id = 7 lb$	
Weight of Ice on All Antennas =	$Wt_{ice.ant5} := W_{ICEant} \cdot N_{ant} = 40 lb$	
Gravity Load (Extreme ice only)		
Volume of Extreme Ice on Each Antenna =	$V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 332 \cdot in^3$	
Weight of Extreme Ice on Each Antenna =	$W_{ICE.exant} := V_{ice.ex} \cdot Id = 11 lb$	
Weight of Extreme Ice on All Antennas =	$Wt_{ice.ex.ant5} := W_{ICE.exant} \cdot N_{ant} = 65 lb$	
Wind Load (NESC Heavy)		
Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 0.9 ft^2$	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 5.2 ft^2$	
Total Antenna Wind Force w/ Ice =	$Fi_{ant5} := p \cdot Cd_F \cdot A_{ICEant} = 34 lb$	
Wind Load (NESC Extreme)		
Surface Area for One Antenna =	$SA_{ant} := L_{ant} \cdot W_{ant} = 0.7 ft^2$	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 4.4 ft^2$	
Total Antenna Wind Force =	$F_{ant5} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 300 lb$	
Wind Load (NESC Extreme Ice w/ Wind)		
Surface Area for One Antenna w/ Extreme Ice =	$SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 1 ft^2$	
Antenna Projected Surface Area w/ Extreme Ice =	$A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 5.7 ft^2$	
Total Antenna Wind Force w/ Extreme Ice =	$Fi_{ex.ant5} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} = 59 lb$	

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	Kaelus TMA2124F03V5-2D	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 9.7 \cdot in$	(User Input)
Antenna Width =	$W_{ant} := 10.4 \cdot in$	(User Input)
Antenna Thickness =	$T_{ant} := 8.3 \cdot in$	(User Input)
Antenna Weight =	$WT_{ant} := 36 \cdot lb$	(User Input)
Number of Antennas =	$N_{ant} := 6$	(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant6} := WT_{ant} \cdot N_{ant} = 216\,lb$

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 837 \cdot in^3$

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 297 \cdot in^3$

Weight of Ice on Each Antenna = $W_{ICEant} := V_{ice} \cdot Id = 10\,lb$

Weight of Ice on All Antennas = $Wt_{ice.ant6} := W_{ICEant} \cdot N_{ant} = 58\,lb$

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 469 \cdot in^3$

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := V_{ice.ex} \cdot Id = 15\,lb$

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant6} := W_{ICE.exant} \cdot N_{ant} = 91\,lb$

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 0.8\,ft^2$

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 5.1\,ft^2$

Total Antenna Wind Force w/ Ice = $Fi_{ant6} := p \cdot Cd_F \cdot A_{ICEant} = 33\,lb$

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := L_{ant} \cdot W_{ant} = 0.7\,ft^2$

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 4.2\,ft^2$

Total Antenna Wind Force = $F_{ant6} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 290\,lb$

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 0.9\,ft^2$

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 5.6\,ft^2$

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant6} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} = 57\,lb$

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Branford, CT 06405 F: (203) 488-8587

Subject: Loads - Structure #19775

Location: Weston, CT

Rev. 1: 6/2/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 22007.09

Development of Wind & Ice Load on Antennas

Antenna Data: (AT&T)

Antenna Model =	Raycap DC6-48-60-18		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 23.5 \cdot in$	in	(User Input)
Antenna Width =	$W_{ant} := 9.7 \cdot in$	in	(User Input)
Antenna Thickness =	$T_{ant} := 9.7 \cdot in$	in	(User Input)
Antenna Weight =	$WT_{ant} := 25 \cdot lb$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant7} := WT_{ant} \cdot N_{ant} = 25\,lb$

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2211 \cdot in^3$

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 594 \cdot in^3$

Weight of Ice on Each Antenna = $W_{ICEant} := V_{ice} \cdot Id = 19\,lb$

Weight of Ice on All Antennas = $Wt_{ice.ant7} := W_{ICEant} \cdot N_{ant} = 19\,lb$

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 925 \cdot in^3$

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := V_{ice.ex} \cdot Id = 30\,lb$

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant7} := W_{ICE.exant} \cdot N_{ant} = 30\,lb$

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := (L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir) = 1.8\,ft^2$

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 1.8\,ft^2$

Total Antenna Wind Force w/ Ice = $Fi_{ant7} := p \cdot Cd_F \cdot A_{ICEant} = 12\,lb$

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := L_{ant} \cdot W_{ant} = 1.6\,ft^2$

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 1.6\,ft^2$

Total Antenna Wind Force = $F_{ant7} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 109\,lb$

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := (L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex}) = 1.9\,ft^2$

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 1.9\,ft^2$

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant7} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} = 20\,lb$

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Branford, CT 06405 F: (203) 488-8587

Subject: Loads - Structure #19775

Location: Weston, CT

Rev. 1: 6/2/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 22007.09

Development of Wind & Ice Load on Mounts

Mount Data: (AT&T)

Mount Type:	SitePro RMQLP-4120-H10	
Mount EPA (no ice) =	$EPA := 28.15 \cdot ft^2$	(User Input from SitePro Document)
Mount EPA (0.5" ice) =	$EPA_{ice} := 34.10 \cdot ft^2$	(User Input from SitePro Document)
Mount EPA (0.75" ice) =	$EPA_{ice.ex} := 37.10 \cdot ft^2$	(User Input from SitePro Document/Interpolation)
Weight (no ice) =	$W := 3265 \cdot lb$	(User Input from SitePro Document)
Weight (0.5" ice) =	$W_{ice} := 3657 \cdot lb$	(User Input from SitePro Document)
Weight (0.75" ice) =	$W_{ice.ex} := 3920 \cdot lb$	(User Input from SitePro Document/Interpolation)
Weight 0.5" ice on Antenna Pipes =	$Wap_{ice} := \left[\left[(3.375)^2 - (2.375)^2\right] \cdot 120 \cdot 12\right] \cdot in^3 \cdot \frac{\pi}{4} \cdot (Id) = 211 \cdot lb$	
Weight 0.75" ice on Antenna Pipes =	$Wap_{ice.ex} := \left[\left[(3.875)^2 - (2.375)^2\right] \cdot 120 \cdot 12\right] \cdot in^3 \cdot \frac{\pi}{4} \cdot (Id) = 344 \cdot lb$	
Total Pipe Length =	$TPL := 12 \cdot 10 \cdot ft = 120 ft$	
Total Antenna Length =	$TAL := 96 \cdot in \cdot 6 + 31.1 \cdot in \cdot 3 + 30.6 \cdot in \cdot 3 = 63.425 ft$	
Exposed Pipe Area =	$ExPA := (TPL - TAL) 2.375 \cdot in = 11.197 ft^2$	
Exposed Pipe Area (0.5" Ice) =	$ExPA_{ice} := (TPL - TAL) 3.375 \cdot in = 15.912 ft^2$	
Exposed Pipe Area (0.75' Ice) =	$ExPA_{ice.ex} := (TPL - TAL) 3.875 \cdot in = 18.269 ft^2$	
Mount Projected Surface Area =	$CdAa := 1.3 \cdot ExPA + EPA = 42.7 ft^2$	
Mount Projected Surface Area w/ Ice =	$CdAa_{ice} := 1.3 \cdot ExPA_{ice} + EPA_{ice} = 54.8 ft^2$	
Mount Projected Surface Area w/ Extreme Ice =	$CdAa_{ice.ex} := 1.3 \cdot ExPA_{ice.ex} + EPA_{ice.ex} = 60.8 ft^2$	

Gravity Loads (without ice)

Weight of All Mounts = $Wt_{mnt1} := W = 3265 lb$

Gravity Load (ice only)

Weight of Ice on All Mounts = $Wt_{ice.mnt1} := W_{ice} - W + Wap_{ice} = 603 lb$

Gravity Load (extreme ice only)

Weight of Ice on All Mounts = $Wt_{ice.ex.mnt1} := W_{ice.ex} - W + Wap_{ice.ex} = 999 lb$

Wind Load (NESC Heavy)

Total Mount Wind Force w/ Ice = $Fi_{mnt1} := p \cdot CdAa_{ice} = 219 lb$

Wind Load (NESC Extreme)

Total Mount Wind Force = $F_{mnt1} := qz \cdot CdAa \cdot m = 1842 lb$

Wind Load (NESC Extreme Ice w/ Wind)

Total Mount Wind Force w/ Extreme Ice = $Fi_{ex.mnt1} := p_{ex} \cdot CdAa_{ice.ex} = 389 lb$

Total Equipment Loads:

AT&T Loads:

NESC Heavy Wind Vertical =

$Wt_{tot} := \left(Wt_{ant1} + Wt_{ant2} + Wt_{ant3} + Wt_{ant4} + Wt_{ant5} + Wt_{ant6} + Wt_{ant7} + Wt_{mnt1}\right) = 4610\,lb$

$Wt_{ice.tot} := \left(Wt_{ice.ant1} + Wt_{ice.ant2} + Wt_{ice.ant3} + Wt_{ice.ant4} + Wt_{ice.ant5} + Wt_{ice.ant6} + Wt_{ice.ant7} + Wt_{ice.mnt1}\right) = 1498\,lb$

$\left(Wt_{tot} + Wt_{ice.tot}\right) \cdot 1.5 = 9163\,lb$

NESC Heavy Wind Trasnsverse = $\left(Fi_{ant1} + Fi_{ant2} + Fi_{ant3} + Fi_{ant4} + Fi_{ant5} + Fi_{ant6} + Fi_{ant7} + Fi_{mnt1}\right) \cdot 2.5 = 2516\,lb$

NESC Extreme Wind Vertical = $\left(Wt_{ant1} + Wt_{ant2} + Wt_{ant3} + Wt_{ant4} + Wt_{ant5} + Wt_{ant6} + Wt_{ant7} + Wt_{mnt1}\right) = 4610\,lb$

NESC Extreme Wind Trasnsverse = $\left(F_{ant1} + F_{ant2} + F_{ant3} + F_{ant4} + F_{ant5} + F_{ant6} + F_{ant7} + F_{mnt1}\right) = 9715\,lb$

NESC Extreme Ice w/ Wind Vertical =

$Wt_{ice.ex.tot} := \left(Wt_{ice.ex.ant1} + Wt_{ice.ex.ant2} + Wt_{ice.ex.ant3} + Wt_{ice.ex.ant4} + Wt_{ice.ex.ant5} + Wt_{ice.ex.ant6} + Wt_{ice.ex.ant7} + Wt_{ice.ex.mnt1}\right) = 2379\,lb$

$\left(Wt_{tot} + Wt_{ice.ex.tot}\right) = 6989\,lb$

NESC Extreme Ice w/ Wind Trasnsverse = $\left(Fi_{ex.ant1} + Fi_{ex.ant2} + Fi_{ex.ant3} + Fi_{ex.ant4} + Fi_{ex.ant5} + Fi_{ex.ant6} + Fi_{ex.ant7} + Fi_{ex.mnt1}\right) = 1696\,lb$

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Branford, CT 06405 F: (203) 488-8587

Subject: Coax Cable on Pole #19775

Location: Weston, CT

Rev. 0: 5/12/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 22007.09

Coax Cable on CL&P Pole

Coaxial Cable Span	$Coax_{Span} := 10ft$		*(User Input)*
Heavy Wind Pressure =	$p := 4 \cdot psf$		*(User Input)*
Radial Ice Thickness =	$Ir := 0.5 \cdot in$		*(User Input)*
Radial Ice Density =	$Id := 56 \cdot pcf$		*(User Input)*
Extreme Ice w/ Wind Pressure =	$p_{ex} := 6.4 \cdot psf$		*(User Input)*
Extreme Radial Ice Thickness =	$Ir_{ex} := 0.75 \cdot in$		*(User Input)*
Basic Windspeed =	$V := 110$	mph	(User Input)
Height to Top of Coax Above Grade =	$TC := 120$	ft	(User Input)
Multiplier Gust Response Factor =	$m := 1.00$		(User Input - Only for NESC Extreme wind case)
Velocity Pressure Coefficient =	$Kz := 2.01 \cdot \left(\frac{0.67TC}{900}\right)^{\frac{2}{9.5}} = 1.209$		(NESC 2023 Table 250-2)
Turbulence Intensity Constant =	$C_{exp} := 0.2$		(NESC 2023 Table 250-3)
Integral Length Scale of Turbulence Constant =	$L_s := 220$		(NESC 2023 Table 250-3)
Effective Height =	$z_s := 0.67 \cdot TC = 80.4$		(NESC 2023 Table 250-3)
Turbulence Intensity =	$I_z := C_{exp} \cdot \left(\frac{33}{z_s}\right)^{\frac{1}{6}} = 0.172$		(NESC 2023 Table 250-3)
Response Term =	$B_t := \left[\frac{1}{\left[1 + \left(0.56 \cdot \frac{z_s}{L_s}\right)\right]}\right]^{0.5} = 0.911$		(NESC 2023 Table 250-3)
Gust Response Factor =	$Grf := \frac{\left[1 + \left(4.61 \cdot I_z \cdot B_t\right)\right]}{\left(1 + 6.1 \cdot I_z\right)} = 0.84$		(NESC 2023 Table 250-3)
Wind Pressure =	$qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf = 31.5$	psf	(NESC 2023 Section 250.C.1)

Diameter of Coax Cable =	$D_{coax} := 1.98 \cdot in$	*(User Input)*	
Weight of Coax Cable =	$W_{coax} := 1.04 \cdot plf$	*(User Input)*	
Number of Coax Cables =	$N_{coax} := 27$	*(User Input)*	(24) AT&T Coax Cables (1) AT&T Fiber Cable (2) AT&T DC Cables {1-5/8 size conservatively used for all}
Number of Projected Coax Cables =	$NP_{coax} := 6$	*(User Input)*	

Shape Factor = $Cd_{coax} := 1.6$ *(User Input)*

Overload Factor for NESC Heavy Wind Transverse Load = $OF_{HWT} := 2.5$ *(User Input)*

Overload Factor for NESC Heavy Wind Vertical Load = $OF_{HWV} := 1.5$ *(User Input)*

Overload Factor for NESC Extreme Wind Transverse Load = $OF_{EWT} := 1.0$ *(User Input)*

Overload Factor for NESC Extreme Wind Vertical Load = $OF_{EWV} := 1.0$ *(User Input)*

Overload Factor for NESC Extreme Ice w/ Wind Transverse Load = $OF_{EIT} := 1.0$ *(User Input)*

Overload Factor for NESC Extreme Ice w/ Wind Vertical Load = $OF_{EIV} := 1.0$ *(User Input)*

Wind Area without Ice = $A := \left(NP_{coax} \cdot D_{coax}\right) = 11.88 \cdot in$

Wind Area with Ice = $A_{ice} := \left(NP_{coax} \cdot D_{coax} + 2 \cdot Ir\right) = 12.88 \cdot in$

Wind Area with Extreme Ice = $A_{ice.ex} := \left(NP_{coax} \cdot D_{coax} + 2 \cdot Ir_{ex}\right) = 13.38 \cdot in$

Ice Area per Liner Ft = $Ai_{coax} := \frac{\pi}{4} \cdot \left[\left(D_{coax} + 2 \cdot Ir\right)^2 - D_{coax}^2\right] = 0.027\,ft^2$

Weight of Ice on All Coax Cables = $W_{ice} := Ai_{coax} \cdot Id \cdot N_{coax} = 40.904 \cdot plf$

Extreme Ice Area per Liner Ft = $Ai_{coax.ex} := \frac{\pi}{4} \cdot \left[\left(D_{coax} + 2 \cdot Ir_{ex}\right)^2 - D_{coax}^2\right] = 0.045\,ft^2$

Weight of Extreme Ice on All Coax Cables = $W_{ice.ex} := Ai_{coax.ex} \cdot Id \cdot N_{coax} = 67.54 \cdot plf$

Heavy Wind Vertical Load =

$$\overrightarrow{Heavy\_WInd_{Vert} := \left[\left(N_{coax} \cdot W_{coax} + W_{ice}\right) \cdot Coax_{Span} \cdot OF_{HWV}\right]}$$

Heavy Wind Transverse Load =

$$\overrightarrow{Heavy\_Wind_{Trans} := \left(p \cdot A_{ice} \cdot Cd_{coax} \cdot Coax_{Span} \cdot OF_{HWT}\right)}$$

$Heavy\_WInd_{Vert} = 1035\,lb$ $Heavy\_Wind_{Trans} = 172\,lb$

Extreme Wind Vertical Load =

$$\overrightarrow{Extreme\_Wind_{Vert} := \left(N_{coax} \cdot W_{coax} \cdot Coax_{Span} \cdot OF_{EWV}\right)}$$

Extreme Wind Transverse Load =

$$\overrightarrow{Extreme\_Wind_{Trans} := \left[\left(qz \cdot psf \cdot A \cdot Cd_{coax}\right) \cdot Coax_{Span} \cdot OF_{EWT}\right]}$$

$Extreme\_Wind_{Vert} = 281\,lb$ $Extreme\_Wind_{Trans} = 498\,lb$

Extreme Ice w/ Wind Vertical Load =

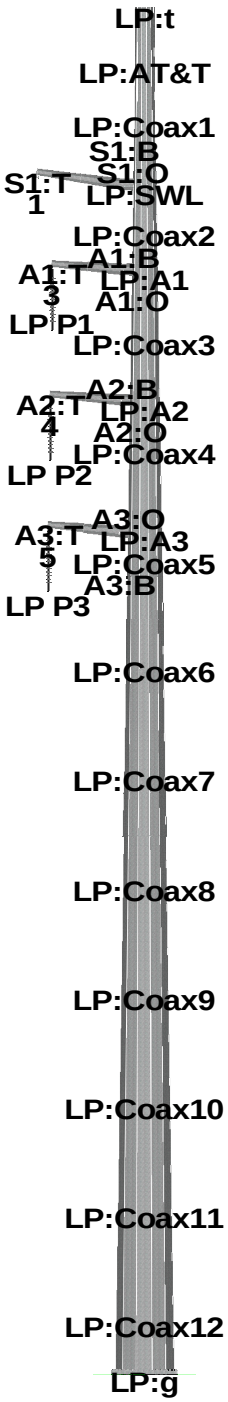
$$\overrightarrow{Extreme\_Ice_{Vert} := \left[\left(N_{coax} \cdot W_{coax} + W_{ice.ex}\right) \cdot Coax_{Span} \cdot OF_{EIV}\right]}$$

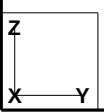
Extreme Ice w/ Wind Transverse Load =

$$\overrightarrow{Extreme\_Ice_{Trans} := \left(p_{ex} \cdot A_{ice.ex} \cdot Cd_{coax} \cdot Coax_{Span} \cdot OF_{EIT}\right)}$$

$Extreme\_Ice_{Vert} = 956\,lb$ $Extreme\_Ice_{Trans} = 114\,lb$

Centek Engineering Inc, Project: "016,017-23-23422-125,110FT"
PLS-POLE Version 17.50, 9:54:52 AM Friday, May 12, 2023
Undeformed geometry displayed





10 (ft)

Project Name : 22007.09 - Weston, CT
Project Notes: Structure # 19775 / AT&T CT1845
Project File : J:\Jobs\2200700.WI\09_CT1845\05_Structural\Tower Analysis\Backup Documentation\Calcs\Rev (1)\PLS-Pole\016,017-23-23422-125,110FT.POL
Date run : 9:55:14 AM Friday, June 02, 2023
by : PLS-POLE Version 17.50
Licensed to : Centek Engineering Inc

Successfully performed nonlinear analysis

Load case 'RULE 250C' uses loading method NESC 2023 which is still being tested and/or is a draft. Carefully check your results. ??
The model has 1 warning. ??

Loads from file: J:\Jobs\2200700.WI\09_CT1845\05_Structural\Tower Analysis\Backup Documentation\Calcs\Rev (1)\PLS-Pole\19775.lca

*** Analysis Results:

Maximum element usage is 59.88% for Steel Pole "LP" in load case "RULE 250C"
Maximum insulator usage is 34.62% for Suspension "S1" in load case "RULE 250D"

Foundation Design Forces For All Load Cases:

Note: loads are factored.

Load Case	Foundation Description	Axial Force (kips)	Shear Force (kips)	Resultant Force (kips)	Bending Moment (ft-k)	Foundation Usage %
RULE 250B	LP:g	77.67	42.77	88.67	3606.89	0.00
RULE 250C	LP:g	43.40	61.71	75.45	5199.20	0.00
RULE 250D	LP:g	61.75	40.94	74.09	3525.69	0.00

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Tran. Moment (ft-k)	Long. Moment (ft-k)	Bending Moment (ft-k)	Vert. Moment (ft-k)	Found. Usage %
RULE 250B	LP:g	-0.19	-42.77	-77.67	42.77	3606.88	-9.76	3606.89	-0.02	0.00
RULE 250C	LP:g	-0.05	-61.71	-43.40	61.71	5199.20	-2.50	5199.20	-0.00	0.00
RULE 250D	LP:g	-0.07	-40.94	-61.75	40.94	3525.69	-3.89	3525.69	-0.01	0.00

Summary of Tip Deflections For All Load Cases:

Note: positive tip load results in positive deflection

Load Case	Joint Label	Long. Defl. (in)	Tran. Defl. (in)	Vert. Defl. (in)	Resultant Defl. (in)	Long. Rot. (deg)	Tran. Rot. (deg)	Twist (deg)
RULE 250B	LP:t	0.07	32.55	-0.49	32.55	0.00	-2.06	0.00
RULE 250C	LP:t	0.02	50.76	-1.16	50.77	0.00	-3.48	0.00
RULE 250D	LP:t	0.03	31.62	-0.46	31.62	0.00	-1.97	0.00

Tubes Summary:

Pole Label	Tube Num.	Weight (lbs)	Load Case	Maximum Usage %	Resultant Moment (ft-k)

LP	1	915	RULE 250C	16.31	109.17
LP	2	4835	RULE 250C	50.17	1198.99
LP	3	3948	RULE 250C	56.03	2194.36
LP	4	15846	RULE 250C	59.88	5199.20

*** Overall summary for all load cases - Usage = Maximum Stress / Allowable Stress

Summary of Steel Pole Usages:

Steel Pole Label	Maximum Usage %	Load Case	Height AGL (ft)	Segment Number	Weight (lbs)
LP	59.88	RULE 250C	1.1	31	28396.5

Summary of Tubular Davit Usages:

Tubular Davit Label	Maximum Usage %	Load Case	Height AGL (ft)	Segment Number	Weight (lbs)
S1	5.47	RULE 250D	107.4	1	360.2
A1	13.31	RULE 250D	99.8	2	248.8
A2	13.36	RULE 250D	87.8	2	248.8
A3	13.45	RULE 250D	75.8	2	248.8

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
RULE 250B	42.27	LP	Steel Pole
RULE 250C	59.88	LP	Steel Pole
RULE 250D	41.09	LP	Steel Pole

Summary of Steel Pole Usages by Load Case:

Load Case	Maximum Usage %	Steel Pole Label	Height AGL (ft)	Segment Number
RULE 250B	42.27	LP	1.1	31
RULE 250C	59.88	LP	1.1	31
RULE 250D	41.09	LP	1.1	31

Summary of Base Plate Usages by Load Case:

Load Case	Pole Label	Bend Line #	Length (in)	Vertical Load (kips)	X Moment (ft-k)	Y Moment (ft-k)	Bending Stress (ksi)	Bolt Moment Sum (ft-k)	# Bolts Acting On Bend Line	Max Bolt Load For Bend Line (kips)	Minimum Plate Thickness (in)	Usage %
RULE 250B	LP	1	17.283	74.821	4387.269	-11.869	39.097	99.126	-3	115.788	2.874	0.00
RULE 250C	LP	1	17.283	40.549	5199.202	-2.497	45.534	115.446	3	135.097	3.101	0.00
RULE 250D	LP	1	17.283	58.899	4387.282	-4.841	38.816	98.415	-3	115.055	2.864	0.00

Summary of Tubular Davit Usages by Load Case:

Load Case	Maximum Tubular Usage %	Davit Label	Height AGL (ft)	Segment Number
RULE 250B	13.27	A3	75.8	2
RULE 250C	10.12	A1	100.0	3
RULE 250D	13.45	A3	75.8	2

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
1	Clamp	0.00	RULE 250B	0.0
2	Clamp	0.00	RULE 250B	0.0
3	Clamp	0.00	RULE 250B	0.0
7	Clamp	0.00	RULE 250B	0.0
9	Clamp	7.19	RULE 250D	0.0
13	Clamp	0.96	RULE 250D	0.0
14	Clamp	0.96	RULE 250D	0.0
15	Clamp	0.96	RULE 250D	0.0
16	Clamp	0.96	RULE 250D	0.0
17	Clamp	0.96	RULE 250D	0.0
18	Clamp	0.96	RULE 250D	0.0
19	Clamp	0.96	RULE 250D	0.0
20	Clamp	0.96	RULE 250D	0.0
21	Clamp	0.96	RULE 250D	0.0
22	Clamp	0.96	RULE 250D	0.0
23	Clamp	0.96	RULE 250D	0.0
24	Clamp	0.96	RULE 250D	0.0
25	Clamp	0.00	RULE 250B	0.0
26	Clamp	0.00	RULE 250B	0.0
SW1	Clamp	4.91	RULE 250D	0.0
S1	Suspension	34.62	RULE 250D	50.0
S2	Suspension	34.62	RULE 250D	50.0
S3	Suspension	34.62	RULE 250D	50.0

*** Weight of structure (lbs):
    Weight of Tubular Davit Arms: 1106.7
    Weight of Steel Poles: 28396.5
    Weight of Suspensions: 150.0
    Total: 29653.2

*** End of Report

```
************************************************************************
*                                                                      *
*                              PLS-POLE                                *
*                   POLE AND FRAME ANALYSIS AND DESIGN                 *
*               Copyright Power Line Systems 1999-2022                 *
*                                                                      *
************************************************************************

Project Name : 22007.09 - Weston, CT
Project Notes: Structure # 19775 / AT&T CT1845
Project File : J:\Jobs\2200700.WI\09_CT1845\05_Structural\Tower Analysis\Backup Documentation\Calcs\Rev (1)\PLS-Pole\016,017-23-23422-125,110FT.POL
Date run     : 9:55:13 AM Friday, June 02, 2023
by           : PLS-POLE Version 17.50
Licensed to  : Centek Engineering Inc

Successfully performed nonlinear analysis

Load case 'RULE 250C' uses loading method NESC 2023 which is still being tested and/or is a draft.  Carefully check your results. ??
The model has 1 warning.  ??
```

```
Modeling options:
  Offset Arms from Pole/Mast:   Yes
  Offset Braces from Pole/Mast: Yes
  Offset Guys from Pole/Mast:   Yes
  Offset Posts from Pole/Mast:  Yes
  Offset Strains from Pole/Mast:  Yes
  Use Alternate Convergence Process: No
  Steel poles and tubular arms checked with ASCE/SEI 48-19
  Base plates are NOT checked  ??
```

Vang Connectivity:

Vang Label	Attach Label	Tip Label	Azimuth (deg)	Length (ft)	Measured Relative To
1	S1:T	1	0	0.25	Face

3	A1:T	3	0	0.25	Face
4	A2:T	4	0	0.25	Face
5	A3:T	5	0	0.25	Face

Default Modulus of Elasticity for Steel = 29000.00 (ksi)
Default Weight Density for Steel = 490.00 (lbs/ft^3)

Steel Pole Properties:

Steel Pole Property	Stock Length Number	Length (ft)	Default Embedded Length (ft)	Base Plate	Shape	Tip Diameter (in)	Base Diameter (in)	Taper (in/ft)	Default Drag Coef.	Tubes	Modulus of Elasticity Override (ksi)	Weight Density Override (lbs/ft^3)	Shape At Base	Strength Check Type	Distance From Tip (ft)	Ultimate Trans. Load (kips)	Ultimate Long. Load (kips)	Texture
016-23-23422-135FT		125.00	0	Yes	12F	19.9	64.5	0	1.6	4 tubes	0	0		Calculated	0.000	0.0000	0.0000	

Steel Tubes Properties:

Pole Property	Tube No.	Length (ft)	Thickness (in)	Lap Length (ft)	Lap Factor	Lap Gap or Butt Offset (in)	Yield Stress (ksi)	Moment Cap. Override (ft-k)	Tube Weight (lbs)	Center of Gravity (ft)	Calculated Taper (in/ft)	Tube Top Diameter (in)	Tube Bot. Diameter (in)	1.5x Diam. Lap Length (ft)	Actual Overlap (ft)
016-23-23422-135FT	1	15	0.25	0.000	0.000	0.000	65.000	0.000	915	7.80	0.35280	19.90	25.19	3.086	0.000
016-23-23422-135FT	2	37.25	0.375	0.000	0.000	0.000	65.000	0.000	4835	19.91	0.35280	25.44	38.58	4.729	0.000
016-23-23422-135FT	3	19.75	0.4375	0.000	0.000	0.000	65.000	0.000	3948	10.15	0.35280	38.71	45.68	5.600	0.000
016-23-23422-135FT	4	53	0.5	0.000	0.000	0.000	65.000	0.000	15846	28.01	0.35280	45.80	64.50	0.000	0.000

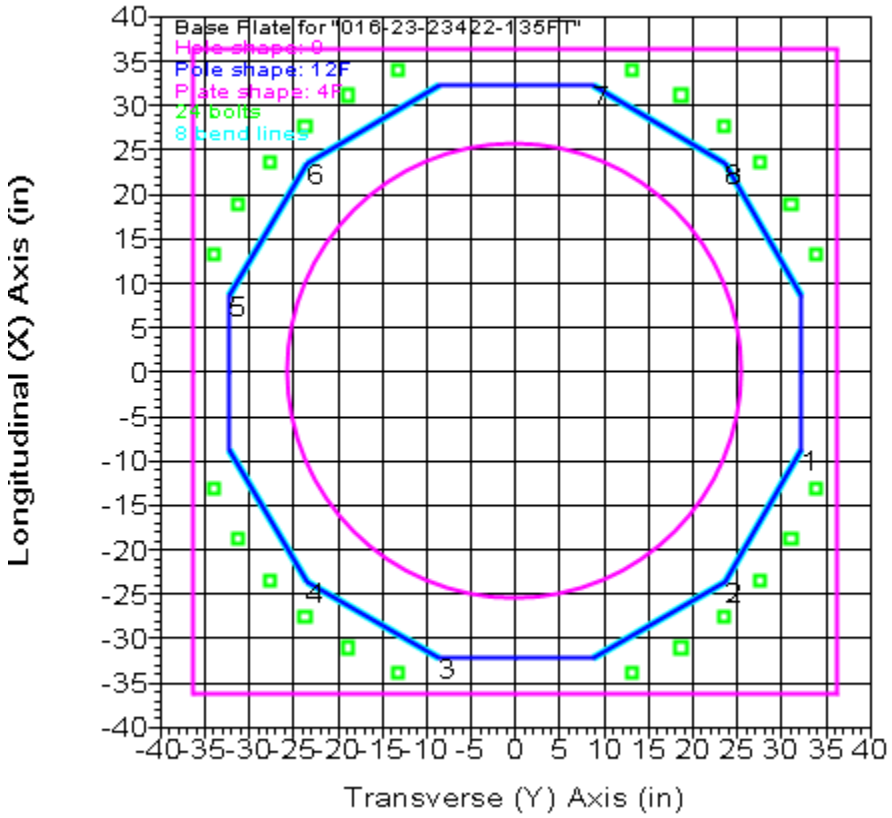
Base Plate Properties:

Pole Property	Plate Diam. (in)	Plate Shape	Plate Thick. (in)	Plate Weight (lbs)	Bend Line Length Override (in)	Hole Diam. (in)	Hole Shape	Steel Density (lbs/ft^3)	Steel Yield Stress (ksi)	Bolt Diam. (in)	Bolt Pattern Diam. (in)	Num. Of Bolts	Bolt Cage X Inertia (in^4)	Bolt Cage Y Inertia (in^4)
016-23-23422-135FT	72.625	4F	3.250	2853	0.000	51.500	0	490.00	50.000	2.250	72.500	24	63003.03	63003.03

Base Plate Bolt Coordinates for Property "016-23-23422-135FT":

Bolt X Coord.	Bolt Y Coord.	Bolt Angle (deg)
0.3621	0.9345	0

```
 0.5172 0.8586      0
 0.6517 0.7621      0
 0.7621 0.6517      0
 0.8586 0.5172      0
 0.9345 0.3621      0
```



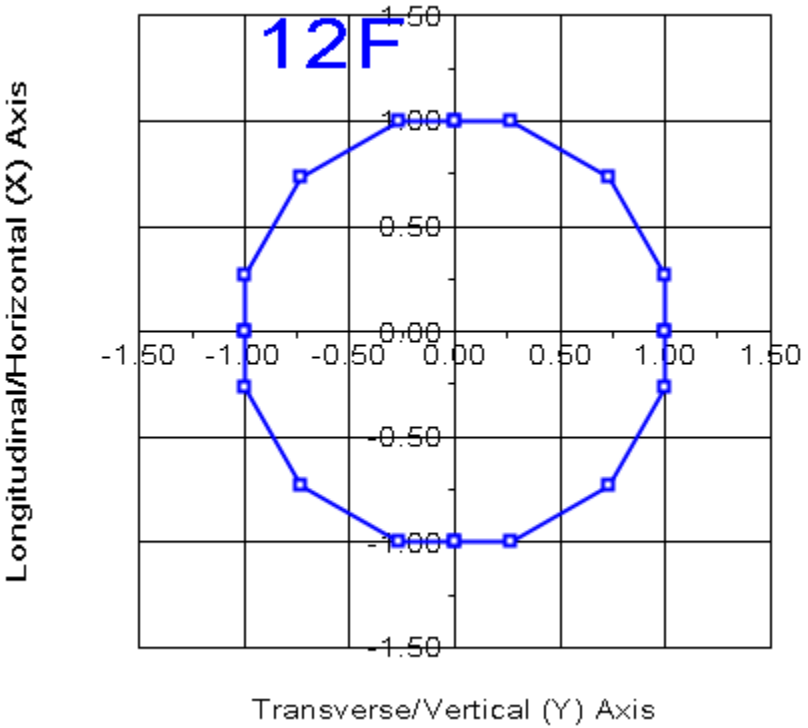
Steel Pole Connectivity:

Pole Label	Tip Joint	Base X of Joint (ft)	Y of Base (ft)	Z of Base (ft)	Inclin. About X (deg)	Inclin. About Y (deg)	Property Set	Attach. Labels	Base Connect	Embed % Override	Embed C. Override (ft)
LP		0	-12.5	0	0	0	016-23-23422-135FT	17 labels		0.00	0

Relative Attachment Labels for Steel Pole "LP":

Joint Label	Distance From Origin/Top Joint (ft)	Global Z of Attach (ft)

LP:AT&T	5.00	0.00
LP:SWL	16.25	0.00
LP:A1	24.00	0.00
LP:A2	36.00	0.00
LP:A3	48.00	0.00
LP:Coax1	10.00	0.00
LP:Coax2	20.00	0.00
LP:Coax3	30.00	0.00
LP:Coax4	40.00	0.00
LP:Coax5	50.00	0.00
LP:Coax6	60.00	0.00
LP:Coax7	70.00	0.00
LP:Coax8	80.00	0.00
LP:Coax9	90.00	0.00
LP:Coax10	100.00	0.00
LP:Coax11	110.00	0.00
LP:Coax12	120.00	0.00



Pole Steel Properties:

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Outer Diam. (in)	Area (in^2)	T-Moment Inertia (in^4)	L-Moment Inertia (in^4)	D/t	W/t Max.	Fy (ksi)	Fa Min. (ksi)	T-Moment Capacity (ft-k)	L-Moment Capacity (ft-k)

LP	LP:t	LP:t	Ori	0.00	19.90	15.80	780.75	780.75	0.00	18.6	65.00	65.00	425.03	425.03
LP	LP:AT&T	LP:AT&T	End	5.00	21.66	17.21	1010.43	1010.43	0.00	20.5	65.00	65.00	505.28	505.28
LP	LP:AT&T	LP:AT&T	Ori	5.00	21.66	17.21	1010.43	1010.43	0.00	20.5	65.00	65.00	505.28	505.28
LP	LP:Coax1	LP:Coax1	End	10.00	23.43	18.63	1281.24	1281.24	0.00	22.4	65.00	65.00	592.46	592.46
LP	LP:Coax1	LP:Coax1	Ori	10.00	23.43	18.63	1281.25	1281.25	0.00	22.4	65.00	65.00	592.46	592.46
LP	#LP:0	SpliceT	End	15.00	25.19	20.05	1596.58	1596.58	0.00	24.3	65.00	65.00	686.58	686.58
LP	#LP:0	SpliceT	Ori	15.00	25.44	30.23	2431.35	2431.35	0.00	15.5	65.00	65.00	1035.28	1035.28
LP	LP:SWL	LP:SWL	End	16.25	25.88	30.76	2561.93	2561.93	0.00	15.8	65.00	65.00	1072.29	1072.29
LP	LP:SWL	LP:SWL	Ori	16.25	25.88	30.76	2561.93	2561.93	0.00	15.8	65.00	65.00	1072.29	1072.29
LP	LP:Coax2	LP:Coax2	End	20.00	27.21	32.35	2981.53	2981.53	0.00	16.8	65.00	65.00	1187.23	1187.23
LP	LP:Coax2	LP:Coax2	Ori	20.00	27.21	32.35	2981.53	2981.53	0.00	16.8	65.00	65.00	1187.23	1187.23
LP	LP:A1	LP:A1	End	24.00	28.62	34.05	3477.09	3477.09	0.00	17.8	65.00	65.00	1316.29	1316.29
LP	LP:A1	LP:A1	Ori	24.00	28.62	34.05	3477.09	3477.09	0.00	17.8	65.00	65.00	1316.29	1316.29
LP	#LP:1	Tube 2	End	27.00	29.68	35.33	3882.80	3882.80	0.00	18.5	65.00	65.00	1417.45	1417.45
LP	#LP:1	Tube 2	Ori	27.00	29.68	35.33	3882.80	3882.80	0.00	18.5	65.00	65.00	1417.45	1417.45
LP	LP:Coax3	LP:Coax3	End	30.00	30.73	36.61	4318.90	4318.90	0.00	19.3	65.00	65.00	1522.35	1522.35
LP	LP:Coax3	LP:Coax3	Ori	30.00	30.73	36.61	4318.90	4318.90	0.00	19.3	65.00	65.00	1522.35	1522.35
LP	#LP:2	Tube 2	End	33.00	31.79	37.88	4786.49	4786.49	0.00	20.0	65.00	65.00	1631.01	1631.01
LP	#LP:2	Tube 2	Ori	33.00	31.79	37.88	4786.49	4786.49	0.00	20.0	65.00	65.00	1631.01	1631.01
LP	LP:A2	LP:A2	End	36.00	32.85	39.16	5286.67	5286.67	0.00	20.8	65.00	65.00	1743.40	1743.40
LP	LP:A2	LP:A2	Ori	36.00	32.85	39.16	5286.67	5286.67	0.00	20.8	65.00	65.00	1743.40	1743.40
LP	LP:Coax4	LP:Coax4	End	40.00	34.26	40.86	6006.17	6006.17	0.00	21.8	65.00	65.00	1899.09	1899.09
LP	LP:Coax4	LP:Coax4	Ori	40.00	34.26	40.86	6006.17	6006.17	0.00	21.8	65.00	65.00	1899.09	1899.09
LP	#LP:3	Tube 2	End	44.00	35.67	42.56	6788.15	6788.15	0.00	22.8	65.00	65.00	2061.44	2061.44
LP	#LP:3	Tube 2	Ori	44.00	35.67	42.56	6788.16	6788.16	0.00	22.8	65.00	65.00	2061.44	2061.44
LP	LP:A3	LP:A3	End	48.00	37.08	44.26	7635.23	7635.23	0.00	23.8	65.00	65.00	2230.45	2230.45
LP	LP:A3	LP:A3	Ori	48.00	37.08	44.26	7635.23	7635.23	0.00	23.8	65.00	65.00	2230.45	2230.45
LP	LP:Coax5	LP:Coax5	End	50.00	37.79	45.11	8083.99	8083.99	0.00	24.3	65.00	65.00	2317.45	2317.45
LP	LP:Coax5	LP:Coax5	Ori	50.00	37.79	45.11	8084.00	8084.00	0.00	24.3	65.00	65.00	2317.45	2317.45
LP	#LP:4	SpliceT	End	52.25	38.58	46.07	8609.49	8609.49	0.00	24.9	65.00	65.00	2417.32	2417.32
LP	#LP:4	SpliceT	Ori	52.25	38.71	53.84	10094.11	10094.11	0.00	21.0	65.00	65.00	2825.01	2825.01
LP	#LP:5	Tube 3	End	56.13	40.08	55.76	11214.84	11214.84	0.00	21.9	65.00	65.00	3031.59	3031.59
LP	#LP:5	Tube 3	Ori	56.13	40.08	55.76	11214.84	11214.84	0.00	21.9	65.00	65.00	3031.59	3031.59
LP	LP:Coax6	LP:Coax6	End	60.00	41.44	57.68	12415.60	12415.60	0.00	22.7	65.00	65.00	3245.47	3245.47
LP	LP:Coax6	LP:Coax6	Ori	60.00	41.44	57.68	12415.60	12415.60	0.00	22.7	65.00	65.00	3245.47	3245.47
LP	#LP:6	Tube 3	End	65.00	43.21	60.17	14087.69	14087.69	0.00	23.8	65.00	65.00	3532.22	3532.22
LP	#LP:6	Tube 3	Ori	65.00	43.21	60.17	14087.69	14087.69	0.00	23.8	65.00	65.00	3532.22	3532.22
LP	LP:Coax7	LP:Coax7	End	70.00	44.97	62.65	15903.56	15903.56	0.00	24.9	65.00	65.00	3831.10	3831.10
LP	LP:Coax7	LP:Coax7	Ori	70.00	44.97	62.65	15903.56	15903.56	0.00	24.9	65.00	65.00	3831.10	3831.10
LP	#LP:7	SpliceT	End	72.00	45.68	63.64	16671.49	16671.49	0.00	25.3	65.00	65.00	3954.05	3954.05
LP	#LP:7	SpliceT	Ori	72.00	45.80	72.83	19132.74	19132.74	0.00	21.9	65.00	65.00	4525.41	4525.41
LP	#LP:8	Tube 4	End	76.00	47.21	75.10	20976.89	20976.89	0.00	22.6	65.00	65.00	4813.30	4813.30
LP	#LP:8	Tube 4	Ori	76.00	47.21	75.10	20976.90	20976.90	0.00	22.6	65.00	65.00	4813.30	4813.30
LP	LP:Coax8	LP:Coax8	End	80.00	48.62	77.37	22935.90	22935.90	0.00	23.4	65.00	65.00	5110.07	5110.07
LP	LP:Coax8	LP:Coax8	Ori	80.00	48.62	77.37	22935.91	22935.91	0.00	23.4	65.00	65.00	5110.07	5110.07
LP	#LP:9	Tube 4	End	85.00	50.39	80.20	25551.46	25551.46	0.00	24.3	65.00	65.00	5493.51	5493.51
LP	#LP:9	Tube 4	Ori	85.00	50.39	80.20	25551.47	25551.47	0.00	24.3	65.00	65.00	5493.51	5493.51
LP	LP:Coax9	LP:Coax9	End	90.00	52.15	83.04	28358.69	28358.69	0.00	25.3	65.00	65.00	5890.83	5890.83
LP	LP:Coax9	LP:Coax9	Ori	90.00	52.15	83.04	28358.69	28358.69	0.00	25.3	65.00	65.00	5890.83	5890.83
LP	#LP:10	Tube 4	End	95.00	53.92	85.88	31364.34	31364.34	0.00	26.2	65.00	65.00	6302.02	6302.02
LP	#LP:10	Tube 4	Ori	95.00	53.92	85.88	31364.35	31364.35	0.00	26.2	65.00	65.00	6302.02	6302.02
LP	LP:Coax10	LP:Coax10	End	100.00	55.68	88.71	34575.21	34575.21	0.00	27.2	65.00	65.00	6727.09	6727.09
LP	LP:Coax10	LP:Coax10	Ori	100.00	55.68	88.71	34575.21	34575.21	0.00	27.2	65.00	65.00	6727.09	6727.09
LP	#LP:11	Tube 4	End	105.00	57.44	91.55	37998.07	37998.07	0.00	28.1	65.00	65.00	7166.02	7166.02
LP	#LP:11	Tube 4	Ori	105.00	57.44	91.55	37998.07	37998.07	0.00	28.1	65.00	65.00	7166.03	7166.03
LP	LP:Coax11	LP:Coax11	End	110.00	59.21	94.38	41639.69	41639.69	0.00	29.1	65.00	65.00	7618.84	7618.84
LP	LP:Coax11	LP:Coax11	Ori	110.00	59.21	94.38	41639.70	41639.70	0.00	29.1	65.00	65.00	7618.84	7618.84
LP	#LP:12	Tube 4	End	115.00	60.97	97.22	45506.86	45506.86	0.00	30.0	65.00	64.80	8061.22	8061.22
LP	#LP:12	Tube 4	Ori	115.00	60.97	97.22	45506.87	45506.87	0.00	30.0	65.00	64.80	8061.22	8061.22

LP	LP:Coax12	LP:Coax12 End	120.00	62.74	100.06	49606.35	49606.35	0.00	30.9	65.00	63.88	8418.04	8418.04		
LP	LP:Coax12	LP:Coax12 Ori	120.00	62.74	100.06	49606.36	49606.36	0.00	30.9	65.00	63.88	8418.04	8418.04		
LP	LP:g	LP:g End	125.00	64.50	102.89	53944.94	53944.94	0.00	31.9	65.00	62.95	8774.57	8774.57		

Tubular Davit Properties:

Davit Property	Stock Number	Steel Shape	Thickness Base Diameter or Depth (in)	Tip Diameter or Depth (in)	Taper (in/ft)	Drag Coef.	Modulus of Elasticity (ksi)	Geometry Check Type	Strength Vertical Capacity (lbs)	Tension Capacity (lbs)	Compres. Capacity (lbs)	Long. Capacity (lbs)	Yield Stress (ksi)	Weight Density (lbs/ft^3)	Steel Texture Shape Label	Override At End
6.5FT COND ARM-016,017		8F	0.3125	13	7	0	1.3	29000 2 points Calculated	0	0	0	0	65	0		
8FT SW ARM-016,017		8F	0.375	13	7	0	1.3	29000 2 points Calculated	0	0	0	0	65	0		

Intermediate Joints for Davit Property "6.5FT COND ARM-016,017":

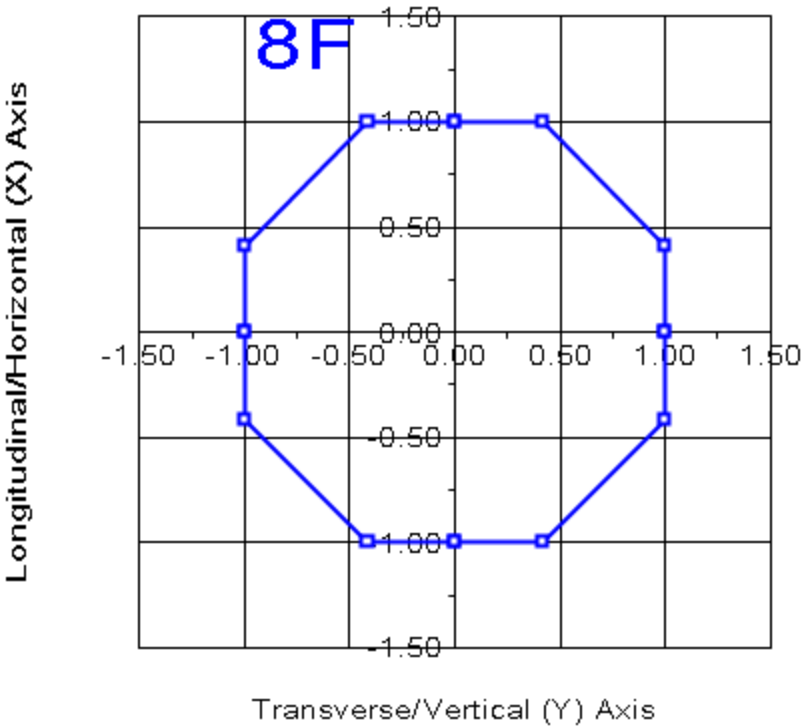
Joint Label	Horz. Offset (ft)	Vert. Offset (ft)
B	0.767	0
T	7.267	-0.54

Intermediate Joints for Davit Property "8FT SW ARM-016,017":

Joint Label	Horz. Offset (ft)	Vert. Offset (ft)
B	0.767	0
T	8.767	-1.16

Tubular Davit Arm Connectivity:

Davit Label	Attach Label	Davit Property Set	Azimuth (deg)
S1	LP:SWL	8FT SW ARM-016,017	180
A1	LP:A1	6.5FT COND ARM-016,017	180
A2	LP:A2	6.5FT COND ARM-016,017	180
A3	LP:A3	6.5FT COND ARM-016,017	180



Tubular Davit Arm Steel Properties:

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Outer Diam. (in)	Area (in^2)	V-Moment Inertia (in^4)	H-Moment Inertia (in^4)	D/t	W/t Max.	Fy (ksi)	Fa Min. (ksi)	V-Moment Capacity (ft-k)	H-Moment Capacity (ft-k)
S1	S1:O	Origin	0.00	13.00	15.69	330.74	330.74	0.00	10.2	65.00	65.00	275.61	275.61
S1	S1:B	End	0.77	12.48	15.04	291.55	291.55	0.00	9.6	65.00	65.00	253.08	253.08
S1	S1:B	Origin	0.77	12.48	15.04	291.55	291.55	0.00	9.6	65.00	65.00	253.08	253.08
S1	#S1:0	End	4.81	9.74	11.64	135.09	135.09	0.00	6.6	65.00	65.00	150.25	150.25
S1	#S1:0	Origin	4.81	9.74	11.64	135.09	135.09	0.00	6.6	65.00	65.00	150.25	150.25
S1	S1:T	End	8.85	7.00	8.23	47.90	47.90	0.00	3.6	65.00	65.00	74.13	74.13
A1	A1:O	Origin	0.00	13.00	13.14	279.65	279.65	0.00	13.1	65.00	65.00	233.04	233.04
A1	A1:B	End	0.77	12.37	12.48	239.96	239.96	0.00	12.3	65.00	65.00	210.18	210.18
A1	A1:B	Origin	0.77	12.37	12.48	239.96	239.96	0.00	12.3	65.00	65.00	210.18	210.18
A1	#A1:0	End	4.03	9.68	9.70	112.77	112.77	0.00	8.7	65.00	65.00	126.15	126.15
A1	#A1:0	Origin	4.03	9.68	9.70	112.77	112.77	0.00	8.7	65.00	65.00	126.15	126.15
A1	A1:T	End	7.29	7.00	6.93	41.02	41.02	0.00	5.1	65.00	65.00	63.48	63.48
A2	A2:O	Origin	0.00	13.00	13.14	279.65	279.65	0.00	13.1	65.00	65.00	233.04	233.04
A2	A2:B	End	0.77	12.37	12.48	239.96	239.96	0.00	12.3	65.00	65.00	210.18	210.18
A2	A2:B	Origin	0.77	12.37	12.48	239.96	239.96	0.00	12.3	65.00	65.00	210.18	210.18

A2	#A2:0	End	4.03	9.68	9.70	112.77	112.77	0.00	8.7	65.00	65.00	126.15	126.15
A2	#A2:0	Origin	4.03	9.68	9.70	112.77	112.77	0.00	8.7	65.00	65.00	126.15	126.15
A2	A2:T	End	7.29	7.00	6.93	41.02	41.02	0.00	5.1	65.00	65.00	63.48	63.48
A3	A3:O	Origin	0.00	13.00	13.14	279.65	279.65	0.00	13.1	65.00	65.00	233.04	233.04
A3	A3:B	End	0.77	12.37	12.48	239.96	239.96	0.00	12.3	65.00	65.00	210.18	210.18
A3	A3:B	Origin	0.77	12.37	12.48	239.96	239.96	0.00	12.3	65.00	65.00	210.18	210.18
A3	#A3:0	End	4.03	9.68	9.70	112.77	112.77	0.00	8.7	65.00	65.00	126.15	126.15
A3	#A3:0	Origin	4.03	9.68	9.70	112.77	112.77	0.00	8.7	65.00	65.00	126.15	126.15
A3	A3:T	End	7.29	7.00	6.93	41.02	41.02	0.00	5.1	65.00	65.00	63.48	63.48

*** Insulator Data

Clamp Properties:

Label	Stock Number	Holding Capacity (lbs)	Hardware Capacity (lbs)	Notes
CLAMP		1e+05	0	

Clamp Insulator Connectivity:

Clamp Label	Structure And Tip Attach	Property Set	Min. Required Vertical Load (uplift) (lbs)
1	A1:T	CLAMP	No Limit
2	A2:T	CLAMP	No Limit
3	A3:T	CLAMP	No Limit
7	S1:T	CLAMP	No Limit
9	LP:AT&T	CLAMP	No Limit
13	LP:Coax1	CLAMP	No Limit
14	LP:Coax2	CLAMP	No Limit
15	LP:Coax3	CLAMP	No Limit
16	LP:Coax4	CLAMP	No Limit
17	LP:Coax5	CLAMP	No Limit
18	LP:Coax6	CLAMP	No Limit
19	LP:Coax7	CLAMP	No Limit
20	LP:Coax8	CLAMP	No Limit
21	LP:Coax9	CLAMP	No Limit
22	LP:Coax10	CLAMP	No Limit
23	LP:Coax11	CLAMP	No Limit
24	LP:Coax12	CLAMP	No Limit
25	S1:B	CLAMP	No Limit
26	LP:t	CLAMP	No Limit
SW1	1	CLAMP	No Uplift

Suspension Properties:

Label	Stock Number	Length (ft)	Weight (lbs)	Wind Area (ft^2)	Tension Capacity (lbs)	Top Rect Width (ft)	Top Rect Height (ft)	Bot. Rect Width (ft)	Bot. Rect Height (ft)	Vert. Rect Width (ft)	Vert. Rect Height (ft)	Hardware Capacity (lbs)	Notes	Draw Rigid
115KV		5.5	50	2	3e+04	0	0	0	0	0	0	0	Sheds	No

Suspension Insulator Connectivity:

Suspension Label	Structure Attach	Tip Label	Property Set	Cond. 1 Minimum Swing (deg)	Cond. 1 Maximum Swing (deg)	Cond. 2 Minimum Swing (deg)	Cond. 2 Maximum Swing (deg)	Cond. 3 Minimum Swing (deg)	Cond. 3 Maximum Swing (deg)	Cond. 4 Minimum Swing (deg)	Cond. 4 Maximum Swing (deg)	Min. Required Vertical Load (uplift) (lbs)
S1	3	LP P1	115KV	-90.00	29.00	-90.00	32.00	-90.00	62.00	-90.00	77.00	No Uplift
S2	4	LP P2	115KV	-90.00	29.00	-90.00	32.00	-90.00	62.00	-90.00	77.00	No Uplift
S3	5	LP P3	115KV	-90.00	29.00	-90.00	32.00	-90.00	62.00	-90.00	77.00	No Uplift

PLS-CADD Link Cable Sets:

Insulator Label	Conductor Attach Label	Insulator Type	Set Number	Phase Number	Set Description	Dead End	Framing Source
1	A1:T	Clamp	0	0		No	
2	A2:T	Clamp	0	0		No	
3	A3:T	Clamp	0	0		No	
7	S1:T	Clamp	0	0		No	
9	LP:AT&T	Clamp	0	0		No	
10	LP:L2	Clamp	0	0		No	
11	LP:L3	Clamp	0	0		No	
12	LP:L4	Clamp	0	0		No	
13	LP:Coax1	Clamp	0	0		No	
14	LP:Coax2	Clamp	0	0		No	
15	LP:Coax3	Clamp	0	0		No	
16	LP:Coax4	Clamp	0	0		No	
17	LP:Coax5	Clamp	0	0		No	
18	LP:Coax6	Clamp	0	0		No	
19	LP:Coax7	Clamp	0	0		No	
20	LP:Coax8	Clamp	0	0		No	
21	LP:Coax9	Clamp	0	0		No	
22	LP:Coax10	Clamp	0	0		No	
23	LP:Coax11	Clamp	0	0		No	
24	LP:Coax12	Clamp	0	0		No	
25	S1:B	Clamp	0	0		No	
26	LP:t	Clamp	0	0		No	
SW1	1	Clamp	1	1	LP SW	No	
S1	LP P1	Suspension	11	1	LP P1	No	
S2	LP P2	Suspension	12	1	LP P2	No	
S3	LP P3	Suspension	13	1	LP P3	No	

*** Loads Data

Loads from file: J:\Jobs\2200700.WI\09_CT1845\05_Structural\Tower Analysis\Backup Documentation\Calcs\Rev (1)\PLS-Pole\19775.lca

Insulator dead and wind loads are already included in the point loads printed below.

Loading Method Parameters:

Structure Height Summary (used for calculating wind/ice adjust with height):
  Z of ground for wind height adjust   0.00 (ft) and structure Z coordinate that will be put on the centerline ground profile in PLS-CADD.
  Ground elevation shift   1.38 (ft)
  Z of ground with shift   -1.38 (ft)
  Z of structure top (highest joint)   125.00 (ft)
  Structure height   125.00 (ft)
  Structure height above ground   126.38 (ft)

Vector Load Cases:

Load Case Description	Dead Load	Wind Ice Area	SF for Steel Poles	SF for Wood Poles	SF for Conc. Poles	SF for Conc. Poles	SF for Guys and Tubular Arms	SF for Non Tubular Arms	SF for Braces and Towers	SF for Insuls.	SF For Hardware	Point Loads	Wind/Ice Model	Trans. Wind Pressure
	Longit. Ice Thick. (in)	Density (lbs/ft^3)	Ice Temperature Factor (deg F)	Deflection Factor	Deflection Factor	Pole Check % or (ft)	Pole Ult. Limit	First Crack	Zero Tens. Cables			Found.		
RULE 250B	1.5000	2.5000	1.00000	0.6500	1.0000	0.0000	0.0000	0.9000	0.6500	0.6500	0.0000	0.0000	1.0000 17 loads	Wind on All	4
0	0.500	0.000	0.0	No Limit		0								
RULE 250C	1.0000	1.0000	1.00000	0.7500	1.0000	0.0000	0.0000	0.9000	0.7500	0.7500	0.0000	0.0000	1.0000 17 loads	NESC 2023	31
0	0.000	0.000	60.0	No Limit		0								
RULE 250D	1.0000	1.0000	1.00000	1.0000	1.0000	0.0000	0.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000 17 loads	Wind on All	6.4
0	0.750	0.000	15.0	No Limit		0								

Point Loads for Load Case "RULE 250B":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
1	1353	4068	0	Shield Wire
LP P1	3929	9026	0	Conductor
LP P2	3929	9026	0	Conductor
LP P3	3929	9026	0	Conductor
LP:AT&T	9163	2516	0	AT&T Equipment
LP:Coax1	1035	172	0	Cables
LP:Coax2	1035	172	0	Cables
LP:Coax3	1035	172	0	Cables
LP:Coax4	1035	172	0	Cables
LP:Coax5	1035	172	0	Cables
LP:Coax6	1035	172	0	Cables
LP:Coax7	1035	172	0	Cables
LP:Coax8	1035	172	0	Cables
LP:Coax9	1035	172	0	Cables

LP:Coax10	1035	172	0	Cables
LP:Coax11	1035	172	0	Cables
LP:Coax12	1035	172	0	Cables

Point Loads for Load Case "RULE 250C":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
1	363	4172	0	Shield Wire
LP P1	1729	9291	0	Conductor
LP P2	1729	9291	0	Conductor
LP P3	1729	9291	0	Conductor
LP:AT&T	4610	9715	0	AT&T Equipment
LP:Coax1	281	498	0	Cables
LP:Coax2	281	498	0	Cables
LP:Coax3	281	498	0	Cables
LP:Coax4	281	498	0	Cables
LP:Coax5	281	498	0	Cables
LP:Coax6	281	498	0	Cables
LP:Coax7	281	498	0	Cables
LP:Coax8	281	498	0	Cables
LP:Coax9	281	498	0	Cables
LP:Coax10	281	498	0	Cables
LP:Coax11	281	498	0	Cables
LP:Coax12	281	498	0	Cables

Detailed Pole Loading Data for Load Case "RULE 250C":

Notes: Does not include loads from equipment, arms, guys, braces, etc. or user input loads.
Wind load is calculated for the undeformed shape of a pole.

Pole Label	Top Joint	Bottom Joint	Section Top Z (ft)	Section Bottom Z (ft)	Section Average Elevation (ft)	Outer Diameter (in)	Reynolds Number	Drag Coef.	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Pole Ice Vertical Load (lbs)	Pole Ice Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)
LP	LP:t	LP:AT&T	125.00	120.00	123.88	20.782	1.75e+06	1.000	31.77	0.00	280.81	275.08	0.00	0.00	275.08	0.00
LP	LP:AT&T	LP:Coax1	120.00	115.00	118.88	22.546	1.9e+06	1.000	31.77	0.00	304.93	298.43	0.00	0.00	298.43	0.00
LP	LP:Coax1		115.00	110.00	113.88	24.310	2.05e+06	1.000	31.77	0.00	329.08	321.78	0.00	0.00	321.78	0.00
LP		LP:SWL	110.00	108.75	110.76	25.663	2.17e+06	1.000	31.77	0.00	129.69	84.92	0.00	0.00	84.92	0.00
LP	LP:SWL	LP:Coax2	108.75	105.00	108.26	26.545	2.24e+06	1.000	31.77	0.00	402.65	263.51	0.00	0.00	263.51	0.00
LP	LP:Coax2	LP:A1	105.00	101.00	104.38	27.912	2.36e+06	1.000	31.77	0.00	451.93	295.56	0.00	0.00	295.56	0.00
LP	LP:A1		101.00	98.00	100.88	29.146	2.46e+06	1.000	31.77	0.00	354.14	231.48	0.00	0.00	231.48	0.00
LP		LP:Coax3	98.00	95.00	97.88	30.205	2.55e+06	1.000	31.77	0.00	367.17	239.88	0.00	0.00	239.88	0.00
LP	LP:Coax3		95.00	92.00	94.88	31.263	2.64e+06	1.000	31.77	0.00	380.20	248.29	0.00	0.00	248.29	0.00
LP		LP:A2	92.00	89.00	91.88	32.322	2.73e+06	1.000	31.77	0.00	393.23	256.69	0.00	0.00	256.69	0.00
LP	LP:A2	LP:Coax4	89.00	85.00	88.38	33.556	2.83e+06	1.000	31.77	0.00	544.57	355.33	0.00	0.00	355.33	0.00
LP	LP:Coax4		85.00	81.00	84.38	34.968	2.95e+06	1.000	31.77	0.00	567.73	370.27	0.00	0.00	370.27	0.00
LP		LP:A3	81.00	77.00	80.38	36.379	3.07e+06	1.000	31.77	0.00	590.89	385.22	0.00	0.00	385.22	0.00
LP	LP:A3	LP:Coax5	77.00	75.00	77.38	37.437	3.16e+06	1.000	31.77	0.00	304.13	198.21	0.00	0.00	198.21	0.00
LP	LP:Coax5		75.00	72.75	75.26	38.187	3.22e+06	1.000	31.77	0.00	349.07	227.45	0.00	0.00	227.45	0.00
LP			72.75	68.87	72.19	39.392	3.32e+06	1.000	31.77	0.00	722.55	404.09	0.00	0.00	404.09	0.00
LP		LP:Coax6	68.87	65.00	68.32	40.759	3.44e+06	1.000	31.77	0.00	747.93	418.12	0.00	0.00	418.12	0.00
LP	LP:Coax6		65.00	60.00	63.88	42.325	3.57e+06	1.000	31.77	0.00	1002.54	560.23	0.00	0.00	560.23	0.00
LP		LP:Coax7	60.00	55.00	58.88	44.089	3.72e+06	1.000	31.77	0.00	1044.75	583.58	0.00	0.00	583.58	0.00
LP	LP:Coax7		55.00	53.00	55.38	45.324	3.82e+06	1.000	31.77	0.00	429.74	239.97	0.00	0.00	239.97	0.00
LP			53.00	49.00	52.38	46.507	3.92e+06	1.000	31.77	0.00	1006.73	492.47	0.00	0.00	492.47	0.00

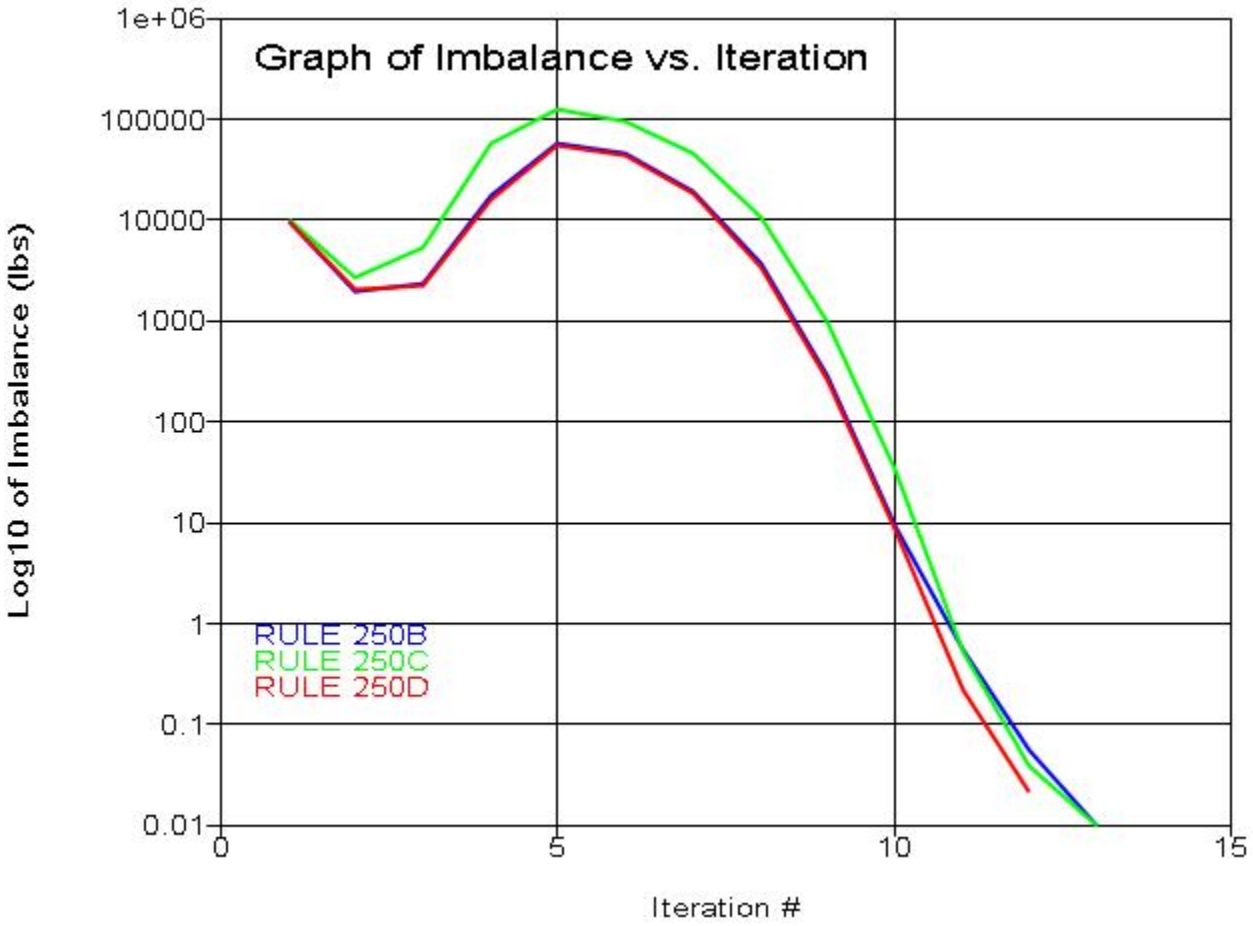
LP	LP:Coax8	49.00	45.00	48.38	47.918	4.04e+06	1.000	31.77	0.00	1037.63	507.41	0.00	0.00	507.41	0.00
LP	LP:Coax8	45.00	40.00	43.88	49.506	4.18e+06	1.000	31.77	0.00	1340.47	655.28	0.00	0.00	655.28	0.00
LP	LP:Coax9	40.00	35.00	38.88	51.270	4.33e+06	1.000	31.77	0.00	1388.72	678.63	0.00	0.00	678.63	0.00
LP	LP:Coax9	35.00	30.00	33.88	53.034	4.48e+06	1.000	31.77	0.00	1436.97	701.98	0.00	0.00	701.98	0.00
LP	LP:Coax10	30.00	25.00	28.88	54.798	4.62e+06	1.000	31.77	0.00	1485.22	725.33	0.00	0.00	725.33	0.00
LP	LP:Coax10	25.00	20.00	23.88	56.562	4.77e+06	1.000	31.77	0.00	1533.47	748.67	0.00	0.00	748.67	0.00
LP	LP:Coax11	20.00	15.00	18.88	58.326	4.92e+06	1.000	31.77	0.00	1581.72	772.02	0.00	0.00	772.02	0.00
LP	LP:Coax11	15.00	10.00	13.88	60.090	5.07e+06	1.000	31.77	0.00	1629.97	795.37	0.00	0.00	795.37	0.00
LP	LP:Coax12	10.00	5.00	8.88	61.854	5.22e+06	1.000	31.77	0.00	1678.22	818.72	0.00	0.00	818.72	0.00
LP	LP:Coax12 LP:g	5.00	0.00	3.88	63.618	5.37e+06	1.000	31.77	0.00	1726.48	842.07	0.00	0.00	842.07	0.00

Point Loads for Load Case "RULE 250D":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
1	1876	4539	0	Shield Wire
LP P1	3945	9609	0	Conductor
LP P2	3945	9609	0	Conductor
LP P3	3945	9609	0	Conductor
LP:AT&T	6989	1696	0	AT&T Equipment
LP:Coax1	956	114	0	Cables
LP:Coax2	956	114	0	Cables
LP:Coax3	956	114	0	Cables
LP:Coax4	956	114	0	Cables
LP:Coax5	956	114	0	Cables
LP:Coax6	956	114	0	Cables
LP:Coax7	956	114	0	Cables
LP:Coax8	956	114	0	Cables
LP:Coax9	956	114	0	Cables
LP:Coax10	956	114	0	Cables
LP:Coax11	956	114	0	Cables
LP:Coax12	956	114	0	Cables

*** Analysis Results:

Maximum element usage is 59.88% for Steel Pole "LP" in load case "RULE 250C"
Maximum insulator usage is 34.62% for Suspension "S1" in load case "RULE 250D"



*** Analysis Results for Load Case No. 1 "RULE 250B" - Number of iterations in SAPS 13

Equilibrium Joint Positions and Rotations for Load Case "RULE 250B":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
LP:g	0	0	0	0.0000	0.0000	0.0000	0	-12.5	0
LP:t	0.00597	2.712	-0.04072	-2.0605	0.0045	0.0000	0.00597	-9.788	125
LP:AT&T	0.005577	2.533	-0.03749	-2.0602	0.0045	0.0000	0.005577	-9.967	120

LP:Coax1	0.005184	2.353	-0.03417	-2.0501	0.0045	0.0000	0.005184	-10.15	115
LP:SWL	0.0047	2.131	-0.0301	-2.0209	0.0044	0.0000	0.0047	-10.37	108.7
LP:Coax2	0.004413	1.999	-0.02773	-2.0055	0.0043	0.0000	0.004413	-10.5	105
LP:A1	0.004112	1.86	-0.02524	-1.9805	0.0043	0.0000	0.004112	-10.64	101
LP:Coax3	0.003672	1.654	-0.0216	-1.9339	0.0041	0.0000	0.003672	-10.85	94.98
LP:A2	0.003249	1.455	-0.01817	-1.8580	0.0040	0.0000	0.003249	-11.04	88.98
LP:Coax4	0.002977	1.327	-0.01603	-1.7996	0.0038	0.0000	0.002977	-11.17	84.98
LP:A3	0.002465	1.086	-0.01218	-1.6478	0.0035	0.0000	0.002465	-11.41	76.99
LP:Coax5	0.002343	1.029	-0.01132	-1.6065	0.0034	0.0000	0.002343	-11.47	74.99
LP:Coax6	0.001781	0.7661	-0.007622	-1.3925	0.0030	0.0000	0.001781	-11.73	64.99
LP:Coax7	0.00129	0.5427	-0.004881	-1.1559	0.0026	0.0000	0.00129	-11.96	55
LP:Coax8	0.0008768	0.3602	-0.00299	-0.9332	0.0022	0.0000	0.0008768	-12.14	45
LP:Coax9	0.0005382	0.2157	-0.00172	-0.7157	0.0017	0.0000	0.0005382	-12.28	35
LP:Coax10	0.0002789	0.1089	-0.0009179	-0.5020	0.0012	0.0000	0.0002789	-12.39	25
LP:Coax11	0.0001025	0.03895	-0.0004333	-0.2950	0.0008	0.0000	0.0001025	-12.46	15
LP:Coax12	1.213e-05	0.004427	-0.0001268	-0.0962	0.0003	0.0000	1.213e-05	-12.5	5
S1:O	0.004703	2.132	0.00793	-2.0209	0.0044	0.0000	0.004703	-11.45	108.8
S1:B	0.004706	2.132	0.03492	-2.0142	0.0044	0.0000	0.004706	-12.21	108.8
S1:T	0.004823	2.177	0.3094	-1.9293	0.0044	0.0001	0.004823	-20.17	110.2
A1:O	0.004116	1.861	0.01597	-1.9805	0.0043	0.0000	0.004116	-11.83	101
A1:B	0.004119	1.861	0.04231	-1.9585	0.0043	0.0000	0.004119	-12.6	101
A1:T	0.00418	1.882	0.251	-1.7361	0.0043	0.0000	0.00418	-19.08	101.8
A2:O	0.003253	1.456	0.02621	-1.8580	0.0040	0.0000	0.003253	-12.41	89.03
A2:B	0.003255	1.456	0.0509	-1.8359	0.0040	0.0000	0.003255	-13.18	89.05
A2:T	0.00331	1.476	0.2456	-1.6125	0.0040	0.0000	0.00331	-19.66	89.79
A3:O	0.002468	1.086	0.03225	-1.6478	0.0035	0.0000	0.002468	-12.96	77.03
A3:B	0.00247	1.087	0.05413	-1.6254	0.0035	0.0000	0.00247	-13.73	77.05
A3:T	0.002517	1.103	0.225	-1.4005	0.0035	0.0000	0.002517	-20.21	77.76
1	0.004783	2.159	0.3123	-1.9293	0.0044	0.0001	0.004783	-20.26	109.7
3	0.00414	1.866	0.2526	-1.7361	0.0043	0.0000	0.00414	-19.14	101.3
4	0.003273	1.461	0.2471	-1.6125	0.0040	0.0000	0.003273	-19.72	89.25
5	0.002484	1.09	0.2262	-1.4005	0.0035	0.0000	0.002484	-20.27	77.23

Joint Support Reactions for Load Case "RULE 250B":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
LP:g	-0.19	0.0	-42.77	0.0	0.0	-77.67	0.0	0.0	88.67	0.0	3606.88	0.0	-9.8	0.0	0.0	-0.02	0.0	0.0

Detailed Steel Pole Usages for Load Case "RULE 250B":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (Local Mx) (ft-k)	Long. Mom. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
LP	LP:t	Origin	0.00	32.55	0.07	-0.49	-0.00	-0.00	0.0	-0.21	0.08	-0.00	-0.01	0.00	0.01	0.00	0.02	0.0	5
LP	LP:AT&T	End	5.00	30.39	0.07	-0.45	0.38	-0.01	0.0	-0.21	0.08	-0.00	-0.01	0.05	0.00	0.00	0.06	0.1	2
LP	LP:AT&T	Origin	5.00	30.39	0.07	-0.45	0.38	-0.01	-0.0	-9.72	3.08	-0.01	-0.56	0.00	0.36	0.00	0.85	1.3	5
LP	LP:Coax1	End	10.00	28.24	0.06	-0.41	15.78	-0.04	-0.0	-9.72	3.08	-0.01	-0.52	1.73	0.09	0.00	2.26	3.5	2
LP	LP:Coax1	Origin	10.00	28.24	0.06	-0.41	15.78	-0.04	0.0	-11.22	3.46	-0.01	-0.60	1.73	0.10	0.00	2.34	3.6	2
LP	SpliceT	End	15.00	26.10	0.06	-0.37	33.08	-0.09	0.0	-11.22	3.46	-0.01	-0.56	3.13	0.09	0.00	3.70	5.7	2
LP	SpliceT	Origin	15.00	26.10	0.06	-0.37	33.08	-0.09	-0.0	-11.57	3.57	-0.01	-0.38	2.08	0.06	0.00	2.46	3.8	2
LP	LP:SWL	End	16.25	25.57	0.06	-0.36	37.54	-0.11	-0.0	-11.57	3.57	-0.01	-0.38	2.28	0.06	0.00	2.66	4.1	2
LP	LP:SWL	Origin	16.25	25.57	0.06	-0.36	25.37	-0.11	0.0	-13.71	7.80	-0.02	-0.45	1.54	0.13	0.00	2.00	3.1	2
LP	LP:Coax2	End	20.00	23.99	0.05	-0.33	54.63	-0.17	0.0	-13.71	7.80	-0.02	-0.42	2.99	0.13	0.00	3.42	5.3	2
LP	LP:Coax2	Origin	20.00	23.99	0.05	-0.33	54.63	-0.17	0.0	-15.38	8.17	-0.02	-0.48	2.99	0.13	0.00	3.48	5.3	2

LP	LP:A1	End	24.00	22.32	0.05	-0.30	87.30	-0.25	0.0	-15.38	8.17	-0.02	-0.45	4.31	0.13	0.00	4.77	7.3	2
LP	LP:A1	Origin	24.00	22.32	0.05	-0.30	54.79	-0.25	0.0	-19.98	17.49	-0.02	-0.59	2.71	0.27	0.00	3.33	5.1	2
LP	Tube 2	End	27.00	21.08	0.05	-0.28	107.25	-0.32	0.0	-19.98	17.49	-0.02	-0.57	4.92	0.26	0.00	5.51	8.5	2
LP	Tube 2	Origin	27.00	21.08	0.05	-0.28	107.25	-0.32	0.0	-20.53	17.61	-0.03	-0.58	4.92	0.26	0.00	5.52	8.5	2
LP	LP:Coax3	End	30.00	19.85	0.04	-0.26	160.09	-0.40	0.0	-20.53	17.61	-0.03	-0.56	6.84	0.25	0.00	7.41	11.4	2
LP	LP:Coax3	Origin	30.00	19.85	0.04	-0.26	160.09	-0.40	0.0	-22.12	17.95	-0.03	-0.60	6.84	0.26	0.00	7.46	11.5	2
LP	Tube 2	End	33.00	18.65	0.04	-0.24	213.94	-0.49	0.0	-22.12	17.95	-0.03	-0.58	8.53	0.25	0.00	9.13	14.0	2
LP	Tube 2	Origin	33.00	18.65	0.04	-0.24	213.94	-0.49	0.0	-22.72	18.08	-0.03	-0.60	8.53	0.25	0.00	9.14	14.1	2
LP	LP:A2	End	36.00	17.46	0.04	-0.22	268.18	-0.60	0.0	-22.72	18.08	-0.03	-0.58	10.00	0.24	0.00	10.59	16.3	2
LP	LP:A2	Origin	36.00	17.46	0.04	-0.22	234.80	-0.60	0.0	-27.44	27.40	-0.04	-0.70	8.76	0.37	0.00	9.48	14.6	2
LP	LP:Coax4	End	40.00	15.93	0.04	-0.19	344.39	-0.75	0.0	-27.44	27.40	-0.04	-0.67	11.79	0.35	0.00	12.48	19.2	2
LP	LP:Coax4	Origin	40.00	15.93	0.04	-0.19	344.39	-0.75	0.0	-29.34	27.78	-0.04	-0.72	11.79	0.36	0.00	12.53	19.3	2
LP	Tube 2	End	44.00	14.45	0.03	-0.17	455.51	-0.92	0.0	-29.34	27.78	-0.04	-0.69	14.37	0.35	0.00	15.07	23.2	2
LP	Tube 2	Origin	44.00	14.45	0.03	-0.17	455.51	-0.92	0.0	-30.24	27.96	-0.05	-0.71	14.37	0.35	0.00	15.09	23.2	2
LP	LP:A3	End	48.00	13.03	0.03	-0.15	567.33	-1.11	0.0	-30.24	27.96	-0.05	-0.68	16.54	0.33	0.00	17.24	26.5	2
LP	LP:A3	Origin	48.00	13.03	0.03	-0.15	532.94	-1.11	0.0	-34.99	37.24	-0.05	-0.79	15.54	0.44	0.00	16.35	25.2	2
LP	LP:Coax5	End	50.00	12.34	0.03	-0.14	607.40	-1.22	0.0	-34.99	37.24	-0.05	-0.78	17.05	0.44	0.00	17.84	27.4	2
LP	LP:Coax5	Origin	50.00	12.34	0.03	-0.14	607.40	-1.22	0.0	-36.54	37.53	-0.06	-0.81	17.05	0.44	0.00	17.87	27.5	2
LP	SpliceT	End	52.25	11.60	0.03	-0.12	691.84	-1.34	0.0	-36.54	37.53	-0.06	-0.79	18.61	0.43	0.00	19.42	29.9	2
LP	SpliceT	Origin	52.25	11.60	0.03	-0.12	691.84	-1.34	0.0	-37.38	37.67	-0.06	-0.69	15.93	0.37	0.00	16.63	25.6	2
LP	Tube 3	End	56.13	10.36	0.02	-0.11	837.80	-1.57	0.0	-37.38	37.67	-0.06	-0.67	17.97	0.36	0.00	18.65	28.7	2
LP	Tube 3	Origin	56.13	10.36	0.02	-0.11	837.80	-1.57	0.0	-38.54	37.85	-0.06	-0.69	17.97	0.36	0.00	18.67	28.7	2
LP	LP:Coax6	End	60.00	9.19	0.02	-0.09	984.46	-1.82	0.0	-38.54	37.85	-0.06	-0.67	19.73	0.35	0.00	20.40	31.4	2
LP	LP:Coax6	Origin	60.00	9.19	0.02	-0.09	984.46	-1.82	0.0	-40.95	38.25	-0.07	-0.71	19.73	0.35	0.00	20.45	31.5	2
LP	Tube 3	End	65.00	7.79	0.02	-0.07	1175.73	-2.17	0.0	-40.95	38.25	-0.07	-0.68	21.65	0.34	0.00	22.33	34.4	2
LP	Tube 3	Origin	65.00	7.79	0.02	-0.07	1175.73	-2.17	0.0	-42.56	38.49	-0.08	-0.71	21.65	0.34	0.00	22.36	34.4	2
LP	LP:Coax7	End	70.00	6.51	0.02	-0.06	1368.18	-2.57	0.0	-42.56	38.49	-0.08	-0.68	23.22	0.32	0.00	23.91	36.8	2
LP	LP:Coax7	Origin	70.00	6.51	0.02	-0.06	1368.18	-2.57	0.0	-44.76	38.85	-0.08	-0.71	23.22	0.33	0.00	23.95	36.8	2
LP	SpliceT	End	72.00	6.04	0.01	-0.05	1445.88	-2.73	0.0	-44.76	38.85	-0.08	-0.70	23.78	0.32	0.00	24.49	37.7	2
LP	SpliceT	Origin	72.00	6.04	0.01	-0.05	1445.88	-2.73	0.0	-45.88	39.00	-0.09	-0.63	20.78	0.28	0.00	21.41	32.9	2
LP	Tube 4	End	76.00	5.14	0.01	-0.04	1601.87	-3.09	0.0	-45.88	39.00	-0.09	-0.61	21.64	0.27	0.00	22.26	34.2	2
LP	Tube 4	Origin	76.00	5.14	0.01	-0.04	1601.87	-3.09	0.0	-47.47	39.21	-0.10	-0.63	21.64	0.28	0.00	22.28	34.3	2
LP	LP:Coax8	End	80.00	4.32	0.01	-0.04	1758.70	-3.47	0.0	-47.47	39.21	-0.10	-0.61	22.38	0.27	0.00	23.00	35.4	2
LP	LP:Coax8	Origin	80.00	4.32	0.01	-0.04	1758.70	-3.47	0.0	-50.36	39.63	-0.10	-0.65	22.38	0.27	0.00	23.04	35.4	2
LP	Tube 4	End	85.00	3.40	0.01	-0.03	1956.87	-3.98	0.0	-50.36	39.63	-0.10	-0.63	23.17	0.26	0.00	23.80	36.6	2
LP	Tube 4	Origin	85.00	3.40	0.01	-0.03	1956.87	-3.98	0.0	-52.48	39.90	-0.11	-0.65	23.17	0.26	0.00	23.83	36.7	2
LP	LP:Coax9	End	90.00	2.59	0.01	-0.02	2156.38	-4.54	0.0	-52.48	39.90	-0.11	-0.63	23.81	0.25	0.00	24.44	37.6	2
LP	LP:Coax9	Origin	90.00	2.59	0.01	-0.02	2156.38	-4.54	0.0	-55.71	40.36	-0.12	-0.67	23.81	0.26	0.00	24.48	37.7	2
LP	Tube 4	End	95.00	1.89	0.00	-0.02	2358.17	-5.14	0.0	-55.71	40.36	-0.12	-0.65	24.34	0.25	0.00	24.99	38.4	2
LP	Tube 4	Origin	95.00	1.89	0.00	-0.02	2358.17	-5.14	0.0	-57.97	40.64	-0.13	-0.68	24.34	0.25	0.00	25.02	38.5	2
LP	LP:Coax10	End	100.00	1.31	0.00	-0.01	2561.35	-5.78	0.0	-57.97	40.64	-0.13	-0.65	24.76	0.24	0.00	25.42	39.1	2
LP	LP:Coax10	Origin	100.00	1.31	0.00	-0.01	2561.35	-5.78	0.0	-61.35	41.10	-0.14	-0.69	24.76	0.24	0.00	25.46	39.2	2
LP	Tube 4	End	105.00	0.83	0.00	-0.01	2766.84	-6.48	0.0	-61.35	41.10	-0.14	-0.67	25.11	0.24	0.00	25.79	39.7	2
LP	Tube 4	Origin	105.00	0.83	0.00	-0.01	2766.84	-6.48	0.0	-63.76	41.39	-0.15	-0.70	25.11	0.24	0.00	25.81	39.7	2
LP	LP:Coax11	End	110.00	0.47	0.00	-0.01	2973.76	-7.22	0.0	-63.76	41.39	-0.15	-0.68	25.39	0.23	0.00	26.07	40.1	2
LP	LP:Coax11	Origin	110.00	0.47	0.00	-0.01	2973.76	-7.22	0.0	-67.27	41.85	-0.16	-0.71	25.39	0.23	0.00	26.10	40.2	2
LP	Tube 4	End	115.00	0.21	0.00	-0.00	3183.02	-8.01	0.0	-67.27	41.85	-0.16	-0.69	25.61	0.23	0.00	26.30	40.6	2
LP	Tube 4	Origin	115.00	0.21	0.00	-0.00	3183.02	-8.01	0.0	-69.83	42.15	-0.17	-0.72	25.61	0.23	0.00	26.33	40.6	2
LP	LP:Coax12	End	120.00	0.05	0.00	-0.00	3393.76	-8.86	0.0	-69.83	42.15	-0.17	-0.70	25.77	0.22	0.00	26.47	41.4	2
LP	LP:Coax12	Origin	120.00	0.05	0.00	-0.00	3393.76	-8.86	0.0	-73.49	42.62	-0.18	-0.73	25.77	0.22	0.00	26.51	41.5	2
LP	LP:g	End	125.00	0.00	0.00	0.00	3606.88	-9.76	0.0	-73.49	42.62	-0.18	-0.71	25.89	0.22	0.00	26.61	42.3	2

Detailed Tubular Davit Arm Usages for Load Case "RULE 250B":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Vert. Mom. (ft-k)	Horz. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Vert. Shear (kips)	Horz. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.

S1	S1:O	Origin	0.00	25.58	0.06	0.10	-10.29	0.00	-0.0	-4.13	1.72	-0.00	-0.26	2.43	0.09	0.00	2.69	4.1	2
S1	S1:B	End	0.77	25.59	0.06	0.42	-8.97	0.00	-0.0	-4.13	1.72	-0.00	-0.27	2.31	0.09	0.00	2.58	4.0	2
S1	S1:B	Origin	0.77	25.59	0.06	0.42	-8.97	0.00	0.0	-4.30	0.94	-0.00	-0.29	2.31	0.05	0.00	2.59	4.0	2
S1	#S1:0	End	4.81	25.86	0.06	2.08	-5.16	0.00	0.0	-4.30	0.94	-0.00	-0.37	2.23	0.07	0.00	2.61	4.0	2
S1	#S1:0	Origin	4.81	25.86	0.06	2.08	-5.16	0.00	0.0	-4.26	0.71	-0.00	-0.37	2.23	0.05	0.00	2.60	4.0	2
S1	S1:T	End	8.85	26.12	0.06	3.71	-2.29	0.00	0.0	-4.26	0.71	-0.00	-0.52	2.00	0.07	0.00	2.53	3.9	2
A1	A1:O	Origin	0.00	22.33	0.05	0.19	-27.76	0.00	-0.0	-9.17	3.96	-0.00	-0.70	7.74	0.24	0.00	8.45	13.0	2
A1	A1:B	End	0.77	22.33	0.05	0.51	-24.72	0.00	-0.0	-9.17	3.96	-0.00	-0.73	7.64	0.26	0.00	8.39	12.9	2
A1	A1:B	Origin	0.77	22.33	0.05	0.51	-24.72	0.00	0.0	-9.45	3.09	-0.00	-0.76	7.64	0.20	0.00	8.41	12.9	2
A1	#A1:0	End	4.03	22.46	0.05	1.80	-14.65	0.00	0.0	-9.45	3.09	-0.00	-0.97	7.55	0.26	0.00	8.54	13.1	2
A1	#A1:0	Origin	4.03	22.46	0.05	1.80	-14.65	0.00	0.0	-9.42	2.95	-0.00	-0.97	7.55	0.25	0.00	8.53	13.1	2
A1	A1:T	End	7.29	22.58	0.05	3.01	-5.05	0.00	0.0	-9.42	2.95	-0.00	-1.36	5.17	0.35	0.00	6.56	10.1	2
A2	A2:O	Origin	0.00	17.47	0.04	0.31	-27.90	0.00	-0.0	-9.16	3.98	-0.00	-0.70	7.78	0.24	0.00	8.49	13.1	2
A2	A2:B	End	0.77	17.48	0.04	0.61	-24.85	0.00	-0.0	-9.16	3.98	-0.00	-0.73	7.69	0.26	0.00	8.43	13.0	2
A2	A2:B	Origin	0.77	17.48	0.04	0.61	-24.85	0.00	0.0	-9.44	3.11	-0.00	-0.76	7.69	0.20	0.00	8.45	13.0	2
A2	#A2:0	End	4.03	17.60	0.04	1.82	-14.72	0.00	0.0	-9.44	3.11	-0.00	-0.97	7.58	0.26	0.00	8.57	13.2	2
A2	#A2:0	Origin	4.03	17.60	0.04	1.82	-14.72	0.00	0.0	-9.42	2.97	-0.00	-0.97	7.58	0.25	0.00	8.57	13.2	2
A2	A2:T	End	7.29	17.71	0.04	2.95	-5.05	0.00	0.0	-9.42	2.97	-0.00	-1.36	5.17	0.35	0.00	6.56	10.1	2
A3	A3:O	Origin	0.00	13.03	0.03	0.39	-28.16	0.00	-0.0	-9.14	4.02	-0.00	-0.70	7.85	0.25	0.00	8.56	13.2	2
A3	A3:B	End	0.77	13.04	0.03	0.65	-25.08	0.00	-0.0	-9.14	4.02	-0.00	-0.73	7.76	0.26	0.00	8.50	13.1	2
A3	A3:B	Origin	0.77	13.04	0.03	0.65	-25.08	0.00	0.0	-9.43	3.14	-0.00	-0.76	7.76	0.20	0.00	8.52	13.1	2
A3	#A3:0	End	4.03	13.14	0.03	1.71	-14.83	0.00	0.0	-9.43	3.14	-0.00	-0.97	7.64	0.26	0.00	8.63	13.3	2
A3	#A3:0	Origin	4.03	13.14	0.03	1.71	-14.83	0.00	0.0	-9.40	3.00	-0.00	-0.97	7.64	0.25	0.00	8.62	13.3	2
A3	A3:T	End	7.29	13.24	0.03	2.70	-5.05	0.00	0.0	-9.40	3.00	-0.00	-1.36	5.17	0.35	0.00	6.56	10.1	2

Summary of Clamp Capacities and Usages for Load Case "RULE 250B":

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Holding Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
1	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
9	9.502	100.00	0.00	0.00	0.00	0.00	0.00	0.00
13	1.049	100.00	0.00	0.00	0.00	0.00	0.00	0.00
14	1.049	100.00	0.00	0.00	0.00	0.00	0.00	0.00
15	1.049	100.00	0.00	0.00	0.00	0.00	0.00	0.00
16	1.049	100.00	0.00	0.00	0.00	0.00	0.00	0.00
17	1.049	100.00	0.00	0.00	0.00	0.00	0.00	0.00
18	1.049	100.00	0.00	0.00	0.00	0.00	0.00	0.00
19	1.049	100.00	0.00	0.00	0.00	0.00	0.00	0.00
20	1.049	100.00	0.00	0.00	0.00	0.00	0.00	0.00
21	1.049	100.00	0.00	0.00	0.00	0.00	0.00	0.00
22	1.049	100.00	0.00	0.00	0.00	0.00	0.00	0.00
23	1.049	100.00	0.00	0.00	0.00	0.00	0.00	0.00
24	1.049	100.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
SW1	4.287	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Summary of Suspension Capacities and Usages for Load Case "RULE 250B":

Suspension Label	Tension (kips)	Input Tension Capacity (kips)	Factored Tension Capacity (kips)	Tension Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
S1	9.844	30.00	0.00	0.00	0.00	0.00	0.00	0.00
S2	9.844	30.00	0.00	0.00	0.00	0.00	0.00	0.00
S3	9.844	30.00	0.00	0.00	0.00	0.00	0.00	0.00

*** Analysis Results for Load Case No. 2 "RULE 250C" - Number of iterations in SAPS 13

Equilibrium Joint Positions and Rotations for Load Case "RULE 250C":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
LP:g	0	0	0	0.0000	0.0000	0.0000	0	-12.5	0
LP:t	0.001519	4.23	-0.09695	-3.4824	0.0011	0.0000	0.001519	-8.27	124.9
LP:AT&T	0.001419	3.926	-0.08772	-3.4818	0.0011	0.0000	0.001419	-8.574	119.9
LP:Coax1	0.001319	3.623	-0.07849	-3.4485	0.0011	0.0000	0.001319	-8.877	114.9
LP:SWL	0.001197	3.252	-0.0674	-3.3519	0.0011	0.0000	0.001197	-9.248	108.7
LP:Coax2	0.001124	3.035	-0.06105	-3.2930	0.0011	0.0000	0.001124	-9.465	104.9
LP:A1	0.001048	2.807	-0.05456	-3.2169	0.0011	0.0000	0.001048	-9.693	100.9
LP:Coax3	0.0009358	2.477	-0.04541	-3.0782	0.0010	0.0000	0.0009358	-10.02	94.95
LP:A2	0.0008282	2.163	-0.03713	-2.9080	0.0010	0.0000	0.0008282	-10.34	88.96
LP:Coax4	0.0007592	1.964	-0.03213	-2.7822	0.0010	0.0000	0.0007592	-10.54	84.97
LP:A3	0.0006287	1.594	-0.02349	-2.4978	0.0009	0.0000	0.0006287	-10.91	76.98
LP:Coax5	0.0005979	1.508	-0.02162	-2.4224	0.0009	0.0000	0.0005979	-10.99	74.98
LP:Coax6	0.0004545	1.116	-0.01381	-2.0621	0.0008	0.0000	0.0004545	-11.38	64.99
LP:Coax7	0.0003295	0.7874	-0.008274	-1.6926	0.0007	0.0000	0.0003295	-11.71	54.99
LP:Coax8	0.000224	0.5211	-0.004611	-1.3572	0.0005	0.0000	0.000224	-11.98	45
LP:Coax9	0.0001376	0.3115	-0.002293	-1.0365	0.0004	0.0000	0.0001376	-12.19	35
LP:Coax10	7.132e-05	0.1572	-0.0009749	-0.7251	0.0003	0.0000	7.132e-05	-12.34	25
LP:Coax11	2.623e-05	0.05616	-0.0003328	-0.4256	0.0002	0.0000	2.623e-05	-12.44	15
LP:Coax12	3.105e-06	0.006381	-7.137e-05	-0.1386	0.0001	0.0000	3.105e-06	-12.49	5
S1:O	0.001198	3.254	-0.004345	-3.3519	0.0011	0.0000	0.001198	-10.32	108.7
S1:B	0.001199	3.255	0.0405	-3.3521	0.0011	0.0000	0.001199	-11.09	108.8
S1:T	0.001234	3.337	0.5058	-3.3341	0.0011	0.0000	0.001234	-19.01	110.4
A1:O	0.001049	2.809	0.01235	-3.2169	0.0011	0.0000	0.001049	-10.88	101
A1:B	0.00105	2.81	0.05533	-3.2092	0.0011	0.0000	0.00105	-11.65	101.1
A1:T	0.001069	2.85	0.4128	-3.0982	0.0011	0.0000	0.001069	-18.11	102
A2:O	0.0008297	2.165	0.03231	-2.9080	0.0010	0.0000	0.0008297	-11.7	89.03
A2:B	0.0008306	2.166	0.07116	-2.9000	0.0010	0.0000	0.0008306	-12.47	89.07
A2:T	0.0008474	2.201	0.3936	-2.7867	0.0010	0.0000	0.0008474	-18.93	89.93
A3:O	0.00063	1.596	0.04385	-2.4978	0.0009	0.0000	0.00063	-12.45	77.04
A3:B	0.0006307	1.596	0.07721	-2.4894	0.0009	0.0000	0.0006307	-13.22	77.08
A3:T	0.0006446	1.625	0.3531	-2.3730	0.0009	0.0000	0.0006446	-19.69	77.89
1	0.001224	3.306	0.5112	-3.3341	0.0011	0.0000	0.001224	-19.12	109.9
3	0.001059	2.821	0.416	-3.0982	0.0011	0.0000	0.001059	-18.18	101.4
4	0.000838	2.175	0.3964	-2.7867	0.0010	0.0000	0.000838	-19.01	89.4
5	0.0006363	1.603	0.3554	-2.3730	0.0009	0.0000	0.0006363	-19.75	77.36

Joint Support Reactions for Load Case "RULE 250C":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
LP:g	-0.05	0.0	-61.71	0.0	0.0	-43.40	0.0	0.0	75.45	0.0	5199.20	0.0	-2.5	0.0	0.0	-0.00	0.0	0.0

Detailed Steel Pole Usages for Load Case "RULE 250C":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (Local Mx) (ft-k)	Long. Mom. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.

LP	LP:t	Origin	0.00	50.76	0.02	-1.16	-0.00	-0.00	0.0	-0.14	0.15	-0.00	-0.01	0.00	0.02	0.00	0.03	0.1	5
LP	LP:AT&T	End	5.00	47.12	0.02	-1.05	0.73	-0.00	0.0	-0.14	0.15	-0.00	-0.01	0.09	0.00	0.00	0.10	0.2	2
LP	LP:AT&T	Origin	5.00	47.12	0.02	-1.05	0.73	-0.00	-0.0	-4.45	10.43	-0.00	-0.26	0.00	1.23	0.00	2.15	3.3	5
LP	LP:Coax1	End	10.00	43.48	0.02	-0.94	52.85	-0.01	-0.0	-4.45	10.43	-0.00	-0.24	5.80	0.30	0.00	6.06	9.3	2
LP	LP:Coax1	Origin	10.00	43.48	0.02	-0.94	52.85	-0.01	0.0	-5.02	11.26	-0.00	-0.27	5.80	0.32	0.00	6.09	9.4	2
LP	SpliceT	End	15.00	39.91	0.01	-0.83	109.17	-0.02	0.0	-5.02	11.26	-0.00	-0.25	10.34	0.30	0.00	10.60	16.3	2
LP	SpliceT	Origin	15.00	39.91	0.01	-0.83	109.17	-0.02	-0.0	-5.26	11.47	-0.00	-0.17	6.85	0.20	0.00	7.04	10.8	2
LP	LP:SWL	End	16.25	39.03	0.01	-0.81	123.51	-0.03	-0.0	-5.26	11.47	-0.00	-0.17	7.49	0.20	0.00	7.67	11.8	2
LP	LP:SWL	Origin	16.25	39.03	0.01	-0.81	123.17	-0.03	0.0	-6.00	15.87	-0.00	-0.20	7.47	0.27	0.00	7.68	11.8	2
LP	LP:Coax2	End	20.00	36.42	0.01	-0.73	182.68	-0.04	0.0	-6.00	15.87	-0.00	-0.19	10.00	0.26	0.00	10.20	15.7	2
LP	LP:Coax2	Origin	20.00	36.42	0.01	-0.73	182.68	-0.04	0.0	-6.70	16.68	-0.01	-0.21	10.00	0.27	0.00	10.22	15.7	2
LP	LP:A1	End	24.00	33.69	0.01	-0.65	249.39	-0.06	0.0	-6.70	16.68	-0.01	-0.20	12.32	0.26	0.00	12.52	19.3	2
LP	LP:A1	Origin	24.00	33.69	0.01	-0.65	238.00	-0.06	0.0	-8.58	26.34	-0.01	-0.25	11.75	0.41	0.00	12.03	18.5	2
LP	Tube 2	End	27.00	31.68	0.01	-0.60	317.03	-0.08	0.0	-8.58	26.34	-0.01	-0.24	14.54	0.40	0.00	14.80	22.8	2
LP	Tube 2	Origin	27.00	31.68	0.01	-0.60	317.03	-0.08	0.0	-8.97	26.59	-0.01	-0.25	14.54	0.40	0.00	14.81	22.8	2
LP	LP:Coax3	End	30.00	29.72	0.01	-0.54	396.78	-0.10	0.0	-8.97	26.59	-0.01	-0.25	16.94	0.38	0.00	17.20	26.5	2
LP	LP:Coax3	Origin	30.00	29.72	0.01	-0.54	396.78	-0.10	0.0	-9.63	27.35	-0.01	-0.26	16.94	0.40	0.00	17.22	26.5	2
LP	Tube 2	End	33.00	27.81	0.01	-0.49	478.83	-0.12	0.0	-9.63	27.35	-0.01	-0.25	19.08	0.38	0.00	19.35	29.8	2
LP	Tube 2	Origin	33.00	27.81	0.01	-0.49	478.83	-0.12	0.0	-10.06	27.61	-0.01	-0.27	19.08	0.39	0.00	19.36	29.8	2
LP	LP:A2	End	36.00	25.96	0.01	-0.45	561.64	-0.15	0.0	-10.06	27.61	-0.01	-0.26	20.94	0.37	0.00	21.21	32.6	2
LP	LP:A2	Origin	36.00	25.96	0.01	-0.45	549.56	-0.15	0.0	-12.09	37.29	-0.01	-0.31	20.49	0.50	0.00	20.82	32.0	2
LP	LP:Coax4	End	40.00	23.57	0.01	-0.39	698.74	-0.19	0.0	-12.09	37.29	-0.01	-0.30	23.92	0.48	0.00	24.23	37.3	2
LP	LP:Coax4	Origin	40.00	23.57	0.01	-0.39	698.74	-0.19	0.0	-12.99	38.17	-0.01	-0.32	23.92	0.49	0.00	24.25	37.3	2
LP	Tube 2	End	44.00	21.29	0.01	-0.33	851.40	-0.23	0.0	-12.99	38.17	-0.01	-0.31	26.85	0.47	0.00	27.17	41.8	2
LP	Tube 2	Origin	44.00	21.29	0.01	-0.33	851.40	-0.23	0.0	-13.66	38.54	-0.01	-0.32	26.85	0.48	0.00	27.18	41.8	2
LP	LP:A3	End	48.00	19.13	0.01	-0.28	1005.54	-0.28	0.0	-13.66	38.54	-0.01	-0.31	29.31	0.46	0.00	29.63	45.6	2
LP	LP:A3	Origin	48.00	19.13	0.01	-0.28	992.59	-0.28	0.0	-15.76	48.19	-0.01	-0.36	28.93	0.58	0.00	29.30	45.1	2
LP	LP:Coax5	End	50.00	18.10	0.01	-0.26	1088.96	-0.31	0.0	-15.76	48.19	-0.01	-0.35	30.55	0.56	0.00	30.91	47.6	2
LP	LP:Coax5	Origin	50.00	18.10	0.01	-0.26	1088.96	-0.31	0.0	-16.41	48.90	-0.01	-0.36	30.55	0.57	0.00	30.93	47.6	2
LP	SpliceT	End	52.25	16.97	0.01	-0.24	1198.99	-0.34	0.0	-16.41	48.90	-0.01	-0.36	32.24	0.56	0.00	32.61	50.2	2
LP	SpliceT	Origin	52.25	16.97	0.01	-0.24	1198.99	-0.34	0.0	-17.04	49.21	-0.02	-0.32	27.59	0.48	0.00	27.92	43.0	2
LP	Tube 3	End	56.13	15.13	0.01	-0.20	1389.66	-0.40	0.0	-17.04	49.21	-0.02	-0.31	29.80	0.47	0.00	30.11	46.3	2
LP	Tube 3	Origin	56.13	15.13	0.01	-0.20	1389.66	-0.40	0.0	-17.90	49.60	-0.02	-0.32	29.80	0.47	0.00	30.13	46.4	2
LP	LP:Coax6	End	60.00	13.39	0.01	-0.17	1581.86	-0.46	0.0	-17.90	49.60	-0.02	-0.31	31.68	0.45	0.00	32.00	49.2	2
LP	LP:Coax6	Origin	60.00	13.39	0.01	-0.17	1581.86	-0.46	0.0	-19.17	50.58	-0.02	-0.33	31.68	0.46	0.00	32.03	49.3	2
LP	Tube 3	End	65.00	11.32	0.00	-0.13	1834.75	-0.55	0.0	-19.17	50.58	-0.02	-0.32	33.77	0.44	0.00	34.09	52.5	2
LP	Tube 3	Origin	65.00	11.32	0.00	-0.13	1834.75	-0.55	0.0	-20.36	51.12	-0.02	-0.34	33.77	0.45	0.00	34.11	52.5	2
LP	LP:Coax7	End	70.00	9.45	0.00	-0.10	2090.34	-0.65	0.0	-20.36	51.12	-0.02	-0.33	35.47	0.43	0.00	35.80	55.1	2
LP	LP:Coax7	Origin	70.00	9.45	0.00	-0.10	2090.34	-0.65	0.0	-21.48	52.01	-0.02	-0.34	35.47	0.44	0.00	35.82	55.1	2
LP	SpliceT	End	72.00	8.75	0.00	-0.09	2194.36	-0.69	0.0	-21.48	52.01	-0.02	-0.34	36.08	0.43	0.00	36.42	56.0	2
LP	SpliceT	Origin	72.00	8.75	0.00	-0.09	2194.36	-0.69	0.0	-22.29	52.36	-0.02	-0.31	31.52	0.38	0.00	31.83	49.0	2
LP	Tube 4	End	76.00	7.45	0.00	-0.07	2403.79	-0.79	0.0	-22.29	52.36	-0.02	-0.30	32.46	0.37	0.00	32.77	50.4	2
LP	Tube 4	Origin	76.00	7.45	0.00	-0.07	2403.79	-0.79	0.0	-23.44	52.83	-0.02	-0.31	32.46	0.37	0.00	32.78	50.4	2
LP	LP:Coax8	End	80.00	6.25	0.00	-0.06	2615.12	-0.88	0.0	-23.44	52.83	-0.02	-0.30	33.27	0.36	0.00	33.58	51.7	2
LP	LP:Coax8	Origin	80.00	6.25	0.00	-0.06	2615.12	-0.88	0.0	-25.03	53.88	-0.03	-0.32	33.27	0.37	0.00	33.60	51.7	2
LP	Tube 4	End	85.00	4.91	0.00	-0.04	2884.54	-1.01	0.0	-25.03	53.88	-0.03	-0.31	34.13	0.36	0.00	34.45	53.0	2
LP	Tube 4	Origin	85.00	4.91	0.00	-0.04	2884.54	-1.01	0.0	-26.54	54.51	-0.03	-0.33	34.13	0.36	0.00	34.47	53.0	2
LP	LP:Coax9	End	90.00	3.74	0.00	-0.03	3157.07	-1.16	0.0	-26.54	54.51	-0.03	-0.32	34.84	0.35	0.00	35.16	54.1	2
LP	LP:Coax9	Origin	90.00	3.74	0.00	-0.03	3157.07	-1.16	0.0	-28.38	55.65	-0.03	-0.34	34.84	0.35	0.00	35.19	54.1	2
LP	Tube 4	End	95.00	2.73	0.00	-0.02	3435.31	-1.31	0.0	-28.38	55.65	-0.03	-0.33	35.44	0.34	0.00	35.77	55.0	2
LP	Tube 4	Origin	95.00	2.73	0.00	-0.02	3435.31	-1.31	0.0	-29.99	56.31	-0.03	-0.35	35.44	0.35	0.00	35.79	55.1	2
LP	LP:Coax10	End	100.00	1.89	0.00	-0.01	3716.84	-1.48	0.0	-29.99	56.31	-0.03	-0.34	35.92	0.34	0.00	36.26	55.8	2
LP	LP:Coax10	Origin	100.00	1.89	0.00	-0.01	3716.84	-1.48	0.0	-31.93	57.48	-0.04	-0.36	35.92	0.34	0.00	36.28	55.8	2
LP	Tube 4	End	105.00	1.20	0.00	-0.01	4004.25	-1.65	0.0	-31.93	57.48	-0.04	-0.35	36.32	0.33	0.00	36.68	56.4	2
LP	Tube 4	Origin	105.00	1.20	0.00	-0.01	4004.25	-1.65	0.0	-33.64	58.17	-0.04	-0.37	36.32	0.34	0.00	36.70	56.5	2
LP	LP:Coax11	End	110.00	0.67	0.00	-0.00	4295.10	-1.84	0.0	-33.64	58.17	-0.04	-0.36	36.65	0.33	0.00	37.01	56.9	2
LP	LP:Coax11	Origin	110.00	0.67	0.00	-0.00	4295.10	-1.84	0.0	-35.67	59.38	-0.04	-0.38	36.65	0.33	0.00	37.03	57.0	2
LP	Tube 4	End	115.00	0.30	0.00	-0.00	4591.99	-2.05	0.0	-35.67	59.38	-0.04	-0.37	36.92	0.32	0.00	37.29	57.5	2

LP	Tube 4	Origin	115.00	0.30	0.00	-0.00	4591.99	-2.05	0.0	-37.48	60.10	-0.04	-0.39	36.92	0.33	0.00	37.31	57.6	2
LP	LP:Coax12	End	120.00	0.08	0.00	-0.00	4892.50	-2.27	0.0	-37.48	60.10	-0.04	-0.37	37.13	0.32	0.00	37.51	58.7	2
LP	LP:Coax12	Origin	120.00	0.08	0.00	-0.00	4892.50	-2.27	0.0	-39.61	61.34	-0.05	-0.40	37.13	0.32	0.00	37.53	58.8	2
LP	LP:g	End	125.00	0.00	0.00	0.00	5199.20	-2.50	0.0	-39.61	61.34	-0.05	-0.38	37.30	0.31	0.00	37.69	59.9	2

Detailed Tubular Davit Arm Usages for Load Case "RULE 250C":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Vert. Mom. (ft-k)	Horz. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Vert. Shear (kips)	Horz. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
S1	S1:O	Origin	0.00	39.05	0.01	-0.05	0.17	0.00	-0.0	-4.21	0.45	-0.00	-0.27	0.04	0.02	0.00	0.31	0.5	2
S1	S1:B	End	0.77	39.06	0.01	0.49	0.51	0.00	-0.0	-4.21	0.45	-0.00	-0.28	0.13	0.02	0.00	0.41	0.6	2
S1	S1:B	Origin	0.77	39.06	0.01	0.49	0.51	0.00	0.0	-4.21	-0.27	-0.00	-0.28	0.13	0.01	0.00	0.41	0.6	2
S1	#S1:0	End	4.81	39.55	0.01	3.28	-0.57	0.00	0.0	-4.21	-0.27	-0.00	-0.36	0.25	0.02	0.00	0.61	0.9	2
S1	#S1:0	Origin	4.81	39.55	0.01	3.28	-0.57	0.00	0.0	-4.17	-0.42	-0.00	-0.36	0.25	0.03	0.00	0.61	0.9	2
S1	S1:T	End	8.85	40.04	0.01	6.07	-2.26	0.00	0.0	-4.17	-0.42	-0.00	-0.51	1.99	0.04	0.00	2.49	3.8	2
A1	A1:O	Origin	0.00	33.71	0.01	0.15	-9.66	0.00	-0.0	-9.39	1.43	-0.00	-0.71	2.69	0.09	0.00	3.41	5.2	2
A1	A1:B	End	0.77	33.72	0.01	0.66	-8.56	0.00	-0.0	-9.39	1.43	-0.00	-0.75	2.65	0.09	0.00	3.40	5.2	2
A1	A1:B	Origin	0.77	33.72	0.01	0.66	-8.56	0.00	0.0	-9.46	0.58	-0.00	-0.76	2.65	0.04	0.00	3.41	5.2	2
A1	#A1:0	End	4.03	33.96	0.01	2.83	-6.67	0.00	0.0	-9.46	0.58	-0.00	-0.97	3.44	0.05	0.00	4.41	6.8	2
A1	#A1:0	Origin	4.03	33.96	0.01	2.83	-6.67	0.00	0.0	-9.45	0.48	-0.00	-0.97	3.44	0.04	0.00	4.41	6.8	2
A1	A1:T	End	7.29	34.20	0.01	4.95	-5.09	0.00	0.0	-9.45	0.48	-0.00	-1.36	5.22	0.06	0.00	6.58	10.1	2
A2	A2:O	Origin	0.00	25.98	0.01	0.39	-10.03	0.00	-0.0	-9.38	1.48	-0.00	-0.71	2.80	0.09	0.00	3.52	5.4	2
A2	A2:B	End	0.77	25.99	0.01	0.85	-8.89	0.00	-0.0	-9.38	1.48	-0.00	-0.75	2.75	0.10	0.00	3.51	5.4	2
A2	A2:B	Origin	0.77	25.99	0.01	0.85	-8.89	0.00	0.0	-9.46	0.63	-0.00	-0.76	2.75	0.04	0.00	3.51	5.4	2
A2	#A2:0	End	4.03	26.20	0.01	2.81	-6.84	0.00	0.0	-9.46	0.63	-0.00	-0.97	3.52	0.05	0.00	4.50	6.9	2
A2	#A2:0	Origin	4.03	26.20	0.01	2.81	-6.84	0.00	0.0	-9.44	0.53	-0.00	-0.97	3.52	0.04	0.00	4.50	6.9	2
A2	A2:T	End	7.29	26.41	0.01	4.72	-5.09	0.00	0.0	-9.44	0.53	-0.00	-1.36	5.22	0.06	0.00	6.58	10.1	2
A3	A3:O	Origin	0.00	19.15	0.01	0.53	-10.53	0.00	-0.0	-9.37	1.55	-0.00	-0.71	2.94	0.09	0.00	3.65	5.6	2
A3	A3:B	End	0.77	19.16	0.01	0.93	-9.34	0.00	-0.0	-9.37	1.55	-0.00	-0.75	2.89	0.10	0.00	3.64	5.6	2
A3	A3:B	Origin	0.77	19.16	0.01	0.93	-9.34	0.00	0.0	-9.45	0.70	-0.00	-0.76	2.89	0.04	0.00	3.65	5.6	2
A3	#A3:0	End	4.03	19.33	0.01	2.60	-7.06	0.00	0.0	-9.45	0.70	-0.00	-0.97	3.64	0.06	0.00	4.61	7.1	2
A3	#A3:0	Origin	4.03	19.33	0.01	2.60	-7.06	0.00	0.0	-9.44	0.60	-0.00	-0.97	3.64	0.05	0.00	4.61	7.1	2
A3	A3:T	End	7.29	19.51	0.01	4.24	-5.09	0.00	0.0	-9.44	0.60	-0.00	-1.36	5.22	0.07	0.00	6.58	10.1	2

Summary of Clamp Capacities and Usages for Load Case "RULE 250C":

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Holding Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
1	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
9	10.753	100.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.572	100.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.572	100.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.572	100.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.572	100.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.572	100.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.572	100.00	0.00	0.00	0.00	0.00	0.00	0.00

19	0.572	100.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.572	100.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.572	100.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.572	100.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.572	100.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.572	100.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
SW1	4.188	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Summary of Suspension Capacities and Usages for Load Case "RULE 250C":

Suspension Label	Tension (kips)	Input Tension Capacity (kips)	Factored Tension Capacity (kips)	Tension Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
S1	9.451	30.00	0.00	0.00	0.00	0.00	0.00	0.00
S2	9.451	30.00	0.00	0.00	0.00	0.00	0.00	0.00
S3	9.451	30.00	0.00	0.00	0.00	0.00	0.00	0.00

*** Analysis Results for Load Case No. 3 "RULE 250D" - Number of iterations in SAPS 12

Equilibrium Joint Positions and Rotations for Load Case "RULE 250D":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
LP:g	0	0	0	0.0000	0.0000	0.0000	0	-12.5	0
LP:t	0.002373	2.635	-0.03792	-1.9661	0.0018	0.0000	0.002373	-9.865	125
LP:AT&T	0.002217	2.463	-0.03498	-1.9659	0.0018	0.0000	0.002217	-10.04	120
LP:Coax1	0.002061	2.292	-0.03197	-1.9591	0.0018	0.0000	0.002061	-10.21	115
LP:SWL	0.001869	2.079	-0.02826	-1.9394	0.0017	0.0000	0.001869	-10.42	108.7
LP:Coax2	0.001755	1.953	-0.02607	-1.9307	0.0017	0.0000	0.001755	-10.55	105
LP:A1	0.001636	1.818	-0.02377	-1.9129	0.0017	0.0000	0.001636	-10.68	101
LP:Coax3	0.001461	1.619	-0.02037	-1.8761	0.0016	0.0000	0.001461	-10.88	94.98
LP:A2	0.001293	1.426	-0.01714	-1.8091	0.0016	0.0000	0.001293	-11.07	88.98
LP:Coax4	0.001185	1.301	-0.01512	-1.7560	0.0015	0.0000	0.001185	-11.2	84.98
LP:A3	0.0009809	1.065	-0.01146	-1.6130	0.0014	0.0000	0.0009809	-11.44	76.99
LP:Coax5	0.0009327	1.009	-0.01064	-1.5736	0.0014	0.0000	0.0009327	-11.49	74.99
LP:Coax6	0.0007088	0.7517	-0.007114	-1.3665	0.0012	0.0000	0.0007088	-11.75	64.99
LP:Coax7	0.0005138	0.5323	-0.004502	-1.1349	0.0010	0.0000	0.0005138	-11.97	55
LP:Coax8	0.0003492	0.3532	-0.002709	-0.9161	0.0009	0.0000	0.0003492	-12.15	45
LP:Coax9	0.0002144	0.2114	-0.001519	-0.7021	0.0007	0.0000	0.0002144	-12.29	35
LP:Coax10	0.0001111	0.1067	-0.0007819	-0.4921	0.0005	0.0000	0.0001111	-12.39	25
LP:Coax11	4.087e-05	0.03811	-0.0003541	-0.2889	0.0003	0.0000	4.087e-05	-12.46	15
LP:Coax12	4.837e-06	0.004325	-0.0001004	-0.0941	0.0001	0.0000	4.837e-06	-12.5	5
S1:O	0.00187	2.08	0.008237	-1.9394	0.0017	0.0000	0.00187	-11.5	108.8
S1:B	0.001871	2.08	0.03412	-1.9303	0.0017	0.0000	0.001871	-12.27	108.8
S1:T	0.001917	2.123	0.2948	-1.8173	0.0017	0.0000	0.001917	-20.22	110.2
A1:O	0.001637	1.819	0.01604	-1.9129	0.0017	0.0000	0.001637	-11.87	101
A1:B	0.001638	1.819	0.04147	-1.8911	0.0017	0.0000	0.001638	-12.64	101
A1:T	0.001662	1.839	0.2425	-1.6664	0.0017	0.0000	0.001662	-19.12	101.8
A2:O	0.001294	1.427	0.02607	-1.8091	0.0016	0.0000	0.001294	-12.44	89.03
A2:B	0.001295	1.427	0.05011	-1.7872	0.0016	0.0000	0.001295	-13.21	89.05
A2:T	0.001317	1.446	0.2393	-1.5618	0.0016	0.0000	0.001317	-19.69	89.78
A3:O	0.0009822	1.066	0.03203	-1.6130	0.0014	0.0000	0.0009822	-12.98	77.03
A3:B	0.0009829	1.066	0.05345	-1.5909	0.0014	0.0000	0.0009829	-13.75	77.05
A3:T	0.001002	1.082	0.2204	-1.3639	0.0014	0.0000	0.001002	-20.23	77.76
1	0.001901	2.106	0.2975	-1.8173	0.0017	0.0000	0.001901	-20.32	109.7
3	0.001646	1.824	0.244	-1.6664	0.0017	0.0000	0.001646	-19.18	101.2
4	0.001302	1.431	0.2408	-1.5618	0.0016	0.0000	0.001302	-19.75	89.24
5	0.0009885	1.069	0.2216	-1.3639	0.0014	0.0000	0.0009885	-20.29	77.22

Joint Support Reactions for Load Case "RULE 250D":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
LP:g	-0.07	0.0	-40.94	0.0	0.0	-61.75	0.0	0.0	74.09	0.0	3525.69	0.0	-3.9	0.0	0.0	-0.01	0.0	0.0

Detailed Steel Pole Usages for Load Case "RULE 250D":

Element Label	Joint Label	Joint Position	Rel. Trans. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (Local Mx) (ft-k)	Long. Mom. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.

LP	LP:t	Origin	0.00	31.62	0.03	-0.46	-0.00	-0.00	0.0	-0.14	0.05	-0.00	-0.01	0.00	0.01	0.00	0.01	0.0	5
LP	LP:AT&T	End	5.00	29.56	0.03	-0.42	0.25	-0.00	0.0	-0.14	0.05	-0.00	-0.01	0.03	0.00	0.00	0.04	0.1	2
LP	LP:AT&T	Origin	5.00	29.56	0.03	-0.42	0.25	-0.00	-0.0	-7.36	2.09	-0.00	-0.43	0.00	0.25	0.00	0.60	0.9	5
LP	LP:Coax1	End	10.00	27.50	0.02	-0.38	10.68	-0.02	-0.0	-7.36	2.09	-0.00	-0.40	1.17	0.06	0.00	1.57	2.4	2
LP	LP:Coax1	Origin	10.00	27.50	0.02	-0.38	10.68	-0.02	0.0	-8.63	2.34	-0.00	-0.46	1.17	0.07	0.00	1.64	2.5	2
LP	SpliceT	End	15.00	25.46	0.02	-0.35	22.38	-0.04	0.0	-8.63	2.34	-0.00	-0.43	2.12	0.06	0.00	2.55	3.9	2
LP	SpliceT	Origin	15.00	25.46	0.02	-0.35	22.38	-0.04	-0.0	-8.86	2.41	-0.01	-0.29	1.41	0.04	0.00	1.70	2.6	2
LP	LP:SWL	End	16.25	24.95	0.02	-0.34	25.40	-0.04	-0.0	-8.86	2.41	-0.01	-0.29	1.54	0.04	0.00	1.83	2.8	2
LP	LP:SWL	Origin	16.25	24.95	0.02	-0.34	9.34	-0.04	0.0	-11.20	7.09	-0.01	-0.36	0.42	0.33	0.00	0.97	1.5	3
LP	LP:Coax2	End	20.00	23.43	0.02	-0.31	35.93	-0.07	0.0	-11.20	7.09	-0.01	-0.35	1.97	0.12	0.00	2.32	3.6	2
LP	LP:Coax2	Origin	20.00	23.43	0.02	-0.31	35.93	-0.07	0.0	-12.58	7.34	-0.01	-0.39	1.97	0.12	0.00	2.37	3.6	2
LP	LP:A1	End	24.00	21.82	0.02	-0.29	65.28	-0.10	0.0	-12.58	7.34	-0.01	-0.37	3.22	0.11	0.00	3.60	5.5	2
LP	LP:A1	Origin	24.00	21.82	0.02	-0.29	33.26	-0.10	0.0	-16.86	17.18	-0.01	-0.50	1.64	0.27	0.00	2.19	3.4	2
LP	Tube 2	End	27.00	20.62	0.02	-0.26	84.78	-0.13	0.0	-16.86	17.18	-0.01	-0.48	3.89	0.26	0.00	4.39	6.8	2
LP	Tube 2	Origin	27.00	20.62	0.02	-0.26	84.78	-0.13	0.0	-17.23	17.26	-0.01	-0.49	3.89	0.26	0.00	4.40	6.8	2
LP	LP:Coax3	End	30.00	19.43	0.02	-0.24	136.56	-0.16	0.0	-17.23	17.26	-0.01	-0.47	5.83	0.25	0.00	6.32	9.7	2
LP	LP:Coax3	Origin	30.00	19.43	0.02	-0.24	136.56	-0.16	0.0	-18.56	17.49	-0.01	-0.51	5.83	0.25	0.00	6.35	9.8	2
LP	Tube 2	End	33.00	18.26	0.02	-0.22	189.02	-0.20	0.0	-18.56	17.49	-0.01	-0.49	7.53	0.24	0.00	8.04	12.4	2
LP	Tube 2	Origin	33.00	18.26	0.02	-0.22	189.02	-0.20	0.0	-18.96	17.57	-0.01	-0.50	7.53	0.25	0.00	8.05	12.4	2
LP	LP:A2	End	36.00	17.11	0.02	-0.21	241.72	-0.24	0.0	-18.96	17.57	-0.01	-0.48	9.01	0.24	0.00	9.51	14.6	2
LP	LP:A2	Origin	36.00	17.11	0.02	-0.21	208.86	-0.24	0.0	-23.33	27.40	-0.02	-0.60	7.79	0.37	0.00	8.41	12.9	2
LP	LP:Coax4	End	40.00	15.61	0.01	-0.18	318.47	-0.30	0.0	-23.33	27.40	-0.02	-0.57	10.90	0.35	0.00	11.49	17.7	2
LP	LP:Coax4	Origin	40.00	15.61	0.01	-0.18	318.47	-0.30	0.0	-24.87	27.66	-0.02	-0.61	10.90	0.36	0.00	11.53	17.7	2
LP	Tube 2	End	44.00	14.17	0.01	-0.16	429.09	-0.36	0.0	-24.87	27.66	-0.02	-0.58	13.53	0.34	0.00	14.13	21.7	2
LP	Tube 2	Origin	44.00	14.17	0.01	-0.16	429.09	-0.36	0.0	-25.48	27.76	-0.02	-0.60	13.53	0.34	0.00	14.14	21.8	2
LP	LP:A3	End	48.00	12.78	0.01	-0.14	540.13	-0.44	0.0	-25.48	27.76	-0.02	-0.58	15.74	0.33	0.00	16.33	25.1	2
LP	LP:A3	Origin	48.00	12.78	0.01	-0.14	506.28	-0.44	0.0	-29.88	37.57	-0.02	-0.68	14.76	0.45	0.00	15.45	23.8	2
LP	LP:Coax5	End	50.00	12.11	0.01	-0.13	581.41	-0.48	0.0	-29.88	37.57	-0.02	-0.66	16.31	0.44	0.00	16.99	26.1	2
LP	LP:Coax5	Origin	50.00	12.11	0.01	-0.13	581.41	-0.48	0.0	-31.19	37.76	-0.02	-0.69	16.31	0.44	0.00	17.02	26.2	2
LP	SpliceT	End	52.25	11.38	0.01	-0.12	666.37	-0.53	0.0	-31.19	37.76	-0.02	-0.68	17.92	0.43	0.00	18.61	28.6	2
LP	SpliceT	Origin	52.25	11.38	0.01	-0.12	666.37	-0.53	0.0	-31.76	37.84	-0.02	-0.59	15.34	0.37	0.00	15.94	24.5	2
LP	Tube 3	End	56.13	10.17	0.01	-0.10	813.00	-0.62	0.0	-31.76	37.84	-0.02	-0.57	17.44	0.36	0.00	18.02	27.7	2
LP	Tube 3	Origin	56.13	10.17	0.01	-0.10	813.00	-0.62	0.0	-32.55	37.95	-0.03	-0.58	17.44	0.36	0.00	18.03	27.7	2
LP	LP:Coax6	End	60.00	9.02	0.01	-0.09	960.05	-0.72	0.0	-32.55	37.95	-0.03	-0.56	19.23	0.35	0.00	19.81	30.5	2
LP	LP:Coax6	Origin	60.00	9.02	0.01	-0.09	960.05	-0.72	0.0	-34.44	38.21	-0.03	-0.60	19.23	0.35	0.00	19.84	30.5	2
LP	Tube 3	End	65.00	7.64	0.01	-0.07	1151.07	-0.86	0.0	-34.44	38.21	-0.03	-0.57	21.19	0.34	0.00	21.77	33.5	2
LP	Tube 3	Origin	65.00	7.64	0.01	-0.07	1151.07	-0.86	0.0	-35.55	38.34	-0.03	-0.59	21.19	0.34	0.00	21.78	33.5	2
LP	LP:Coax7	End	70.00	6.39	0.01	-0.05	1342.78	-1.02	0.0	-35.55	38.34	-0.03	-0.57	22.79	0.32	0.00	23.36	35.9	2
LP	LP:Coax7	Origin	70.00	6.39	0.01	-0.05	1342.78	-1.02	0.0	-37.29	38.57	-0.03	-0.60	22.79	0.33	0.00	23.39	36.0	2
LP	SpliceT	End	72.00	5.92	0.01	-0.05	1419.92	-1.09	0.0	-37.29	38.57	-0.03	-0.59	23.35	0.32	0.00	23.94	36.8	2
LP	SpliceT	Origin	72.00	5.92	0.01	-0.05	1419.92	-1.09	0.0	-38.06	38.66	-0.04	-0.52	20.40	0.28	0.00	20.93	32.2	2
LP	Tube 4	End	76.00	5.04	0.00	-0.04	1574.54	-1.23	0.0	-38.06	38.66	-0.04	-0.51	21.27	0.27	0.00	21.78	33.5	2
LP	Tube 4	Origin	76.00	5.04	0.00	-0.04	1574.54	-1.23	0.0	-39.14	38.78	-0.04	-0.52	21.27	0.27	0.00	21.79	33.5	2
LP	LP:Coax8	End	80.00	4.24	0.00	-0.03	1729.65	-1.38	0.0	-39.14	38.78	-0.04	-0.51	22.01	0.27	0.00	22.52	34.6	2
LP	LP:Coax8	Origin	80.00	4.24	0.00	-0.03	1729.65	-1.38	0.0	-41.34	39.05	-0.04	-0.53	22.01	0.27	0.00	22.54	34.7	2
LP	Tube 4	End	85.00	3.33	0.00	-0.02	1924.88	-1.58	0.0	-41.34	39.05	-0.04	-0.52	22.78	0.26	0.00	23.30	35.8	2
LP	Tube 4	Origin	85.00	3.33	0.00	-0.02	1924.88	-1.58	0.0	-42.78	39.20	-0.04	-0.53	22.78	0.26	0.00	23.32	35.9	2
LP	LP:Coax9	End	90.00	2.54	0.00	-0.02	2120.88	-1.80	0.0	-42.78	39.20	-0.04	-0.52	23.41	0.25	0.00	23.93	36.8	2
LP	LP:Coax9	Origin	90.00	2.54	0.00	-0.02	2120.88	-1.80	0.0	-45.22	39.49	-0.05	-0.54	23.41	0.25	0.00	23.96	36.9	2
LP	Tube 4	End	95.00	1.85	0.00	-0.01	2318.31	-2.04	0.0	-45.22	39.49	-0.05	-0.53	23.92	0.24	0.00	24.45	37.6	2
LP	Tube 4	Origin	95.00	1.85	0.00	-0.01	2318.31	-2.04	0.0	-46.76	39.65	-0.05	-0.54	23.92	0.24	0.00	24.47	37.6	2
LP	LP:Coax10	End	100.00	1.28	0.00	-0.01	2516.54	-2.30	0.0	-46.76	39.65	-0.05	-0.53	24.32	0.24	0.00	24.85	38.2	2
LP	LP:Coax10	Origin	100.00	1.28	0.00	-0.01	2516.54	-2.30	0.0	-49.29	39.93	-0.06	-0.56	24.32	0.24	0.00	24.88	38.3	2
LP	Tube 4	End	105.00	0.82	0.00	-0.01	2716.19	-2.58	0.0	-49.29	39.93	-0.06	-0.54	24.64	0.23	0.00	25.19	38.7	2
LP	Tube 4	Origin	105.00	0.82	0.00	-0.01	2716.19	-2.58	0.0	-50.92	40.10	-0.06	-0.56	24.64	0.23	0.00	25.20	38.8	2
LP	LP:Coax11	End	110.00	0.46	0.00	-0.00	2916.69	-2.88	0.0	-50.92	40.10	-0.06	-0.54	24.89	0.22	0.00	25.43	39.1	2
LP	LP:Coax11	Origin	110.00	0.46	0.00	-0.00	2916.69	-2.88	0.0	-53.55	40.39	-0.06	-0.57	24.89	0.23	0.00	25.46	39.2	2
LP	Tube 4	End	115.00	0.20	0.00	-0.00	3118.63	-3.19	0.0	-53.55	40.39	-0.06	-0.55	25.08	0.22	0.00	25.63	39.6	2

LP	Tube 4	Origin	115.00	0.20	0.00	-0.00	3118.63	-3.19	0.0	-55.27	40.56	-0.07	-0.57	25.08	0.22	0.00	25.65	39.6	2
LP	LP:Coax12	End	120.00	0.05	0.00	-0.00	3321.43	-3.53	0.0	-55.27	40.56	-0.07	-0.55	25.21	0.21	0.00	25.77	40.3	2
LP	LP:Coax12	Origin	120.00	0.05	0.00	-0.00	3321.43	-3.53	0.0	-58.00	40.85	-0.07	-0.58	25.21	0.22	0.00	25.79	40.4	2
LP	LP:g	End	125.00	0.00	0.00	0.00	3525.69	-3.89	0.0	-58.00	40.85	-0.07	-0.56	25.30	0.21	0.00	25.87	41.1	2

Detailed Tubular Davit Arm Usages for Load Case "RULE 250D":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Vert. Mom. (ft-k)	Horz. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Vert. Shear (kips)	Horz. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
S1	S1:O	Origin	0.00	24.96	0.02	0.10	-13.81	0.00	-0.0	-4.61	2.06	-0.00	-0.29	3.26	0.11	0.00	3.56	5.5	2
S1	S1:B	End	0.77	24.96	0.02	0.41	-12.23	0.00	-0.0	-4.61	2.06	-0.00	-0.31	3.14	0.11	0.00	3.45	5.3	2
S1	S1:B	Origin	0.77	24.96	0.02	0.41	-12.23	0.00	0.0	-4.84	1.27	-0.00	-0.32	3.14	0.07	0.00	3.47	5.3	2
S1	#S1:0	End	4.81	25.22	0.02	2.00	-7.10	0.00	0.0	-4.84	1.27	-0.00	-0.42	3.07	0.09	0.00	3.49	5.4	2
S1	#S1:0	Origin	4.81	25.22	0.02	2.00	-7.10	0.00	0.0	-4.81	1.12	-0.00	-0.41	3.07	0.08	0.00	3.49	5.4	2
S1	S1:T	End	8.85	25.47	0.02	3.54	-2.58	0.00	0.0	-4.81	1.12	-0.00	-0.58	2.26	0.11	0.00	2.85	4.4	2
A1	A1:O	Origin	0.00	21.83	0.02	0.19	-27.41	0.00	-0.0	-9.74	3.86	-0.00	-0.74	7.65	0.24	0.00	8.40	12.9	2
A1	A1:B	End	0.77	21.83	0.02	0.50	-24.45	0.00	-0.0	-9.74	3.86	-0.00	-0.78	7.56	0.25	0.00	8.35	12.9	2
A1	A1:B	Origin	0.77	21.83	0.02	0.50	-24.45	0.00	0.0	-10.02	2.97	-0.00	-0.80	7.56	0.19	0.00	8.37	12.9	2
A1	#A1:0	End	4.03	21.96	0.02	1.74	-14.77	0.00	0.0	-10.02	2.97	-0.00	-1.03	7.61	0.25	0.00	8.65	13.3	2
A1	#A1:0	Origin	4.03	21.96	0.02	1.74	-14.77	0.00	0.0	-10.00	2.88	-0.00	-1.03	7.61	0.24	0.00	8.65	13.3	2
A1	A1:T	End	7.29	22.07	0.02	2.91	-5.36	0.00	0.0	-10.00	2.88	-0.00	-1.44	5.49	0.34	0.00	6.96	10.7	2
A2	A2:O	Origin	0.00	17.12	0.02	0.31	-27.54	0.00	-0.0	-9.74	3.87	-0.00	-0.74	7.68	0.24	0.00	8.43	13.0	2
A2	A2:B	End	0.77	17.12	0.02	0.60	-24.57	0.00	-0.0	-9.74	3.87	-0.00	-0.78	7.60	0.25	0.00	8.39	12.9	2
A2	A2:B	Origin	0.77	17.12	0.02	0.60	-24.57	0.00	0.0	-10.01	2.99	-0.00	-0.80	7.60	0.19	0.00	8.41	12.9	2
A2	#A2:0	End	4.03	17.24	0.02	1.78	-14.83	0.00	0.0	-10.01	2.99	-0.00	-1.03	7.64	0.25	0.00	8.68	13.4	2
A2	#A2:0	Origin	4.03	17.24	0.02	1.78	-14.83	0.00	0.0	-9.99	2.90	-0.00	-1.03	7.64	0.24	0.00	8.68	13.4	2
A2	A2:T	End	7.29	17.35	0.02	2.87	-5.36	0.00	0.0	-9.99	2.90	-0.00	-1.44	5.49	0.34	0.00	6.96	10.7	2
A3	A3:O	Origin	0.00	12.79	0.01	0.38	-27.79	0.00	-0.0	-9.72	3.91	-0.00	-0.74	7.75	0.24	0.00	8.50	13.1	2
A3	A3:B	End	0.77	12.79	0.01	0.64	-24.80	0.00	-0.0	-9.72	3.91	-0.00	-0.78	7.67	0.25	0.00	8.46	13.0	2
A3	A3:B	Origin	0.77	12.79	0.01	0.64	-24.80	0.00	0.0	-10.00	3.02	-0.00	-0.80	7.67	0.19	0.00	8.48	13.0	2
A3	#A3:0	End	4.03	12.89	0.01	1.68	-14.94	0.00	0.0	-10.00	3.02	-0.00	-1.03	7.70	0.25	0.00	8.74	13.4	2
A3	#A3:0	Origin	4.03	12.89	0.01	1.68	-14.94	0.00	0.0	-9.98	2.94	-0.00	-1.03	7.70	0.24	0.00	8.74	13.4	2
A3	A3:T	End	7.29	12.99	0.01	2.64	-5.36	0.00	0.0	-9.98	2.94	-0.00	-1.44	5.49	0.35	0.00	6.96	10.7	2

Summary of Clamp Capacities and Usages for Load Case "RULE 250D":

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Holding Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
1	0.000	100.00	100.00	0.00	0.00	0.00	0.00	0.00
2	0.000	100.00	100.00	0.00	0.00	0.00	0.00	0.00
3	0.000	100.00	100.00	0.00	0.00	0.00	0.00	0.00
7	0.000	100.00	100.00	0.00	0.00	0.00	0.00	0.00
9	7.192	100.00	100.00	7.19	0.00	0.00	0.00	7.19
13	0.963	100.00	100.00	0.96	0.00	0.00	0.00	0.96
14	0.963	100.00	100.00	0.96	0.00	0.00	0.00	0.96
15	0.963	100.00	100.00	0.96	0.00	0.00	0.00	0.96
16	0.963	100.00	100.00	0.96	0.00	0.00	0.00	0.96
17	0.963	100.00	100.00	0.96	0.00	0.00	0.00	0.96
18	0.963	100.00	100.00	0.96	0.00	0.00	0.00	0.96

19	0.963	100.00	100.00	0.96	0.00	0.00	0.00	0.96
20	0.963	100.00	100.00	0.96	0.00	0.00	0.00	0.96
21	0.963	100.00	100.00	0.96	0.00	0.00	0.00	0.96
22	0.963	100.00	100.00	0.96	0.00	0.00	0.00	0.96
23	0.963	100.00	100.00	0.96	0.00	0.00	0.00	0.96
24	0.963	100.00	100.00	0.96	0.00	0.00	0.00	0.96
25	0.000	100.00	100.00	0.00	0.00	0.00	0.00	0.00
26	0.000	100.00	100.00	0.00	0.00	0.00	0.00	0.00
SW1	4.911	100.00	100.00	4.91	0.00	0.00	0.00	4.91

Summary of Suspension Capacities and Usages for Load Case "RULE 250D":

Suspension Label	Tension (kips)	Input Tension Capacity (kips)	Factored Tension Capacity (kips)	Tension Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
S1	10.387	30.00	30.00	34.62	0.00	0.00	0.00	34.62
S2	10.387	30.00	30.00	34.62	0.00	0.00	0.00	34.62
S3	10.387	30.00	30.00	34.62	0.00	0.00	0.00	34.62

*** Overall summary for all load cases - Usage = Maximum Stress / Allowable Stress

Summary of Steel Pole Usages:

Steel Pole Label	Maximum Usage %	Load Case	Height AGL (ft)	Segment Number	Weight (lbs)
LP	59.88	RULE 250C	1.1	31	28396.5

Base Plate Results by Bend Line:

Pole Label	Load Case	Bend Line #	Start X (ft)	Start Y (ft)	End X (ft)	End Y (ft)	Length (in)	Bending Stress (ksi)	Bolt Mom. Sum (ft-k)	# Bolts Acting	Bolt Max Load (kips)	Min Plate Thickness (in)	Actual Thickness (in)	Usage %	
LP	RULE 250B	1	-0.720	2.688	-1.967	1.967	17.283	39.097	99.126	-3	115.788	2.874	3.250	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
LP	RULE 250B	2	-1.967	1.967	-2.688	0.720	17.283	23.831	60.421	-3	81.858	2.244	3.250	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
LP	RULE 250B	3	-2.688	-0.720	-1.967	-1.967	17.283	21.327	54.073	-3	-75.126	2.123	3.250	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
LP	RULE 250B	4	-1.967	-1.967	-0.720	-2.688	17.283	36.676	92.989	-3	-109.317	2.783	3.250	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
LP	RULE 250B	5	0.720	-2.688	1.967	-1.967	17.283	36.798	93.298	-3	-109.553	2.788	3.250	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
LP	RULE 250B	6	1.967	-1.967	2.688	-0.720	17.283	21.532	54.593	-3	-75.623	2.133	3.250	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
LP	RULE 250B	7	2.688	0.720	1.967	1.967	17.283	23.626	59.901	-3	81.361	2.234	3.250	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
LP	RULE 250B	8	1.967	1.967	0.720	2.688	17.283	38.975	98.816	-3	115.552	2.869	3.250	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
LP	RULE 250C	1	-0.720	2.688	-1.967	1.967	17.283	45.534	115.446	3	135.097	3.101	3.250	0.00	
LP	RULE 250C	2	-1.967	1.967	-2.688	0.720	17.283	27.402	69.475	3	94.760	2.406	3.250	0.00	
LP	RULE 250C	3	-2.688	-0.720	-1.967	-1.967	17.283	26.113	66.208	3	-91.276	2.349	3.250	0.00	
LP	RULE 250C	4	-1.967	-1.967	-0.720	-2.688	17.283	44.262	112.223	3	-131.668	3.058	3.250	0.00	
LP	RULE 250C	5	0.720	-2.688	1.967	-1.967	17.283	44.288	112.288	3	-131.718	3.059	3.250	0.00	
LP	RULE 250C	6	1.967	-1.967	2.688	-0.720	17.283	26.157	66.317	3	-91.381	2.351	3.250	0.00	
LP	RULE 250C	7	2.688	0.720	1.967	1.967	17.283	27.359	69.366	3	94.655	2.404	3.250	0.00	
LP	RULE 250C	8	1.967	1.967	0.720	2.688	17.283	45.508	115.381	3	135.047	3.101	3.250	0.00	
LP	RULE 250D	1	-0.720	2.688	-1.967	1.967	17.283	38.816	98.415	-3	115.055	2.864	3.250	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
LP	RULE 250D	2	-1.967	1.967	-2.688	0.720	17.283	23.526	59.647	-3	81.047	2.229	3.250	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
LP	RULE 250D	3	-2.688	-0.720	-1.967	-1.967	17.283	21.633	54.848	-3	-75.937	2.138	3.250	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
LP	RULE 250D	4	-1.967	-1.967	-0.720	-2.688	17.283	36.957	93.701	-3	-110.051	2.794	3.250	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
LP	RULE 250D	5	0.720	-2.688	1.967	-1.967	17.283	37.007	93.827	-3	-110.147	2.796	3.250	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
LP	RULE 250D	6	1.967	-1.967	2.688	-0.720	17.283	21.716	55.059	-3	-76.139	2.142	3.250	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
LP	RULE 250D	7	2.688	0.720	1.967	1.967	17.283	23.442	59.435	-3	80.845	2.225	3.250	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2
LP	RULE 250D	8	1.967	1.967	0.720	2.688	17.283	38.767	98.288	-3	114.959	2.862	3.250	0.00	Note: actual load overridden by one half of pole moment capacity at the base as per ASCE/SEI 48-19 6.4.2

Summary of Tubular Davit Usages:

Tubular Davit Label	Maximum Usage %	Load Case	Height AGL (ft)	Segment Number	Weight (lbs)
S1	5.47	RULE 250D	107.4	1	360.2
A1	13.31	RULE 250D	99.8	2	248.8
A2	13.36	RULE 250D	87.8	2	248.8
A3	13.45	RULE 250D	75.8	2	248.8

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
RULE 250B	42.27	LP	Steel Pole
RULE 250C	59.88	LP	Steel Pole
RULE 250D	41.09	LP	Steel Pole

Summary of Steel Pole Usages by Load Case:

Load Case	Maximum Usage %	Steel Pole Label	Height AGL (ft)	Segment Number
RULE 250B	42.27	LP	1.1	31
RULE 250C	59.88	LP	1.1	31
RULE 250D	41.09	LP	1.1	31

Summary of Base Plate Usages by Load Case:

Load Case	Pole Label	Bend Line #	Length (in)	Vertical Load (kips)	X Moment (ft-k)	Y Moment (ft-k)	Bending Stress (ksi)	Bolt Moment Sum (ft-k)	# Bolts Acting On Bend Line	Max Bolt Load For Bend Line (kips)	Minimum Plate Thickness (in)	Usage %
RULE 250B	LP	1	17.283	74.821	4387.269	-11.869	39.097	99.126	-3	115.788	2.874	0.00
RULE 250C	LP	1	17.283	40.549	5199.202	-2.497	45.534	115.446	3	135.097	3.101	0.00
RULE 250D	LP	1	17.283	58.899	4387.282	-4.841	38.816	98.415	-3	115.055	2.864	0.00

Summary of Tubular Davit Usages by Load Case:

Load Case	Maximum Usage %	Tubular Davit Label	Height AGL (ft)	Segment Number
RULE 250B	13.27	A3	75.8	2
RULE 250C	10.12	A1	100.0	3
RULE 250D	13.45	A3	75.8	2

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)

1	Clamp	0.00	RULE 250B	0.0
2	Clamp	0.00	RULE 250B	0.0
3	Clamp	0.00	RULE 250B	0.0
7	Clamp	0.00	RULE 250B	0.0
9	Clamp	7.19	RULE 250D	0.0
13	Clamp	0.96	RULE 250D	0.0
14	Clamp	0.96	RULE 250D	0.0
15	Clamp	0.96	RULE 250D	0.0
16	Clamp	0.96	RULE 250D	0.0
17	Clamp	0.96	RULE 250D	0.0
18	Clamp	0.96	RULE 250D	0.0
19	Clamp	0.96	RULE 250D	0.0
20	Clamp	0.96	RULE 250D	0.0
21	Clamp	0.96	RULE 250D	0.0
22	Clamp	0.96	RULE 250D	0.0
23	Clamp	0.96	RULE 250D	0.0
24	Clamp	0.96	RULE 250D	0.0
25	Clamp	0.00	RULE 250B	0.0
26	Clamp	0.00	RULE 250B	0.0
SW1	Clamp	4.91	RULE 250D	0.0
S1	Suspension	34.62	RULE 250D	50.0
S2	Suspension	34.62	RULE 250D	50.0
S3	Suspension	34.62	RULE 250D	50.0

Loads At Insulator Attachments For All Load Cases:

Load Case	Insulator Label	Insulator Type	Structure Attach Label	Structure Attach Load X (kips)	Structure Attach Load Y (kips)	Structure Attach Load Z (kips)	Structure Attach Load Res. (kips)
RULE 250B	1	Clamp	A1:T	0.000	0.000	-0.000	0.000
RULE 250B	2	Clamp	A2:T	0.000	0.000	-0.000	0.000
RULE 250B	3	Clamp	A3:T	0.000	0.000	-0.000	0.000
RULE 250B	7	Clamp	S1:T	0.000	0.000	-0.000	0.000
RULE 250B	9	Clamp	LP:AT&T	0.000	2.516	9.163	9.502
RULE 250B	13	Clamp	LP:Coax1	0.000	0.172	1.035	1.049
RULE 250B	14	Clamp	LP:Coax2	0.000	0.172	1.035	1.049
RULE 250B	15	Clamp	LP:Coax3	0.000	0.172	1.035	1.049
RULE 250B	16	Clamp	LP:Coax4	0.000	0.172	1.035	1.049
RULE 250B	17	Clamp	LP:Coax5	0.000	0.172	1.035	1.049
RULE 250B	18	Clamp	LP:Coax6	0.000	0.172	1.035	1.049
RULE 250B	19	Clamp	LP:Coax7	0.000	0.172	1.035	1.049
RULE 250B	20	Clamp	LP:Coax8	0.000	0.172	1.035	1.049
RULE 250B	21	Clamp	LP:Coax9	0.000	0.172	1.035	1.049
RULE 250B	22	Clamp	LP:Coax10	0.000	0.172	1.035	1.049
RULE 250B	23	Clamp	LP:Coax11	0.000	0.172	1.035	1.049
RULE 250B	24	Clamp	LP:Coax12	0.000	0.172	1.035	1.049
RULE 250B	25	Clamp	S1:B	0.000	0.000	-0.000	0.000
RULE 250B	26	Clamp	LP:t	0.000	0.000	-0.000	0.000
RULE 250B	SW1	Clamp	1	0.000	4.068	1.353	4.287
RULE 250B	S1	Suspension	3	0.000	9.026	3.929	9.844
RULE 250B	S2	Suspension	4	0.000	9.026	3.929	9.844
RULE 250B	S3	Suspension	5	0.000	9.026	3.929	9.844
RULE 250C	1	Clamp	A1:T	0.000	0.000	-0.000	0.000
RULE 250C	2	Clamp	A2:T	0.000	0.000	-0.000	0.000
RULE 250C	3	Clamp	A3:T	0.000	0.000	-0.000	0.000
RULE 250C	7	Clamp	S1:T	0.000	0.000	-0.000	0.000
RULE 250C	9	Clamp	LP:AT&T	0.000	9.715	4.610	10.753

RULE 250C	13	Clamp	LP:Coax1	0.000	0.498	0.281	0.572
RULE 250C	14	Clamp	LP:Coax2	0.000	0.498	0.281	0.572
RULE 250C	15	Clamp	LP:Coax3	0.000	0.498	0.281	0.572
RULE 250C	16	Clamp	LP:Coax4	0.000	0.498	0.281	0.572
RULE 250C	17	Clamp	LP:Coax5	0.000	0.498	0.281	0.572
RULE 250C	18	Clamp	LP:Coax6	0.000	0.498	0.281	0.572
RULE 250C	19	Clamp	LP:Coax7	0.000	0.498	0.281	0.572
RULE 250C	20	Clamp	LP:Coax8	0.000	0.498	0.281	0.572
RULE 250C	21	Clamp	LP:Coax9	0.000	0.498	0.281	0.572
RULE 250C	22	Clamp	LP:Coax10	0.000	0.498	0.281	0.572
RULE 250C	23	Clamp	LP:Coax11	0.000	0.498	0.281	0.572
RULE 250C	24	Clamp	LP:Coax12	0.000	0.498	0.281	0.572
RULE 250C	25	Clamp	S1:B	0.000	0.000	-0.000	0.000
RULE 250C	26	Clamp	LP:t	0.000	0.000	-0.000	0.000
RULE 250C	SW1	Clamp	1	0.000	4.172	0.363	4.188
RULE 250C	S1	Suspension	3	0.000	9.291	1.729	9.451
RULE 250C	S2	Suspension	4	0.000	9.291	1.729	9.451
RULE 250C	S3	Suspension	5	0.000	9.291	1.729	9.451
RULE 250D	1	Clamp	A1:T	0.000	0.000	-0.000	0.000
RULE 250D	2	Clamp	A2:T	0.000	0.000	-0.000	0.000
RULE 250D	3	Clamp	A3:T	0.000	0.000	-0.000	0.000
RULE 250D	7	Clamp	S1:T	0.000	0.000	-0.000	0.000
RULE 250D	9	Clamp	LP:AT&T	0.000	1.696	6.989	7.192
RULE 250D	13	Clamp	LP:Coax1	0.000	0.114	0.956	0.963
RULE 250D	14	Clamp	LP:Coax2	0.000	0.114	0.956	0.963
RULE 250D	15	Clamp	LP:Coax3	0.000	0.114	0.956	0.963
RULE 250D	16	Clamp	LP:Coax4	0.000	0.114	0.956	0.963
RULE 250D	17	Clamp	LP:Coax5	0.000	0.114	0.956	0.963
RULE 250D	18	Clamp	LP:Coax6	0.000	0.114	0.956	0.963
RULE 250D	19	Clamp	LP:Coax7	0.000	0.114	0.956	0.963
RULE 250D	20	Clamp	LP:Coax8	0.000	0.114	0.956	0.963
RULE 250D	21	Clamp	LP:Coax9	0.000	0.114	0.956	0.963
RULE 250D	22	Clamp	LP:Coax10	0.000	0.114	0.956	0.963
RULE 250D	23	Clamp	LP:Coax11	0.000	0.114	0.956	0.963
RULE 250D	24	Clamp	LP:Coax12	0.000	0.114	0.956	0.963
RULE 250D	25	Clamp	S1:B	0.000	0.000	-0.000	0.000
RULE 250D	26	Clamp	LP:t	0.000	0.000	-0.000	0.000
RULE 250D	SW1	Clamp	1	0.000	4.539	1.876	4.911
RULE 250D	S1	Suspension	3	0.000	9.609	3.945	10.387
RULE 250D	S2	Suspension	4	0.000	9.609	3.945	10.387
RULE 250D	S3	Suspension	5	0.000	9.609	3.945	10.387

Overturning Moments For User Input Concentrated Loads:

Moments are static equivalents based on central axis of 0,0 (i.e. a single pole).

Load Case	Total Tran. Load (kips)	Total Long. Load (kips)	Total Vert. Load (kips)	Transverse Overturning Moment (ft-k)	Longitudinal Overturning Moment (ft-k)	Torsional Moment (ft-k)
RULE 250B	35.726	0.000	34.723	2730.858	0.000	0.000
RULE 250C	47.736	0.000	13.532	4243.592	0.000	0.000
RULE 250D	36.430	0.000	32.172	2824.156	0.000	0.000

*** Weight of structure (lbs):
    Weight of Tubular Davit Arms: 1106.7
    Weight of Steel Poles: 28396.5
    Weight of Suspensions: 150.0

Total:	29653.2

*** End of Report

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

Subject: Anchor Bolt Analysis Pole #19775

Location: Weston, CT

Rev. 1: 6/2/23

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 22007.09

Anchor Bolt Analysis:

Input Data:

Bolt Force:

Maximum Tensile Force = $T_{Max} := 135 \cdot kips$ (User Input from PLS-Pole)

Maximum Shear Force at Base = $V_{base} := 62 \cdot kips$ (User Input from PLS-Pole)

Anchor Bolt Data:

Use AST MA615 Grade 75

Number of Anchor Bolts = $N := 24$ (User Input)

Bolt "Column" Distance = $l := 3.0 \cdot in$ (User Input)

Bolt Ultimate Strength = $F_u := 100 \cdot ksi$ (User Input)

Bolt Yeild Strength= $F_y := 75 \cdot ksi$ (User Input)

Bolt Modulus = $E := 29000 \cdot ksi$ (User Input)

Diameter of Anchor Bolts = $D := 2.25 \cdot in$ (User Input)

Threads per Inch = $n := 4.5$ (User Input)

Anchor Bolt Analysis:

Stress Area of Bolt = $A_s := \frac{\pi}{4} \cdot \left(D - \frac{0.9743 \cdot in}{n}\right)^2 = 3.248 \cdot in^2$

Maximum Shear Force per Bolt = $V_{Max} := \frac{V_{base}}{N} = 2.6 \times 10^3 lbf$

Shear Stress per Bolt = $f_v := \frac{V_{Max}}{A_s} = 795.4\,psi$

Tensile Stress Permitted = $F_t := 0.75 \cdot F_u = 75 \cdot ksi$

Shear Stress Permitted = $F_v := 0.35 F_u = 35 \cdot ksi$

Permitted Axial Tensile Stress in Conjuction with Shear = $F_{tv} := F_t \cdot \sqrt{1 - \left(\frac{f_v}{F_v}\right)^2} = 74.98 \cdot ksi$

Bolt Tension % of Capacity = $\frac{T_{Max}}{F_{tv} \cdot A_s} = 55.44 \cdot \%$

Condition1 = $Condition1 := if\left(\frac{T_{Max}}{F_{tv} \cdot A_s} \le 1.00, "OK", "Overstressed"\right)$

Condition1 = "OK"

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

Subject:	Flange Bolts and Flangeplate Analysis
Location:	Structure 19775 Weston, CT
Rev. 1: 6/2/23	Prepared by: T.J.L. Checked by: C.F.C. Job No. 22007.09

Flange Bolt and Flange Plate Analysis:

Input Data:

Flange @ 110-ft

Tower Reactions:

Overturning Moment =	OM := 110·ft·kips	(User Input)
Shear Force =	Shear := 12·kips	(User Input)
Axial Force =	Axial := 5·kips	(User Input)

Flange Bolt Data:

Use AST MA325

Number of Flange Bolts =	N := 12	(User Input)
Diameter of Bolt Circle =	D_{bc} := 29.5·in	(User Input)
Bolt Minimum Tensile Strength =	F_{ub} := 120·ksi	(User Input)
Bolt Modulus =	E := 29000·ksi	(User Input)
Diameter of Flange Bolts =	D := 1.00·in	(User Input)
Threads per Inch =	n := 8	(User Input)

Flange Plate Data:

Use AST MA871 Grade 65

Plate Yield Strength =	Fy_{bp} := 65·ksi	(User Input)
Flange Plate Thickness =	t_{bp} := 1.25·in	(User Input)
Flange Plate Diameter =	D_{bp} := 32.25·in	(User Input)
Outer Pole Diameter =	D_{pole} := 25.19·in	(User Input)

Geometric Layout Data:

Distance from Bolts to Centroid of Pole:

Radius of Bolt Circle =: $R_{bc} := \frac{D_{bc}}{2} = 14.75 \cdot in$

Distance to Bolts = $i := 1 .. N$

$d_i := \left| \theta \leftarrow 2 \cdot \pi \cdot \left(\frac{i}{N} \right) \right.$
$\left. d \leftarrow R_{bc} \cdot \sin(\theta) \right.$

$d_1 = 7.37 \cdot in$	$d_7 = -7.38 \cdot in$
$d_2 = 12.77 \cdot in$	$d_8 = -12.77 \cdot in$
$d_3 = 14.75 \cdot in$	$d_9 = -14.75 \cdot in$
$d_4 = 12.77 \cdot in$	$d_{10} = -12.77 \cdot in$
$d_5 = 7.37 \cdot in$	$d_{11} = -7.38 \cdot in$
$d_6 = 0.00 \cdot in$	$d_{12} = -0.00 \cdot in$

Critical Distances For Bending in Plate:

Outer Pole Radius = $R_{pole} := \frac{D_{pole}}{2} = 12.595 \cdot in$

Moment Arms of Bolts about Neutral Axis = $MA_i := if\left(d_i \geq R_{pole}, d_i - R_{pole}, 0in\right)$

$MA_1 = 0.00 \cdot in$	$MA_7 = 0.00 \cdot in$
$MA_2 = 0.18 \cdot in$	$MA_8 = 0.00 \cdot in$
$MA_3 = 2.15 \cdot in$	$MA_9 = 0.00 \cdot in$
$MA_4 = 0.18 \cdot in$	$MA_{10} = 0.00 \cdot in$
$MA_5 = 0.00 \cdot in$	$MA_{11} = 0.00 \cdot in$
$MA_6 = 0.00 \cdot in$	$MA_{12} = 0.00 \cdot in$

Effective Width of Flangeplate for Bending = $B_{eff} := .8 \cdot 2 \cdot \sqrt{\left(\frac{D_{bp}}{2}\right)^2 - \left(\frac{D_{pole}}{2}\right)^2} = 16.1 \cdot in$

Flange Bolt Analysis:

Calculated Flange Bolt Properties:

Polar Moment of Inertia = $I_p := \sum_i \left(d_i\right)^2 = 1.305 \times 10^3 \cdot in^2$

Gross Area of Bolt = $A_g := \frac{\pi}{4} \cdot D^2 = 0.785 \cdot in^2$

Net Area of Bolt = $A_n := \frac{\pi}{4} \cdot \left(D - \frac{0.9743 \cdot in}{n}\right)^2 = 0.606 \cdot in^2$

Check Flange Bolts:

Maximum Shear Stress = $V_{Max} := \frac{Shear}{N \cdot A_g} = 1.3 \cdot ksi$

Permitted Shear Stress = $F_v := \left(0.35 \cdot F_{ub}\right) = 42 \cdot ksi$

Condition1 = $Condition1 := if\left(V_{Max} \le F_v, "OK", "Overstressed"\right)$ $\frac{V_{Max}}{F_v} = 3.03 \cdot \%$

Condition1 = "OK"

Maximum Tensile Stress = $T_{Max} := \frac{\left(OM \cdot \frac{R_{bc}}{I_p} - \frac{Axial}{N}\right)}{A_n} = 23.9 \cdot ksi$

Permitted Tensile Stress = $F_t := \left(0.75 \cdot F_{ub}\right) = 90 \cdot ksi$

Condition2 = $Condition2 := if\left(\frac{T_{Max}}{F_t} \le 1.00, "OK", "Overstressed"\right)$ $\frac{T_{Max}}{F_t} = 26.59 \cdot \%$

Condition2 = "OK"

Permitted Tensile Stress with Shear = $F_{t.v} := F_t \cdot \sqrt{1 - \left(\frac{V_{Max}}{F_v}\right)^2} = 90 \cdot ksi$

Condition3 = $Condition3 := if\left(\frac{T_{Max}}{F_{t.v}} \le 1.00, "OK", "Overstressed"\right)$ $\frac{T_{Max}}{F_{t.v}} = 26.61 \cdot \%$

Condition3 = "OK"

Flange Plate Analysis:

Force from Bolts =

$$C_i := \frac{OM \cdot d_i}{I_p} + \frac{Axial}{N}$$

$C_1 = 7.9 \cdot kips$ $C_7 = -7.0 \cdot kips$

$C_2 = 13.3 \cdot kips$ $C_8 = -12.5 \cdot kips$

$C_3 = 15.3 \cdot kips$ $C_9 = -14.5 \cdot kips$

$C_4 = 13.3 \cdot kips$ $C_{10} = -12.5 \cdot kips$

$C_5 = 7.9 \cdot kips$ $C_{11} = -7.0 \cdot kips$

$C_6 = 0.4 \cdot kips$ $C_{12} = 0.4 \cdot kips$

Maximum Bending Stress in Plate =

$$f_{bp} := \sum_i \frac{6 \cdot C_i \cdot MA_i}{\left(B_{eff} \, t_{bp}^{\,2}\right)} = 9 \cdot ksi$$

Allowable Bending Stress in Plate =

$$F_{bp} := 0.9 \cdot Fy_{bp} = 58.5 \cdot ksi$$

Plate Bending Stress % of Capacity =

$$\frac{f_{bp}}{F_{bp}} = 15.4 \cdot \%$$

Condition1 =

$$Condition1 := if\left(\frac{f_{bp}}{F_{bp}} < 1.00, \text{"Ok"}, \text{"Overstressed"}\right)$$

Condition1 = "Ok"

Flange Bolt and Flange Plate Analysis:

Input Data:

Flange @ 72.75-ft

Tower Reactions:

Overturning Moment =	OM := 1199·ft·kips	(User Input)
Shear Force =	Shear := 49·kips	(User Input)
Axial Force =	Axial := 17·kips	(User Input)

Flange Bolt Data:

Use AST MA325

Number of Flange Bolts =	N := 48	(User Input)
Diameter of Bolt Circle =	D_{bc} := 43.5·in	(User Input)
Bolt Minimum Tensile Strength =	F_{ub} := 120·ksi	(User Input)
Bolt Modulus =	E := 29000·ksi	(User Input)
Diameter of Flange Bolts =	D := 1.00·in	(User Input)
Threads per Inch =	n := 8	(User Input)

Flange Plate Data:

Use AST MA588 Grade 50

Plate Yield Strength =	Fy_{bp} := 50·ksi	(User Input)
Flange Plate Thickness =	t_{bp} := 2.25·in	(User Input)
Flange Plate Diameter =	D_{bp} := 46.25·in	(User Input)
Outer Pole Diameter =	D_{pole} := 38.59·in	(User Input)

Geometric Layout Data:

Distance from Bolts to Centroid of Pole:

Radius of Bolt Circle =: $R_{bc} := \frac{D_{bc}}{2} = 21.75 \cdot in$

Distance to Bolts = $i := 1 .. N$

$$d_i := \left| \begin{array}{l} \theta \leftarrow 2 \cdot \pi \cdot \left(\frac{i}{N} \right) \\ d \leftarrow R_{bc} \cdot \sin(\theta) \end{array} \right.$$

$d_1 = 2.84 \cdot in$	$d_7 = 17.26 \cdot in$	$d_{13} = 21.56 \cdot in$	$d_{19} = 13.24 \cdot in$
$d_2 = 5.63 \cdot in$	$d_8 = 18.84 \cdot in$	$d_{14} = 21.01 \cdot in$	$d_{20} = 10.87 \cdot in$
$d_3 = 8.32 \cdot in$	$d_9 = 20.09 \cdot in$	$d_{15} = 20.09 \cdot in$	$d_{21} = 8.32 \cdot in$
$d_4 = 10.87 \cdot in$	$d_{10} = 21.01 \cdot in$	$d_{16} = 18.84 \cdot in$	$d_{22} = 5.63 \cdot in$
$d_5 = 13.24 \cdot in$	$d_{11} = 21.56 \cdot in$	$d_{17} = 17.26 \cdot in$	$d_{23} = 2.84 \cdot in$
$d_6 = 15.38 \cdot in$	$d_{12} = 21.75 \cdot in$	$d_{18} = 15.38 \cdot in$	$d_{24} = 0.00 \cdot in$

Critical Distances For Bending in Plate:

Outer Pole Radius = $R_{pole} := \frac{D_{pole}}{2} = 19.295 \cdot in$

Moment Arms of Bolts about Neutral Axis = $MA_i := if\left(d_i \geq R_{pole}, d_i - R_{pole}, 0in\right)$

$MA_1 = 0.00 \cdot in$	$MA_7 = 0.00 \cdot in$	$MA_{13} = 2.27 \cdot in$	$MA_{19} = 0.00 \cdot in$
$MA_2 = 0.00 \cdot in$	$MA_8 = 0.00 \cdot in$	$MA_{14} = 1.71 \cdot in$	$MA_{20} = 0.00 \cdot in$
$MA_3 = 0.00 \cdot in$	$MA_9 = 0.80 \cdot in$	$MA_{15} = 0.80 \cdot in$	$MA_{21} = 0.00 \cdot in$
$MA_4 = 0.00 \cdot in$	$MA_{10} = 1.71 \cdot in$	$MA_{16} = 0.00 \cdot in$	$MA_{22} = 0.00 \cdot in$
$MA_5 = 0.00 \cdot in$	$MA_{11} = 2.27 \cdot in$	$MA_{17} = 0.00 \cdot in$	$MA_{23} = 0.00 \cdot in$
$MA_6 = 0.00 \cdot in$	$MA_{12} = 2.46 \cdot in$	$MA_{18} = 0.00 \cdot in$	$MA_{24} = 0.00 \cdot in$

Effective Width of Flangeplate for Bending = $B_{eff} := .8 \cdot 2 \cdot \sqrt{\left(\frac{D_{bp}}{2}\right)^2 - \left(\frac{D_{pole}}{2}\right)^2} = 20.4 \cdot in$

Flange Bolt Analysis:

Calculated Flange Bolt Properties:

Polar Moment of Inertia = $I_p := \sum_i \left(d_i\right)^2 = 1.135 \times 10^4 \cdot in^2$

Gross Area of Bolt = $A_g := \frac{\pi}{4} \cdot D^2 = 0.785 \cdot in^2$

Net Area of Bolt = $A_n := \frac{\pi}{4} \cdot \left(D - \frac{0.9743 \cdot in}{n}\right)^2 = 0.606 \cdot in^2$

Check Flange Bolts:

Maximum Shear Stress = $V_{Max} := \frac{Shear}{N \cdot A_g} = 1.3 \cdot ksi$

Permitted Shear Stress = $F_v := \left(0.35 \cdot F_{ub}\right) = 42 \cdot ksi$

Condition1 = $Condition1 := if\left(V_{Max} \le F_v, "OK", "Overstressed"\right)$ $\frac{V_{Max}}{F_v} = 3.09 \cdot \%$

Condition1 = "OK"

Maximum Tensile Stress = $T_{Max} := \frac{\left(OM \cdot \frac{R_{bc}}{I_p} - \frac{Axial}{N}\right)}{A_n} = 44.9 \cdot ksi$

Permitted Tensile Stress = $F_t := \left(0.75 \cdot F_{ub}\right) = 90 \cdot ksi$

Condition2 = $Condition2 := if\left(\frac{T_{Max}}{F_t} \le 1.00, "OK", "Overstressed"\right)$ $\frac{T_{Max}}{F_t} = 49.91 \cdot \%$

Condition2 = "OK"

Permitted Tensile Stress with Shear = $F_{t.v} := F_t \cdot \sqrt{1 - \left(\frac{V_{Max}}{F_v}\right)^2} = 90 \cdot ksi$

Condition3 = $Condition3 := if\left(\frac{T_{Max}}{F_{t.v}} \le 1.00, "OK", "Overstressed"\right)$ $\frac{T_{Max}}{F_{t.v}} = 49.93 \cdot \%$

Condition3 = "OK"

Flange Plate Analysis:

Force from Bolts = $C_i := \frac{OM \cdot d_i}{I_p} + \frac{Axial}{N}$

$C_1 = 4.0 \cdot kips$	$C_7 = 22.2 \cdot kips$	$C_{13} = 27.7 \cdot kips$	$C_{19} = 17.1 \cdot kips$
$C_2 = 7.5 \cdot kips$	$C_8 = 24.2 \cdot kips$	$C_{14} = 27.0 \cdot kips$	$C_{20} = 14.1 \cdot kips$
$C_3 = 10.9 \cdot kips$	$C_9 = 25.8 \cdot kips$	$C_{15} = 25.8 \cdot kips$	$C_{21} = 10.9 \cdot kips$
$C_4 = 14.1 \cdot kips$	$C_{10} = 27.0 \cdot kips$	$C_{16} = 24.2 \cdot kips$	$C_{22} = 7.5 \cdot kips$
$C_5 = 17.1 \cdot kips$	$C_{11} = 27.7 \cdot kips$	$C_{17} = 22.2 \cdot kips$	$C_{23} = 4.0 \cdot kips$
$C_6 = 19.8 \cdot kips$	$C_{12} = 27.9 \cdot kips$	$C_{18} = 19.8 \cdot kips$	$C_{24} = 0.4 \cdot kips$

Maximum Bending Stress in Plate =

$$f_{bp} := \sum_i \frac{6 \cdot C_i \cdot MA_i}{\left(B_{eff} \cdot t_{bp}^{\,2}\right)} = 19.1 \cdot ksi$$

Allowable Bending Stress in Plate = $F_{bp} := 0.9 \cdot Fy_{bp} = 45 \cdot ksi$

Plate Bending Stress % of Capacity = $\frac{f_{bp}}{F_{bp}} = 42.3 \cdot \%$

Condition1 = $Condition1 := if\left(\frac{f_{bp}}{F_{bp}} < 1.00, "Ok", "Overstressed"\right)$

Condition1 = "Ok"

Flange Bolt and Flange Plate Analysis:

Input Data:

Flange @ 53-ft

Tower Reactions:

Overturning Moment =	OM := 2195·ft·kips	(User Input)
Shear Force =	Shear := 52·kips	(User Input)
Axial Force =	Axial := 22·kips	(User Input)

Flange Bolt Data:

Use AST MA325

Number of Flange Bolts =	N := 48	(User Input)
Diameter of Bolt Circle =	D_{bc} := 51.25·in	(User Input)
Bolt Minimum Tensile Strength =	F_{ub} := 120·ksi	(User Input)
Bolt Modulus =	E := 29000·ksi	(User Input)
Diameter of Flange Bolts =	D := 1.25·in	(User Input)
Threads per Inch =	n := 7	(User Input)

Flange Plate Data:

Use AST MA588 Grade 50

Plate Yield Strength =	Fy_{bp} := 50·ksi	(User Input)
Flange Plate Thickness =	t_{bp} := 2.5·in	(User Input)
Flange Plate Diameter =	D_{bp} := 54.625·in	(User Input)
Outer Pole Diameter =	D_{pole} := 45.68·in	(User Input)

Geometric Layout Data:

Distance from Bolts to Centroid of Pole:

Radius of Bolt Circle =: $R_{bc} := \frac{D_{bc}}{2} = 25.625 \cdot in$

Distance to Bolts = $i := 1 .. N$

$$d_i := \left| \begin{array}{l} \theta \leftarrow 2 \cdot \pi \cdot \left(\frac{i}{N} \right) \\ d \leftarrow R_{bc} \cdot \sin(\theta) \end{array} \right.$$

$d_1 = 3.34 \cdot in$	$d_7 = 20.33 \cdot in$	$d_{13} = 25.41 \cdot in$	$d_{19} = 15.60 \cdot in$
$d_2 = 6.63 \cdot in$	$d_8 = 22.19 \cdot in$	$d_{14} = 24.75 \cdot in$	$d_{20} = 12.81 \cdot in$
$d_3 = 9.81 \cdot in$	$d_9 = 23.67 \cdot in$	$d_{15} = 23.67 \cdot in$	$d_{21} = 9.81 \cdot in$
$d_4 = 12.81 \cdot in$	$d_{10} = 24.75 \cdot in$	$d_{16} = 22.19 \cdot in$	$d_{22} = 6.63 \cdot in$
$d_5 = 15.60 \cdot in$	$d_{11} = 25.41 \cdot in$	$d_{17} = 20.33 \cdot in$	$d_{23} = 3.34 \cdot in$
$d_6 = 18.12 \cdot in$	$d_{12} = 25.63 \cdot in$	$d_{18} = 18.12 \cdot in$	$d_{24} = 0.00 \cdot in$

Critical Distances For Bending in Plate:

Outer Pole Radius = $R_{pole} := \frac{D_{pole}}{2} = 22.84 \cdot in$

Moment Arms of Bolts about Neutral Axis = $MA_i := if\left(d_i \geq R_{pole}, d_i - R_{pole}, 0in\right)$

$MA_1 = 0.00 \cdot in$	$MA_7 = 0.00 \cdot in$	$MA_{13} = 2.57 \cdot in$	$MA_{19} = 0.00 \cdot in$
$MA_2 = 0.00 \cdot in$	$MA_8 = 0.00 \cdot in$	$MA_{14} = 1.91 \cdot in$	$MA_{20} = 0.00 \cdot in$
$MA_3 = 0.00 \cdot in$	$MA_9 = 0.83 \cdot in$	$MA_{15} = 0.83 \cdot in$	$MA_{21} = 0.00 \cdot in$
$MA_4 = 0.00 \cdot in$	$MA_{10} = 1.91 \cdot in$	$MA_{16} = 0.00 \cdot in$	$MA_{22} = 0.00 \cdot in$
$MA_5 = 0.00 \cdot in$	$MA_{11} = 2.57 \cdot in$	$MA_{17} = 0.00 \cdot in$	$MA_{23} = 0.00 \cdot in$
$MA_6 = 0.00 \cdot in$	$MA_{12} = 2.79 \cdot in$	$MA_{18} = 0.00 \cdot in$	$MA_{24} = 0.00 \cdot in$

Effective Width of Flangeplate for Bending = $B_{eff} := .8 \cdot 2 \cdot \sqrt{\left(\frac{D_{bp}}{2}\right)^2 - \left(\frac{D_{pole}}{2}\right)^2} = 24 \cdot in$

Flange Bolt Analysis:

Calculated Flange Bolt Properties:

Polar Moment of Inertia = $I_p := \sum_i \left(d_i\right)^2 = 1.576 \times 10^4 \cdot in^2$

Gross Area of Bolt = $A_g := \frac{\pi}{4} \cdot D^2 = 1.227 \cdot in^2$

Net Area of Bolt = $A_n := \frac{\pi}{4} \cdot \left(D - \frac{0.9743 \cdot in}{n}\right)^2 = 0.969 \cdot in^2$

Check Flange Bolts:

Maximum Shear Stress = $V_{Max} := \frac{Shear}{N \cdot A_g} = 0.9 \cdot ksi$

Permitted Shear Stress = $F_v := \left(0.35 \cdot F_{ub}\right) = 42 \cdot ksi$

Condition1 = $Condition1 := if\left(V_{Max} \le F_v, "OK", "Overstressed"\right)$ $\frac{V_{Max}}{F_v} = 2.10 \cdot \%$

Condition1 = "OK"

Maximum Tensile Stress = $T_{Max} := \frac{\left(OM \cdot \frac{R_{bc}}{I_p} - \frac{Axial}{N}\right)}{A_n} = 43.7 \cdot ksi$

Permitted Tensile Stress = $F_t := \left(0.75 \cdot F_{ub}\right) = 90 \cdot ksi$

Condition2 = $Condition2 := if\left(\frac{T_{Max}}{F_t} \le 1.00, "OK", "Overstressed"\right)$ $\frac{T_{Max}}{F_t} = 48.58 \cdot \%$

Condition2 = "OK"

Permitted Tensile Stress with Shear = $F_{t.v} := F_t \cdot \sqrt{1 - \left(\frac{V_{Max}}{F_v}\right)^2} = 90 \cdot ksi$

Condition3 = $Condition3 := if\left(\frac{T_{Max}}{F_{t.v}} \le 1.00, "OK", "Overstressed"\right)$ $\frac{T_{Max}}{F_{t.v}} = 48.59 \cdot \%$

Condition3 = "OK"

Flange Plate Analysis:

Force from Bolts = $C_i := \frac{OM \cdot d_i}{I_p} + \frac{Axial}{N}$

$C_1 = 6.0 \cdot kips$	$C_7 = 34.4 \cdot kips$	$C_{13} = 42.9 \cdot kips$	$C_{19} = 26.5 \cdot kips$
$C_2 = 11.5 \cdot kips$	$C_8 = 37.5 \cdot kips$	$C_{14} = 41.8 \cdot kips$	$C_{20} = 21.9 \cdot kips$
$C_3 = 16.8 \cdot kips$	$C_9 = 40.0 \cdot kips$	$C_{15} = 40.0 \cdot kips$	$C_{21} = 16.8 \cdot kips$
$C_4 = 21.9 \cdot kips$	$C_{10} = 41.8 \cdot kips$	$C_{16} = 37.5 \cdot kips$	$C_{22} = 11.5 \cdot kips$
$C_5 = 26.5 \cdot kips$	$C_{11} = 42.9 \cdot kips$	$C_{17} = 34.4 \cdot kips$	$C_{23} = 6.0 \cdot kips$
$C_6 = 30.7 \cdot kips$	$C_{12} = 43.3 \cdot kips$	$C_{18} = 30.7 \cdot kips$	$C_{24} = 0.5 \cdot kips$

Maximum Bending Stress in Plate =

$$f_{bp} := \sum_i \frac{6 \cdot C_i \cdot MA_i}{\left(B_{eff} \cdot t_{bp}^2\right)} = 22.7 \cdot ksi$$

Allowable Bending Stress in Plate = $F_{bp} := 0.9 \cdot Fy_{bp} = 45 \cdot ksi$

Plate Bending Stress % of Capacity = $\frac{f_{bp}}{F_{bp}} = 50.5 \cdot \%$

Condition1 = $Condition1 := if\left(\frac{f_{bp}}{F_{bp}} < 1.00, "Ok", "Overstressed"\right)$

Condition1 = "Ok"

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

Subject:	Anchor Bolt and Baseplate Analysis
Location:	125-FT Monopole Weston, CT
Rev. 1: 6/2/23	Prepared by: T.J.L. Checked by: C.F.C. Job No. 22007.09

Base Plate Analysis:

Input Data:

Tower Reactions:

Overturning Moment =	OM := 5199·ft·kips	(Input From tnxTower)
Shear Force =	Shear := 62·kips	(Input From tnxTower)
Axial Force =	Axial := 43·kips	(Input From tnxTower)

Anchor Bolt Data:

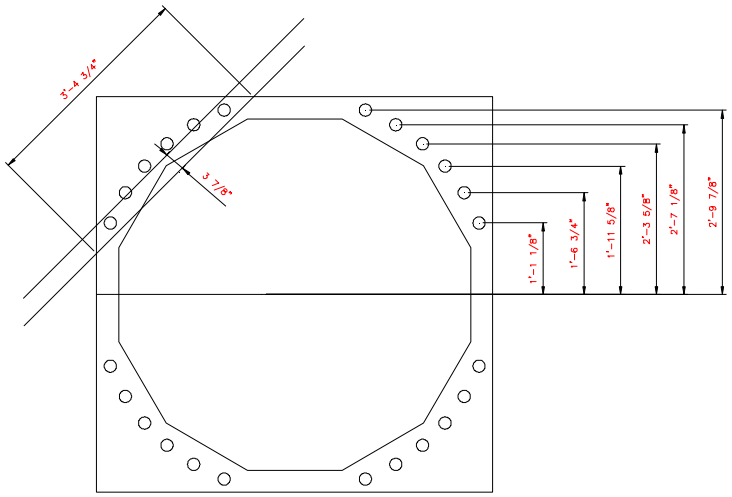
ASTMA615 Grade 75

Number of Anchor Bolts =	N := 24	(User Input)
Bolt Ultimate Strength =	F_u := 100·ksi	(User Input)
Bolt Yield Strength =	F_y := 75·ksi	(User Input)
Diameter of Anchor Bolts =	D := 2.25·in	(User Input)

Base Plate Data:

Use AST MA588 Grade 50

Plate Yield Strength =	Fy_{bp} := 50·ksi	(User Input)
Base Plate Thickness =	t_{bp} := 3.25·in	(User Input)
Base Plate Diameter =	D_{bp} := 72.625·in	(User Input)
Outer Pole Diameter =	D_{pole} := 64.5·in	(User Input)



Geometric Layout Data:

Distance from Bolts to Centroid of Pole:

$d_1 := 33.875in$ $d_2 := 31.125in$ $d_3 := 27.625in$ $d_4 := 23.625in$ $d_5 := 18.75in$ $d_6 := 13.125in$ (User Input)

Critical Distances For Bending in Plate:

(User Input)

$ma_1 := 3.67in$

Effective Width of Baseplate for Bending = $B_{eff} := 40.75in$ (User Input)

Polar Moment of Inertia = $I_p := \left[(d_1)^2 \cdot 4 + (d_2)^2 \cdot 4 + (d_3)^2 \cdot 4 + (d_4)^2 \cdot 4 + (d_5)^2 \cdot 4 + (d_6)^2 \cdot 4\right] = 15845.6 \cdot in^2$

Base Plate Analysis:

Force from Bolts =

$$C_1 := \frac{OM \cdot d_1}{I_p} + \frac{Axial}{N} = 135.166 \cdot kips$$

$$C_2 := \frac{OM \cdot d_2}{I_p} + \frac{Axial}{N} = 124.339 \cdot kips$$

$$C_3 := \frac{OM \cdot d_3}{I_p} + \frac{Axial}{N} = 110.558 \cdot kips$$

$$C_4 := \frac{OM \cdot d_4}{I_p} + \frac{Axial}{N} = 94.809 \cdot kips$$

$$C_5 := \frac{OM \cdot d_5}{I_p} + \frac{Axial}{N} = 75.615 \cdot kips$$

$$C_6 := \frac{OM \cdot d_6}{I_p} + \frac{Axial}{N} = 53.468 \cdot kips$$

Applied Bending Stress in Plate =

$$f_{bp} := \frac{6 \cdot \left(C_1 \cdot ma_1 + C_2 \cdot ma_1 + C_3 \cdot ma_1 + C_4 \cdot ma_1 + C_5 \cdot ma_1 + C_6 \cdot ma_1\right)}{B_{eff} \, t_{bp}^2} = 30.39 \cdot ksi$$

Allowable Bending Stress in Plate = $F_{bp} := Fy_{bp} = 50 \cdot ksi$

Plate Bending Stress % of Capacity = $\frac{f_{bp}}{F_{bp}} = 60.8 \cdot \%$

Condition2= = $Condition1 := if\left(\frac{f_{bp}}{F_{bp}} < 1.00, "Ok", "Overstressed"\right)$

Condition1 = "Ok"

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	CT1845	DATE:	9/8/2022	RF DESIGN ENG:	Mohammad M Hussain	RF PERF ENG:	
ISSUE:	Bronze Standard	Approved? (Y/N):	Yes	RF DESIGN PHONE:	5104933024	RF PERF PHONE:	
REVISION:	Final	RF MANAGER:	John Benedetto	RF DESIGN EMAIL:	mh705r@att.com	RF PERF EMAIL:	
INITIATIVE PROJECT	9/8/2022: C-Band , DoD and AWS3 J(10 MHz) Band 66 SOW					ADDITIONAL WORKFLOW NOTIFICATIONS:	
						RFDS VERSION:	5.00
						UMTS FREQUENCY:	
						LTE FREQUENCY:	700,1900,AWS,WCS
						5G FREQUENCY:	850,1900,AWS,CBAND,DoD
						IPLAN JOB # 1:	ER_-RCTB-22-05540
						IPLAN JOB # 2:	ER_-RCTB-22-05539
						IPLAN JOB # 3:	ER_-RCTB-22-05541
						IPLAN JOB # 4:	
						IPLAN JOB # 5:	
						IPLAN JOB # 6:	
						IPLAN JOB # 7:	
						IPLAN JOB # 8:	
						IPLAN JOB # 9:	
						IPLAN JOB #10:	
						IPLAN JOB # 11:	
						IPLAN JOB # 12:	
						IPLAN JOB # 13:	
						IPLAN JOB # 14:	
						IPLAN JOB # 15:	
						IPLAN JOB # 16:	

RFDS PROGRAM TYPE:	2022 5G NR Radio		
RFDS TECHNOLOGY:	5G NR 1SR CBAND		
STATE/STATUS:	Final/Approved		
RFDS ID:	5426146		
Created By:	mh705r	Updated By:	mh705r
Created:	9/8/2022	Updated:	8/1/2023
Estimated SQIN:	17,114	Expiration:	
RER Initiative:		Calculation ID:	20230801141642707 4
PRD || SUB GRP #1	5G NR Radio || 5G NR 1SR CBAND		
PRD || SUB GRP #2	5G NR Radio || 5G NR 1SR CBAND		
PRD || SUB GRP #3	5G NR Radio || 5G NR 1SR		
PRD || SUB GRP #4			
PRD || SUB GRP #5			
PRD || SUB GRP #6			
PRD || SUB GRP #7			
PRD || SUB GRP #8			
PRD || SUB GRP #9			
PRD || SUB GRP #10			
PRD || SUB GRP #11			
PRD || SUB GRP #12			
PRD || SUB GRP #13			
PRD || SUB GRP #14			
PRD || SUB GRP #15			
PRD || SUB GRP #16			

Section 2 - LOCATION INFORMATION

USID:	157861	FA LOCATION CODE:	12685511	LOCATION NAME:	WESTON TALL PINES DRIVE	ORACLE PRJT # 1:	2051A175PW
REGION:	NORTHEAST	MARKET CLUSTER:	NEW ENGLAND	MARKET:	CONNECTICUT	ORACLE PRJT # 2:	2051A175PV
ADDRESS:	5 TALL PINES DRIVE	CITY:	WESTON	STATE:	CT	ORACLE PRJT # 3:	2051A175PX
ZIP CODE:	06883	COUNTY:	FAIRFIELD	LONG (DEC. DEG.):	-73.3480337	ORACLE PRJT # 4:	
LATITUDE (D-M-S):	41d 11m 40.64532s	LONGITUDE (D-M-S):	-73d -20m -52.92132s	LAT (DEC. DEG.):	41.1946237	ORACLE PRJT # 5:	
DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:	FROM ROCKY HILL TAKE I-91 SOUTH. TAKE EXIT 17 TO MERGE ONTO CT-15 S/WILBUR CROSS PARKWAY. TAKE EXIT 42 FOR CT-57 TOWARD WESTPORT/WESTON. TURN LEFT ONTO CT-57 N/WESTON ROAD. IN .7 MILES TURN RIGHT ONTO LYONS PLAINS ROAD. CONTINUE ONTO LYONS PLAINS ROAD. TURN RIGHT ONTO WHITE BIRCH ROAD. GO PAST TALL PINES DRIVE TO ACCESS TRANSMISSION LINE EASEMENT FROM WHITE BIRCH ROAD TO BACK OF #5 TALL PINES DRIVE. EVERSOURCE TRANSMISSION TOWER.					ORACLE PRJT # 6:	
						ORACLE PRJT # 7:	
						ORACLE PRJT # 8:	
						ORACLE PRJT # 9:	
						ORACLE PRJT # 10:	
						ORACLE PRJT # 11:	
						ORACLE PRJT # 12:	
						ORACLE PRJT # 13:	
						ORACLE PRJT # 14:	
						ORACLE PRJT # 15:	
						ORACLE PRJT # 16:	
						BORDER CELL WITH CONTOUR COORD:	
						AM STUDY REQ'D (Y/N):	No
						FREQ COORD:	
						RF DISTRICT:	TBD
						RF ZONE:	TBD
						PARENT NAME(UMTS):	

PACE JOB #1:	MRCTB067553		
PACE JOB #2:	MRCTB067551		
PACE JOB #3:	MRCTB067558		
PACE JOB #4:			
PACE JOB #5:			
PACE JOB #6:			
PACE JOB #7:			
PACE JOB #8:			
PACE JOB #9:			
PACE JOB #10:			
PACE JOB #11:			
PACE JOB #12:			
PACE JOB #13:			
PACE JOB #14:			
PACE JOB #15:			
PACE JOB #16:			
SEARCH RING NAME:	FAIRFIELD WESTPORT		
SEARCH RING ID:	S1845		
BTA:		MSA / RSA:	
LAC(UMTS):			
RNC(UMTS):			
MME POOL ID(LTE):	FF01		

Section 3 - LICENSE COVERAGE/FILING INFORMATION

CGSA - NO FILING TRIGGERED (Yes/No):	No	CGSA LOSS:		PCS REDUCED - UPS ZIP:		CGSA CALL SIGNS:	
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?:	No	GROUND ELEVATION (ft):	205	STRUCTURE TYPE:	UTILITY	MARKET LOCATION 700 MHz Band:	
ADDITIONAL REGULATORY?:	Yes	HEIGHT OVERALL (ft):		FCC ASR NUMBER:	NR	MARKET LOCATION 850 MHz Band:	
SUB-LEASE RIGHTS?:	No	STRUCTURE HEIGHT (ft):	98.00			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				INTRADO		0		
SECTOR B				INTRADO		0		
SECTOR C				INTRADO		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				INTRADO		0		
SECTOR B				INTRADO		0		
SECTOR C				INTRADO		0		
SECTOR D								
SECTOR E								
SECTOR F								
OMNI								

Section 6/7 - BBU INFORMATION - existing

	BBU 1	BBU 2
BBU ID:	701648	810406
TECHNOLOGY:	LTE	5G
BBU NAME:	CTL01845	CTCN001845
BBU USID:	157861	157861
CELL ID / BCF:	CTL01845	CTCN001845
BTA/TID:	321L	321N
4-9 DIGIT SITE ID:	01845	14001845
COW OR TOY?:	No	No
CELL SITE TYPE:	SECTORIZED	SECTORIZED
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL
BTS LOCATION ID:	GROUND	GROUND
BASE STATION TYPE:	OVERLAY	BASE
EQUIPMENT NAME:	WESTON - TALL PINES DRIVE	WESTON - TALL PINES DRIVE
DISASTER PRIORITY:	0	0
EQUIPMENT VENDOR:	ERICSSON	ERICSSON
EQUIPMENT TYPE (Model):	BASEBAND 6630	BASEBAND 6630
BASEBAND CONFIGURATION :	1x6601 / 1x6630 / 1xXMU	xxxxx / 1x6630 / xxxxx + IDLe
MARKET STATE CODE:	CT	CTC
NODE B NUMBER:	1845	1845
SIDEHAUL SWITCH VENDOR:		
SIDEHAUL SWITCH MODEL:		
SIDEHAUL SWITCH NAME:		
SIDEHAUL SWITCH ADDITIONAL CARDS:		
UL-CoMP:		
CSS - CTS COMMON ID:	CTL01845	CTCN001845
CSS - SECONDARY FUNCTION ID:		

Section 6/7 - BBU INFORMATION - final

	BBU 1	BBU 2
BBU ID:	701648	810406
TECHNOLOGY:	LTE	LTE,5G
BBU NAME:	CTL01845	CTL00846R,CTCN001845
BBU USID:	157861	157861
CELL ID / BCF:	CTL01845	CTCN001845
BTA/TID:	321L	321N
4-9 DIGIT SITE ID:	01845	14001845
COW OR TOY?:	No	No
CELL SITE TYPE:	SECTORIZED	SECTORIZED
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL
BTS LOCATION ID:	GROUND	GROUND
BASE STATION TYPE:	BASE	OVERLAY
EQUIPMENT NAME:	WESTON - TALL PINES DRIVE	WESTON - TALL PINES DRIVE
DISASTER PRIORITY:	0	0
EQUIPMENT VENDOR:	ERICSSON	ERICSSON
EQUIPMENT TYPE (Model):	BASEBAND 6630	BASEBAND 6648
BASEBAND CONFIGURATION :	1x6601 / 1x6630 / 1xXMU	xxxxx / 1x6648 / xxxxx + IDLe
MARKET STATE CODE:	CT	CT,CTC
NODE B NUMBER:	1845	845,1845
SIDEHAUL SWITCH VENDOR:		
SIDEHAUL SWITCH MODEL:		
SIDEHAUL SWITCH NAME:		
SIDEHAUL SWITCH ADDITIONAL CARDS:		
UL-CoMP:		
CSS - CTS COMMON ID:	CTL01845	CTCN001845
CSS - SECONDARY FUNCTION ID:		

Section 7b - Radio INFORMATION - existing

Section 7b - Radio INFORMATION - final

Section 8 - RBS/SECTOR ASSOCIATION - existing

	BBU 1	BBU 2
CTS Common ID	CTL01845	CTCN001845
Soft Sector IDs	CTL01845_3A_1	CTCN001845_N005A_1
	CTL01845_3B_1	CTCN001845_N005B_1
	CTL01845_3C_1	CTCN001845_N005C_1
	CTL01845_7A_1	
	CTL01845_7A_3_F	
	CTL01845_7B_1	
	CTL01845_7B_3_F	
	CTL01845_7C_1	
	CTL01845_7C_3_F	
	CTL01845_9A_1	
	CTL01845_9A_2	
	CTL01845_9B_1	
	CTL01845_9B_2	
	CTL01845_9C_1	
	CTL01845_9C_2	

Section 8 - RBS/SECTOR ASSOCIATION - final

	BBU 1	BBU 2
CTS Common ID	CTL01845	CTL00845R,CTCN001845
Soft Sector IDs	CTL01845_3A_1	CTCN001845_N002A_1
	CTL01845_3B_1	CTCN001845_N002B_1
	CTL01845_3C_1	CTCN001845_N002C_1
	CTL01845_7A_1	CTCN001845_N005A_1
	CTL01845_7A_3_F	CTCN001845_N005B_1
	CTL01845_7B_1	CTCN001845_N005C_1
	CTL01845_7B_3_F	CTCN001845_N066A_1
	CTL01845_7C_1	CTCN001845_N066B_1
	CTL01845_7C_3_F	CTCN001845_N066C_1
		CTCN001845_N077A_1
		CTCN001845_N077A_2
		CTCN001845_N077B_1
		CTCN001845_N077B_2
		CTCN001845_N077C_1
		CTCN001845_N077C_2
		CTL00845_2A_2
		CTL00845_2B_2
		CTL00845_2C_2
		CTL00845_9A_1
		CTL00845_9A_2
		CTL00845_9B_1
		CTL00845_9B_2
		CTL00845_9C_1
		CTL00845_9C_2

Section 9 - SOFT SECTOR ID - existing

	LTE 1ST 700	LTE 1ST 1900	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 1900	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 3RD CBAND	5G 4TH CBAND
USEID (excluding Hard Sector)													
SECTOR A SOFT SECTOR ID	CTL01845_7A_1	CTL01845_9A_1	CTL01845_3A_1	CTL01845_7A_3_F	CTL01845_9A_2				CTCN001845_N005A_1				
SECTOR B	CTL01845_7B_1	CTL01845_9B_1	CTL01845_3B_1	CTL01845_7B_3_F	CTL01845_9B_2				CTCN001845_N005B_1				
SECTOR C	CTL01845_7C_1	CTL01845_9C_1	CTL01845_3C_1	CTL01845_7C_3_F	CTL01845_9C_2				CTCN001845_N005C_1				
SECTOR D													
SECTOR E													
SECTOR F													
OMNI													

Section 9 - SOFT SECTOR ID - final

	LTE 1ST 700	LTE 1ST 1900	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 1900	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 3RD CBAND	5G 4TH CBAND
USEID (excluding Hard Sector)													
SECTOR A SOFT SECTOR ID	CTL01845_7A_1		CTL01845_3A_1	CTL01845_7A_3_F		CTL00845_9A_2	CTL00845_2A_2	CTL00845_9A_1	CTCN001845_N005	CTCN001845_N002	CTCN001845_N066	CTCN001845_N077	CTCN001845_N077A_2
SECTOR B	CTL01845_7B_1		CTL01845_3B_1	CTL01845_7B_3_F		CTL00845_9B_2	CTL00845_2B_2	CTL00845_9B_1	CTCN001845_N005	CTCN001845_N002	CTCN001845_N066	CTCN001845_N077	CTCN001845_N077B_2
SECTOR C	CTL01845_7C_1		CTL01845_3C_1	CTL01845_7C_3_F		CTL00845_9C_2	CTL00845_2C_2	CTL00845_9C_1	CTCN001845_N005	CTCN001845_N002	CTCN001845_N066	CTCN001845_N077	CTCN001845_N077C_2
SECTOR D													
SECTOR E													
SECTOR F													
OMNI													

Section 9 - Cell Number - existing

	LTE 1ST 700	LTE 1ST 1900	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 1900	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 3RD CBAND	5G 4TH CBAND
USEID (excluding Hard Sector)													
SECTOR A CELL NUMBER	15	8	149	171	178				25				
SECTOR B	16	9	150	172	179				49				
SECTOR C	17	10	151	173	180				73				
SECTOR D													
SECTOR E													
SECTOR F													
OMNI													

Section 9 - Cell Number - final

	LTE 1ST 700	LTE 1ST 1900	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 1900	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 3RD CBAND	5G 4TH CBAND
USEID (excluding Hard Sector)													
SECTOR A CELL NUMBER	15		149	171		178	192	8	25	26	27	9999	9999
SECTOR B	16		150	172		179	193	9	49	50	51	9999	9999
SECTOR C	17		151	173		180	194	10	73	74	75	9999	9999
SECTOR D													
SECTOR E													
SECTOR F													
OMNI													

Section 10 - CID/SAC - existing

	LTE 1ST 700	LTE 1ST 1900	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 1900	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 3RD CBAND	5G 4TH CBAND
SECTOR A CID/SAC													
SECTOR B													
SECTOR C													
SECTOR D													
SECTOR E													
SECTOR F													
OMNI													

Section 10 - CID/SAC - final

	LTE 1ST 700	LTE 1ST 1900	LTE 1ST WCS	LTE 2ND 700	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 1900	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 3RD CBAND	5G 4TH CBAND
SECTOR A CID/SAC													
SECTOR B													
SECTOR C													
SECTOR D													
SECTOR E													
SECTOR F													
OMNI													

Section 11 - CURRENT RADIO COUNTS existing

Section 12 - CURRENT T1 COUNTS existing

	LTE 1ST Cabinet
# T1s	0
LINK PROFILE	
RF COMBINING	
FIBER or ETHERNET?	ETHERNET
Tx Board Model	
Tx Board QTY	
RAX/ECU Board Model	
RAX/ECU Board QTY	
BBU Board Model	
BBU Board QTY	
RRU - location	Top
FIBER JUMPER	FIBER
DC CABLE	DC
DC/Fiber Dem. Box	RAYCAP
Bundled Fiber Cable	YES
Bundled DC Cable	YES

Section 13 - NEW/PROPOSED RADIO COUNTS

Section 14 - NEW/PROPOSED T1 COUNTS

	LTE 1ST Cabinet
# T1s	0
LINK PROFILE	
RF COMBINING	
FIBER or ETHERNET?	ETHERNET
Tx Board Model	
Tx Board QTY	
RAX/ECU Board Model	
RAX/ECU Board QTY	
BBU Board Model	
BBU Board QTY	
RRU - location	Top
FIBER JUMPER	FIBER
DC CABLE	DC
DC/Fiber Dem. Box	RAYCAP
Bundled Fiber Cable	YES
Bundled DC Cable	YES

Section 15A - CURRENT TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	HPA65R-BU8A		HPA65R-BU8A		HPA65R-BU8A		HPA65R-BU8A							
ANTENNA VENDOR	CCI		CCI		CCI		CCI							
ANTENNA SIZE (H x W x D)	96X11.7X7.6		96X11.7X7.6		96X11.7X7.6		96X11.7X7.6							
ANTENNA WEIGHT	57		57		57		57							
AZIMUTH	30		30		30		30							
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	95		95		95		95							
ANTENNA TIP HEIGHT	99		99		99		99							
MECHANICAL DOWNTILT	0		0		0		0							
FEEDER AMOUNT	4		4		4		4							
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)		36		36		36		36						
Antenna RET Motor (QTY/MODEL)														
SURGE ARRESTOR (QTY/MODEL)	4	Polyphaser TSXDC-4310-FM	4	Polyphaser TSXDC-4310-FM	2	Polyphaser TSXDC-4310-FM	6	Polyphaser TSXDC-4310-FM						
DIPLEXER (QTY/MODEL)	2	DBC0055F1V51-1	4	DBC0055F1V51-1	2	DBC0055F1V51-1	4	DBC0055F1V51-1						
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)			1	CCU - Kathrein 860 10006	1	CCU - Kathrein 860 10006								
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	TMABPDB7823V G12A (Twin-LBP)	2	TMABPDB7823V G12A (Twin-LBP)	2	TMABPDB7823V G12A (Twin-LBP)	2	TMABPDB7823V G12A (Twin-LBP)						
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)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)	1	4478 B14					1	4449 B5/B12						
RRH - 850 band (QTY/MODEL)								with another band						
RRH - 1900 band (QTY/MODEL)							1	4415 B25						
RRH - AWS band (QTY/MODEL)														
RRH - WCS band (QTY/MODEL)			1	4415 B30										
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1														
Local Market Note 2														
Local Market Note 3														

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			CTL01845_7A_3_F	CTL01845_7A_3_F	TxRx/TxRx	LTE 700	BU8A_770MHz_02DT	15.1	30	2	BOTTOM	1-5/8" COAX	140	0			No					
ANTENNA POSITION 2	PORT 5			CTL01845_3A_1	CTL01845_3A_1	TxRx/TxRx	LTE WCS	BU8A_2355MHz_03DT	16.9	30	3	BOTTOM	1-5/8" COAX	140	0			No					
ANTENNA POSITION 3	PORT 1			CTCN001845_N005A_1	CTCN001845_N005A_1	TxRx/TxRx	5G 850	BU8A_850MHz_02DT	15.3	30	2	BOTTOM	1-5/8" COAX	140	0			No					
ANTENNA POSITION 4	PORT 1			CTL01845_7A_1	CTL01845_7A_1	TxRx/TxRx	LTE 700	BU8A_725MHz_02DT	14.9	30	2	BOTTOM	1-5/8" COAX	140	0			No					
	PORT 3			CTL01845_9A_2	CTL01845_9A_2	TxRx/TxRx	LTE 1900	BU8A_1930MHz_02DT	17.1	30	2	BOTTOM	1-5/8" COAX	140	0			No					

Section 15B - CURRENT TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	HPA65R-BU8A		HPA65R-BU8A		HPA65R-BU8A		HPA65R-BU8A							
ANTENNA VENDOR	CCI		CCI		CCI		CCI							
ANTENNA SIZE (H x W x D)	96X11.7X7.6		96X11.7X7.6		96X11.7X7.6		96X11.7X7.6							
ANTENNA WEIGHT	57		57		57		57							
AZIMUTH	150		150		150		150							
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	95		95		95		95							
ANTENNA TIP HEIGHT	99		99		99		99							
MECHANICAL DOWNTILT	0		0		0		0							
FEEDER AMOUNT	4		4		4		4							
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)		36		36		36		36						
Antenna RET Motor (QTY/MODEL)														
SURGE ARRESTOR (QTY/MODEL)	4	Polyphaser TSXDC-4310-FM	4	Polyphaser TSXDC-4310-FM	2	Polyphaser TSXDC-4310-FM	6	Polyphaser TSXDC-4310-FM						
DIPLEXER (QTY/MODEL)	2	DBC0055F1V51-1	4	DBC0055F1V51-1	2	DBC0055F1V51-1	4	DBC0055F1V51-1						
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	TMABPDB7823V G12A (Twin-LBP)	2	TMABPDB7823V G12A (Twin-LBP)	2	TMABPDB7823V G12A (Twin-LBP)	2	TMABPDB7823V G12A (Twin-LBP)						
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)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)	1	4478 B14					1	4449 B5/B12						
RRH - 850 band (QTY/MODEL)								with another band						
RRH - 1900 band (QTY/MODEL)							1	4415 B25						
RRH - AWS band (QTY/MODEL)														
RRH - WCS band (QTY/MODEL)			1	4415 B30										
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1														
Local Market Note 2														
Local Market Note 3														

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			CTL01845_7B_3_F	CTL01845_7B_3_F	TxRx/TxRx	LTE 700	BU8A_770MHz_02DT	15.1	150	2	BOTTOM	1-5/8" COAX	140	0			No					
ANTENNA POSITION 2	PORT 5			CTL01845_3B_1	CTL01845_3B_1	TxRx/TxRx	LTE WCS	BU8A_2355MHz_03DT	16.9	150	3	BOTTOM	1-5/8" COAX	140	0			No					
ANTENNA POSITION 3	PORT 1			CTCN001845_N005B_1	CTCN001845_N005B_1	TxRx/TxRx	5G 850	BU8A_850MHz_02DT	15.3	150	2	BOTTOM	1-5/8" COAX	140	0			No					
ANTENNA POSITION 4	PORT 1			CTL01845_7B_1	CTL01845_7B_1	TxRx/TxRx	LTE 700	BU8A_725MHz_02DT	14.9	150	2	BOTTOM	1-5/8" COAX	140	0			No					
	PORT 3			CTL01845_9B_2	CTL01845_9B_2	TxRx/TxRx	LTE 1900	BU8A_1930MHz_02DT	17.1	150	2	BOTTOM	1-5/8" COAX	140	0			No					

Section 15C - CURRENT TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	HPA65R-BU8A	HPA65R-BU8A	HPA65R-BU8A	HPA65R-BU8A			
ANTENNA VENDOR	CCI	CCI	CCI	CCI			
ANTENNA SIZE (H x W x D)	96X11.7X7.6	96X11.7X7.6	96X11.7X7.6	96X11.7X7.6			
ANTENNA WEIGHT	57	57	57	57			
AZIMUTH	270	270	270	270			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	95	95	95	95			
ANTENNA TIP HEIGHT	99	99	99	99			
MECHANICAL DOWNTILT	0	0	0	0			
FEEDER AMOUNT	4	4	4	4			
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)	36	36	36	36			
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)	4 Polyphaser TSXDC-4310-FM	4 Polyphaser TSXDC-4310-FM	2 Polyphaser TSXDC-4310-FM	6 Polyphaser TSXDC-4310-FM			
DIPLEXER (QTY/MODEL)	2 DBC0055F1V51-1	4 DBC0055F1V51-1	2 DBC0055F1V51-1	4 DBC0055F1V51-1			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	2 TMABPDB7823V G12A (Twin-LBP)	2 TMABPDB7823V G12A (Twin-LBP)	2 TMABPDB7823V G12A (Twin-LBP)	2 TMABPDB7823V G12A (Twin-LBP)			
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)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)	1 4478 B14			1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)				1 4415 B25			
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)		1 4415 B30					
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

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			CTL01845_7C_3_F	CTL01845_7C_3_F	TxRx/TxRx	LTE 700	BU8A_770MHz_02DT	15.1	270	2	BOTTOM	1-5/8" COAX	140	0			No					
ANTENNA POSITION 2	PORT 5			CTL01845_3C_1	CTL01845_3C_1	TxRx/TxRx	LTE WCS	BU8A_2355MHz_03DT	16.9	270	3	BOTTOM	1-5/8" COAX	140	0			No					
ANTENNA POSITION 3	PORT 1			CTCN001845_N005C_1	CTCN001845_N005C_1	TxRx/TxRx	5G 850	BU8A_850MHz_02DT	15.3	270	2	BOTTOM	1-5/8" COAX	140	0			No					
ANTENNA POSITION 4	PORT 1			CTL01845_7C_1	CTL01845_7C_1	TxRx/TxRx	LTE 700	BU8A_725MHz_02DT	14.9	270	2	BOTTOM	1-5/8" COAX	140	0			No					
	PORT 3			1,CTL01845_9C_2	1,CTL01845_9C_2	TxRx/TxRx	LTE 1900	BU8A_1930MHz_02DT	17.1	270	2	BOTTOM	1-5/8" COAX	140	0			No					

Section 16A - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	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		TPA65R-BU8DA-K	AIR6449 B77D+AIR6419 B77G STACKED	OPA65R-BU8DA			
ANTENNA VENDOR		CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		96X20.7X7.7	30.4X15.9X8.1	96X21X7.8			
ANTENNA WEIGHT		87.1	81.6	76.5			
AZIMUTH		30	30	30			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		120	120	120			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT			Fiber				
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)			Built In				
SURGE ARRESTOR (QTY/MODEL)		4 TSXDC-4310FM					
DIPLEXER (QTY/MODEL)		4 CBC61923T-DS		2 DBC0115F1V91-2			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)		2 TMA2124F03V5-2D		2 TMAT1923B68-31-43			
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)			1 DC6-48-60-18				
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)		1 4426 B66					
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)			1 integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Follow Antennas/RRHs positions as per PDs. -Replace Antennas.						
Local Market Note 2							
Local Market Note 3	1x6630+IDLe+1x6651+Xcede Cable.						

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)	RX/AIT 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 1			CTL01845_7A_3_F	CTL01845_7A_3_F		LTE 700	BU8A_770MHz_02DT	15.1	30	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 3			CTL00845_9A_1	CTL00845_9A_1		LTE 1900	BU8A_1930MHz_02DT	17.1	30	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 4			CTL00845_2A_2	CTL00845_2A_2		LTE AWS	BU8A_1930MHz_02DT	17.1	30	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 7			CTCN001845_N066A_1	CTCN001845_N066A_1		5G AWS	BU8A_1930MHz_02DT	17.1	30	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 8			CTCN001845_N002A_1	CTCN001845_N002A_1		5G 1900	BU8A_1930MHz_02DT	17.1	30	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 11			CTL00845_9A_2	CTL00845_9A_2		LTE 1900	BU8A_1930MHz_02DT	17.1	30	2	BOTTOM	1-5/8" COAX	140	0								
ANTENNA POSITION 3	PORT 3			CTCN031845_N077A_1	CTCN031845_N077A_1		5G CBAND			30	0	Integrated	Fiber	0									
	PORT 4			CTCN031845_N077A_2	CTCN031845_N077A_2		5G CBAND			30	0	Integrated	Fiber	0									
ANTENNA POSITION 4	PORT 1			CTL01845_7A_1	CTL01845_7A_1		LTE 700	BU8A_725MHz_02DT	14.9	30	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 2			CTCN001845_N005A_1	CTCN001845_N005A_1		5G 850	BU8A_850MHz_02DT	15.3	30	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 3			CTL01845_3A_1	CTL01845_3A_1		LTE WCS	BU8A_2355MHz_03DT	16.9	30	3	BOTTOM	1-5/8" COAX	140	0								

Section 16B - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	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		TPA65R-BU8DA-K	AIR6449 B77D+AIR6419 B77G STACKED	OPA65R-BU8DA			
ANTENNA VENDOR		CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		96X20.7X7.7	30.4X15.9X8.1	96X21X7.8			
ANTENNA WEIGHT		87.1	81.6	76.5			
AZIMUTH		150	150	150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		120	120	120			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT			Fiber				
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)			Built In				
SURGE ARRESTOR (QTY/MODEL)		4 TSXDC-4310FM					
DIPLEXER (QTY/MODEL)		4 CBC61923T-DS		2 DBC0115F1V91-2			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)		2 TMA2124F03V5-2D		2 TMAT1923B68-31-43			
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)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)		1 4426 B66					
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)			1 integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Follow Antennas/RRHs positions as per PDs. -Replace Antennas.						
Local Market Note 2							
Local Market Note 3	1x6630+IDLe+1x6651+Xcede Cable.						

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)	RX/AIT 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 1			CTL01845_7B_3_F	CTL01845_7B_3_F		LTE 700	BU8A_770MHz_02DT	15.1	150	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 3			CTL00845_9B_1	CTL00845_9B_1		LTE 1900	BU8A_1930MHz_02DT	17.1	150	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 4			CTL00845_2B_2	CTL00845_2B_2		LTE AWS	BU8A_1930MHz_02DT	17.1	150	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 7			CTCN001845_N066B_1	CTCN001845_N066B_1		5G AWS	BU8A_1930MHz_02DT	17.1	150	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 8			CTCN001845_N002B_1	CTCN001845_N002B_1		5G 1900	BU8A_1930MHz_02DT	17.1	150	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 11			CTL00845_9B_2	CTL00845_9B_2		LTE 1900	BU8A_1930MHz_02DT	17.1	150	2	BOTTOM	1-5/8" COAX	140	0								
ANTENNA POSITION 3	PORT 3			CTCN031845_N077B_1	CTCN031845_N077B_1		5G CBAND			150	0	Integrated	Fiber	0									
	PORT 4			CTCN031845_N077B_2	CTCN031845_N077B_2		5G CBAND			150	0	Integrated	Fiber	0									
ANTENNA POSITION 4	PORT 1			CTL01845_7B_1	CTL01845_7B_1		LTE 700	BU8A_725MHz_02DT	14.9	150	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 2			CTCN001845_N005B_1	CTCN001845_N005B_1		5G 850	BU8A_850MHz_02DT	15.3	150	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 3			CTL01845_3B_1	CTL01845_3B_1		LTE WCS	BU8A_2355MHz_03DT	16.9	150	3	BOTTOM	1-5/8" COAX	140	0								

Section 16C - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	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		TPA65R-BU8DA-K	AIR6449 B77D+AIR6419 B77G STACKED	OPA65R-BU8DA			
ANTENNA VENDOR		CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		96X20.7X7.7	30.4X15.9X8.1	96X21X7.8			
ANTENNA WEIGHT		87.1	81.6	76.5			
AZIMUTH		270	270	270			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		120	120	120			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT			Fiber				
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)			Built In				
SURGE ARRESTOR (QTY/MODEL)		4 TSXDC-4310FM					
DIPLEXER (QTY/MODEL)		4 CBC61923T-DS		2 DBC0115F1V91-2			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)		2 TMA2124F03V5-2D		2 TMAT1923B68-31-43			
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)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)		1 4426 B66					
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)			1 integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Follow Antennas/RRHs positions as per PDs. -Replace Antennas.						
Local Market Note 2							
Local Market Note 3	1x6630+IDLe+1x6651+Xcede Cable.						

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)	RX/AIT 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 1			CTL01845_7C_3_F	CTL01845_7C_3_F		LTE 700	BU8A_770MHz_02DT	15.1	270	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 3			CTL00845_9C_1	CTL00845_9C_1		LTE 1900	BU8A_1930MHz_02DT	17.1	270	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 4			CTL00845_2C_2	CTL00845_2C_2		LTE AWS	BU8A_1930MHz_02DT	17.1	270	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 7			CTCN001845_N066C_1	CTCN001845_N066C_1		5G AWS	BU8A_1930MHz_02DT	17.1	270	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 8			CTCN001845_N002C_1	CTCN001845_N002C_1		5G 1900	BU8A_1930MHz_02DT	17.1	270	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 11			CTL00845_9C_2	CTL00845_9C_2		LTE 1900	BU8A_1930MHz_02DT	17.1	270	2	BOTTOM	1-5/8" COAX	140	0								
ANTENNA POSITION 3	PORT 3			CTCN031845_N077C_1	CTCN031845_N077C_1		5G CBAND			270	0	Integrated	Fiber	0									
	PORT 4			CTCN031845_N077C_2	CTCN031845_N077C_2		5G CBAND			270	0	Integrated	Fiber	0									
ANTENNA POSITION 4	PORT 1			CTL01845_7C_1	CTL01845_7C_1		LTE 700	BU8A_725MHz_02DT	14.9	270	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 2			CTCN001845_N005C_1	CTCN001845_N005C_1		5G 850	BU8A_850MHz_02DT	15.3	270	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 3			CTL01845_3C_1	CTL01845_3C_1		LTE WCS	BU8A_2355MHz_03DT	16.9	270	3	BOTTOM	1-5/8" COAX	140	0								

Section 16.5A - SCOPING TOWER CONFIGURATION - SECTOR A (OR OMNI)

Section 17A - FINAL TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		TPA65R-BU8DA-K	AIR6449 B77D+AIR6419 B77G STACKED	OPA65R-BU8DA			
ANTENNA VENDOR		CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		96X20.7X7.7	30.4X15.9X8.1	96X21X7.8			
ANTENNA WEIGHT		87.1	81.6	76.5			
AZIMUTH		30	30	30			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		120	120	120			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT		4	Fiber	4			
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)			Built In				
SURGE ARRESTOR (QTY/MODEL)		12 TSXDC-4310FM		8 TSXDC-4310FM			
DIPLEXER (QTY/MODEL)		4 CBC61923T-DS		2 DBC0115F1V91-2			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)		2 TMA2124F03V5-2D		2 TMAT1923B68-31-43			
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)			1 DC6-48-60-18				
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4478 B14		1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)		1 4415 B25					
RRH - AWS band (QTY/MODEL)		1 4426 B66					
RRH - WCS band (QTY/MODEL)				1 4415 B30			
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)			1 integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Follow Antennas/RRHs positions as per PDs. -Replace Antennas.						
Local Market Note 2							
Local Market Note 3	1x6630+IDLe+1x6651+Xcede Cable.						

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)	RX/AIT 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 1	157861.A.700.4 G.5		CTL01845_7A_3_F	CTL01845_7A_3_F		LTE 700	BU8A_770MHz_02DT	15.1	30	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 2	G.tmp5, 157861.A.1900.4		CTL00845_9A_1	CTL00845_9A_1		LTE 1900	BU8A_1930MHz_02DT	17.1	30	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 4	157861.A.AWS.4 G.tmp4		CTL00845_2A_2	CTL00845_2A_2		LTE AWS	BU8A_1930MHz_02DT	17.1	30	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 7	157861.A.AWS.5 G.tmp1		CTCN001845_N066A_1	CTCN001845_N066A_1		5G AWS	BU8A_1930MHz_02DT	17.1	30	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 8	157861.A.1900.5 G.tmp1		CTCN001845_N002A_1	CTCN001845_N002A_1		5G 1900	BU8A_1930MHz_02DT	17.1	30	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 11	G.tmp5, 157861.A.1900.4		CTL00845_9A_2	CTL00845_9A_2		LTE 1900	BU8A_1930MHz_02DT	17.1	30	2	BOTTOM	1-5/8" COAX	140	0								
ANTENNA POSITION 3	PORT 3	157861.A.CBAND.5G.tmp3		CTCN001845_N077A_1	CTCN001845_N077A_1		5G CBAND			30	0	Integrated	Fiber	0									
	PORT 4	157861.A.CBAND.5G.tmp4		CTCN001845_N077A_2	CTCN001845_N077A_2		5G CBAND			30	0	Integrated	Fiber	0									
ANTENNA POSITION 4	PORT 1	157861.A.700.4 G.1		CTL01845_7A_1	CTL01845_7A_1		LTE 700	BU8A_725MHz_02DT	14.9	30	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 2	157861.A.850.5 G.1		CTCN001845_N005A_1	CTCN001845_N005A_1		5G 850	BU8A_850MHz_02DT	15.3	30	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 3	157861.A.WCS.4 G.1		CTL01845_3A_1	CTL01845_3A_1		LTE WCS	BU8A_2355MHz_03DT	16.9	30	3	BOTTOM	1-5/8" COAX	140	0								

Section 17B - FINAL TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		TPA65R-BU8DA-K	AIR6449 B77D+AIR6419 B77G STACKED	OPA65R-BU8DA			
ANTENNA VENDOR		CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		96X20.7X7.7	30.4X15.9X8.1	96X21X7.8			
ANTENNA WEIGHT		87.1	81.6	76.5			
AZIMUTH		150	150	150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		120	120	120			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT		4	Fiber	4			
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)			Built In				
SURGE ARRESTOR (QTY/MODEL)		12 TSXDC-4310FM		8 TSXDC-4310FM			
DIPLEXER (QTY/MODEL)		4 CBC61923T-DS		2 DBC0115F1V91-2			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)		2 TMA2124F03V5-2D		2 TMAT1923B68-31-43			
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)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4478 B14		1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)		1 4415 B25					
RRH - AWS band (QTY/MODEL)		1 4426 B66					
RRH - WCS band (QTY/MODEL)				1 4415 B30			
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)			1 integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Follow Antennas/RRHs positions as per PDs. -Replace Antennas.						
Local Market Note 2							
Local Market Note 3	1x6630+IDLe+1x6651+Xcede Cable.						

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)	RX/AIT 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 1	157861.B.700.4 G.5		CTL01845_7B_3_F	CTL01845_7B_3_F		LTE 700	BU8A_770MHz_02DT	15.1	150	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 3	G.tmp5, 157861.B.1900.4		CTL00845_9B_1	CTL00845_9B_1		LTE 1900	BU8A_1930MHz_02DT	17.1	150	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 4	157861.B.AWS.4 G.tmp4		CTL00845_2B_2	CTL00845_2B_2		LTE AWS	BU8A_1930MHz_02DT	17.1	150	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 7	157861.B.AWS.5 G.tmp1		CTCN001845_N_066B_1	CTCN001845_N_066B_1		5G AWS	BU8A_1930MHz_02DT	17.1	150	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 8	157861.B.1900.5 G.tmp1		CTCN001845_N_002B_1	CTCN001845_N_002B_1		5G 1900	BU8A_1930MHz_02DT	17.1	150	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 11	G.tmp5, 157861.B.1900.4		CTL00845_9B_2	CTL00845_9B_2		LTE 1900	BU8A_1930MHz_02DT	17.1	150	2	BOTTOM	1-5/8" COAX	140	0								
ANTENNA POSITION 3	PORT 3	157861.B.CBAND.5G.tmp3		CTCN001845_N_077B_1	CTCN001845_N_077B_1		5G CBAND			150	0	Integrated	Fiber	0									
	PORT 4	157861.B.CBAND.5G.tmp4		CTCN001845_N_077B_2	CTCN001845_N_077B_2		5G CBAND			150	0	Integrated	Fiber	0									
ANTENNA POSITION 4	PORT 1	157861.B.700.4 G.1		CTL01845_7B_1	CTL01845_7B_1		LTE 700	BU8A_725MHz_02DT	14.9	150	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 2	157861.B.850.5 G.1		CTCN001845_N_005B_1	CTCN001845_N_005B_1		5G 850	BU8A_850MHz_02DT	15.3	150	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 3	157861.B.WCS.4 G.1		CTL01845_3B_1	CTL01845_3B_1		LTE WCS	BU8A_2355MHz_03DT	16.9	150	3	BOTTOM	1-5/8" COAX	140	0								

Section 17C - FINAL TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		TPA65R-BU8DA-K	AIR6449 B77D+AIR6419 B77G STACKED	OPA65R-BU8DA			
ANTENNA VENDOR		CCI	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		96X20.7X7.7	30.4X15.9X8.1	96X21X7.8			
ANTENNA WEIGHT		87.1	81.6	76.5			
AZIMUTH		270	270	270			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		120	120	120			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT		4	Fiber	4			
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)			Built In				
SURGE ARRESTOR (QTY/MODEL)		12 TSXDC-4310FM		8 TSXDC-4310FM			
DIPLEXER (QTY/MODEL)		4 CBC61923T-DS		2 DBC0115F1V91-2			
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)		2 TMA2124F03V5-2D		2 TMAT1923B68-31-43			
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)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4478 B14		1 4449 B5/B12			
RRH - 850 band (QTY/MODEL)				with another band			
RRH - 1900 band (QTY/MODEL)		1 4415 B25					
RRH - AWS band (QTY/MODEL)		1 4426 B66					
RRH - WCS band (QTY/MODEL)				1 4415 B30			
Additional RRH #1 - any band (QTY/MODEL)			1 integrated within: AIR6449 B77D				
Additional RRH #2 - any band (QTY/MODEL)			1 integrated within: AIR6419 B77G				
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	-Follow Antennas/RRHs positions as per PDs. -Replace Antennas.						
Local Market Note 2							
Local Market Note 3	1x6630+IDLe+1x6651+Xcede Cable.						

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)	RX/AIT 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 1	157861.C.700.4 G.5		CTL01845_7C_3_F	CTL01845_7C_3_F		LTE 700	BU8A_770MHz_02DT	15.1	270	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 3	4G.tmp5, 157861.C.1900.		CTL00845_9C_1	CTL00845_9C_1		LTE 1900	BU8A_1930MHz_02DT	17.1	270	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 4	157861.C.AWS.4 G.tmp4		CTL00845_2C_2	CTL00845_2C_2		LTE AWS	BU8A_1930MHz_02DT	17.1	270	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 7	157861.C.AWS.5 G.tmp1		CTCN001845_N066C_1	CTCN001845_N066C_1		5G AWS	BU8A_1930MHz_02DT	17.1	270	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 8	157861.C.1900. 5G.tmp1		CTCN001845_N002C_1	CTCN001845_N002C_1		5G 1900	BU8A_1930MHz_02DT	17.1	270	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 11	4G.tmp5, 157861.C.1900.		CTL00845_9C_2	CTL00845_9C_2		LTE 1900	BU8A_1930MHz_02DT	17.1	270	2	BOTTOM	1-5/8" COAX	140	0								
ANTENNA POSITION 3	PORT 3	157861.C.CBAN D.5G.tmp3		CTCN001845_N077C_1	CTCN001845_N077C_1		5G CBAND			270	0	Integrated	Fiber	0									
	PORT 4	157861.C.CBAN D.5G.tmp4		CTCN001845_N077C_2	CTCN001845_N077C_2		5G CBAND			270	0	Integrated	Fiber	0									
ANTENNA POSITION 4	PORT 1	157861.C.700.4 G.1		CTL01845_7C_1	CTL01845_7C_1		LTE 700	BU8A_725MHz_02DT	14.9	270	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 2	157861.C.850.5 G.1		CTCN001845_N005C_1	CTCN001845_N005C_1		5G 850	BU8A_850MHz_02DT	15.3	270	2	BOTTOM	1-5/8" COAX	140	0								
	PORT 3	157861.C.WCS. 4G.1		CTL01845_3C_1	CTL01845_3C_1		LTE WCS	BU8A_2355MHz_03DT	16.9	270	3	BOTTOM	1-5/8" COAX	140	0								

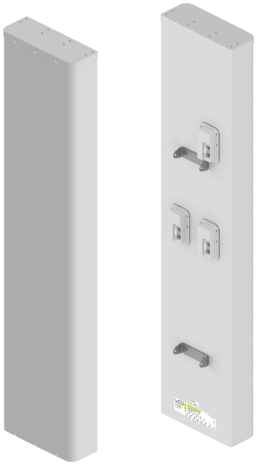
Antennas

MultiPort Series

DATA SHEET

Multi-Band Twelve-Port Antenna

TPA65R-BU8D



- Eight foot (2.4 m) multiband, twelve port antenna with a 65° azimuth beamwidth covering 698-896 MHz and 1695-2400 MHz frequencies
- Eight high band ports covering 1695-2400 MHz and four low band ports covering 698-896 MHz in a single antenna enclosure
- Innovative Low and High Band Array configuration allows for 4T4R (4x4 MIMO) on Low Band and Dual 4T4R (4x4 MIMO) High Band Arrays, using full length arrays (non stacked), all in under a 20.7" (525 mm) width enclosure, an Industry First
- Full Spectrum Compliance for WCS and AWS-3 frequencies and Band 14 Operations
- Array configuration allows for 4T4R (4X4 MIMO) on Low Band, essential for Band 14 Operations
- LTE Optimized FBR and SPR performance, providing for an efficient use of valuable radio capacity
- LTE Optimized Boresight and Sector XPD and USL performance, essential for LTE Performance
- Exceeds minimum PIM performance requirements
- Equipped with new 4.3-10 connector, which is 40% smaller than traditional 7/16 DIN connector
- Equipped with 3 field replaceable, integrated AISG 2.0 compliant Remote Electrical Tilt (RET) Controllers (Type 1 External)
- Ordering options for External RET Controllers (Type 1) or Internally Integraged RET Controllers (Type 17)

Overview

The CCI 12-Port multiband array is a twelve port antenna, with eight wide band ports covering 1695-2400 MHz and four low band ports covering 698-896 MHz. The antenna provides the capability to deploy Dual 4x4 Multiple-input Multiple-output (MIMO) in the high band and 4X4 Multiple-input Multiple-output (MIMO) across low band ports. The CCI 12-Port allows independent tilt control between the low band ports and high band ports and independent tilt control between left and right antenna arrays.

In this three RET configuration, the 1st RET is dedicated for the four Low Band ports. The 2nd RET is dedicated for the four Left High Band ports and the 3th RET is dedicated for the four Right High Band ports. This RET arrangement allows for complete flexibility in coverage control between left and right antenna arrays.

CCI antennas are designed and produced to ISO 9001 certification standards for reliability and quality in our state-of-the-art manufacturing facilities.

Applications

- Dual 4x4 MIMO for the High Band and 4X4 MIMO Low Band ports
- Ready for Network Standardization on 4.3-10 DIN connectors
- With CCI's multiband antennas, wireless providers can connect multiple platforms to a single antenna, reducing tower load, lease expense, deployment time and installation costs

SPECIFICATIONS

Multi-Band Twelve-Port Antenna

TPA65R-BU8D

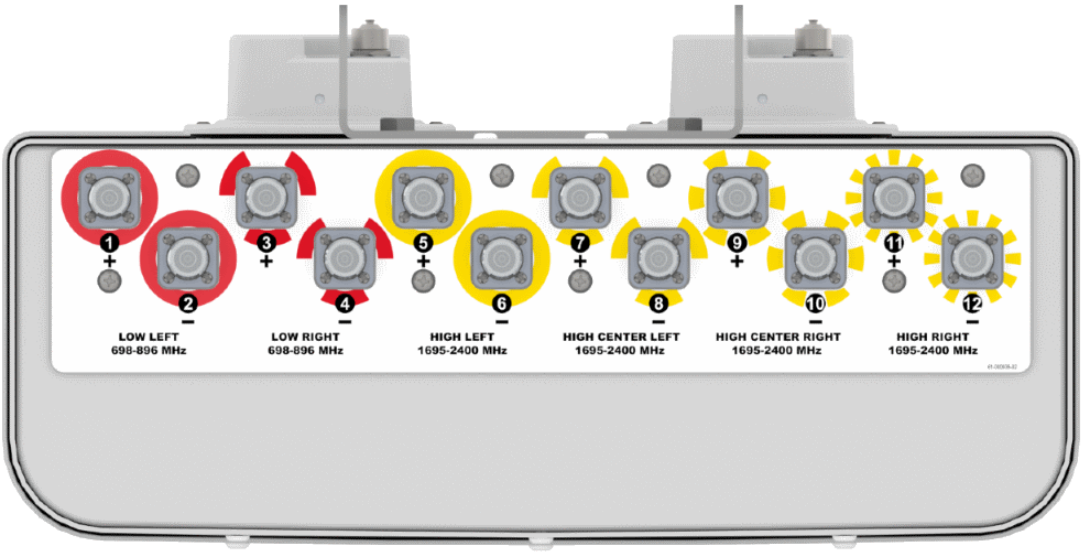
Mechanical

Dimensions (LxWxD)	96.0x20.7x7.7 in (2438x525x197 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	457 lbs (2033 N) @ 100 mph (161 kph)
Side Wind Load	209 lbs (929 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	17.9 ft^2 (1.7 m^2)
Weight *	87.1 lbs (39.5 kg)
Connector	12 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)
Package Dimensions (LxWxD)	104.3x28.7x16.9 in (2650x730x430 mm)
Package Weight	145 lbs (65.8 kg)

** Weight excludes mounting kit*

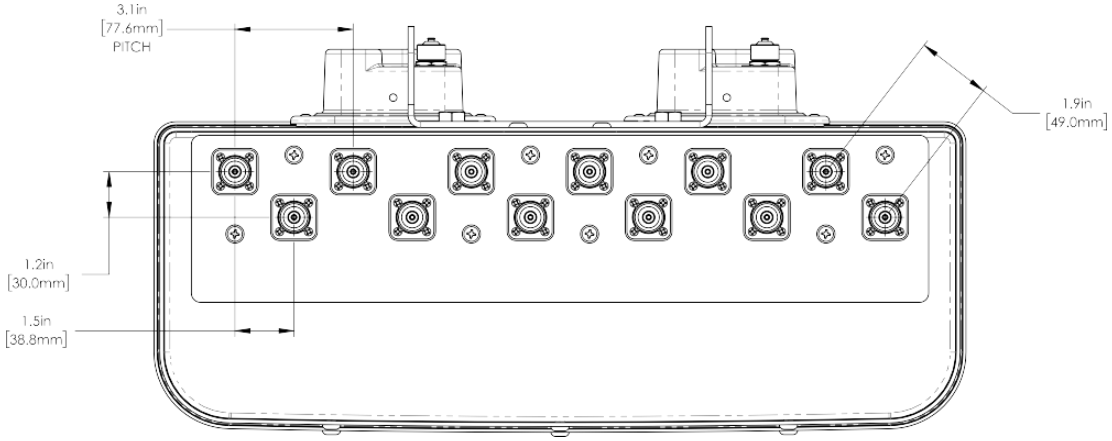
Bottom View

TPA65R-BU8DA



Connector Spacing

TPA65R-BU8DA



Antennas

MultiPort Series

DATA SHEET

Multi-Band Eight-Port Antenna

OPA65R-BU8D

- Eight foot (2.4 m) multiband, eight port antenna with a 65° azimuth beamwidth covering 698-896 MHz and 1695-2400 MHz frequencies
- Four high band ports covering 1695-2400 MHz and four low band ports covering 698-896 MHz in a single antenna enclosure
- Innovative Low and High Band Array configuration allows for 4T4R (4x4 MIMO) on Low Band and High Band Arrays, using full length arrays (non stacked), all in a 21.0" (534 mm) width enclosure, an Industry First
- Full Spectrum Compliance for WCS and AWS-3 frequencies and Band 14 Operations
- Array configuration allows for 4T4R (4X4 MIMO) on Low Band, essential for Band 14 Operations
- LTE Optimized FBR and SPR performance, providing for an efficient use of valuable radio capacity
- LTE Optimized Boresight and Sector XPD and USL performance, essential for LTE Performance
- Exceeds minimum PIM performance requirements
- Equipped with new 4.3-10 connector, which is 40% smaller than traditional 7/16 DIN connector
- Ordering options for External RET Controllers (Type 1) or Internally Integrated RET Controllers (Type 17)

Overview

The CCI Multi-Port multiband array is a eight port antenna, with four wide band ports covering 1695-2400 MHz and four low band ports covering 698-896 MHz. The antenna provides the capability to deploy 4x4 Multiple-input Multiple-output (MIMO) in the high band and 4X4 Multiple-input Multiple-output (MIMO) across low band ports. The CCI 8-Port allows independent tilt control between the low band ports and high band ports.

CCI antennas are designed and produced to ISO 9001 certification standards for reliability and quality in our state-of-the-art manufacturing facilities.

Applications

- 4x4 MIMO for the High Band and 4X4 MIMO Low Band ports
- Ready for Network Standardization on 4.3-10 DIN connectors
- With CCI's multiband antennas, wireless providers can connect multiple platforms to a single antenna, reducing tower load, lease expense, deployment time and installation costs

SPECIFICATIONS

Multi-Band Eight-Port Antenna

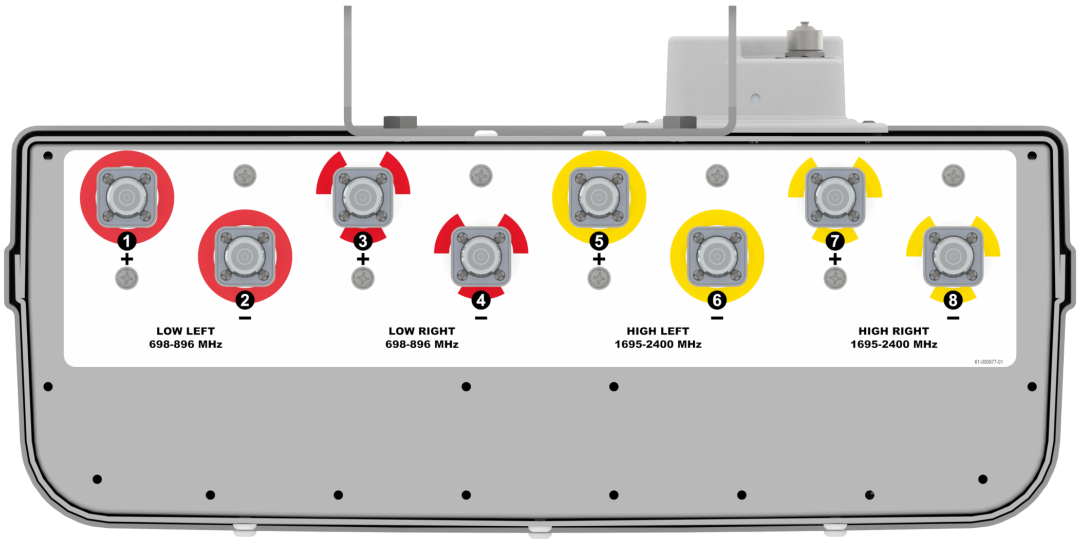
OPA65R-BU8D

Mechanical

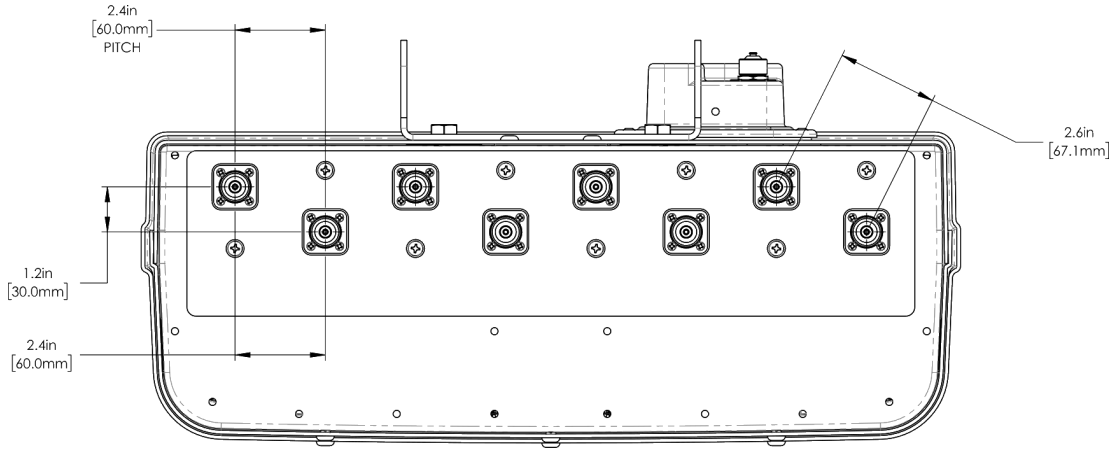
Dimensions (LxWxD)	96.0x21.0x7.8 in (2438x534x198 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	463 lbs (2061 N) @ 100 mph (161 kph)
Side Wind Load	210 lbs (933 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	18.1 ft^2 (1.7 m^2)
Weight *	76.5 lbs (34.7 kg)
RET Weight	3.3 lbs (1.5 kg)
Connector	8 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

** Weight excludes mounting and RET*

Bottom View

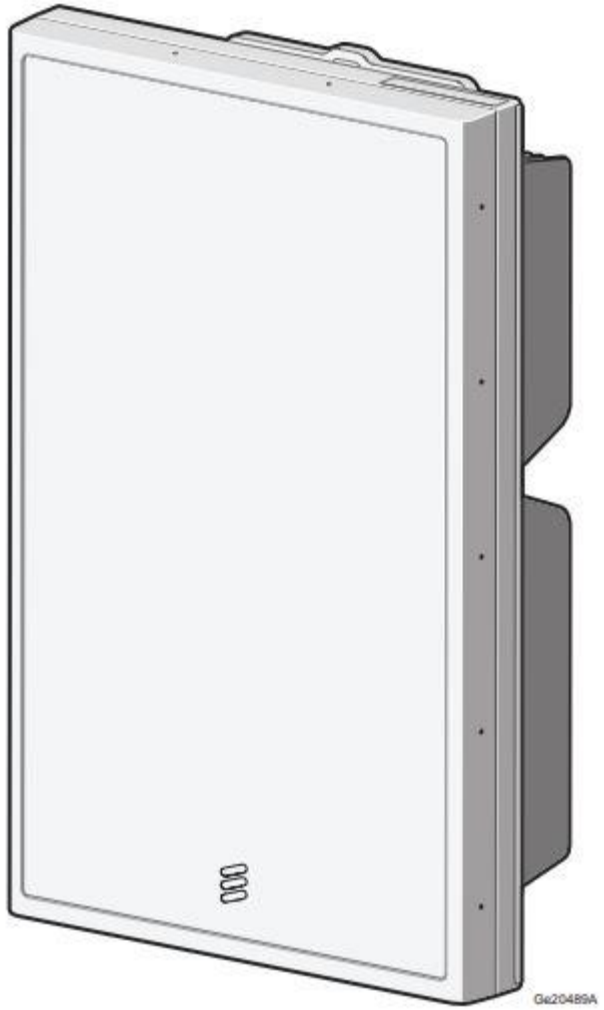


Connector Spacing



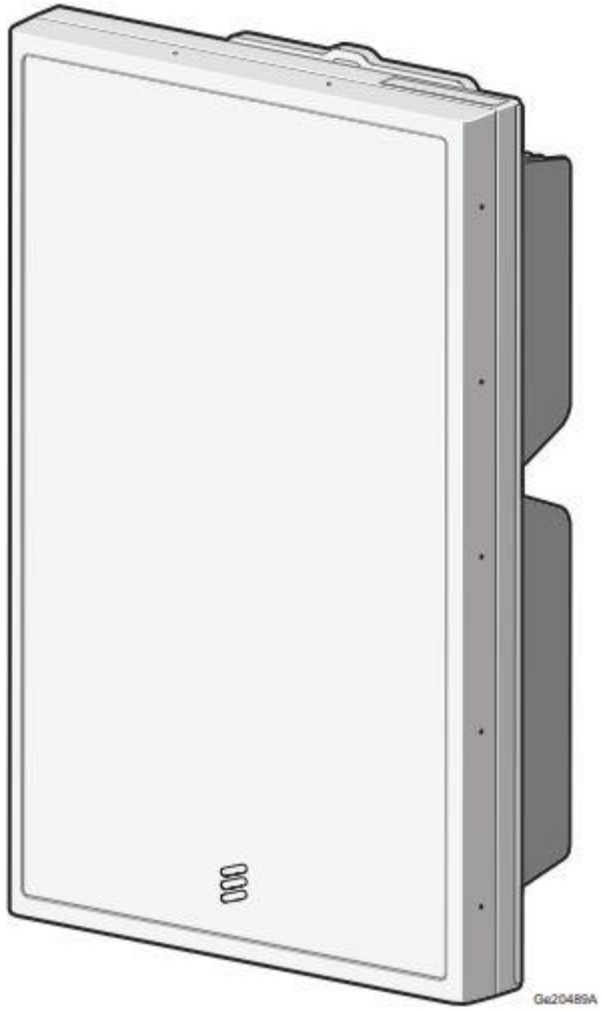
ERICSSON AIR 6419 B77G

- ERICSSON AIR 6419 has a total of 2 ECPRI connections @ 25.8 Gbps, 1 DC Power cable connection
- Operates over B77G DOD band (3.4-3.6 GHz)
- Breaker size = 45A DC, DC Power Consumption = 1280W (for dimensioning)
- Dimensions
  - Height: 31.1” (790 mm)
  - Width: 16.1” (408 mm)
  - Depth: 7.3” (186 mm)
- Weight, excl. mounting hardware = 44 lbs (20 kg)
- Weight with Mounting Hardware = 55.4 lbs (25.2 kg)
- Max Frontal Wind Load @ 42m/s = 454 N
- Horizontal Separation Required between AIR 6419 = 100mm
- Minimum Vertical Space Required below/above AIR 6419 = 300mm
- Minimum Height Above Users = 5m
- Outdoor Installation locations to avoid:
  - Hot microclimates caused by, for example, heat radiated or reflected from dark or metallic walls or floors
  - Chimney mouths or ventilation system outlets
  - In front of Large glass surfaces or concrete surfaces
- Avoid radio interference by keeping the area directly in front of the antenna clear of metal surfaces such as railing, ladders or chains or equipment generating electromagnetic fields, for example, electric motors in air conditioners or diesel generators in front of antenna
- Do not use metallic paint to cover the AIR 6419 If painting is required. Do not paint underside of AIR 6419.



ERICSSON AIR 6449 B77

- ERICSSON AIR 6449 has a total of 4 ECPRI connections @ 25 Gbps
- Operates over B77 band (3.3-4.2 GHz)
- Breaker size = 50A DC, DC Power Consumption = 1280W (for dimensioning)
- Dimensions
  - Height: 30.6” (778 mm)
  - Width: 15.9” (403 mm)
  - Depth: 10.6” (268 mm)
- Weight, excl. mounting hardware = 82.5 lbs (37.5 kg)
- Weight with Mounting Hardware = 95.5 lbs (43.4 kg)
- Max Frontal Wind Load @ 42m/s = 478 N
- Horizontal Separation Required between AIR 6449 = 100mm
- Minimum Vertical Space Required below AIR 6449 = 300mm
- Minimum Height Above Users = 5m
- Outdoor Installation locations to avoid:
  - Hot microclimates caused by, for example, heat radiated or reflected from dark or metallic walls or floors
  - Chimney mouths or ventilation system outlets
  - In front of Large glass surfaces or concrete surfaces
- Avoid radio interference by keeping the area directly in front of the antenna clear of metal surfaces such as railing, ladders or chains or equipment generating electromagnetic fields, for example, electric motors in air conditioners or diesel generators in front of antenna
- Do not use metallic paint to cover the AIR 6449 If painting is required. Do not paint underside of AIR 6449.



TMAT192123B68-31 | E14R00P33

Tower Mounted Amplifier,Twin Configuration PCS/AWS 1–4 WCS, 617–894 MHz bypass 4.3-10

- New Triple-band TMA for PCS, AWS 1-4 and WCS in a compact twin form factor
- Low frequency bypass of 617-894 MHz covers Band 14 public safety operating frequencies
- Significantly reduces complexity of tower top architectures
- Also available in a quad configuration to support 4 x 4 requirements
- New 4.3-10 connectors for improved PIM performance and size reduction
- Support DC/AISG antenna Auto-forward

Product Classification

Product Type	1-BTS:3-ANT (Triplex) | Tower mounted amplifier

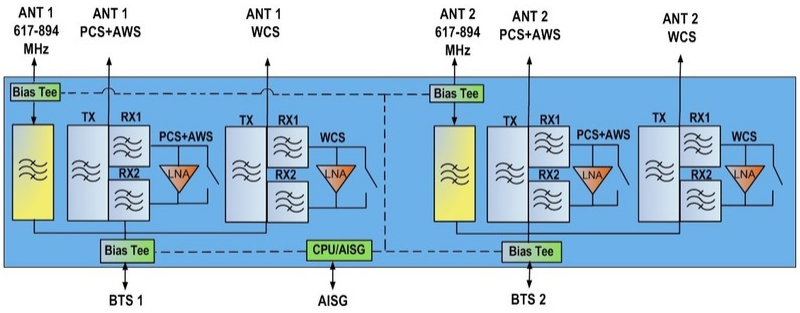
General Specifications

Color	Gray
Modularity	2-Twin
Mounting	Pole | Wall
Mounting Pipe Hardware	Band clamps (2)
RF Connector Interface	4.3-10 Female

Dimensions

Height	238 mm | 9.37 in
Width	283 mm | 11.142 in
Depth	97 mm | 3.819 in
Ground Screw Diameter	6 mm | 0.236 in
Mounting Pipe Diameter Range	40–160 mm

Block Diagram



Material Specifications

Finish	Painted

Environmental Specifications

Operating Temperature	-40 °C to +65 °C (-40 °F to +149 °F)
Relative Humidity	Up to 100%
Corrosion Test Method	IEC 60068-2-11, 30 days
Ingress Protection Test Method	IEC 60529:2001, IP67

Packaging and Weights

Included	Mounting hardware
Mounting Hardware Weight	1 kg | 2.205 lb
Weight, without mounting hardware	9.4 kg | 20.723 lb

* Footnotes

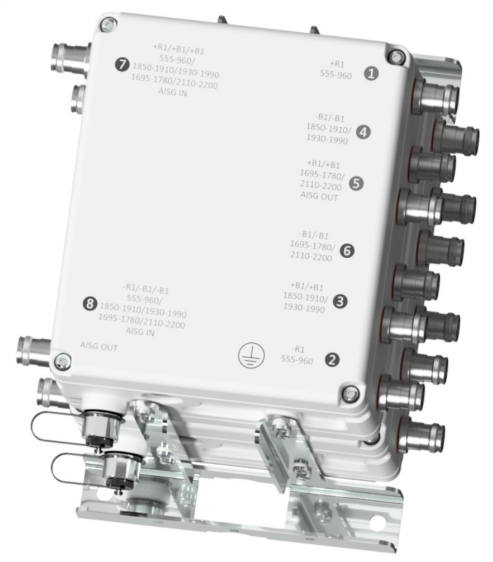
License Band, Band Pass	License Bands that are to be passed through with no amplification
License Band, LNA	License Bands that have RxUplink amplification

TMA2124F03V5-2D

DUAL TWIN TMA 1900/AWS/LOWPASS 555-960MHZ 6 ANT

NON-DIPLEXED 1900/AWS ANTENNA PORTS

Designed to be deployed in co-located AWS & 1900 networks, the Kaelus TMA2124 provides gain in 1900 and AWS uplink, using independent LNAs per band and per channel. Low loss bypass 555-960MHz signal to low band antennas is also provided.



FEATURES

- Improved base station sensitivity through excellent noise figure performance and linearity
- AISG 2.0 compatible, full software upgradable using AISG "personality" upload
- DC/AISG passthrough to AWS antenna (port 5)
- AISG OUT connector disabled when AISG device (SBT equipped antenna) present on Port 3 +R1/+R1
- One AISG subunit per LNA, 4 in total. All fixed gain
- 555-960 bypass to low band antenna

TECHNICAL SPECIFICATIONS

BAND NAME	1900	AWS
DOWNLINK		
Passband	1930 - 1990MHz	2110 - 2200MHz
Insertion loss	0.4dB typical	0.3dB typical
Return loss	22dB typical	
Maximum input power	160W (average) / 2kW (PEP)	160W (average) / 2kW (PEP)
Intermodulation products	-155dBc maximum, at antenna port in RX band with 2 x 20W carriers	-163dBc maximum, at antenna port in RX band with 2 x 20W carriers
UPLINK		
Passband	1850 - 1910MHz	1695 - 1780MHz
Gain	13dB	
Gain variation	±1dB maximum	
Return loss	22dB typical	
Bypass return loss	14dB typical	
Bypass loss	3dB typical	
Noise figure	1.2dB typical @ 13dB gain	1.0dB typical @ 13dB gain
Output IP3	+28dBm typical	
Maximum input power with no damage	+12dBm	
555-960 LOWPASS FILTER		
Passband	555 - 960MHz	
Insertion loss	0.2dB typical	
Return loss	21dB typical	
Maximum input power	250W (average) / 2.5kW (PEP)	
Intermodulation products	-155dBc maximum, at antenna port with 2 x 20W carriers	
ELECTRICAL		
Impedance	50Ohms	

Contact Us: +1 303 768 8080 | +61 (0) 7 3907 1200 | www.kaelus.com

POWER SUPPLY AND ALARM (CURRENT WINDOW ALARM MODE, DEFAULT)	
Current window alarm mode (CWA) is the default operating mode and can be configured to specific customer requirements. The TMA2124F03V4 is configured so that both channels are independently powered and monitored via their respective BTS port, 7 or 8. The BTS port sinks additional current to indicate an alarm state in its uplink path. Normal operating and alarm current values are configured independently via a field-loadable personality file. Please contact Kaelus for more information.	
DC supply voltage	+8.5 to +18V DC, case is DC ground
DC supply	Each BTS port powered individually
DC supply current, normal mode	200mA per port typical (both ports are powered)
DC supply current, alarm mode	300mA per port typical (both ports are powered)

AISG MODE OF OPERATION (AUTO SELECTED ON VALID AISG 2.0 FRAMES)	
AISG signals can be applied to port 7 or port 8. The TMA unit switches to AISG mode when valid frames are detected on either port 7 or 8. All LNAs take DC power from the port with the AISG frames or, if DC is present on both ports, power will be supplied equally between the ports. Each LNA is controlled uniquely by its sub-unit number.	
DC supply voltage	+7.5V to +30V DC
AISG version	2.0 (1.1 optional)
Supply current, AISG mode	500mA @ 7.5V, 135mA @ 30V typical
AISG connector, current rating	IEC60130-9, 8-pin female, < 4A peak, 2A continuous, pin 6
Field firmware upgradable	Yes (R951022ATA2.0 Rev 2.9.12)
AISG pass through to antenna port	Yes

ANTENNA AISG OOK + DC

When DC is applied it is quickly switched through to port 5. If an over-current condition is detected, DC & AISG are disconnected from port 5. If DC remains connected to the load at port 5, DC and AISG are disconnected from the AISG OUT 8 pin connector. If DC is disconnected from port 5, DC and AISG are enabled at the AISG OUT 8 pin connector. If a short circuit is detected at the AISG OUT 8 pin connector, DC and AISG are disabled.

Mode of Operation	Voltage at Port 5	Assumption	"Autosense + Protection" Switch Status	Comment
AISG or CWA	High	Device present or open circuit	Close	DC & AISG OOK will be supplied to port 5. DC & AISG is removed from the AISG OUT 8 pin port
AISG or CWA	Low	DC short circuit or low DC resistance	Open	DC & AISG OOK will not be supplied to port 5. DC & AISG are supplied to the AISG OUT 8 pin port

ENVIRONMENTAL	
For further details of environmental compliance, please contact Kaelus.	
Temperature range	-40ºC to +65ºC | -40°F to +149°F
Ingress protection	IP67
Altitude	3,000m | 10,000ft
Lightning protection	IEC61312-1, RF: ±5kA maximum (8/20us), AISG: ±2kA maximum (8/20us)
MTBF	>1,000,000 hours
Compliance	FCC Part 15 subpart B

MECHANICAL	
Dimensions H x D x W (single unit)	245 x 263 x 210mm | 9.7 x 10.4 x 8.3in excluding brackets and connectors
Weight	16.2kg | 35.71lbs
Finish	Painted, light grey (RAL 7035)
Connectors	4.3-10 (F) x 16 long neck, AISG (F) x 2
Wind Load	Front 390N, Side 147N (Single) Front 251N, Side 409N (Twin) At 74m/s (AS/NZS 1170-2-2011 Structural design - Wind actions - Cyclone areas)
Mounting	Pole/wall bracket supplied with two metal clamps 45-178mm diameter poles

ORDERING INFORMATION

PART NUMBER	CONFIGURATION	OPTIONAL FEATURES	CONNECTORS
TMA2124F03V5-1D	TWIN 2 in / 6 out	STANDARD	4.3-10 (F)
TMA2124F03V5-2D	QUAD 4 in / 12 out	STANDARD	4.3-10 (F)
TMA2124F03V5-1S	TWIN 2 in / 6 out	STANDARD	4.3-10 (F)
TMA2124F03V5-2S	QUAD 4 in / 12 out	STANDARD	4.3-10 (F)

Contact Us: +1 303 768 8080 | +61 (0) 7 3907 1200 | www.kaelus.com

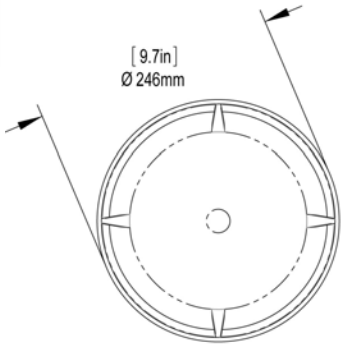
DC6-48-60-18-8F

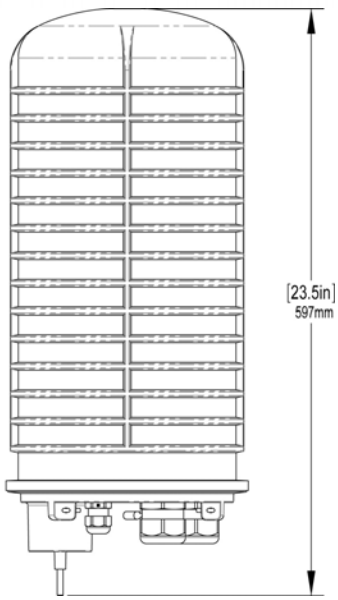
DC Surge Suppression Solution

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:

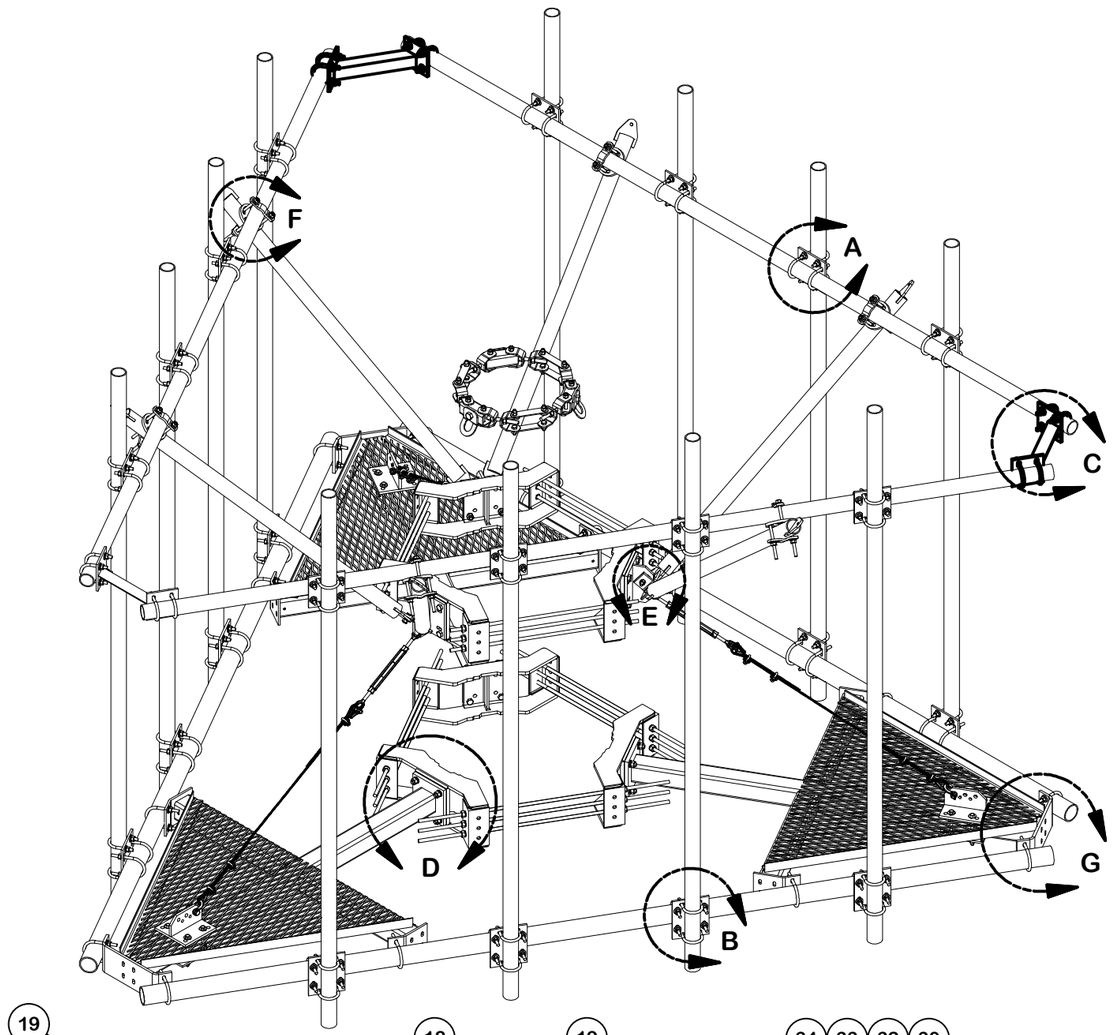
- ANSI/UL 1449 – 3rd Edition
- IEEE C62.41
- NEMA LS-1, IEC 61643-1:2005 2nd Edition:2005
- IEC 61643-12
- EN 61643-11:2002 (including A11:2007)

GS-07F-0435V

Certified to ISO 9001:2000

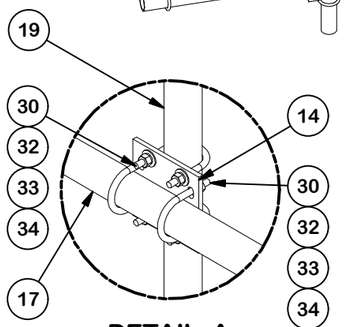
TÜV Rheinland of North America

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

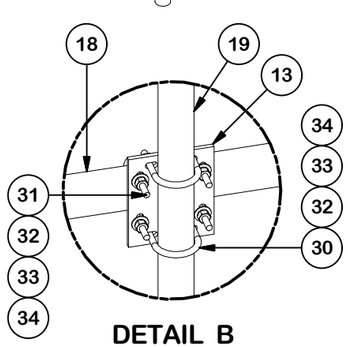


PARTS LIST

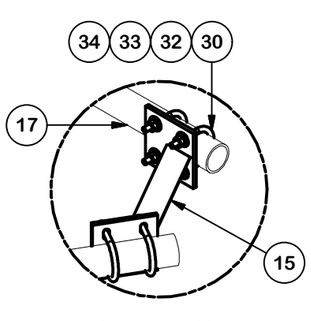
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMENT		68.81	412.85
2	3	X-SV196L	LONG PLATFORM WELDMENT		230.94	692.81
3	6	X-TBW	T-BRACKET WELDMENT		13.60	81.60
4	6	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET	3 in	1.86	11.15
5	6	X-VSKL	LONG SUPPORT WELDMENT FOR VSK REINFORCEMENTS		37.05	222.33
6	6	X-127594	FLAT DISK CLAMP PLATE 4" CENTERS (GALV.)		2.51	15.04
7	12	X-100064	CLAMP (4" V-CLAMP) GALVANIZED		0.92	11.06
8	3	320751-I	1/2" CHAIN SHACKLE		0.76	2.29
9	3	320601-I	5/8" TURNBUCKLE		2.63	7.89
10	6	320777-I	5/16" THIMBLE		0.06	0.36
11	12	320152-I	5/16" WIRE ROPE CLIP		1.32	15.78
12	3	AC516-10	5/16" AIRECRAFT CABLE		1.25	3.76
13	15	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	90.32
14	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
15	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
17	3	P30174	2-7/8" O.D. x 174" SCH. 40 PIPE	174 in	84.20	252.59
18	3	P3174	3-1/2" X 174" SCH 40 GALVANIZED PIPE	174 in	109.97	329.90
19	12	P30120	2-7/8" x 120" (2-1/2" SCH. 40) GALVANIZED PIPE	120 in	58.07	696.79
20	18	G58R-48	5/8" x 48" THREADED ROD (HDG.)		4.18	75.27
20	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)		2.09	37.63
21	12	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	3.75
22	12	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	4.27
23	12	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.41
24	60	G58LW	5/8" HDG LOCKWASHER		0.03	1.57
25	60	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	7.79
26	6	G12112	1/2" x 1-1/2" HDG HEX BOLT GR5	1/2 in	0.15	0.89
27	3	G12212	1/2" x 2-1/2" HDG HEX BOLT GR5	2 1/2 in	0.20	0.61
28	12	G1204	1/2" x 4" HDG HEX BOLT GR5 FULL THREAD	4 in	0.27	3.24
29	24	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	9.83
30	84	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.67	56.19
31	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.83	29.82
32	288	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	9.82
33	285	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	3.96
34	285	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	20.41
35	1	HALO40	5,000 LB. MAINTENANCE TIE-OFF POINT		41.12	41.12
					TOTAL WT. #	3249.41



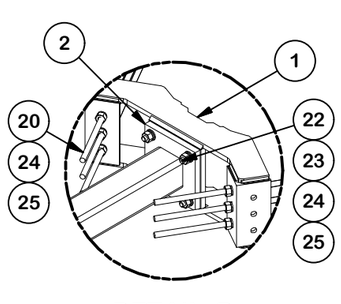
DETAIL A



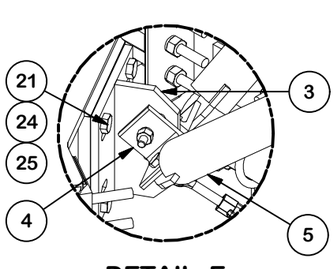
DETAIL B



DETAIL C



DETAIL D



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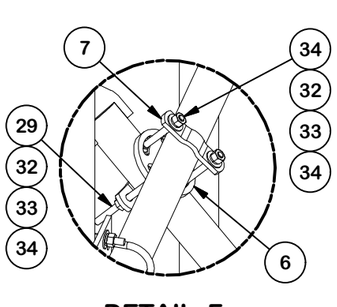
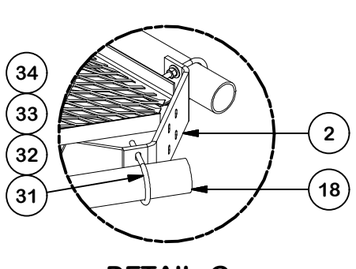


DETAIL F



DETAIL G

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS AND ANGLES ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

DESCRIPTION
14' 6" LOW PROFILE PLATFORM
WITH TWELVE 2-7/8" ANTENNA MOUTING
PIPES, REINFORCED HANDRAIL, AND CABLE

SITE PRO 1
A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX
Tampa, FL

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CSL 10/17/2019	10/18/2019	RMQLP-4120-H10

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
87	02	CUSTOMER	BMC 10/18/2019	RMQLP-4120-H10

SITE PRO 1
A valmont COMPANY
1545 Pidco Drive
Plymouth, IN 46563
Phone: 574.936.4221
Fax: 574.936.8925
Email: SP1Engineering@valmont.com
www.sitepro1.com

June 5, 2020

Site Pro 1 / Valmont Mounting System:

Part Number = RMQLP-4120-H10
Part Description = 14' Low Pro-Platform with Handrail System

Mount EPA (no antenna pipes, walkway included (0.67*EPA)):

EPA_N	= 42.20(28.15) sq-Ft	$EPA_{N\ (0.5"\ Ice)}$	= 51.14(34.10) sq-Ft	$EPA_{N\ (1"\ Ice)}$	= 60.14(40.10) sq-Ft
EPA_T	= 39.62(26.41) sq-Ft	$EPA_{T\ (0.5"\ Ice)}$	= 48.52(32.35) sq-Ft	$EPA_{T(1"\ Ice)}$	= 57.81(38.54) sq-Ft
Weight	= 3265 lb	$Weight_{(0.5"\ Ice)}$	=3657 lb	$Weight_{(1"\ Ice)}$	= 4180 lb

Classification Rating:

Heavy 10

Design Standards

ANSI/TIA-222-G-2012
ANSI/TIA-222-H-2018
ASCE 7-16
ATT-002-291-373
International Building Code 2018
TIA-5053

Analysis and Modeling Technique

An elastic, three-dimensional, frame, truss model was developed to examine the structural behavior of the mount. All orientations in the engineering model correspond with the assembly drawing constraints. The mount was analyzed with twelve (12) mounting locations (antenna, mount pipe, radio, dish, and any other appurtenance) evenly spaced across the face of the mount, with a zero inch (0) vertical eccentricity on the mast pipe. Wind directions considered were perpendicular (normal) to the face of the frame and at 30 degree increments up to 90 degrees (tangential) to the face of the frame. Wind, dead weight and ice weight on the mount was also included in the model.

Modeling Software

Autodesk Inventor
RISA-3D

May 5, 2023

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	AT&T Site Number:	CT1845 (C-Band)
	FA Number:	12685511
	PACE Number:	MRCTB067551
	PT Number:	2051A175PV
	TEP Project Number:	326577. 848400
	AT&T Site Name:	WESTON TALL PINES DRIVE
	Site Address:	5 Tall Pines Drive Weston, CT 06883

To Whom It May Concern:

TEP Northeast (TEP NE) has been authorized by SAI Communications to perform a mount analysis on the proposed AT&T antenna/RRH mount to determine its capability of supporting the following additional loading:

- (3) TPA65R-BU8DA-K Antennas (96.0"x20.7"x7.7" – Wt. = 87 lbs. /each)
- (3) AIR6449 Antenna (30.6"x15.9"x10.6" – Wt. 82 lbs. /each)
- (3) AIR6419 Antennas (28.2"x16.1"x7.3" – Wt. = 66 lbs. /each)
- (3) OPA65R-BU8DA Antennas (96.0"x20.7"x7.7" – Wt. = 77 lbs. /each)
- (6) TMA2124F03V5-2D TMA's (12.8"x10.5"x10.4" – Wt. = 36 lbs. /each) (post 2)
- (6) TMAT1923B68-31-43 TMA's (9.7"x11.0"x4.9" – Wt. = 21 lbs. /each) (post 4)
- (1) DC6-48-60-18-8C Surge Arrestor (31.4"x10.2"Ø – Wt. = 29 lbs.) (post 1)

  *Proposed equipment shown in bold.

Mount fabrication drawings prepared by SitePro1, P/N RMQLP-4120-H10, dated October 18, 2019, were used to perform this analysis.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2021 with 2022 Connecticut State Building Code, and AT&T Mount Technical Directive – R22.
- TEP NE considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix P of the Connecticut State Building Code, the max basic wind speed for this site is equal to 120 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.11 in was used for this analysis.
- TEP NE considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- TEP NE considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- TEP NE considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.233 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.056.
- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 1.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The proposed mount will be secured to the proposed tower with ring mounts and threaded rods. TEP NE considers the threaded rods to be the governing connection member.

Based on our evaluation, we have determined that the Proposed SitePro1 P/N RMQLP-4120-H10 mount IS CAPABLE of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Proposed Mount Rating	50	LC8	47%	PASS

Reference Documents:

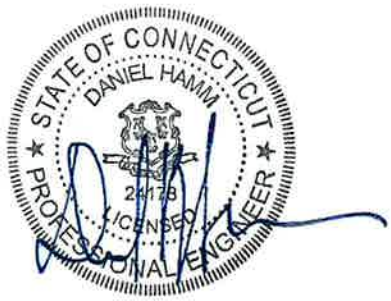
- Fabrication drawings prepared by SitePro1, P/N RMQLP-4120-H10, dated October 18, 2019.

This determination was based on the following limitations and assumptions:

1. TEP NE is not responsible for any modifications completed prior to and hereafter which TEP NE was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The proposed mount will be adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mount must be tightened and re-plumbed prior to the installation of new appurtenances.
6. TEP NE performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

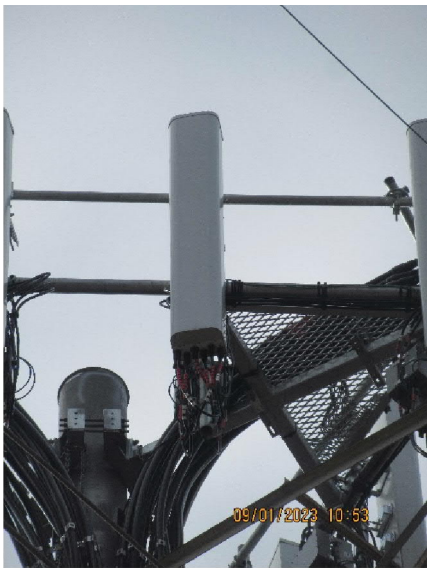
Respectfully Submitted,
TEP Northeast

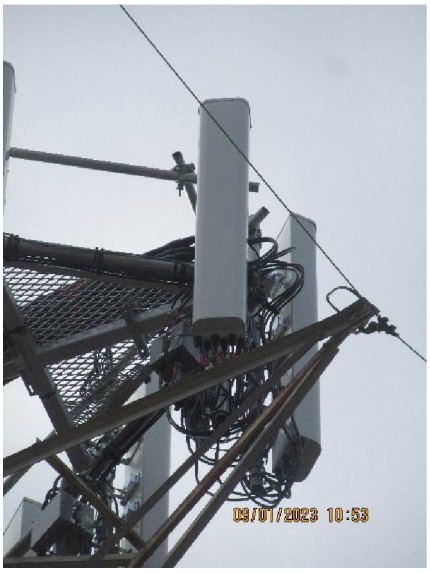


Michael Cabral
Director

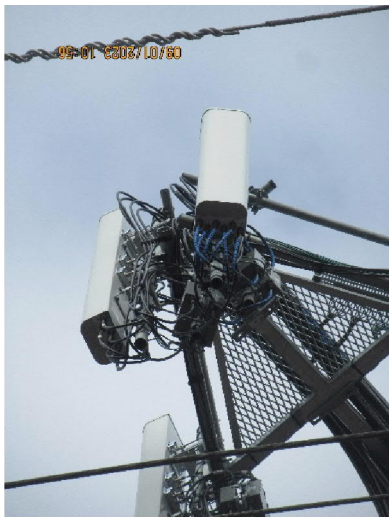
Daniel P. Hamm, PE
Vice President

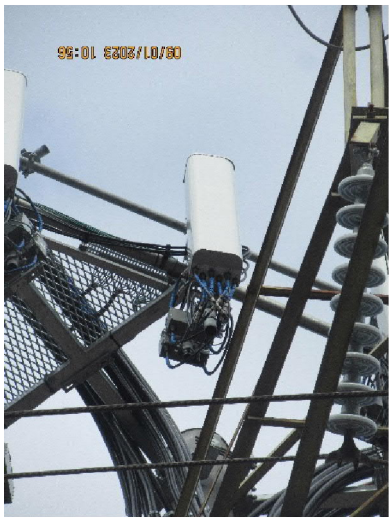
FIELD PHOTOS:
Existing mount to be removed and replaced.

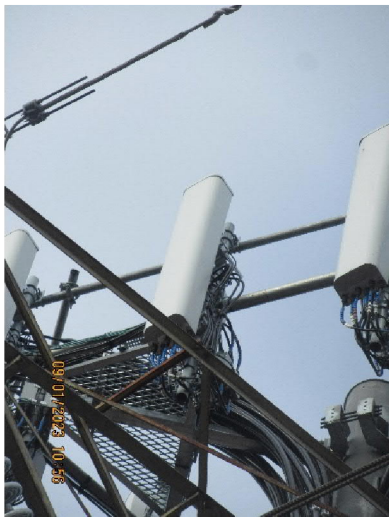


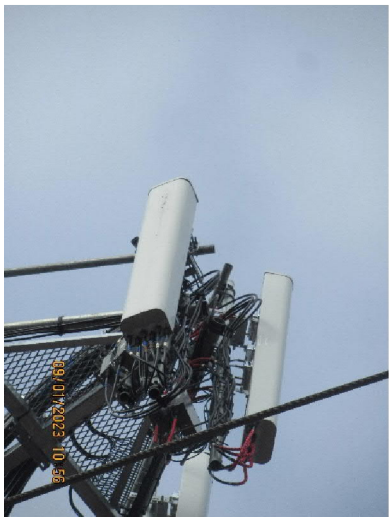


FIELD PHOTOS (CONT.):
Existing mount to be removed and replaced.









Wind & Ice
Calculations

Date: 5/2/2023
Project Name: WESTON TALL PINES DRIVE
Project No.: CT1845
Designed By: RL Checked By: MSC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01 (z/z_g)^{2/\alpha}$

K_z=	0.974	z=	95 (ft)
		z_g=	1200 (ft)
		α=	7.0

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_c K_t/K_h)]^2$ $K_h = e^{(f*z/H)}$

K_{zt}=	1	K_h=	1.0
		K_c=	0.9 (from Table 2-4)
(If Category 1 then K_{zt} =1.0)		K_t=	0 (from Table 2-5)
		f=	0 (from Table 2-5)
Category=	1	z=	95
		z_s=	204 (Mean elevation of base of structure above sea level)
		H=	0 (Ht. of the crest above surrounding terrain)
		K_{zt}=	1.00 (from 2.6.6.2.1)
		K_e=	0.99 (from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness =		t_i =	1.00 in
Importance Factor =		I=	1.00 (from Table 2-3)
		K_{iz} =	1.11 (from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$ t_{iz} = 1.11 in

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2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	98	G_h=	0.85

2.6.9.2 Guyed Masts

G_h= 0.85

2.6.9.3 Pole Structures

G_h= 1.1

2.6.9 Appurtenances

G_h= 1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

G_h=	1.35	Gh=	1.00

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

q_z=	33.85	K_z=	0.974	(from 2.6.5.2)
$q_{z\ (ice)}$=	5.88	K_{zt}=	1.0	(from 2.6.6.2.1)
$q_{z\ (30)}$=	2.12	K_s=	1.0	(from 2.6.7)
		K_e=	0.99	(from 2.6.8)
		K_d=	0.95	(from Table 2-2)
		V_{max}=	120	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

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Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		1.2 - 2.8(r_s) ≥ 0.85	1.4 - 4.0(r_s) ≥ 0.90	2.0 - 6.0(r_s) ≥ 1.25
Round	C < 39 (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = 1.11 in Angle = 0 (deg) Equivalent Angle = 180 (deg)

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	4.64	1.30	605	119	38
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	137	29	9
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	4.64	1.30	605	119	38
AIR6419 Antenna	28.2	16.1	7.3	3.15	1.75	1.20	128	27	8
TMA2124F03V5-2D TMA	12.8	10.5	10.4	0.93	1.22	1.20	38	9	2
TMA2124F03V5-2D TMA (Shielded)	12.8	0.0	10.4	0.00	0.00	1.20	0	2	0
TMAT1923B68-31-43 TMA	9.7	11.0	4.9	0.74	0.88	1.20	30	8	2
TMAT1923B68-31-43 TMA (Shielded)	9.7	0.0	4.9	0.00	0.00	1.20	0	1	0
DC6 Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	53	12	3
2-1/2" Pipe	2.9	12.0	-	0.24	0.24	1.20	10		
3" Pipe	3.5	12.0	-	0.29	0.29	1.20	12		
L 2x2 Angles	2.0	12.0	-	0.17	0.17	2.00	11		
L 2-1/2x2-1/2 Angles	2.5	12.0	-	0.21	0.21	2.00	14		
HSS 4x4	4.0	12.0	-	0.33	0.33	2.00	23		
PL 6x3/8	6.0	12.0	-	0.50	0.50	2.00	34		

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WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.11	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	605	275	523
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	137	93	126
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	605	275	523
AIR6419 Antenna	28.2	16.1	7.3	3.15	1.43	1.75	3.86	1.20	1.26	128	61	111
TMA2124F03V5-2D TMA	12.8	10.5	10.4	0.93	0.92	1.22	1.23	1.20	1.20	38	38	38
TMA2124F03V5-2D TMA (Shielded)	12.8	7.9	10.4	0.70	0.92	1.63	1.23	1.20	1.20	28	38	31
TMAT1923B68-31-43 TMA	9.7	11.0	4.9	0.74	0.33	0.88	1.98	1.20	1.20	30	13	26
TMAT1923B68-31-43 TMA (Shielde	9.7	8.3	4.9	0.56	0.33	1.18	1.98	1.20	1.20	23	13	20

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	98.2	22.9	9.9	15.64	6.77	4.28	9.90	1.28	1.50	118	60	103
AIR6449 Antenna	32.8	18.1	12.8	4.13	2.92	1.81	2.56	1.20	1.20	29	21	27
OPA65R-BU8DA Antenna	98.2	22.9	9.9	15.64	6.77	4.28	9.90	1.28	1.50	118	60	103
AIR6419 Antenna	30.4	18.3	9.5	3.87	2.01	1.66	3.19	1.20	1.23	27	15	24
TMA2124F03V5-2D TMA	15.0	12.7	12.6	1.33	1.32	1.18	1.19	1.20	1.20	9	9	9
TMA2124F03V5-2D TMA (Shielded)	15.0	9.5	12.6	1.00	1.32	1.57	1.19	1.20	1.20	7	9	8
TMAT1923B68-31-43 TMA	11.9	13.2	7.1	1.09	0.59	0.90	1.67	1.20	1.20	8	4	7
TMAT1923B68-31-43 TMA (Shielde	11.9	9.9	7.1	0.82	0.59	1.20	1.67	1.20	1.20	6	4	5

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	33
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	8
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	33
AIR6419 Antenna	28.2	16.1	7.3	3.15	1.43	1.75	3.86	1.20	1.26	8	4	7
TMA2124F03V5-2D TMA	12.8	10.5	10.4	0.93	0.92	1.22	1.23	1.20	1.20	2	2	2
TMA2124F03V5-2D TMA (Shielded)	12.8	7.9	10.4	0.70	0.92	1.63	1.23	1.20	1.20	2	2	2
TMAT1923B68-31-43 TMA	9.7	11.0	4.9	0.74	0.33	0.88	1.98	1.20	1.20	2	1	2
TMAT1923B68-31-43 TMA (Shielde	9.7	8.3	4.9	0.56	0.33	1.18	1.98	1.20	1.20	1	1	1

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TEP NORTHEAST

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.11	in.	Equivalent Angle =	240	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	605	275	357
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	137	93	104
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	605	275	357
AIR6419 Antenna	28.2	16.1	7.3	3.15	1.43	1.75	3.86	1.20	1.26	128	61	78
TMA2124F03V5-2D TMA	12.8	10.5	10.4	0.93	0.92	1.22	1.23	1.20	1.20	38	38	38
TMA2124F03V5-2D TMA (Shielded)	12.8	5.3	10.4	0.47	0.92	2.44	1.23	1.20	1.20	19	38	33
TMAT1923B68-31-43 TMA	9.7	11.0	4.9	0.74	0.33	0.88	1.98	1.20	1.20	30	13	18
TMAT1923B68-31-43 TMA (Shielde	9.7	5.5	4.9	0.37	0.33	1.76	1.98	1.20	1.20	15	13	14

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	98.2	22.9	9.9	15.64	6.77	4.28	9.90	1.28	1.50	118	60	74
AIR6449 Antenna	32.8	18.1	12.8	4.13	2.92	1.81	2.56	1.20	1.20	29	21	23
OPA65R-BU8DA Antenna	98.2	22.9	9.9	15.64	6.77	4.28	9.90	1.28	1.50	118	60	74
AIR6419 Antenna	30.4	18.3	9.5	3.87	2.01	1.66	3.19	1.20	1.23	27	15	18
TMA2124F03V5-2D TMA	15.0	12.7	12.6	1.33	1.32	1.18	1.19	1.20	1.20	9	9	9
TMA2124F03V5-2D TMA (Shielded)	15.0	6.4	12.6	0.66	1.32	2.36	1.19	1.20	1.20	5	9	8
TMAT1923B68-31-43 TMA	11.9	13.2	7.1	1.09	0.59	0.90	1.67	1.20	1.20	8	4	5
TMAT1923B68-31-43 TMA (Shielde	11.9	6.6	7.1	0.55	0.59	1.80	1.67	1.20	1.20	4	4	4

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	22
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	6
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	22
AIR6419 Antenna	28.2	16.1	7.3	3.15	1.43	1.75	3.86	1.20	1.26	8	4	5
TMA2124F03V5-2D TMA	12.8	10.5	10.4	0.93	0.92	1.22	1.23	1.20	1.20	2	2	2
TMA2124F03V5-2D TMA (Shielded)	12.8	5.3	10.4	0.47	0.92	2.44	1.23	1.20	1.20	1	2	2
TMAT1923B68-31-43 TMA	9.7	11.0	4.9	0.74	0.33	0.88	1.98	1.20	1.20	2	1	1
TMAT1923B68-31-43 TMA (Shielde	9.7	5.5	4.9	0.37	0.33	1.76	1.98	1.20	1.20	1	1	1

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WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.11	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	605	275	275
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	137	93	93
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	605	275	275
AIR6419 Antenna	28.2	16.1	7.3	3.15	1.43	1.75	3.86	1.20	1.26	128	61	61
TMA2124F03V5-2D TMA	12.8	10.5	10.4	0.93	0.92	1.22	1.23	1.20	1.20	38	38	38
TMA2124F03V5-2D TMA (Shielded)	12.8	0.0	10.4	0.00	0.92	0.00	1.23	1.20	1.20	0	38	38
TMAT1923B68-31-43 TMA	9.7	11.0	4.9	0.74	0.33	0.88	1.98	1.20	1.20	30	13	13
TMAT1923B68-31-43 TMA (Shielded	9.7	0.0	4.9	0.00	0.33	0.00	1.98	1.20	1.20	0	13	13

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	98.2	22.9	9.9	15.64	6.77	4.28	9.90	1.28	1.50	118	60	60
AIR6449 Antenna	32.8	18.1	12.8	4.13	2.92	1.81	2.56	1.20	1.20	29	21	21
OPA65R-BU8DA Antenna	98.2	22.9	9.9	15.64	6.77	4.28	9.90	1.28	1.50	118	60	60
AIR6419 Antenna	30.4	18.3	9.5	3.87	2.01	1.66	3.19	1.20	1.23	27	15	15
TMA2124F03V5-2D TMA	15.0	12.7	12.6	1.33	1.32	1.18	1.19	1.20	1.20	9	9	9
TMA2124F03V5-2D TMA (Shielded)	15.0	2.2	12.6	0.23	1.32	0.00	1.19	1.20	1.20	2	9	9
TMAT1923B68-31-43 TMA	11.9	13.2	7.1	1.09	0.59	0.90	1.67	1.20	1.20	8	4	4
TMAT1923B68-31-43 TMA (Shielded	11.9	2.2	7.1	0.18	0.59	0.00	1.67	1.20	1.20	1	4	4

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	17
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	6
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	17
AIR6419 Antenna	28.2	16.1	7.3	3.15	1.43	1.75	3.86	1.20	1.26	8	4	4
TMA2124F03V5-2D TMA	12.8	10.5	10.4	0.93	0.92	1.22	1.23	1.20	1.20	2	2	2
TMA2124F03V5-2D TMA (Shielded)	12.8	0.0	10.4	0.00	0.92	0.00	1.23	1.20	1.20	0	2	2
TMAT1923B68-31-43 TMA	9.7	11.0	4.9	0.74	0.33	0.88	1.98	1.20	1.20	2	1	1
TMAT1923B68-31-43 TMA (Shielded	9.7	0.0	4.9	0.00	0.33	0.00	1.98	1.20	1.20	0	1	1

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TEP NORTHEAST

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.11	in.	Equivalent Angle =	300	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	605	275	357
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	137	93	104
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	605	275	357
AIR6419 Antenna	28.2	16.1	7.3	3.15	1.43	1.75	3.86	1.20	1.26	128	61	78
TMA2124F03V5-2D TMA	12.8	10.5	10.4	0.93	0.92	1.22	1.23	1.20	1.20	38	38	38
TMA2124F03V5-2D TMA (Shielded)	12.8	5.3	10.4	0.47	0.92	2.44	1.23	1.20	1.20	19	38	33
TMAT1923B68-31-43 TMA	9.7	11.0	4.9	0.74	0.33	0.88	1.98	1.20	1.20	30	13	18
TMAT1923B68-31-43 TMA (Shielded	9.7	5.5	4.9	0.37	0.33	1.76	1.98	1.20	1.20	15	13	14

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	98.2	22.9	9.9	15.64	6.77	4.28	9.90	1.28	1.50	118	60	74
AIR6449 Antenna	32.8	18.1	12.8	4.13	2.92	1.81	2.56	1.20	1.20	29	21	23
OPA65R-BU8DA Antenna	98.2	22.9	9.9	15.64	6.77	4.28	9.90	1.28	1.50	118	60	74
AIR6419 Antenna	30.4	18.3	9.5	3.87	2.01	1.66	3.19	1.20	1.23	27	15	18
TMA2124F03V5-2D TMA	15.0	12.7	12.6	1.33	1.32	1.18	1.19	1.20	1.20	9	9	9
TMA2124F03V5-2D TMA (Shielded)	15.0	6.4	12.6	0.66	1.32	2.36	1.19	1.20	1.20	5	9	8
TMAT1923B68-31-43 TMA	11.9	13.2	7.1	1.09	0.59	0.90	1.67	1.20	1.20	8	4	5
TMAT1923B68-31-43 TMA (Shielded	11.9	6.6	7.1	0.55	0.59	1.80	1.67	1.20	1.20	4	4	4

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	22
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	6
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	22
AIR6419 Antenna	28.2	16.1	7.3	3.15	1.43	1.75	3.86	1.20	1.26	8	4	5
TMA2124F03V5-2D TMA	12.8	10.5	10.4	0.93	0.92	1.22	1.23	1.20	1.20	2	2	2
TMA2124F03V5-2D TMA (Shielded)	12.8	5.3	10.4	0.47	0.92	2.44	1.23	1.20	1.20	1	2	2
TMAT1923B68-31-43 TMA	9.7	11.0	4.9	0.74	0.33	0.88	1.98	1.20	1.20	2	1	1
TMAT1923B68-31-43 TMA (Shielded	9.7	5.5	4.9	0.37	0.33	1.76	1.98	1.20	1.20	1	1	1

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TEP NORTHEAST

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.11	in.	Equivalent Angle =	330	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	605	275	523
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	137	93	126
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	605	275	523
AIR6419 Antenna	28.2	16.1	7.3	3.15	1.43	1.75	3.86	1.20	1.26	128	61	111
TMA2124F03V5-2D TMA	12.8	10.5	10.4	0.93	0.92	1.22	1.23	1.20	1.20	38	38	38
TMA2124F03V5-2D TMA (Shielded)	12.8	7.9	10.4	0.70	0.92	1.63	1.23	1.20	1.20	28	38	31
TMAT1923B68-31-43 TMA	9.7	11.0	4.9	0.74	0.33	0.88	1.98	1.20	1.20	30	13	26
TMAT1923B68-31-43 TMA (Shielded	9.7	8.3	4.9	0.56	0.33	1.18	1.98	1.20	1.20	23	13	20

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	98.2	22.9	9.9	15.64	6.77	4.28	9.90	1.28	1.50	118	60	103
AIR6449 Antenna	32.8	18.1	12.8	4.13	2.92	1.81	2.56	1.20	1.20	29	21	27
OPA65R-BU8DA Antenna	98.2	22.9	9.9	15.64	6.77	4.28	9.90	1.28	1.50	118	60	103
AIR6419 Antenna	30.4	18.3	9.5	3.87	2.01	1.66	3.19	1.20	1.23	27	15	24
TMA2124F03V5-2D TMA	15.0	12.7	12.6	1.33	1.32	1.18	1.19	1.20	1.20	9	9	9
TMA2124F03V5-2D TMA (Shielded)	15.0	9.5	12.6	1.00	1.32	1.57	1.19	1.20	1.20	7	9	8
TMAT1923B68-31-43 TMA	11.9	13.2	7.1	1.09	0.59	0.90	1.67	1.20	1.20	8	4	7
TMAT1923B68-31-43 TMA (Shielded	11.9	9.9	7.1	0.82	0.59	1.20	1.67	1.20	1.20	6	4	5

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	33
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	8
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	33
AIR6419 Antenna	28.2	16.1	7.3	3.15	1.43	1.75	3.86	1.20	1.26	8	4	7
TMA2124F03V5-2D TMA	12.8	10.5	10.4	0.93	0.92	1.22	1.23	1.20	1.20	2	2	2
TMA2124F03V5-2D TMA (Shielded)	12.8	7.9	10.4	0.70	0.92	1.63	1.23	1.20	1.20	2	2	2
TMAT1923B68-31-43 TMA	9.7	11.0	4.9	0.74	0.33	0.88	1.98	1.20	1.20	2	1	2
TMAT1923B68-31-43 TMA (Shielded	9.7	8.3	4.9	0.56	0.33	1.18	1.98	1.20	1.20	1	1	1

Date: 5/2/2023
Project Name: WESTON TALL PINES DRIVE
Project No.: CT1845
Designed By: RL Checked By: MSC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.11 in.
Density of ice: 56 pcf

TPA65R-BU8DA-K Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		252 lbs
Weight of object:	87.0 lbs	
Combined weight of ice and object:		339 lbs

AIR6449 Antenna

Weight of ice based on total radial SF area:

Height (in):	30.6	
Width (in):	15.9	
Depth (in):	10.6	
Total weight of ice on object:		70 lbs
Weight of object:	82.0 lbs	
Combined weight of ice and object:		152 lbs

OPA65R-BU8DA Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		252 lbs
Weight of object:	79.0 lbs	
Combined weight of ice and object:		331 lbs

AIR6419 Antenna

Weight of ice based on total radial SF area:

Height (in):	30.4	
Width (in):	16.1	
Depth (in):	8.1	
Total weight of ice on object:		66 lbs
Weight of object:	66.0 lbs	
Combined weight of ice and object:		132 lbs

TMA2124F03V5-2D TMA

Weight of ice based on total radial SF area:

Height (in):	12.8	
Width (in):	10.5	
Depth (in):	10.4	
Total weight of ice on object:		23 lbs
Weight of object:	36.0 lbs	
Combined weight of ice and object:		59 lbs

TMAT1923B68-31-43 TMA

Weight of ice based on total radial SF area:

Height (in):	9.7	
Width (in):	11.0	
Depth (in):	4.9	
Total weight of ice on object:		14 lbs
Weight of object:	21.0 lbs	
Combined weight of ice and object:		35 lbs

2-1/2" Pipe

Per foot weight of ice:

diameter (in):	2.88	
Per foot weight of ice on object:		5 plf

DC6 Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	31.4	
Diameter(in):	10.2	
Total weight of ice on object:		40 lbs
Weight of object:	29 lbs	
Combined weight of ice and object:		69 lbs

3" Pipe

Per foot weight of ice:

diameter (in):	3.5	
Per foot weight of ice on object:		6 plf

L 2x2 Angles

Weight of ice based on total radial SF area:

Height (in):	2	
Width (in):	2	
Per foot weight of ice on object:		5 plf

L 2-1/2x2-1/2 Angles

Weight of ice based on total radial SF area:

Height (in):	2.5	
Width (in):	2.5	
Per foot weight of ice on object:		6 plf

HSS 4x4

Weight of ice based on total radial SF area:

Height (in):	4	
Width (in):	4	
Per foot weight of ice on object:		9 plf

PL 6x3/8

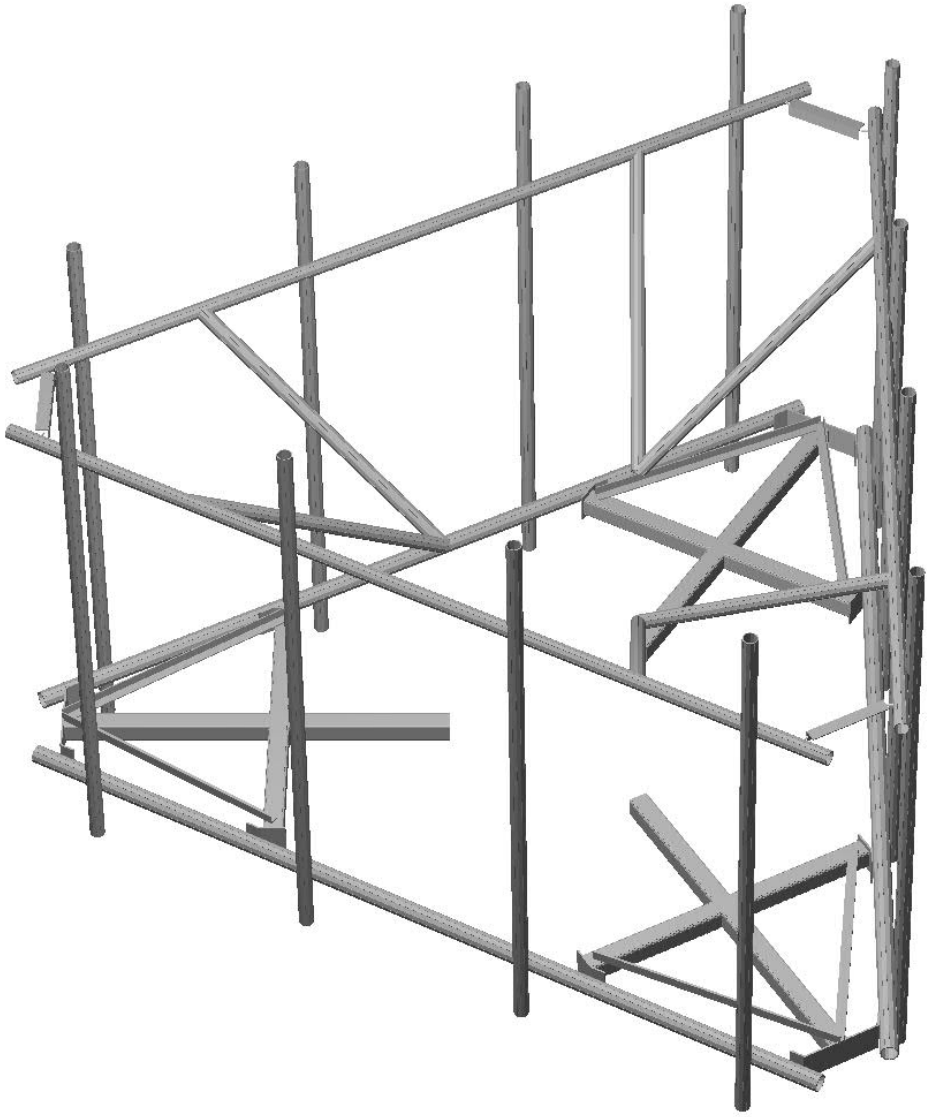
Weight of ice based on total radial SF area:

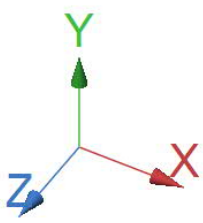
Height (in):	6	
Width (in):	0.375	
Per foot weight of ice on object:		10 plf

Mount Calculations
(Proposed Conditions)

TEP Northeast

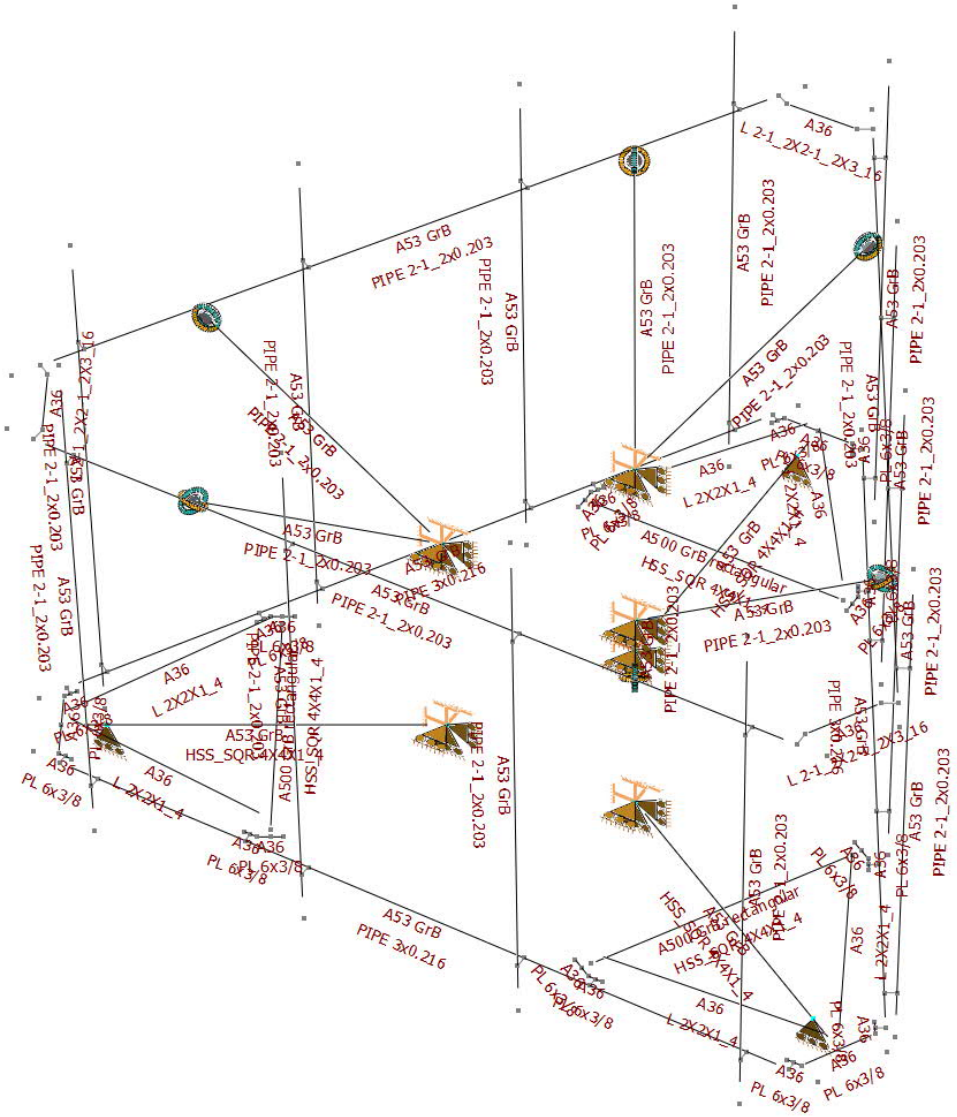
Current Date: 5/1/2023 9:33 AM
Units system: English

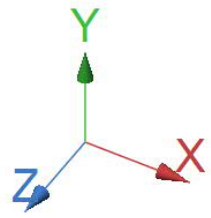




TEP Northeast

Current Date: 5/1/2023 9:33 AM
Units system: English



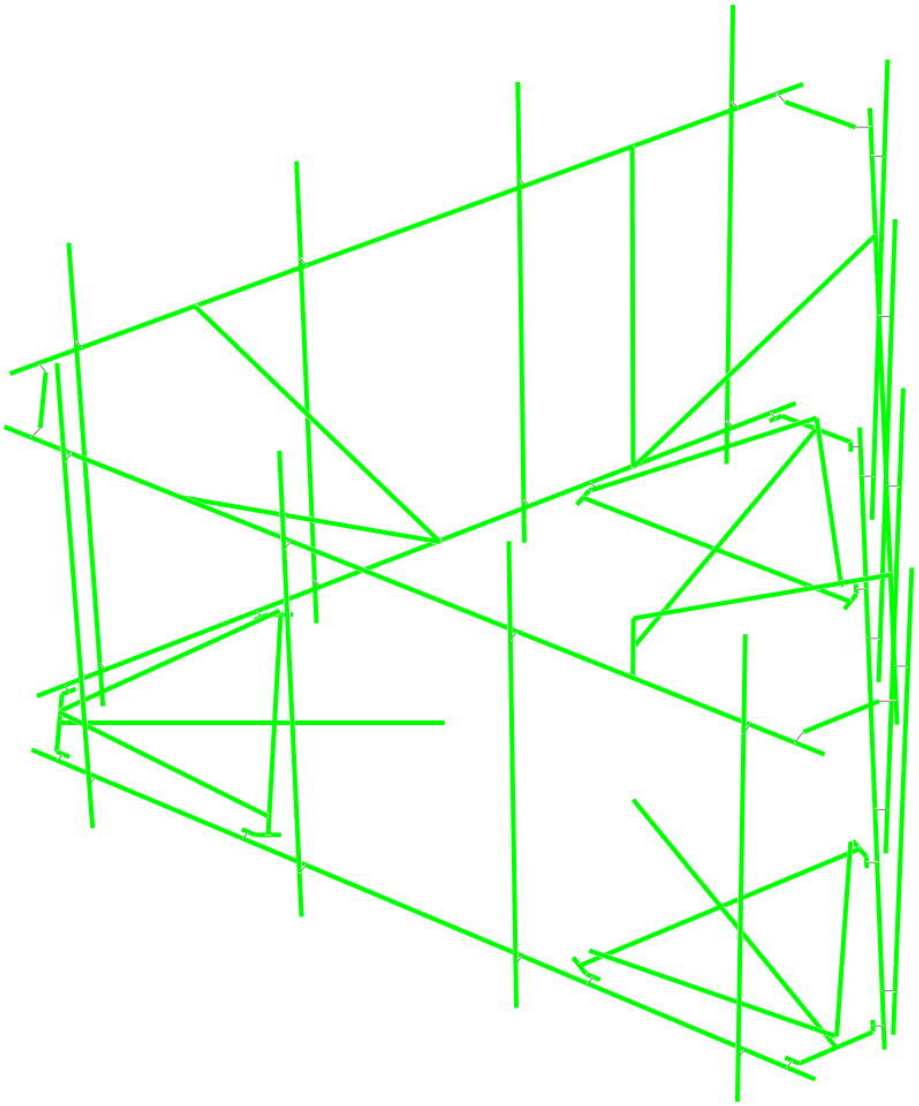


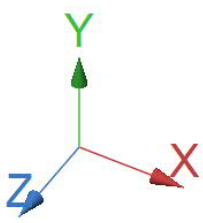
RAM® Elements
CONNECT Edition

TEP Northeast

Current Date: 5/1/2023 9:34 AM
Units system: English

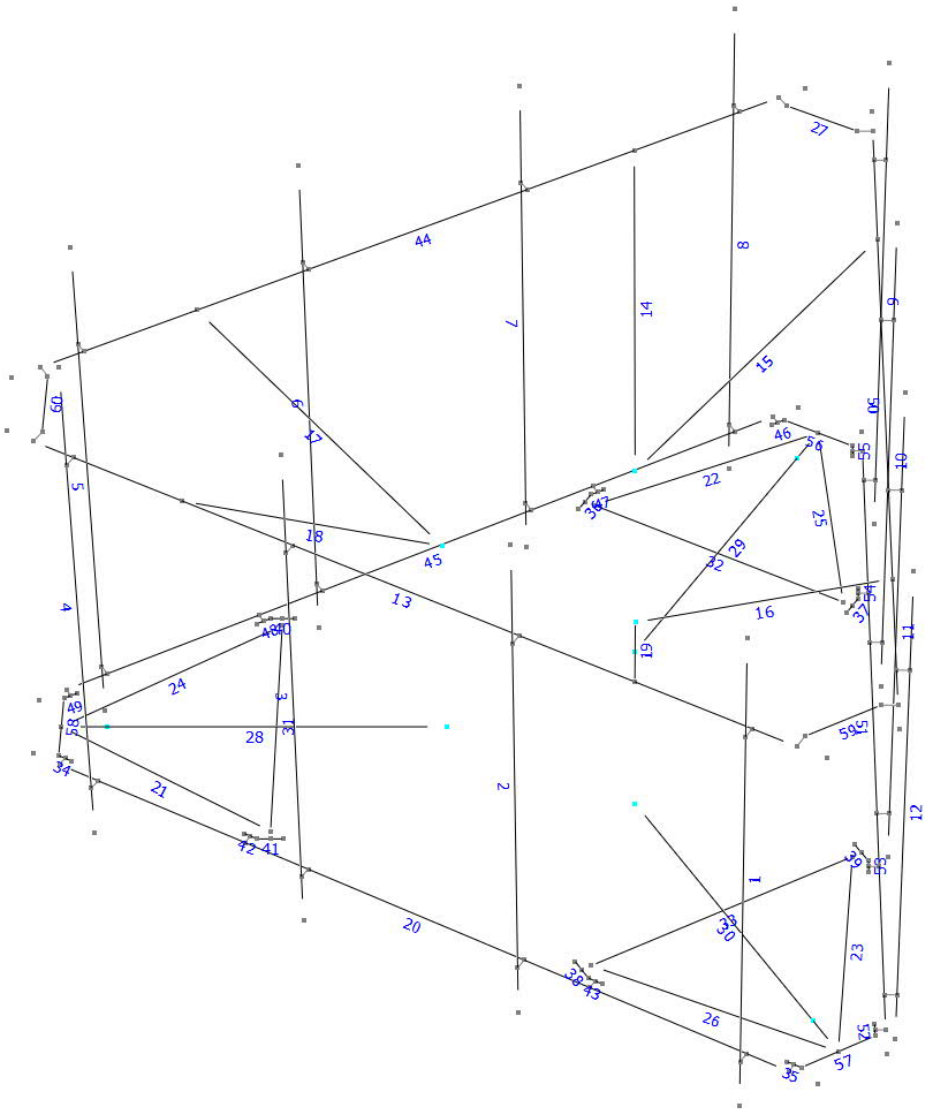
Design status
- Not designed
- Error on design
- Design O.K.
- With warnings





TEP Northeast

Current Date: 5/1/2023 9:34 AM
Units system: English



Current Date: 5/2/2023 9:02 AM
Units system: English

Load data

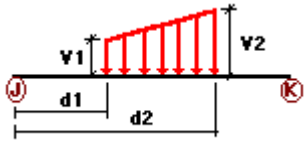
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load End of Mount	No	LL
LLa1	500 lb Live Load on Antenna 1	No	LL
LLa2	500 lb Live Load on Antenna 2	No	LL
LLa3	500 lb Live Load on Antenna 3	No	LL
LLa4	500 lb Live Load on Antenna 4	No	LL

Distributed force on members



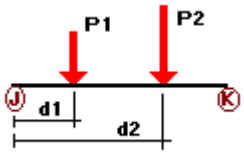
Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	21	y	-0.01	-0.01	0.00	No	100.00	Yes
	22	y	-0.01	-0.01	0.00	No	100.00	Yes
	23	y	-0.01	-0.01	0.00	No	100.00	Yes
	24	y	-0.01	-0.01	0.00	No	100.00	Yes
	25	y	-0.01	-0.01	0.00	No	100.00	Yes
	26	y	-0.01	-0.01	0.00	No	100.00	Yes
	28	y	-0.01	-0.01	0.00	No	55.00	Yes
	29	y	-0.01	-0.01	0.00	No	55.00	Yes
	30	y	-0.01	-0.01	0.00	No	55.00	Yes
	31	y	-0.01	-0.01	0.00	No	100.00	Yes
	32	y	-0.01	-0.01	0.00	No	100.00	Yes
	33	y	-0.01	-0.01	0.00	No	100.00	Yes
W0	1	z	-0.01	-0.01	0.00	No	100.00	Yes
	13	z	-0.01	-0.01	0.00	No	100.00	Yes
	14	z	-0.01	-0.01	0.00	No	100.00	Yes

	15	z	-0.01	-0.01	0.00	No	100.00	Yes
	16	z	-0.01	-0.01	0.00	No	100.00	Yes
	17	z	-0.01	-0.01	0.00	No	100.00	Yes
	18	z	-0.01	-0.01	0.00	No	100.00	Yes
	19	z	-0.01	-0.01	0.00	No	100.00	Yes
	5	z	-0.01	-0.01	0.00	No	100.00	Yes
	6	z	-0.01	-0.01	0.00	No	100.00	Yes
	7	z	-0.01	-0.01	0.00	No	100.00	Yes
	8	z	-0.01	-0.01	0.00	No	100.00	Yes
	9	z	-0.01	-0.01	0.00	No	100.00	Yes
	10	z	-0.01	-0.01	0.00	No	100.00	Yes
	11	z	-0.01	-0.01	0.00	No	100.00	Yes
	12	z	-0.01	-0.01	0.00	No	100.00	Yes
	44	z	-0.01	-0.01	0.00	No	100.00	Yes
	50	z	-0.01	-0.01	0.00	No	100.00	Yes
	20	z	-0.012	-0.012	0.00	No	100.00	Yes
	51	z	-0.012	-0.012	0.00	No	100.00	Yes
	45	z	-0.012	-0.012	0.00	No	100.00	Yes
	21	z	-0.011	-0.011	0.00	No	100.00	Yes
	22	z	-0.011	-0.011	0.00	No	100.00	Yes
	23	z	-0.011	-0.011	0.00	No	100.00	Yes
	24	z	-0.011	-0.011	0.00	No	100.00	Yes
	25	z	-0.011	-0.011	0.00	No	100.00	Yes
	26	z	-0.011	-0.011	0.00	No	100.00	Yes
	27	z	-0.014	-0.014	0.00	No	100.00	Yes
	59	z	-0.014	-0.014	0.00	No	100.00	Yes
	60	z	-0.014	-0.014	0.00	No	100.00	Yes
	28	z	-0.023	-0.023	0.00	No	100.00	Yes
	30	z	-0.023	-0.023	0.00	No	100.00	Yes
	31	z	-0.023	-0.023	0.00	No	100.00	Yes
	32	z	-0.023	-0.023	0.00	No	100.00	Yes
	33	z	-0.023	-0.023	0.00	No	100.00	Yes
	34	z	-0.034	-0.034	0.00	No	100.00	Yes
	35	z	-0.034	-0.034	0.00	No	100.00	Yes
	36	z	-0.034	-0.034	0.00	No	100.00	Yes
	37	z	-0.034	-0.034	0.00	No	100.00	Yes
	38	z	-0.034	-0.034	0.00	No	100.00	Yes
	39	z	-0.034	-0.034	0.00	No	100.00	Yes
	40	z	-0.034	-0.034	0.00	No	100.00	Yes
	41	z	-0.034	-0.034	0.00	No	100.00	Yes
	42	z	-0.034	-0.034	0.00	No	100.00	Yes
	43	z	-0.034	-0.034	0.00	No	100.00	Yes
	46	z	-0.034	-0.034	0.00	No	100.00	Yes
	47	z	-0.034	-0.034	0.00	No	100.00	Yes
	48	z	-0.034	-0.034	0.00	No	100.00	Yes
	49	z	-0.034	-0.034	0.00	No	100.00	Yes
	52	z	-0.034	-0.034	0.00	No	100.00	Yes
	53	z	-0.034	-0.034	0.00	No	100.00	Yes
	54	z	-0.034	-0.034	0.00	No	100.00	Yes
	55	z	-0.034	-0.034	0.00	No	100.00	Yes
	56	z	-0.034	-0.034	0.00	No	100.00	Yes
	57	z	-0.034	-0.034	0.00	No	100.00	Yes
	58	z	-0.034	-0.034	0.00	No	100.00	Yes
W30	1	x	-0.01	-0.01	0.00	No	100.00	Yes
	2	x	-0.01	-0.01	0.00	No	100.00	Yes
	3	x	-0.01	-0.01	0.00	No	100.00	Yes
	4	x	-0.01	-0.01	0.00	No	100.00	Yes
	14	x	-0.01	-0.01	0.00	No	100.00	Yes
	15	x	-0.01	-0.01	0.00	No	100.00	Yes
	16	x	-0.01	-0.01	0.00	No	100.00	Yes

	17	x	-0.01	-0.01	0.00	No	100.00	Yes
	18	x	-0.01	-0.01	0.00	No	100.00	Yes
	19	x	-0.01	-0.01	0.00	No	100.00	Yes
	5	x	-0.01	-0.01	0.00	No	100.00	Yes
	9	x	-0.01	-0.01	0.00	No	100.00	Yes
	44	x	-0.01	-0.01	0.00	No	100.00	Yes
	50	x	-0.01	-0.01	0.00	No	100.00	Yes
	51	x	-0.012	-0.012	0.00	No	100.00	Yes
	45	x	-0.012	-0.012	0.00	No	100.00	Yes
	21	x	-0.011	-0.011	0.00	No	100.00	Yes
	22	x	-0.011	-0.011	0.00	No	100.00	Yes
	23	x	-0.011	-0.011	0.00	No	100.00	Yes
	24	x	-0.011	-0.011	0.00	No	100.00	Yes
	25	x	-0.011	-0.011	0.00	No	100.00	Yes
	26	x	-0.011	-0.011	0.00	No	100.00	Yes
	59	x	-0.014	-0.014	0.00	No	100.00	Yes
	60	x	-0.014	-0.014	0.00	No	100.00	Yes
	28	x	-0.023	-0.023	0.00	No	100.00	Yes
	29	x	-0.023	-0.023	0.00	No	100.00	Yes
	30	x	-0.023	-0.023	0.00	No	100.00	Yes
	31	x	-0.023	-0.023	0.00	No	100.00	Yes
	33	x	-0.023	-0.023	0.00	No	100.00	Yes
	34	x	-0.034	-0.034	0.00	No	100.00	Yes
	35	x	-0.034	-0.034	0.00	No	100.00	Yes
	36	x	-0.034	-0.034	0.00	No	100.00	Yes
	37	x	-0.034	-0.034	0.00	No	100.00	Yes
	38	x	-0.034	-0.034	0.00	No	100.00	Yes
	39	x	-0.034	-0.034	0.00	No	100.00	Yes
	40	x	-0.034	-0.034	0.00	No	100.00	Yes
	41	x	-0.034	-0.034	0.00	No	100.00	Yes
	42	x	-0.034	-0.034	0.00	No	100.00	Yes
	43	x	-0.034	-0.034	0.00	No	100.00	Yes
	46	x	-0.034	-0.034	0.00	No	100.00	Yes
	47	x	-0.034	-0.034	0.00	No	100.00	Yes
	48	x	-0.034	-0.034	0.00	No	100.00	Yes
	49	x	-0.034	-0.034	0.00	No	100.00	Yes
	52	x	-0.034	-0.034	0.00	No	100.00	Yes
	53	x	-0.034	-0.034	0.00	No	100.00	Yes
	54	x	-0.034	-0.034	0.00	No	100.00	Yes
	55	x	-0.034	-0.034	0.00	No	100.00	Yes
	57	x	-0.034	-0.034	0.00	No	100.00	Yes
	58	x	-0.034	-0.034	0.00	No	100.00	Yes
Di	1	y	-0.005	-0.005	0.00	No	100.00	Yes
	2	y	-0.005	-0.005	0.00	No	100.00	Yes
	3	y	-0.005	-0.005	0.00	No	100.00	Yes
	4	y	-0.005	-0.005	0.00	No	100.00	Yes
	13	y	-0.005	-0.005	0.00	No	100.00	Yes
	14	y	-0.005	-0.005	0.00	No	100.00	Yes
	15	y	-0.005	-0.005	0.00	No	100.00	Yes
	16	y	-0.005	-0.005	0.00	No	100.00	Yes
	17	y	-0.005	-0.005	0.00	No	100.00	Yes
	18	y	-0.005	-0.005	0.00	No	100.00	Yes
	19	y	-0.005	-0.005	0.00	No	100.00	Yes
	5	y	-0.005	-0.005	0.00	No	100.00	Yes
	6	y	-0.005	-0.005	0.00	No	100.00	Yes
	7	y	-0.005	-0.005	0.00	No	100.00	Yes
	8	y	-0.005	-0.005	0.00	No	100.00	Yes
	9	y	-0.005	-0.005	0.00	No	100.00	Yes
	10	y	-0.005	-0.005	0.00	No	100.00	Yes
	11	y	-0.005	-0.005	0.00	No	100.00	Yes

12	y	-0.005	-0.005	0.00	No	100.00	Yes
44	y	-0.005	-0.005	0.00	No	100.00	Yes
50	y	-0.005	-0.005	0.00	No	100.00	Yes
20	y	-0.006	-0.006	0.00	No	100.00	Yes
51	y	-0.006	-0.006	0.00	No	100.00	Yes
45	y	-0.006	-0.006	0.00	No	100.00	Yes
21	y	-0.005	-0.005	0.00	No	100.00	Yes
22	y	-0.005	-0.005	0.00	No	100.00	Yes
23	y	-0.005	-0.005	0.00	No	100.00	Yes
24	y	-0.005	-0.005	0.00	No	100.00	Yes
25	y	-0.005	-0.005	0.00	No	100.00	Yes
26	y	-0.005	-0.005	0.00	No	100.00	Yes
27	y	-0.006	-0.006	0.00	No	100.00	Yes
59	y	-0.006	-0.006	0.00	No	100.00	Yes
60	y	-0.006	-0.006	0.00	No	100.00	Yes
28	y	-0.009	-0.009	0.00	No	100.00	Yes
29	y	-0.009	-0.009	0.00	No	100.00	Yes
30	y	-0.009	-0.009	0.00	No	100.00	Yes
31	y	-0.009	-0.009	0.00	No	100.00	Yes
32	y	-0.009	-0.009	0.00	No	100.00	Yes
33	y	-0.009	-0.009	0.00	No	100.00	Yes
34	y	-0.01	-0.01	0.00	No	100.00	Yes
35	y	-0.01	-0.01	0.00	No	100.00	Yes
36	y	-0.01	-0.01	0.00	No	100.00	Yes
37	y	-0.01	-0.01	0.00	No	100.00	Yes
38	y	-0.01	-0.01	0.00	No	100.00	Yes
39	y	-0.01	-0.01	0.00	No	100.00	Yes
40	y	-0.01	-0.01	0.00	No	100.00	Yes
41	y	-0.01	-0.01	0.00	No	100.00	Yes
42	y	-0.01	-0.01	0.00	No	100.00	Yes
43	y	-0.01	-0.01	0.00	No	100.00	Yes
46	y	-0.01	-0.01	0.00	No	100.00	Yes
47	y	-0.01	-0.01	0.00	No	100.00	Yes
48	y	-0.01	-0.01	0.00	No	100.00	Yes
49	y	-0.01	-0.01	0.00	No	100.00	Yes
52	y	-0.01	-0.01	0.00	No	100.00	Yes
53	y	-0.01	-0.01	0.00	No	100.00	Yes
54	y	-0.01	-0.01	0.00	No	100.00	Yes
55	y	-0.01	-0.01	0.00	No	100.00	Yes
56	y	-0.01	-0.01	0.00	No	100.00	Yes
57	y	-0.01	-0.01	0.00	No	100.00	Yes
58	y	-0.01	-0.01	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	1	y	-0.029	5.00	No
	2	y	-0.044	1.50	No
		y	-0.044	8.50	No
		y	-0.036	3.00	No
		y	-0.036	5.00	No
	3	y	-0.041	2.00	No
		y	-0.041	4.00	No
		y	-0.033	5.50	No
		y	-0.033	8.00	No
	4	y	-0.04	1.50	No
		y	-0.04	8.50	No
		y	-0.021	3.00	No
		y	-0.021	5.00	No
	6	y	-0.044	1.50	No
		y	-0.044	8.50	No
		y	-0.036	3.00	No
		y	-0.036	5.00	No
	7	y	-0.041	2.00	No
		y	-0.041	4.00	No
		y	-0.033	5.50	No
		y	-0.033	8.00	No
	8	y	-0.04	1.50	No
		y	-0.04	8.50	No
		y	-0.021	3.00	No
		y	-0.021	5.00	No
	10	y	-0.044	1.50	No
		y	-0.044	8.50	No
		y	-0.036	3.00	No
		y	-0.036	5.00	No
	11	y	-0.041	2.00	No
		y	-0.041	4.00	No
		y	-0.033	5.50	No
		y	-0.033	8.00	No
	12	y	-0.04	1.50	No
		y	-0.04	8.50	No
		y	-0.021	3.00	No
		y	-0.021	5.00	No
W0	1	z	-0.053	5.00	No
	2	z	-0.303	1.50	No
		z	-0.303	8.50	No
	3	z	-0.069	2.00	No
		z	-0.069	4.00	No
		z	-0.065	5.50	No
		z	-0.065	8.00	No
	4	z	-0.303	1.50	No
		z	-0.303	8.50	No
	6	z	-0.179	1.50	No
		z	-0.179	8.50	No
		z	-0.033	3.00	No
		z	-0.033	5.00	No
	7	z	-0.052	2.00	No
		z	-0.052	4.00	No
		z	-0.039	5.50	No
		z	-0.039	8.00	No
	8	z	-0.179	1.50	No
		z	-0.179	8.50	No
		z	-0.014	3.00	No
		z	-0.014	5.00	No
	10	z	-0.179	1.50	No
		z	-0.179	8.50	No

		z	-0.033	3.00	No
		z	-0.033	5.00	No
	11	z	-0.052	2.00	No
		z	-0.052	4.00	No
		z	-0.039	5.50	No
		z	-0.039	8.00	No
	12	z	-0.179	1.50	No
		z	-0.179	8.50	No
		z	-0.014	3.00	No
		z	-0.014	5.00	No
W30	1	x	-0.053	5.00	No
	2	x	-0.138	1.50	No
		x	-0.138	8.50	No
		x	-0.038	3.00	No
		x	-0.038	5.00	No
	3	x	-0.047	2.00	No
		x	-0.047	4.00	No
		x	-0.031	5.50	No
		x	-0.031	8.00	No
	4	x	-0.138	1.50	No
		x	-0.138	8.50	No
		x	-0.013	3.00	No
		x	-0.013	5.00	No
	6	x	-0.262	1.50	No
		x	-0.262	8.50	No
		x	-0.031	3.00	No
		x	-0.031	5.00	No
	7	x	-0.064	2.00	No
		x	-0.064	4.00	No
		x	-0.056	5.50	No
		x	-0.056	8.00	No
	8	x	-0.262	1.50	No
		x	-0.262	8.50	No
		x	-0.02	3.00	No
		x	-0.02	5.00	No
	10	x	-0.262	1.50	No
		x	-0.262	8.50	No
		x	-0.031	3.00	No
		x	-0.031	5.00	No
	11	x	-0.064	2.00	No
		x	-0.064	4.00	No
		x	-0.056	5.50	No
		x	-0.056	8.00	No
	12	x	-0.262	1.50	No
		x	-0.262	8.50	No
		x	-0.02	3.00	No
		x	-0.02	5.00	No
Di	1	y	-0.04	5.00	No
	2	y	-0.126	1.50	No
		y	-0.126	8.50	No
		y	-0.023	3.00	No
		y	-0.023	5.00	No
	3	y	-0.035	2.00	No
		y	-0.035	4.00	No
		y	-0.033	5.50	No
		y	-0.033	8.00	No
	4	y	-0.126	1.50	No
		y	-0.126	8.50	No
		y	-0.014	3.00	No
		y	-0.014	5.00	No

	6	y	-0.126	1.50	No
		y	-0.126	8.50	No
		y	-0.023	3.00	No
		y	-0.023	5.00	No
	7	y	-0.035	2.00	No
		y	-0.035	4.00	No
		y	-0.033	5.50	No
		y	-0.033	8.00	No
	8	y	-0.126	1.50	No
		y	-0.126	8.50	No
		y	-0.014	3.00	No
		y	-0.014	5.00	No
	10	y	-0.126	1.50	No
		y	-0.126	8.50	No
		y	-0.023	3.00	No
		y	-0.023	5.00	No
	11	y	-0.035	2.00	No
		y	-0.035	4.00	No
		y	-0.033	5.50	No
		y	-0.033	8.00	No
	12	y	-0.126	1.50	No
		y	-0.126	8.50	No
		y	-0.014	3.00	No
		y	-0.014	5.00	No
Wi0	1	z	-0.012	5.00	No
	2	z	-0.06	1.50	No
		z	-0.06	8.50	No
	3	z	-0.015	2.00	No
		z	-0.015	4.00	No
		z	-0.014	5.50	No
		z	-0.014	8.00	No
	4	z	-0.06	1.50	No
		z	-0.06	8.50	No
	6	z	-0.038	1.50	No
		z	-0.038	8.50	No
		z	-0.008	3.00	No
		z	-0.008	5.00	No
	7	z	-0.012	2.00	No
		z	-0.012	4.00	No
		z	-0.009	5.50	No
		z	-0.009	8.00	No
	8	z	-0.038	1.50	No
		z	-0.038	8.50	No
		z	-0.004	3.00	No
		z	-0.004	5.00	No
	10	z	-0.038	1.50	No
		z	-0.038	8.50	No
		z	-0.008	3.00	No
		z	-0.008	5.00	No
	11	z	-0.012	2.00	No
		z	-0.012	4.00	No
		z	-0.009	5.50	No
		z	-0.009	8.00	No
	12	z	-0.038	1.50	No
		z	-0.038	8.50	No
		z	-0.004	3.00	No
		z	-0.004	5.00	No
Wi30	1	x	-0.012	5.00	No
	2	x	-0.03	1.50	No
		x	-0.03	8.50	No

		x	-0.009	3.00	No
		x	-0.009	5.00	No
	3	x	-0.011	2.00	No
		x	-0.011	4.00	No
		x	-0.008	5.50	No
		x	-0.008	8.00	No
	4	x	-0.03	1.50	No
		x	-0.03	8.50	No
		x	-0.004	3.00	No
		x	-0.004	5.00	No
	6	x	-0.052	1.50	No
		x	-0.052	8.50	No
		x	-0.008	3.00	No
		x	-0.008	5.00	No
	7	x	-0.014	2.00	No
		x	-0.014	4.00	No
		x	-0.013	5.50	No
		x	-0.013	8.00	No
	8	x	-0.052	1.50	No
		x	-0.052	8.50	No
		x	-0.005	3.00	No
		x	-0.005	5.00	No
	10	x	-0.052	1.50	No
		x	-0.052	8.50	No
		x	-0.008	3.00	No
		x	-0.008	5.00	No
	11	x	-0.014	2.00	No
		x	-0.014	4.00	No
		x	-0.013	5.50	No
		x	-0.013	8.00	No
	12	x	-0.052	1.50	No
		x	-0.052	8.50	No
		x	-0.005	3.00	No
		x	-0.005	5.00	No
WL0	1	z	-0.003	5.00	No
	2	z	-0.019	1.50	No
		z	-0.019	8.50	No
	3	z	-0.005	2.00	No
		z	-0.005	4.00	No
		z	-0.005	5.50	No
		z	-0.005	8.00	No
	4	z	-0.019	1.50	No
		z	-0.019	8.50	No
	6	z	-0.012	1.50	No
		z	-0.012	8.50	No
		z	-0.002	3.00	No
		z	-0.002	5.00	No
	7	z	-0.004	2.00	No
		z	-0.004	4.00	No
		z	-0.003	5.50	No
		z	-0.003	8.00	No
	8	z	-0.012	1.50	No
		z	-0.012	8.50	No
		z	-0.001	3.00	No
		z	-0.001	5.00	No
	10	z	-0.012	1.50	No
		z	-0.012	8.50	No
		z	-0.002	3.00	No
		z	-0.002	5.00	No
	11	z	-0.004	2.00	No

		z	-0.004	4.00	No
		z	-0.003	5.50	No
		z	-0.003	8.00	No
	12	z	-0.012	1.50	No
		z	-0.012	8.50	No
		z	-0.001	3.00	No
		z	-0.001	5.00	No
WL30	1	x	-0.003	5.00	No
	2	x	-0.009	1.50	No
		x	-0.009	8.50	No
		x	-0.002	3.00	No
		x	-0.002	5.00	No
	3	x	-0.003	2.00	No
		x	-0.003	4.00	No
		x	-0.002	5.50	No
		x	-0.002	8.00	No
	4	x	-0.009	1.50	No
		x	-0.009	8.50	No
		x	-0.001	3.00	No
		x	-0.001	5.00	No
	6	x	-0.017	1.50	No
		x	-0.017	8.50	No
		x	-0.002	3.00	No
		x	-0.002	5.00	No
	7	x	-0.004	2.00	No
		x	-0.004	4.00	No
		x	-0.004	5.50	No
		x	-0.004	8.00	No
	8	x	-0.017	1.50	No
		x	-0.017	8.50	No
		x	-0.001	3.00	No
		x	-0.001	5.00	No
	10	x	-0.017	1.50	No
		x	-0.017	8.50	No
		x	-0.002	3.00	No
		x	-0.002	5.00	No
	11	x	-0.004	2.00	No
		x	-0.004	4.00	No
		x	-0.004	5.50	No
		x	-0.004	8.00	No
	12	x	-0.017	1.50	No
		x	-0.017	8.50	No
		x	-0.001	3.00	No
		x	-0.001	5.00	No
LL1	13	y	-0.25	50.00	Yes
LL2	13	y	-0.25	100.00	Yes
LLa1	1	y	-0.50	50.00	Yes
LLa2	2	y	-0.50	50.00	Yes
LLa3	3	y	-0.50	50.00	Yes
LLa4	4	y	-0.50	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load End of Mount	No	0.00	0.00	0.00
LLa1	500 lb Live Load on Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load on Antenna 2	No	0.00	0.00	0.00
LLa3	500 lb Live Load on Antenna 3	No	0.00	0.00	0.00
LLa4	500 lb Live Load on Antenna 4	No	0.00	0.00	0.00

RAM® Elements
CONNECT Edition

TEP Northeast

Current Date: 5/2/2023 9:03 AM
Units system: English

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

W180=-W0
W210=-W30
Wi180=-Wi0
Wi210=-Wi30
WL180=-WL0
WL210=-WL30
LC1=1.2DL+1.6W0
LC2=1.2DL+1.6W30
LC3=1.2DL-1.6W0
LC4=1.2DL-1.6W30
LC5=0.9DL+1.6W0
LC6=0.9DL+1.6W30
LC7=0.9DL-1.6W0
LC8=0.9DL-1.6W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.2DL
LC14=0.9DL
LC15=1.2DL+1.6LL1
LC16=1.2DL+1.6LL2
LC17=1.2DL+WL0+LLa1
LC18=1.2DL+WL30+LLa1
LC19=1.2DL-WL0+LLa1
LC20=1.2DL-WL30+LLa1
LC21=1.2DL+WL0+LLa2
LC22=1.2DL+WL30+LLa2
LC23=1.2DL-WL0+LLa2
LC24=1.2DL-WL30+LLa2
LC25=1.2DL+WL0+LLa3
LC26=1.2DL+WL30+LLa3
LC27=1.2DL-WL0+LLa3
LC28=1.2DL-WL30+LLa3
LC29=1.2DL+WL0+LLa4
LC30=1.2DL+WL30+LLa4
LC31=1.2DL-WL0+LLa4
LC32=1.2DL-WL30+LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	**28**	LC3 at 100.00%	0.21	OK	
		29	LC4 at 100.00%	**0.23**	**OK**	
		30	LC3 at 100.00%	0.20	OK	
		31	LC2 at 51.56%	0.18	OK	
		32	LC1 at 50.00%	0.18	OK	
		33	LC4 at 48.44%	0.18	OK	
	L 2-1_2X2-1_2X3_16	**27**	LC3 at 0.00%	0.46	OK	
		59	LC2 at 0.00%	**0.47**	**OK**	
		60	LC4 at 100.00%	0.39	OK	

L 2X2X1_4	**21**	LC5 at 0.00%	0.19	OK
	22	LC1 at 100.00%	0.20	OK
	23	LC4 at 100.00%	**0.21**	**OK**
	24	LC2 at 0.00%	0.21	OK
	25	LC1 at 0.00%	0.20	OK
	26	LC3 at 0.00%	0.18	OK
PIPE 2-1_2x0.203	**1**	LC4 at 89.58%	0.14	OK
	2	LC3 at 85.42%	0.16	OK
	3	LC2 at 89.58%	0.16	OK
	4	LC3 at 85.42%	0.19	OK
	13	LC7 at 77.08%	0.42	OK
	14	LC2 at 0.00%	0.26	OK
	15	LC4 at 0.00%	0.27	OK
	16	LC1 at 0.00%	0.23	OK
	17	LC1 at 0.00%	0.24	OK
	18	LC3 at 0.00%	0.19	OK
	19	LC3 at 0.00%	0.19	OK
	5	LC2 at 20.83%	0.15	OK
	6	LC2 at 85.42%	0.17	OK
	7	LC1 at 89.58%	0.19	OK
	8	LC1 at 89.58%	0.20	OK
	9	LC1 at 89.58%	0.17	OK
	10	LC1 at 89.58%	0.18	OK
	11	LC4 at 79.17%	0.15	OK
	12	LC4 at 85.42%	0.19	OK
	44	LC6 at 22.92%	0.45	OK
	50	LC8 at 77.08%	**0.47**	**OK**
PIPE 3x0.216	**20**	LC3 at 36.11%	0.15	OK
	51	LC4 at 63.89%	0.14	OK
	45	LC2 at 36.11%	**0.16**	**OK**
PL 6x3/8	**34**	LC1 at 50.00%	0.10	OK
	35	LC3 at 50.00%	0.05	OK
	36	LC1 at 46.88%	0.10	OK
	37	LC4 at 46.88%	0.11	OK
	38	LC3 at 50.00%	0.08	OK
	39	LC4 at 50.00%	0.09	OK
	40	LC3 at 50.00%	0.08	OK
	41	LC2 at 50.00%	0.06	OK
	42	LC1 at 46.88%	0.09	OK
	43	LC1 at 53.13%	0.12	OK
	46	LC3 at 50.00%	0.08	OK
	47	LC4 at 46.88%	0.11	OK
	48	LC3 at 53.13%	0.08	OK
	49	LC2 at 50.00%	0.06	OK
	52	LC2 at 50.00%	0.10	OK
	53	LC2 at 0.00%	0.07	OK
	54	LC2 at 53.13%	**0.15**	**OK**
	55	LC1 at 100.00%	0.07	OK
	56	LC1 at 50.00%	0.14	OK
	57	LC4 at 46.88%	0.11	OK
	58	LC2 at 50.00%	0.11	OK

Current Date: 5/2/2023 9:03 AM
Units system: English

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	-4.00	-2.0457	0
2	-1.7716	-4.00	1.0228	0
3	1.7716	-4.00	1.0228	0
4	0.00	0.00	-2.0457	0
5	-1.7716	0.00	1.0228	0
6	1.7716	0.00	1.0228	0
7	0.00	-4.00	-7.5748	0
8	-6.5599	-4.00	3.7874	0
9	6.5599	-4.00	3.7874	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	1	1	1
2	1	1	1	1	1	1
3	1	1	1	1	1	1
4	1	1	1	1	1	1
5	1	1	1	1	1	1
6	1	1	1	1	1	1
7	0	1	0	0	0	0
8	0	1	0	0	0	0
9	0	1	0	0	0	0

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	33	37		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
2	34	38		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
3	35	39		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
4	36	40		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
13	42	41		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
14	4	53		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
15	4	56		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
16	6	51		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
17	5	55		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
18	5	52		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
19	6	54		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
5	172	180		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
6	171	179		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
7	170	178		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
8	169	177		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
9	168	176		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
10	167	175		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
11	166	174		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
12	165	173		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
44	119	120		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
50	123	124		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
20	10	11		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
51	125	126		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
45	121	122		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
21	21	132		L 2X2X1_4	A36	0.00	0.00	0.00
22	23	12		L 2X2X1_4	A36	0.00	0.00	0.00
23	19	131		L 2X2X1_4	A36	0.00	0.00	0.00
24	132	22		L 2X2X1_4	A36	0.00	0.00	0.00
25	12	24		L 2X2X1_4	A36	0.00	0.00	0.00
26	131	20		L 2X2X1_4	A36	0.00	0.00	0.00
27	97	130		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
59	98	67		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
60	63	128		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
28	132	2		HSS_SQR 4X4X1_4	A53 GrB	0.00	0.00	0.00
29	12	1		HSS_SQR 4X4X1_4	A53 GrB	0.00	0.00	0.00
30	131	3		HSS_SQR 4X4X1_4	A53 GrB	0.00	0.00	0.00
31	17	16		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
32	15	13		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
33	14	18		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
34	69	71		PL 6x3/8	A36	0.00	0.00	0.00
35	72	70		PL 6x3/8	A36	0.00	0.00	0.00
36	75	73		PL 6x3/8	A36	0.00	0.00	0.00

37	76	74	PL 6x3/8	A36	0.00	0.00	0.00
38	79	77	PL 6x3/8	A36	0.00	0.00	0.00
39	83	81	PL 6x3/8	A36	0.00	0.00	0.00
40	80	78	PL 6x3/8	A36	0.00	0.00	0.00
41	84	82	PL 6x3/8	A36	0.00	0.00	0.00
42	84	85	PL 6x3/8	A36	0.00	0.00	0.00
43	86	79	PL 6x3/8	A36	0.00	0.00	0.00
46	91	93	PL 6x3/8	A36	0.00	0.00	0.00
47	75	103	PL 6x3/8	A36	0.00	0.00	0.00
48	109	80	PL 6x3/8	A36	0.00	0.00	0.00
49	117	115	PL 6x3/8	A36	0.00	0.00	0.00
52	92	94	PL 6x3/8	A36	0.00	0.00	0.00
53	83	104	PL 6x3/8	A36	0.00	0.00	0.00
54	110	76	PL 6x3/8	A36	0.00	0.00	0.00
55	118	116	PL 6x3/8	A36	0.00	0.00	0.00
56	93	116	PL 6x3/8	A36	0.00	0.00	0.00
57	94	70	PL 6x3/8	A36	0.00	0.00	0.00
58	71	115	PL 6x3/8	A36	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
27	180.00	0	0.00	0.00	0.00
59	180.00	0	0.00	0.00	0.00
60	180.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
21	0.00	3.00	0.00	0.00	3.00	0.00
22	0.00	3.00	0.00	0.00	3.00	0.00
23	0.00	3.00	0.00	0.00	3.00	0.00
24	0.00	3.00	0.00	0.00	3.00	0.00
25	0.00	3.00	0.00	0.00	3.00	0.00
26	0.00	3.00	0.00	0.00	3.00	0.00

Hinges

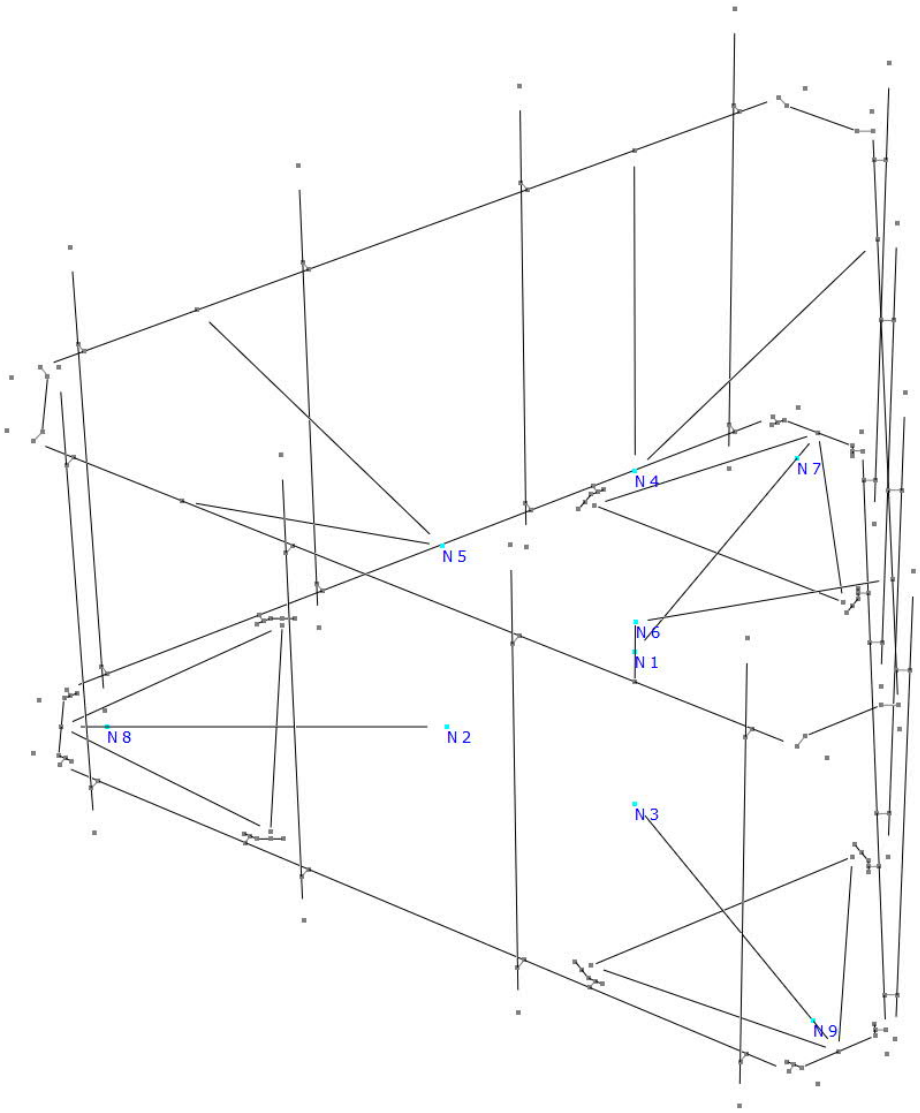
	Node-J				Node-K						
Member	M33	M22	V3	V2	M33	M22	V3	V2	TOR	AXL	Axial rigidity
14	0	0	0	0	1	1	0	0	0	0	Full
15	0	0	0	0	1	1	0	0	0	0	Full
16	0	0	0	0	1	1	0	0	0	0	Full
17	0	0	0	0	1	1	0	0	0	0	Full
18	0	0	0	0	1	1	0	0	0	0	Full

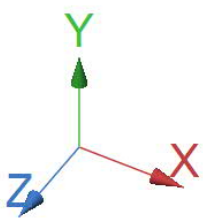
19	0	0	0	0	1	1	0	0	0	0	Full

Connection Check

TEP Northeast

Current Date: 5/1/2023 9:37 AM
Units system: English





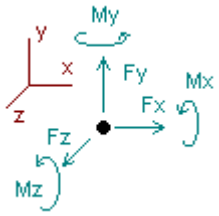
RAM® Elements
CONNECT Edition

TEP Northeast

Current Date: 5/2/2023 9:03 AM
Units system: English

Analysis result

Reactions



Direction of positive forces and moments

	Forces [Kip]			Moments [Kip*ft]		
Node	**FX**	**FY**	**FZ**	**MX**	**MY**	**MZ**
Condition **W180=-W0**						
1	0.01017	-0.28954	-1.46269	-0.37010	-0.03829	0.01845
2	0.39241	0.15010	-0.92731	-0.44822	-0.90973	0.03876
3	-0.38745	0.16455	-0.90787	-0.44074	0.83819	-0.00623
4	-0.02268	0.94481	-1.38129	-0.40652	-0.02379	-0.01269
5	0.42663	-0.51942	-0.79359	-0.44749	-0.36453	-0.00341
6	-0.41909	-0.50659	-0.75801	-0.42748	0.34679	-0.02024
7	0.00000	-0.82557	0.00000	0.00000	0.00000	0.00000
8	0.00000	0.45026	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.43140	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	0.00000	-6.23076	-2.54054	-0.15136	0.01463
Condition **W210=-W30**						
1	-0.76244	0.00816	-0.00387	0.01363	1.31898	0.45603
2	-1.17564	-0.25221	0.42797	-0.01669	-0.10406	0.38742
3	-1.18087	0.24459	-0.44095	0.04960	-0.09510	0.39038
4	-0.55636	0.00270	-0.00827	-0.02192	0.54192	0.50419
5	-1.11447	0.79772	0.40143	0.03385	-0.05088	0.35802
6	-1.15059	-0.80364	-0.37631	-0.06077	-0.02973	0.36891
7	0.00000	-0.00788	0.00000	0.00000	0.00000	0.00000
8	0.00000	-0.68958	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.70015	0.00000	0.00000	0.00000	0.00000
SUM	-5.94037	0.00000	0.00000	-0.00229	1.58113	2.46494
Condition **Wi180=-Wi0**						
1	0.00398	-0.04237	-0.14983	-0.05606	-0.01494	0.00445
2	0.03603	0.02346	-0.10083	-0.07166	-0.11261	0.00572
3	-0.03706	0.02654	-0.08770	-0.06846	0.07646	0.00226
4	-0.00434	0.13123	-0.18557	-0.05141	-0.00872	-0.00421
5	0.06339	-0.08055	-0.11810	-0.06506	-0.04925	0.00139
6	-0.06200	-0.07547	-0.10396	-0.05623	0.03624	-0.00417
7	0.00000	-0.11457	0.00000	0.00000	0.00000	0.00000
8	0.00000	0.06828	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.06345	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	0.00000	-0.74600	-0.36888	-0.07282	0.00544

Condition **Wi210=-Wi30**

1	-0.09637	0.00151	-0.00356	0.00264	0.18055	0.07513
2	-0.12210	-0.04127	0.05313	-0.00041	0.01477	0.06422
3	-0.12805	0.03947	-0.05311	0.00992	0.00993	0.06586
4	-0.08509	0.00230	-0.00423	-0.00519	0.08325	0.08061
5	-0.16420	0.12353	0.06352	0.00634	0.00570	0.04816
6	-0.17620	-0.12746	-0.05574	-0.01109	0.00902	0.05159
7	0.00000	-0.00200	0.00000	0.00000	0.00000	0.00000
8	0.00000	-0.10605	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.10997	0.00000	0.00000	0.00000	0.00000
SUM	-0.77200	0.00000	0.00000	0.00221	0.30323	0.38557

Condition **WL180=-WL0**

1	0.00137	-0.01325	-0.04693	-0.01754	-0.00539	0.00149
2	0.01102	0.00745	-0.03265	-0.02283	-0.03726	0.00186
3	-0.01150	0.00850	-0.02737	-0.02181	0.02336	0.00084
4	-0.00139	0.04065	-0.05749	-0.01588	-0.00319	-0.00150
5	0.02011	-0.02570	-0.03783	-0.02078	-0.01582	0.00058
6	-0.01962	-0.02384	-0.03274	-0.01751	0.01060	-0.00130
7	0.00000	-0.03554	0.00000	0.00000	0.00000	0.00000
8	0.00000	0.02169	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.02006	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	0.00000	-0.23500	-0.11634	-0.02770	0.00197

Condition **WL210=-WL30**

1	-0.03176	0.00051	-0.00102	0.00089	0.06132	0.02341
2	-0.03648	-0.01259	0.01707	-0.00028	0.00906	0.01971
3	-0.03822	0.01199	-0.01721	0.00323	0.00780	0.02014
4	-0.02674	0.00058	-0.00115	-0.00164	0.02732	0.02572
5	-0.04914	0.03701	0.01909	0.00265	0.00433	0.01379
6	-0.05266	-0.03816	-0.01678	-0.00421	0.00551	0.01476
7	0.00000	-0.00059	0.00000	0.00000	0.00000	0.00000
8	0.00000	-0.03176	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.03303	0.00000	0.00000	0.00000	0.00000
SUM	-0.23500	0.00000	0.00000	0.00063	0.11534	0.11753

Condition **LC1=1.2DL+1.6W0**

1	-0.02013	0.97358	2.33476	1.33511	0.06574	-0.06371
2	-0.62690	0.27247	1.48804	0.31783	1.46183	-0.69569
3	0.62258	0.24813	1.45168	0.35291	-1.34049	0.66787
4	0.03614	-1.37493	2.14740	0.78563	0.02669	0.00490
5	-0.74055	0.96246	1.30210	0.63612	0.56928	-0.10139
6	0.72887	0.94191	1.24525	0.62528	-0.56423	0.15336
7	0.00000	2.18074	0.00000	0.00000	0.00000	0.00000
8	0.00000	0.14444	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.20871	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	4.55752	9.96922	4.05289	0.21881	-0.03465

Condition **LC2=1.2DL+1.6W30**

1	1.21584	0.49673	0.00731	0.72189	-2.10568	-0.76375
2	1.87722	0.91711	-0.67944	-0.37972	0.16925	-1.24932
3	1.89484	0.11968	0.70486	-0.43856	0.15504	0.02866
4	0.89047	0.12408	-0.05322	0.16709	-0.87991	-0.82291
5	1.72693	-1.14182	-0.61211	-0.13521	0.06912	-0.68107
6	1.89928	1.42089	0.63260	0.03782	0.03613	-0.46889
7	0.00000	0.87897	0.00000	0.00000	0.00000	0.00000

8	0.00000	1.96513	0.00000	0.00000	0.00000	0.00000
9	0.00000	-0.22325	0.00000	0.00000	0.00000	0.00000
SUM	9.50459	4.55752	0.00000	-0.02668	-2.55605	-3.95728

Condition **LC3=1.2DL-1.6W0**

1	0.01240	0.04516	-2.34251	0.15039	-0.05629	-0.00464
2	0.62641	0.75367	-1.47745	-1.12047	-1.44936	-0.57006
3	-0.61466	0.77527	-1.45214	-1.06112	1.34309	0.64607
4	-0.03638	1.64111	-2.27923	-0.52050	-0.04953	-0.03564
5	0.62466	-0.70291	-1.23777	-0.79614	-0.59643	-0.11116
6	-0.61244	-0.68191	-1.18013	-0.74286	0.54487	0.08747
7	0.00000	-0.45317	0.00000	0.00000	0.00000	0.00000
8	0.00000	1.58841	0.00000	0.00000	0.00000	0.00000
9	0.00000	1.59190	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	4.55752	-9.96922	-4.09070	-0.26365	0.01205

Condition **LC4=1.2DL-1.6W30**

1	-1.22332	0.52209	-0.00860	0.76457	2.11456	0.69583
2	-1.88181	0.10896	0.68972	-0.43138	-0.16174	-0.01094
3	-1.88259	0.90361	-0.70524	-0.27791	-0.14869	1.27999
4	-0.89061	0.13225	-0.08177	0.09513	0.85602	0.79195
5	-1.84244	1.40459	0.67543	-0.02500	-0.09354	0.46787
6	-1.78382	-1.15626	-0.56954	-0.15591	-0.05816	0.71098
7	0.00000	0.85520	0.00000	0.00000	0.00000	0.00000
8	0.00000	-0.23418	0.00000	0.00000	0.00000	0.00000
9	0.00000	2.02126	0.00000	0.00000	0.00000	0.00000
SUM	-9.50459	4.55752	0.00000	-0.03049	2.50845	3.93568

Condition **LC5=0.9DL+1.6W0**

1	-0.01911	0.84615	2.33600	1.14936	0.06439	-0.05520
2	-0.62662	0.14431	1.48680	0.41880	1.46069	-0.53784
3	0.62133	0.12025	1.45187	0.44205	-1.34144	0.50386
4	0.03605	-1.40693	2.16427	0.75294	0.02961	0.00876
5	-0.72577	0.93083	1.29361	0.65573	0.57231	-0.07519
6	0.71413	0.91015	1.23667	0.63964	-0.56151	0.12356
7	0.00000	1.96390	0.00000	0.00000	0.00000	0.00000
8	0.00000	-0.07316	0.00000	0.00000	0.00000	0.00000
9	0.00000	-0.01737	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	3.41814	9.96922	4.05852	0.22406	-0.03205

Condition **LC6=0.9DL+1.6W30**

1	1.21697	0.36944	0.00820	0.53615	-2.10720	-0.75517
2	1.87786	0.78870	-0.68098	-0.27869	0.16797	-1.09141
3	1.89377	-0.00812	0.70500	-0.34937	0.15429	-0.13526
4	0.89029	0.09217	-0.03604	0.13460	-0.87684	-0.81889
5	1.74135	-1.17359	-0.62026	-0.11533	0.07229	-0.65466
6	1.88435	1.38914	0.62408	0.05225	0.03883	-0.49854
7	0.00000	0.66184	0.00000	0.00000	0.00000	0.00000
8	0.00000	1.74791	0.00000	0.00000	0.00000	0.00000
9	0.00000	-0.44936	0.00000	0.00000	0.00000	0.00000
SUM	9.50459	3.41814	0.00000	-0.02039	-2.55067	-3.95394

Condition **LC7=0.9DL-1.6W0**

1	0.01338	-0.08192	-2.34199	-0.03526	-0.05759	0.00389
2	0.62690	0.62529	-1.47905	-1.01938	-1.45082	-0.41216
3	-0.61611	0.64727	-1.45226	-0.97189	1.34241	0.48216
4	-0.03638	1.60927	-2.26167	-0.55272	-0.04665	-0.03180
5	0.63921	-0.73466	-1.24585	-0.77618	-0.59324	-0.08485
6	-0.62699	-0.71381	-1.18840	-0.72821	0.54746	0.05760
7	0.00000	-0.67056	0.00000	0.00000	0.00000	0.00000
8	0.00000	1.37108	0.00000	0.00000	0.00000	0.00000
9	0.00000	1.36617	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	3.41814	-9.96922	-4.08363	-0.25842	0.01484

Condition **LC8=0.9DL-1.6W30**

1	-1.22244	0.39486	-0.00773	0.57892	2.11343	0.70430
2	-1.88169	-0.01917	0.68843	-0.33034	-0.16306	0.14689
3	-1.88423	0.77553	-0.70532	-0.18873	-0.14956	1.11600
4	-0.89053	0.10033	-0.06452	0.06270	0.85876	0.79564
5	-1.82754	1.37298	0.66701	-0.00530	-0.09048	0.49396
6	-1.79817	-1.18817	-0.57787	-0.14134	-0.05554	0.68095
7	0.00000	0.63811	0.00000	0.00000	0.00000	0.00000
8	0.00000	-0.45189	0.00000	0.00000	0.00000	0.00000
9	0.00000	1.79557	0.00000	0.00000	0.00000	0.00000
SUM	-9.50459	3.41814	0.00000	-0.02408	2.51354	3.93773

Condition **LC9=1.2DL+Di+Wi0**

1	-0.01533	0.91056	0.10744	1.32337	0.03018	-0.06403
2	-0.06785	0.85332	0.13256	-0.62043	0.12753	-1.08469
3	0.07996	0.84746	0.10227	-0.54545	-0.06555	1.11538
4	0.00822	0.08933	0.06514	0.28070	-0.01860	-0.02349
5	-0.16755	0.29903	0.17277	-0.07532	0.02014	-0.18652
6	0.16256	0.29513	0.16582	-0.04810	-0.06147	0.21474
7	0.00000	1.63134	0.00000	0.00000	0.00000	0.00000
8	0.00000	1.45181	0.00000	0.00000	0.00000	0.00000
9	0.00000	1.52921	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	7.90718	0.74600	0.31477	0.03222	-0.02861

Condition **LC10=1.2DL+Di+Wi30**

1	0.08491	0.86662	-0.03854	1.26465	-0.16515	-0.13471
2	0.09001	0.91817	-0.02118	-0.69178	0.00026	-1.14320
3	0.17084	0.83450	0.06771	-0.62390	0.00087	1.05172
4	0.08907	0.21814	-0.11641	0.23435	-0.11076	-0.10844
5	0.06028	0.09508	-0.00911	-0.14692	-0.03495	-0.23343
6	0.27689	0.34715	0.11753	-0.09325	-0.03430	0.15890
7	0.00000	1.51899	0.00000	0.00000	0.00000	0.00000
8	0.00000	1.62586	0.00000	0.00000	0.00000	0.00000
9	0.00000	1.48268	0.00000	0.00000	0.00000	0.00000
SUM	0.77200	7.90718	0.00000	-0.05686	-0.34403	-0.40917

Condition **LC11=1.2DL+Di-Wi0**

1	-0.00736	0.82565	-0.19176	1.21117	0.00030	-0.05516
2	0.00408	0.90034	-0.06882	-0.76380	-0.09743	-1.07328
3	0.00598	0.90059	-0.07292	-0.68244	0.08723	1.11986
4	-0.00050	0.35161	-0.30651	0.17755	-0.03606	-0.03192
5	-0.04065	0.13797	-0.06370	-0.20565	-0.07847	-0.18380
6	0.03845	0.14424	-0.04229	-0.16071	0.01106	0.20643
7	0.00000	1.40258	0.00000	0.00000	0.00000	0.00000

8	0.00000	1.58825	0.00000	0.00000	0.00000	0.00000
9	0.00000	1.65595	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	7.90718	-0.74600	-0.42388	-0.11338	-0.01786

Condition **LC12=1.2DL+Di-Wi30**

1	-0.10760	0.86959	-0.04572	1.26988	0.19561	0.01553
2	-0.15382	0.83548	0.08491	-0.69254	0.02980	-1.01472
3	-0.08486	0.91356	-0.03836	-0.60407	0.02082	1.18347
4	-0.08134	0.22274	-0.12498	0.22389	0.05607	0.05303
5	-0.26848	0.34195	0.11818	-0.13406	-0.02338	-0.13689
6	-0.07590	0.09226	0.00597	-0.11556	-0.01612	0.26229
7	0.00000	1.51498	0.00000	0.00000	0.00000	0.00000
8	0.00000	1.41417	0.00000	0.00000	0.00000	0.00000
9	0.00000	1.70245	0.00000	0.00000	0.00000	0.00000
SUM	-0.77200	7.90718	0.00000	-0.05246	0.26281	0.36272

Condition **LC13=1.2DL**

1	-0.00400	0.50900	-0.00348	0.74277	0.00527	-0.03408
2	-0.00151	0.51306	0.00565	-0.40411	0.00518	-0.63147
3	0.00538	0.51176	-0.00014	-0.35673	0.00323	0.65580
4	0.00019	0.12774	-0.06892	0.12981	-0.01159	-0.01540
5	-0.05868	0.12683	0.03316	-0.07914	-0.01243	-0.10499
6	0.05862	0.12739	0.03373	-0.05800	-0.01059	0.11933
7	0.00000	0.86838	0.00000	0.00000	0.00000	0.00000
8	0.00000	0.86980	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.90356	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	4.55752	0.00000	-0.02540	-0.02093	-0.01081

Condition **LC14=0.9DL**

1	-0.00300	0.38174	-0.00260	0.55707	0.00395	-0.02556
2	-0.00112	0.38479	0.00423	-0.30308	0.00388	-0.47359
3	0.00403	0.38381	-0.00011	-0.26754	0.00242	0.49184
4	0.00014	0.09583	-0.05170	0.09735	-0.00868	-0.01154
5	-0.04402	0.09514	0.02487	-0.05935	-0.00932	-0.07874
6	0.04398	0.09556	0.02531	-0.04350	-0.00794	0.08949
7	0.00000	0.65127	0.00000	0.00000	0.00000	0.00000
8	0.00000	0.65234	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.67765	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	3.41814	0.00000	-0.01905	-0.01569	-0.00810

Condition **LC15=1.2DL+1.6LL1**

1	-0.00400	0.45922	0.01009	0.66708	0.00527	-0.03408
2	0.00642	0.66157	0.00056	-0.70865	0.00568	-0.71599
3	-0.00254	0.66027	-0.00523	-0.66127	0.00273	0.74032
4	0.00019	0.13823	-0.08688	0.11959	-0.01159	-0.01539
5	-0.06518	0.14170	0.04044	-0.16731	-0.02756	-0.08070
6	0.06511	0.14226	0.04102	-0.14618	0.00453	0.09504
7	0.00000	0.84720	0.00000	0.00000	0.00000	0.00000
8	0.00000	0.93666	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.97041	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	4.95752	0.00000	-0.89674	-0.02094	-0.01080

Condition **LC16=1.2DL+1.6LL2**

1	-0.00271	0.49619	-0.02957	0.72460	-0.00156	-0.01555
2	-0.03930	0.48500	0.04575	-0.44512	0.02571	-0.55030
3	0.02579	0.51543	0.01475	-0.35929	-0.00187	0.66211
4	0.00046	0.13234	-0.07609	0.12691	-0.01762	-0.01029
5	-0.04482	0.10737	0.01074	-0.09673	-0.01430	-0.09254
6	0.06057	0.12873	0.03442	-0.05686	-0.01015	0.11841
7	0.00000	0.86075	0.00000	0.00000	0.00000	0.00000
8	0.00000	1.33155	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.90017	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	4.95752	0.00000	-0.10648	-0.01979	0.11183

Condition **LC17=1.2DL+WL0+LLa1**

1	-0.00584	0.49282	0.01859	0.71699	0.01526	-0.06619
2	-0.04086	0.53448	0.05751	-0.43230	0.04565	-0.65591
3	0.04391	0.51344	0.06204	-0.50022	-0.04485	0.56816
4	0.00098	0.09606	-0.02585	0.13874	0.00615	-0.02031
5	-0.07522	0.14836	0.06236	-0.07334	0.00577	-0.10025
6	0.07703	0.15498	0.06035	-0.12388	0.00758	0.10651
7	0.00000	0.88920	0.00000	0.00000	0.00000	0.00000
8	0.00000	0.85392	0.00000	0.00000	0.00000	0.00000
9	0.00000	1.37427	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	5.05752	0.23500	-0.27400	0.03555	-0.16800

Condition **LC18=1.2DL+WL30+LLa1**

1	0.02727	0.47905	-0.02727	0.69857	-0.05142	-0.08813
2	0.00660	0.55454	0.00783	-0.45485	-0.00065	-0.67376
3	0.07061	0.50995	0.05189	-0.52528	-0.02932	0.54886
4	0.02635	0.13612	-0.08222	0.12449	-0.02439	-0.04756
5	-0.00593	0.08567	0.00539	-0.09680	-0.01440	-0.11349
6	0.11010	0.16932	0.04438	-0.13718	0.01267	0.09044
7	0.00000	0.85427	0.00000	0.00000	0.00000	0.00000
8	0.00000	0.90731	0.00000	0.00000	0.00000	0.00000
9	0.00000	1.36128	0.00000	0.00000	0.00000	0.00000
SUM	0.23500	5.05752	0.00000	-0.39105	-0.10751	-0.28364

Condition **LC19=1.2DL-WL0+LLa1**

1	-0.00310	0.46629	-0.07517	0.68191	0.00448	-0.06323
2	-0.01883	0.54938	-0.00773	-0.47794	-0.02882	-0.65220
3	0.02092	0.53046	0.00735	-0.54386	0.00180	0.56984
4	-0.00180	0.17733	-0.14090	0.10694	-0.00023	-0.02331
5	-0.03497	0.09697	-0.01335	-0.11493	-0.02589	-0.09911
6	0.03779	0.10734	-0.00518	-0.15894	0.02880	0.10393
7	0.00000	0.81816	0.00000	0.00000	0.00000	0.00000
8	0.00000	0.89726	0.00000	0.00000	0.00000	0.00000
9	0.00000	1.41432	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	5.05752	-0.23500	-0.50682	-0.01986	-0.16408

Condition **LC20=1.2DL-WL30+LLa1**

1	-0.03622	0.48006	-0.02931	0.70033	0.07115	-0.04130
2	-0.06630	0.52933	0.04195	-0.45539	0.01747	-0.63434
3	-0.00577	0.53394	0.01750	-0.51880	-0.01373	0.58914
4	-0.02717	0.13727	-0.08454	0.12119	0.03031	0.00393
5	-0.10427	0.15966	0.04361	-0.09147	-0.00572	-0.08587
6	0.00472	0.09300	0.01078	-0.14564	0.02371	0.11999
7	0.00000	0.85309	0.00000	0.00000	0.00000	0.00000

8	0.00000	0.84386	0.00000	0.00000	0.00000	0.00000
9	0.00000	1.42731	0.00000	0.00000	0.00000	0.00000
SUM	-0.23500	5.05752	0.00000	-0.38979	0.12319	-0.04844

Condition **LC21=1.2DL+WL0+LLa2**

1	-0.00573	0.46273	0.05475	0.67002	0.01234	-0.06320
2	-0.01041	0.63018	0.04201	-0.62854	0.05009	-0.70813
3	0.00734	0.70876	0.02840	-0.79026	-0.02915	0.75199
4	0.00166	0.10027	-0.03379	0.13307	0.00211	-0.02087
5	-0.08093	0.15856	0.06488	-0.13647	-0.00697	-0.08082
6	0.08807	0.17727	0.07875	-0.19326	0.00557	0.08605
7	0.00000	0.87813	0.00000	0.00000	0.00000	0.00000
8	0.00000	0.88646	0.00000	0.00000	0.00000	0.00000
9	0.00000	1.05516	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	5.05752	0.23500	-0.94544	0.03399	-0.03499

Condition **LC22=1.2DL+WL30+LLa2**

1	0.02738	0.44896	0.00890	0.65159	-0.05432	-0.08515
2	0.03706	0.65024	-0.00766	-0.65108	0.00381	-0.72600
3	0.03404	0.70529	0.01824	-0.81534	-0.01361	0.73270
4	0.02702	0.14033	-0.09015	0.11883	-0.02843	-0.04812
5	-0.01164	0.09588	0.00789	-0.15994	-0.02713	-0.09407
6	0.12114	0.19162	0.06277	-0.20657	0.01065	0.06999
7	0.00000	0.84321	0.00000	0.00000	0.00000	0.00000
8	0.00000	0.93983	0.00000	0.00000	0.00000	0.00000
9	0.00000	1.04215	0.00000	0.00000	0.00000	0.00000
SUM	0.23500	5.05752	0.00000	-1.06251	-0.10902	-0.15064

Condition **LC23=1.2DL-WL0+LLa2**

1	-0.00299	0.43620	-0.03900	0.63494	0.00157	-0.06024
2	0.01163	0.64509	-0.02323	-0.67417	-0.02437	-0.70444
3	-0.01565	0.72580	-0.02630	-0.83390	0.01751	0.75370
4	-0.00113	0.18154	-0.14883	0.10128	-0.00428	-0.02388
5	-0.04069	0.10720	-0.01085	-0.17808	-0.03863	-0.07968
6	0.04882	0.12965	0.01320	-0.22833	0.02678	0.08348
7	0.00000	0.80710	0.00000	0.00000	0.00000	0.00000
8	0.00000	0.92975	0.00000	0.00000	0.00000	0.00000
9	0.00000	1.09517	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	5.05752	-0.23500	-1.17826	-0.02142	-0.03107

Condition **LC24=1.2DL-WL30+LLa2**

1	-0.03611	0.44997	0.00686	0.65336	0.06823	-0.03830
2	-0.03584	0.62503	0.02644	-0.65163	0.02190	-0.68657
3	-0.04234	0.72928	-0.01614	-0.80883	0.00196	0.77298
4	-0.02649	0.14148	-0.09247	0.11553	0.02626	0.00337
5	-0.10998	0.16988	0.04614	-0.15461	-0.01846	-0.06644
6	0.01576	0.11530	0.02918	-0.21502	0.02169	0.09954
7	0.00000	0.84202	0.00000	0.00000	0.00000	0.00000
8	0.00000	0.87638	0.00000	0.00000	0.00000	0.00000
9	0.00000	1.10817	0.00000	0.00000	0.00000	0.00000
SUM	-0.23500	5.05752	0.00000	-1.06121	0.12158	0.08458

Condition **LC25=1.2DL+WL0+LLa3**

1	-0.00501	0.46273	0.05476	0.67001	0.00897	-0.00792
2	-0.00298	0.71112	0.03947	-0.83665	0.05146	-0.73035
3	0.01476	0.62782	0.03095	-0.58217	-0.02779	0.72978
4	0.00150	0.10027	-0.03380	0.13307	-0.01890	-0.00691
5	-0.08863	0.17856	0.08327	-0.21111	-0.02336	-0.07099
6	0.08036	0.15726	0.06035	-0.11863	-0.01083	0.09588
7	0.00000	0.87813	0.00000	0.00000	0.00000	0.00000
8	0.00000	1.01977	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.92185	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	5.05752	0.23500	-0.94548	-0.02045	0.00948

Condition **LC26=1.2DL+WL30+LLa3**

1	0.02810	0.44896	0.00891	0.65159	-0.05769	-0.02986
2	0.04448	0.73120	-0.01020	-0.85920	0.00519	-0.74822
3	0.04146	0.62433	0.02079	-0.60721	-0.01224	0.71048
4	0.02686	0.14032	-0.09016	0.11883	-0.04944	-0.03416
5	-0.01935	0.11590	0.02627	-0.23460	-0.04354	-0.08424
6	0.11344	0.17160	0.04438	-0.13192	-0.00575	0.07981
7	0.00000	0.84322	0.00000	0.00000	0.00000	0.00000
8	0.00000	1.07313	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.90885	0.00000	0.00000	0.00000	0.00000
SUM	0.23500	5.05752	0.00000	-1.06251	-0.16346	-0.10619

Condition **LC27=1.2DL-WL0+LLa3**

1	-0.00227	0.43620	-0.03900	0.63494	-0.00180	-0.00495
2	0.01905	0.72606	-0.02577	-0.88230	-0.02298	-0.72668
3	-0.00822	0.64484	-0.02375	-0.62578	0.01888	0.73147
4	-0.00129	0.18155	-0.14884	0.10128	-0.02528	-0.00992
5	-0.04839	0.12723	0.00752	-0.25274	-0.05504	-0.06986
6	0.04112	0.10961	-0.00517	-0.15366	0.01037	0.09330
7	0.00000	0.80709	0.00000	0.00000	0.00000	0.00000
8	0.00000	1.06306	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.96187	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	5.05752	-0.23500	-1.17827	-0.07586	0.01335

Condition **LC28=1.2DL-WL30+LLa3**

1	-0.03538	0.44997	0.00686	0.65335	0.06486	0.01699
2	-0.02842	0.70599	0.02390	-0.85976	0.02328	-0.70881
3	-0.03492	0.64833	-0.01359	-0.60074	0.00333	0.75076
4	-0.02665	0.14149	-0.09248	0.11553	0.00525	0.01733
5	-0.11767	0.18988	0.06452	-0.22926	-0.03487	-0.05661
6	0.00805	0.09527	0.01080	-0.14037	0.00528	0.10937
7	0.00000	0.84201	0.00000	0.00000	0.00000	0.00000
8	0.00000	1.00969	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.97487	0.00000	0.00000	0.00000	0.00000
SUM	-0.23500	5.05752	0.00000	-1.06126	0.06714	0.12903

Condition **LC29=1.2DL+WL0+LLa4**

1	-0.00490	0.49282	0.01859	0.71698	0.00607	-0.00493
2	-0.03955	0.51579	0.07311	-0.54660	0.06718	-0.54652
3	0.04522	0.53213	0.04645	-0.38594	-0.02334	0.67755
4	0.00218	0.09606	-0.02586	0.13874	-0.02294	-0.00747
5	-0.07760	0.15628	0.06487	-0.14173	-0.02539	-0.09144
6	0.07465	0.14704	0.05783	-0.05549	-0.02357	0.11531
7	0.00000	0.88919	0.00000	0.00000	0.00000	0.00000

8	0.00000	1.33888	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.88931	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	5.05752	0.23500	-0.27404	-0.02199	0.14249

Condition **LC30=1.2DL+WL30+LLa4**

1	0.02821	0.47905	-0.02726	0.69856	-0.06060	-0.02686
2	0.00791	0.53586	0.02345	-0.56916	0.02091	-0.56438
3	0.07192	0.52863	0.03630	-0.41098	-0.00779	0.65824
4	0.02755	0.13612	-0.08222	0.12449	-0.05349	-0.03472
5	-0.00831	0.09360	0.00787	-0.16522	-0.04558	-0.10469
6	0.10772	0.16138	0.04187	-0.06878	-0.01850	0.09924
7	0.00000	0.85428	0.00000	0.00000	0.00000	0.00000
8	0.00000	1.39227	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.87633	0.00000	0.00000	0.00000	0.00000
SUM	0.23500	5.05752	0.00000	-0.39108	-0.16505	0.02683

Condition **LC31=1.2DL-WL0+LLa4**

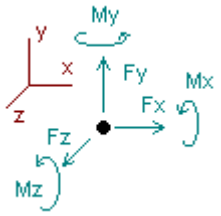
1	-0.00217	0.46629	-0.07516	0.68190	-0.00469	-0.00196
2	-0.01752	0.53071	0.00788	-0.59225	-0.00726	-0.54283
3	0.02224	0.54914	-0.00826	-0.42955	0.02335	0.67922
4	-0.00061	0.17734	-0.14091	0.10694	-0.02933	-0.01048
5	-0.03735	0.10491	-0.01088	-0.18336	-0.05708	-0.09031
6	0.03540	0.09938	-0.00767	-0.09052	-0.00238	0.11273
7	0.00000	0.81815	0.00000	0.00000	0.00000	0.00000
8	0.00000	1.38221	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.92938	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	5.05752	-0.23500	-0.50683	-0.07739	0.14637

Condition **LC32=1.2DL-WL30+LLa4**

1	-0.03528	0.48006	-0.02931	0.70032	0.06197	0.01997
2	-0.06498	0.51065	0.05755	-0.56970	0.03901	-0.52496
3	-0.00446	0.55263	0.00190	-0.40452	0.00781	0.69853
4	-0.02597	0.13728	-0.08455	0.12119	0.00121	0.01676
5	-0.10664	0.16759	0.04612	-0.15987	-0.03689	-0.07707
6	0.00233	0.08505	0.00829	-0.07723	-0.00746	0.12880
7	0.00000	0.85307	0.00000	0.00000	0.00000	0.00000
8	0.00000	1.32882	0.00000	0.00000	0.00000	0.00000
9	0.00000	0.94236	0.00000	0.00000	0.00000	0.00000
SUM	-0.23500	5.05752	0.00000	-0.38981	0.06565	0.26203

Envelope for nodal reactions

Note.- **Ic** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

W180=-W0
W210=-W30
Wi180=-Wi0
Wi210=-Wi30
WL180=-WL0
WL210=-WL30
LC1=1.2DL+1.6W0
LC2=1.2DL+1.6W30
LC3=1.2DL-1.6W0
LC4=1.2DL-1.6W30
LC5=0.9DL+1.6W0
LC6=0.9DL+1.6W30
LC7=0.9DL-1.6W0
LC8=0.9DL-1.6W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.2DL
LC14=0.9DL
LC15=1.2DL+1.6LL1
LC16=1.2DL+1.6LL2
LC17=1.2DL+WL0+LLa1
LC18=1.2DL+WL30+LLa1
LC19=1.2DL-WL0+LLa1
LC20=1.2DL-WL30+LLa1
LC21=1.2DL+WL0+LLa2
LC22=1.2DL+WL30+LLa2
LC23=1.2DL-WL0+LLa2
LC24=1.2DL-WL30+LLa2
LC25=1.2DL+WL0+LLa3
LC26=1.2DL+WL30+LLa3
LC27=1.2DL-WL0+LLa3
LC28=1.2DL-WL30+LLa3
LC29=1.2DL+WL0+LLa4
LC30=1.2DL+WL30+LLa4
LC31=1.2DL-WL0+LLa4
LC32=1.2DL-WL30+LLa4

		Forces						Moments					
Node		**Fx** [Kip]	**Ic**	**Fy** [Kip]	**Ic**	**Fz** [Kip]	**Ic**	**Mx** [Kip*ft]	**Ic**	**My** [Kip*ft]	**Ic**	**Mz** [Kip*ft]	**Ic**
1	Max	1.217	LC6	0.974	LC1	2.336	LC5	1.33511	LC1	2.11456	LC4	0.70430	LC8
	Min	-1.223	LC4	-0.290	W180	-2.343	LC3	-0.37010	W180	-2.10720	LC6	-0.76375	LC2
2	Max	1.878	LC6	0.918	LC10	1.488	LC1	0.41880	LC5	1.46183	LC1	0.38742	W210
	Min	-1.882	LC4	-0.252	W210	-1.479	LC7	-1.12047	LC3	-1.45082	LC7	-1.24932	LC2
3	Max	1.895	LC2	0.914	LC12	1.452	LC5	0.44205	LC5	1.34309	LC3	1.27999	LC4
	Min	-1.884	LC8	-0.008	LC6	-1.452	LC7	-1.06112	LC3	-1.34144	LC5	-0.13526	LC6

4	Max	0.890	LC2	1.641	LC3	2.164	LC5	0.78563	LC1	0.85876	LC8	0.79564	LC8
	Min	-0.891	LC4	-1.407	LC5	-2.279	LC3	-0.55272	LC7	-0.87991	LC2	-0.82291	LC2
5	Max	1.741	LC6	1.405	LC4	1.302	LC1	0.65573	LC5	0.57231	LC5	0.49396	LC8
	Min	-1.842	LC4	-1.174	LC6	-1.246	LC7	-0.79614	LC3	-0.59643	LC3	-0.68107	LC2
6	Max	1.899	LC2	1.421	LC2	1.245	LC1	0.63964	LC5	0.54746	LC7	0.71098	LC4
	Min	-1.798	LC8	-1.188	LC8	-1.188	LC7	-0.74286	LC3	-0.56423	LC1	-0.49854	LC6
7	Max	0.000	W180	2.181	LC1	0.000	W180	0.00000	W180	0.00000	W180	0.00000	W180
	Min	0.000	W180	-0.826	W180	0.000	W180	0.00000	W180	0.00000	W180	0.00000	W180
8	Max	0.000	W180	1.965	LC2	0.000	W180	0.00000	W180	0.00000	W180	0.00000	W180
	Min	0.000	W180	-0.690	W210	0.000	W180	0.00000	W180	0.00000	W180	0.00000	W180
9	Max	0.000	W180	2.021	LC4	0.000	W180	0.00000	W180	0.00000	W180	0.00000	W180
	Min	0.000	W180	-0.449	LC6	0.000	W180	0.00000	W180	0.00000	W180	0.00000	W180

Date: 5/5/2023
Project Name: WESTON TALL PINES DRIVE
Project No.: CT1845
Designed By: RL Checked By: MSC

CHECK CONNECTION CAPACITY (Worst Case) - Proposed Thru Bolts @ Standoff

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A325 5/8" Thru Bolt

Allowable Tensile Load =

F_{Tall} = 13806 lbs.

Allowable Shear Load =

F_{vall} = 8283 lbs.

CONNECTION PLATE CONFIGURATION (4-BOLTS)

$N_{BOLT\ ROWS}$	=	2	rows	d_Y	=	6 in	(Min.)
N_{BOLTS}	=	2	bolts/row	d_X	=	6 in	(Min.)

TENSILE FORCES

Moment in X axis:	1335	lb-ft.	(See Bentley Output)
Couple Reaction from M_X:	2670	lbs.	
Moment in Y axis:	2107	lb-ft.	(See Bentley Output)
Couple Reaction from M_Y:	4214	lbs.	
Reaction in Z direction:	2343	lbs.	(See Bentley Output)
Resultant:	9227	lbs.	

SHEAR FORCES

Moment in Z axis:	764	lb-ft.	(See Bentley Output)
Couple Reaction from M_z:	1528	lbs.	
Reaction in X direction:	1223	lbs.	(See Bentley Output)
Reaction in Y direction:	974	lbs.	(See Bentley Output)
Resultant:	3725	lbs.	

Tension Design Load /Bolts =

f_t= 4028 lbs. < 13806 lbs. Therefore, OK !

Shear Design Load / Bolts=

f_v= 930 lbs. < 8283 lbs. Therefore, OK !

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0		
0.292	+	0.112	=	0.404	< 1.0	Therefore, OK !

Date: 5/5/2023
Project Name: WESTON TALL PINES DRIVE
Project No.: CT1845
Designed By: RL Checked By: MSC

CHECK CONNECTION CAPACITY (Worst Case) - Proposed Threaded Rods at Ring Mount

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A36 5/8" Threaded Rod

Allowable Tensile Load =

F_{Tall} = 6673 lbs.

Allowable Shear Load =

F_{vall} = 4004 lbs.

TENSILE FORCES

Reaction F = 2343 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 1223 lbs. (See Bentley Output)
Reactions in Y direction: 974 lbs. (See Bentley Output)

Resultant: 1563 lbs.

No. of Supports = 1
No. of Bolts / Support = 3

Tension Design Load /Bolts =

f_t= 781 lbs. < 6673 lbs. Therefore, OK !

Shear Design Load / Bolts=

f_v= 521 lbs. < 4004 lbs. Therefore, OK !

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.117	+	0.130	=	0.247	<	1.0	Therefore, OK !

Town of Weston, CT

Property Listing Report

Map Block Lot	27 3 61	Unique Identifier	R00504		
Developer Map	2495,2538	Developer Lot	3	Building #	1

Property Information

Property Location	5 TALL PINES DRIVE
Mailing Address	5 TALL PINES DRIVE WESTON CT 06883
Land Use	Residential
Zoning Code	R-2AC
Neighborhood	7-5

Owner	CARPENTER DEAN & VICTORIA
Co-Owner	
Book / Page	0355/0039
Land Class	Residential
Census Tract	83430
Acreage	2.01

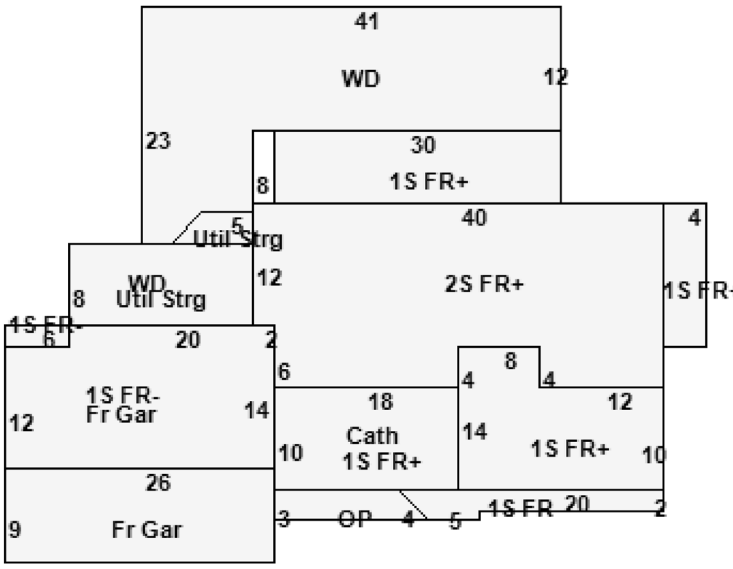
Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	263724	184610
Outbuildings	0	0
Land	475400	332780
Total	739124	517390

Building Area Info - sq/ft

Living	2436
Basement	1340
Finished Basement	622
Fin Bsmt Quality	Average Quality



Primary Construction Details

Year Built	1984
Building Desc.	Residential
Building Style	Contemporary
Stories	2
Exterior Walls	Pre-Fab Wood
Exterior Walls 2	
Interior Walls	Drywall
Interior Walls 2	
Interior Floors 1	Hardwood
Interior Floors 2	

Heating Fuel	Oil
Heating Type	Forced Hot Air
AC Type	Central
Bedrooms	3
Full Bathrooms	2
Half Bathrooms	1
Extra Fixtures	0
Total Rooms	7
Bath Style	NA
Kitchen Style	
Occupancy	1

Building Use	Single Family
Building Condition	Average
Frame Type	Wood Frame
Fireplaces	2
Bsmt Gar	0
Bsmt Access	
Building Grade	0
Roof Style	Gable
Roof Cover	Asphalt

Report Created On 10/24/2023

Town of Weston, CT

Property Listing Report

Map Block Lot	27 3 61	Unique Identifier	R00504		
Developer Map	2495,2538	Developer Lot	3	Building #	1

Detached Outbuildings

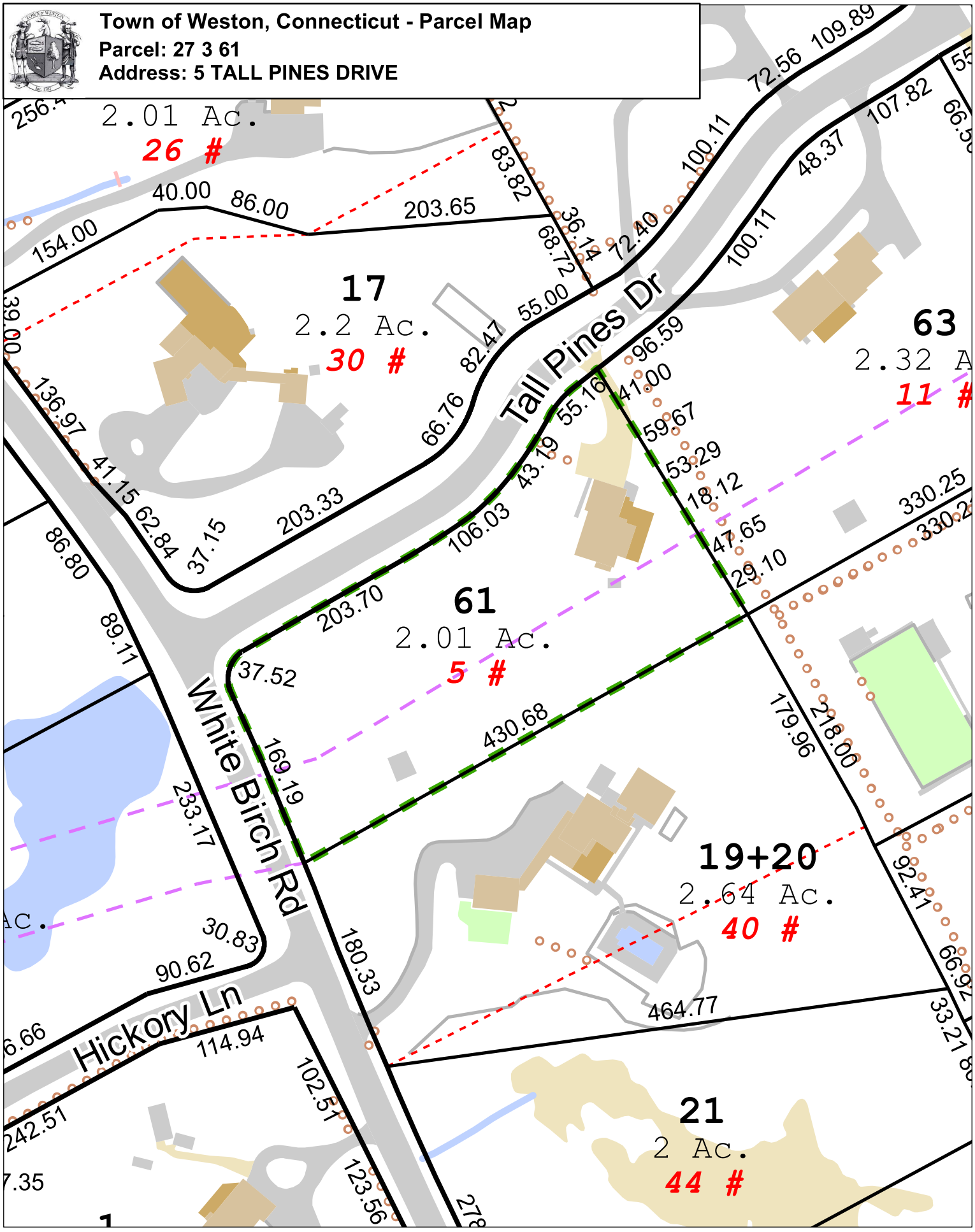
Type	Description	Area (sq ft)	Condition	Year Built

Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built
Porch	Open	40	Average	1984
Garage	Frame	352	Average	1984
Deck	Wood	144	Average	1984
Utility	Storage	20	Average	1984
Deck	Wood	594	Average	1984
Utility	Storage	144	Average	1984
Cathedral/Loft	Cath	180	Average	1984
Garage	Frame	234	Average	1984

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
CARPENTER DEAN & VICTORIA	0355_0039	7/15/2003	0
CARPENTER DEAN	0255_0097	12/1/1997	0
CARPENTER, DEAN & VICTORIA A.	0229_0928	6/27/1995	0
GREENWELL, BRISCOE A.	0213_0647	10/18/1993	0
GREENWELL, BRISCOE A. & DORIS M.	0133_0629	8/2/1984	0


Town of Weston, Connecticut - Parcel Map
Parcel: 27 3 61
Address: 5 TALL PINES DRIVE
2.01 Ac.
26 #
17
2.2 Ac.
30 #
63
2.32 A
11 #
61
2.01 Ac.
5 #
19+20
2.64 Ac.
40 #
21
2 Ac.
44 #
Tall Pines Dr
White Birch Rd
Hickory Ln
40.00
86.00
203.65
154.00
83.82
36.14
68.72
72.40
100.11
72.56
109.89
107.82
48.37
55.00
82.47
66.76
136.97
41.15
62.84
37.15
203.33
96.59
41.00
59.67
53.29
18.12
47.65
29.10
55.16
43.19
106.03
330.25
203.70
37.52
430.68
169.19
233.17
86.80
89.11
30.83
90.62
180.33
179.96
218.00
92.41
66.92
464.77
33.21
114.94
102.51
242.51
123.56
Approximate Scale:
0 20 40 60 80
Feet
Disclaimer: This map is for informational purposes only.
All information is subject to verification by any user.
The Town of Weston and its mapping contractors
assume no legal responsibility for the information contained herein.
Map Produced
May 2023

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

January 31, 2020

Lucia Chiocchio, Esq.
Cuddy & Feder LLP
445 Hamilton Avenue, 14th Floor
White Plains, NY 10601

RE: **PETITION NO. 1386** – New Cingular Wireless PCS, LLC (AT&T) petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed installation of a wireless telecommunications facility at an existing Eversource-owned electric transmission line structure (#917) within an existing Eversource electric transmission line right-of-way located at 5 Tall Pines Drive, Weston, Connecticut.

Dear Attorney Motel:

At a public meeting held on January 30, 2020, the Connecticut Siting Council (Council) considered and ruled that the above-referenced proposal would not have a substantial adverse environmental effect, and pursuant to Connecticut General Statutes § 16-50k, would not require a Certificate of Environmental Compatibility and Public Need with the following conditions:

1. Approval of any minor project changes be delegated to Council staff;

2. Prior to AT&T's antenna installation, foundation reinforcements shall be installed as specified in Section 1-4 of the Structural Analysis Report prepared by CENTEK Engineering, dated March 1, 2019, and stamped and signed by Timothy J. Lynn;

3. Within 45 days following the completion of equipment installation, AT&T shall provide documentation certified by a Professional Engineer that its installation complies with the Structural Analysis Report;

4. The Petitioner shall utilize the alternate proposed propane-fueled emergency back-up generator;

5. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed within three years from the date of the mailing of the Council's decision, this decision shall be void, and the facility owner/operator shall dismantle the facility and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The facility owner/operator shall provide written notice to the Executive Director of any schedule changes as soon as is practicable;

6. Any request for extension of the time period to fully construct the facility shall be filed with the Council not later than 60 days prior to the expiration date of this decision and shall be served on all parties and intervenors, if applicable, and the Town of Weston;

7. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;

8. Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by the Petitioner shall be removed within 60 days of the date the antenna ceased to function;

9. The facility owner/operator shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v;

10. This Declaratory Ruling may be transferred, provided the facility owner/operator/transferor is current with payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v and the transferee provides written confirmation that the transferee agrees to comply with the terms, limitations and conditions contained in the Declaratory Ruling, including timely payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v; and

11. If the facility owner/operator is a wholly owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the facility within 30 days of the sale and/or transfer.

Additionally, the Council recommends that AT&T, in coordination with Eversource Energy, determine the feasibility of vegetative screening; or alternatively, AT&T work with the property owners of 40 White Birch Road for vegetative screening on the abutting property; and AT&T notify the abutting neighbors of the emergency back-up generator testing schedule.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition dated October 15, 2019 and additional information received on November 12, 2019, November 21, 2019 and January 21, 2020.

Enclosed for your information is a copy of the staff report on this project.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/MP/emr

Enclosure: Staff Report dated January 30, 2020

c: The Honorable Chris Spaulding, First Selectman, Town of Weston
Jonathan Luiz, Town Administrator, Town of Weston
James Pjura, Zoning Enforcement Officer, Town of Weston

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL & CERTIFIED MAIL
RETURN RECEIPT REQUESTED

February 16, 2023

Kathleen M. Shanley
Manager-Transmission Siting
Eversource Energy
P.O. Box 270
Hartford, CT 06103
Kathleen.shanley@eversource.com

RE: **PETITION NO. 1549** – The Connecticut Light and Power Company d/b/a Eversource Energy petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed 1714 Line Rebuild Project consisting of the replacement and reconductoring of approximately 9.4 miles of its existing Nos. 1714, 1720, and 1222 115-kilovolt (kV) electric transmission lines and one structure along its 1637 line within existing Eversource electric transmission right-of-way between Eversource's Weston Substation, 85 Weston Street in Weston and the United Illuminating Company's Old Town Substation, 122 Kaechele Place in Bridgeport, Connecticut traversing Weston, Fairfield, Easton and Bridgeport and related electric transmission line and substation improvements.

Dear Kathleen Shanley:

At a public meeting held on February 16, 2023, the Connecticut Siting Council (Council) considered and ruled that the above-referenced proposal would not have a substantial adverse environmental effect, and pursuant to Connecticut General Statutes § 16-50k, would not require a Certificate of Environmental Compatibility and Public Need with the following conditions:

1. Approval of any project changes be delegated to Council staff;

2. Identification of staging areas and provisions for erosion and sedimentation (E&S) controls, if necessary, at the staging area locations prior to the commencement of construction;

3. Relocate Structure No. 19763 to the east and outside of the 100-foot vernal pool envelope associated with Vernal Pool 1;

4. Incorporate pollinator habitat in the restoration of disturbed areas consistent with CGS §16-50hh, where feasible;

5. An environmental monitor shall oversee construction activities in sensitive resource areas;

6. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed within three years from the date of the mailing of the Council's decision, this decision shall be void, and the facility owner/operator shall dismantle the facility and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the

Executive Director. The facility owner/operator shall provide written notice to the Executive Director of any schedule changes as soon as is practicable;

7. The Council shall be notified in writing at least two weeks prior to the commencement of site construction activities;

8. Any request for extension of the time period to fully construct the facility shall be filed with the Council not later than 60 days prior to the expiration date of this decision and shall be served on all parties and intervenors, if applicable, and the City of Bridgeport and the Towns of Easton, Fairfield and Weston;

9. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;

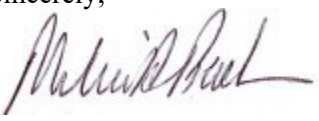
10. The facility owner/operator shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v; and

11. This Declaratory Ruling may be transferred or partially transferred, provided both the facility owner/operator/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. The Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the facility within 30 days of the sale and/or transfer. Both the facility owner/operator/transferor and the transferee shall provide the Council with a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility, including contact information for the individual acting on behalf of the transferee.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition dated November 14, 2022 and additional information dated February 1, 2023.

Enclosed for your information is a copy of the staff report on this project.

Sincerely,



Melanie A. Bachman
Executive Director

MAB/RDM/laf

Enclosure: Staff Report dated February 16, 2023

c: The Honorable Joseph P. Ganim, Mayor, City of Bridgeport (mayor@bridgeportct.gov
The Honorable David Bindelglass, First Selectperson, Town of Easton (dbindelglass@eastonct.gov)
The Honorable Brenda L. Kupchick, First Selectperson, Town of Fairfield (firstselectmanffld@fairfieldct.org)
The Honorable Samantha Nestor, First Selectperson, Town of Weston (snestor@westonct.gov)
Deborah Denfeld, Team Lead – Transmission Siting, Eversource Energy (deborah.denfeld@evesource.com)

EVERSOURCE ENERGY

56 Prospect Street,
Hartford, CT 06103

P.O. Box 270
Hartford, CT 06141-0270
(860) 665-5000

October 23, 2023

Ms. Tarah Nolan
SAI Communications
12 Industrial Way
Salem, NH 03079

RE: AT&T Antenna Site CT1845, White Birch Road, Weston, CT, Eversource Structure 19775.

Dear Ms. Nolan:

Based on our reviews of the site drawings, the structural analysis and foundation review provided by Centek Engineering, along with a third-party review performed by Paul J. Ford and Company, we accept the proposed modification.

Please work with Christopher Gelinas of Eversource Real Estate to process the site lease amendment. Please do not hesitate to contact us with questions or concerns. Christopher can be contacted at 860-665-2008, and I can be contacted at (860) 728-4862.

Sincerely,

Masie Hartt

Masie Hartt
Transmission Line Engineering

Ref: 2023-0807 – CT1845 Structural Analysis Rev2 (22007.09)
2023-1023_22007.09 AT&T CT1845 - Tall Pines Drive - Rev0 CDs (S&S)
2023-0505 _ CT1845 Mount Structural Analysis Rev0 (S&S)

1st Selectwoman & Zoning/CEO Copies

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6 November 2023 ⓘ

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SALEM, NH 03079
November 3, 2023, 7:41 am

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FAQs >

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Tracking Number:

9405830109355035758042

Copy Add to Informed Delivery (https://informeddelivery.usps.com/)

Expected Delivery by

MONDAY

6 November 2023 ⓘ

by **9:00pm** ⓘ

USPS is now in possession of your item as of 1:24 pm on November 3, 2023 in MERIDEN, CT 06450.

Feedback

Get More Out of USPS Tracking:

USPS Tracking Plus®

Delivered

Out for Delivery

Preparing for Delivery

In Transit

Accepted
USPS in possession of item
MERIDEN, CT 06450
November 3, 2023, 1:24 pm

Shipping Label Created, USPS Awaiting Item
SALEM, NH 03079
November 3, 2023, 7:41 am

What Do USPS Tracking Statuses Mean? (https://faq.usps.com/s/article/Where-is-my-package)

USPS Tracking®

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FAQs >

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Tracking Number:

9405830109355035758066

Copy Add to Informed Delivery (https://informeddelivery.usps.com/)

Expected Delivery by

MONDAY

6 November 2023 ⓘ

by **9:00pm** ⓘ

USPS is now in possession of your item as of 1:24 pm on November 3, 2023 in MERIDEN, CT 06450.

Feedback

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November 3, 2023, 1:24 pm

Shipping Label Created, USPS Awaiting Item
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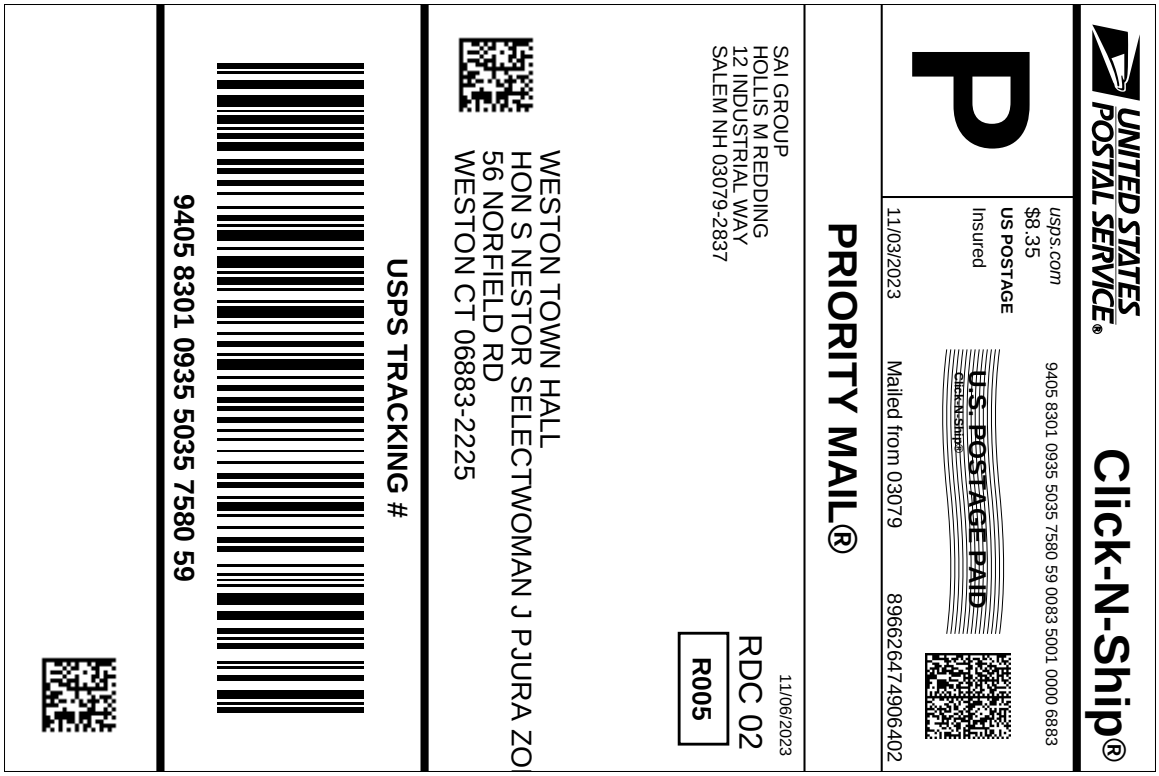
November 3, 2023, 7:41 am

What Do USPS Tracking Statuses Mean? (https://faq.usps.com/s/article/Where-is-my-package)



Cut on dotted line.

Instructions

1. **Please use a laser or laser-quality printer.**
2. **Adhere shipping label to package with tape or glue - DO NOT TAPE OVER BARCODE. Be sure all edges are secure. Self-adhesive label is recommended.**
3. **Place label so that it does not wrap around the edge of the package.**
4. **Each shipping label number is unique and can be used only once - DO NOT PHOTOCOPY.**
5. **Please use this shipping label on the "ship date" selected when you requested the label.**
6. **If a mailing receipt is required, present the article and Online e-Label Record at a Post Office for postmark.**

9405 8301 0935 5035 7580 59

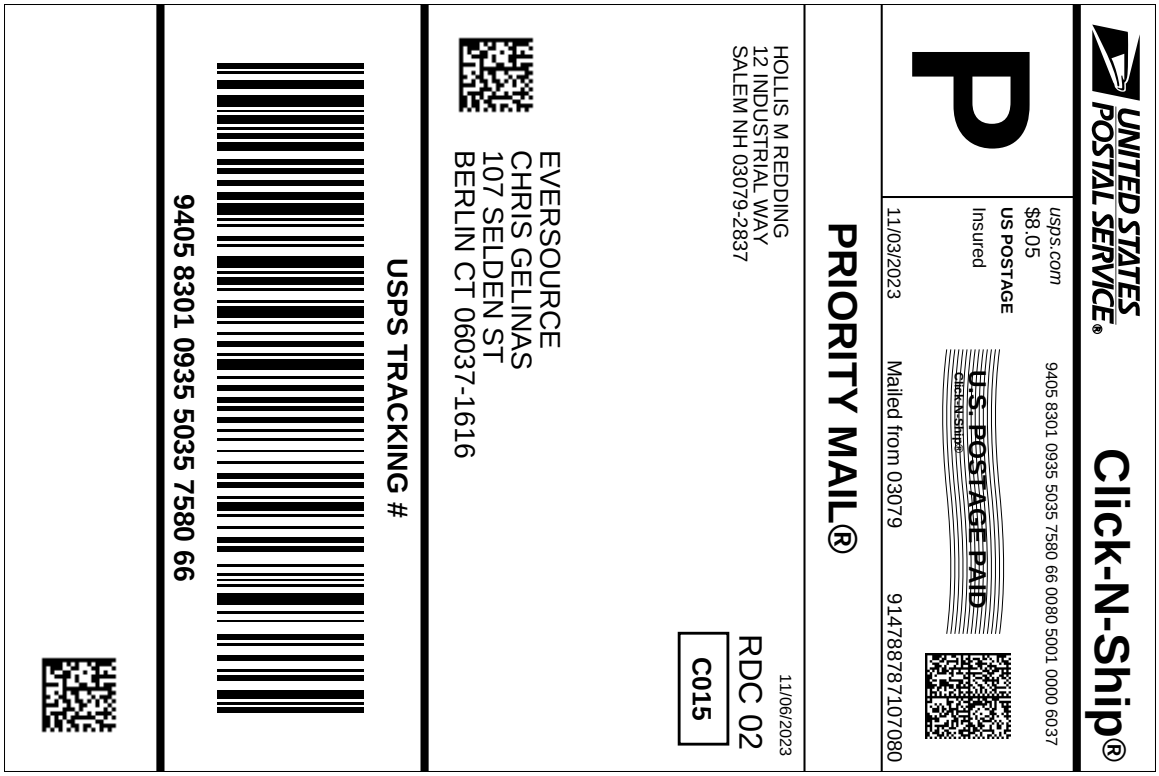
Print Date:	**2023-11-03**	**PRIORITY MAIL®** **$8.35**
Ship Date:	**2023-11-03**	**Extra Services:** **$0.00**
		Fees: **$0.00**
		Total: **$8.35**

From: **SAI GROUP**
HOLLIS M REDDING
12 INDUSTRIAL WAY
SALEM NH 03079-2837

To:
WESTON TOWN HALL
HON S NESTOR SELECTWOMAN J PJURA ZON Z
56 NORFIELD RD
WESTON CT 06883-2225

*** Commercial Pricing PRIORITY MAIL® rates apply. There is no fee for USPS Tracking® service on PRIORITY MAIL® service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.**

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



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9405 8301 0935 5035 7580 66

Print Date: 2023-11-03	**PRIORITY MAIL®**	**$8.05**
Ship Date: 2023-11-03	**Extra Services:**	**$0.00**
	Fees:	**$0.00**
	Total:	**$8.05**

From: **HOLLIS M REDDING**
12 INDUSTRIAL WAY
SALEM NH 03079-2837

To:
EVERSOURCE
CHRIS GELINAS
107 SELDEN ST
BERLIN CT 06037-1616

*** Commercial Pricing PRIORITY MAIL® rates apply. There is no fee for USPS Tracking® service on PRIORITY MAIL® service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.**

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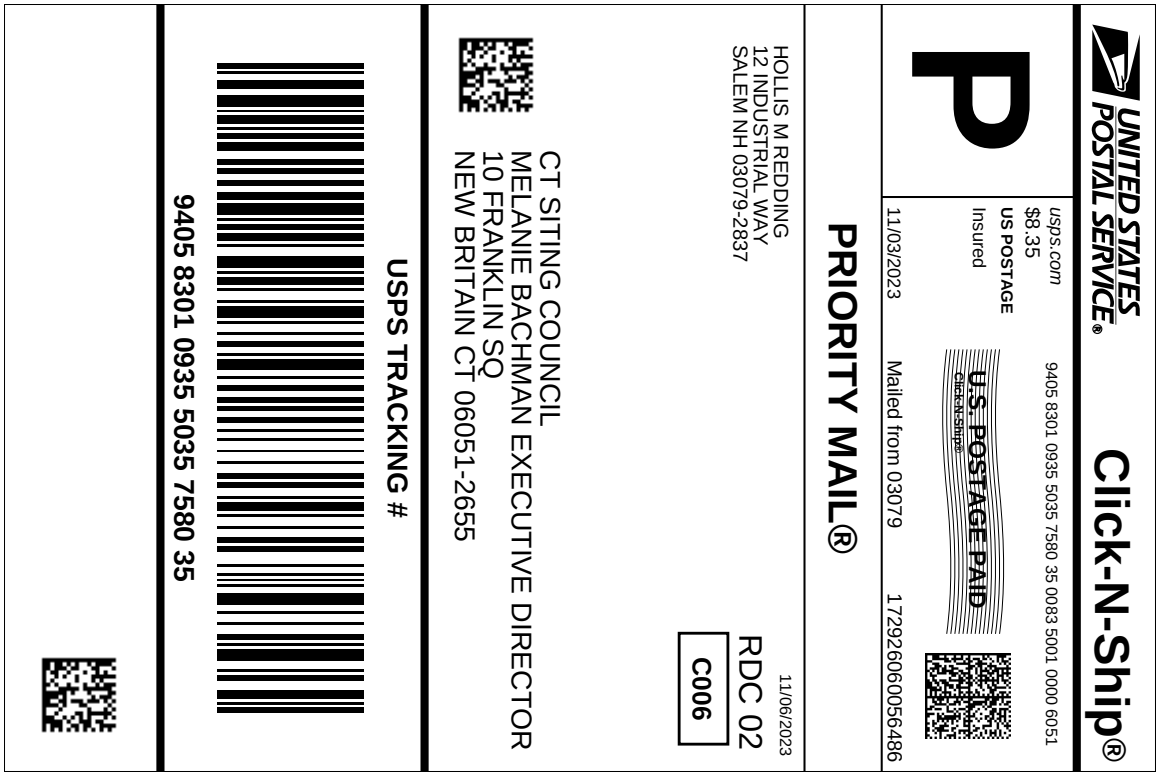

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9405 8301 0935 5035 7580 35

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Ship Date:	**2023-11-03**	**Extra Services:** **$0.00**
		Fees: **$0.00**
		Total: **$8.35**

From: **HOLLIS M REDDING**
12 INDUSTRIAL WAY
SALEM NH 03079-2837

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

*** Commercial Pricing PRIORITY MAIL® rates apply. There is no fee for USPS Tracking® service on PRIORITY MAIL® service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.**

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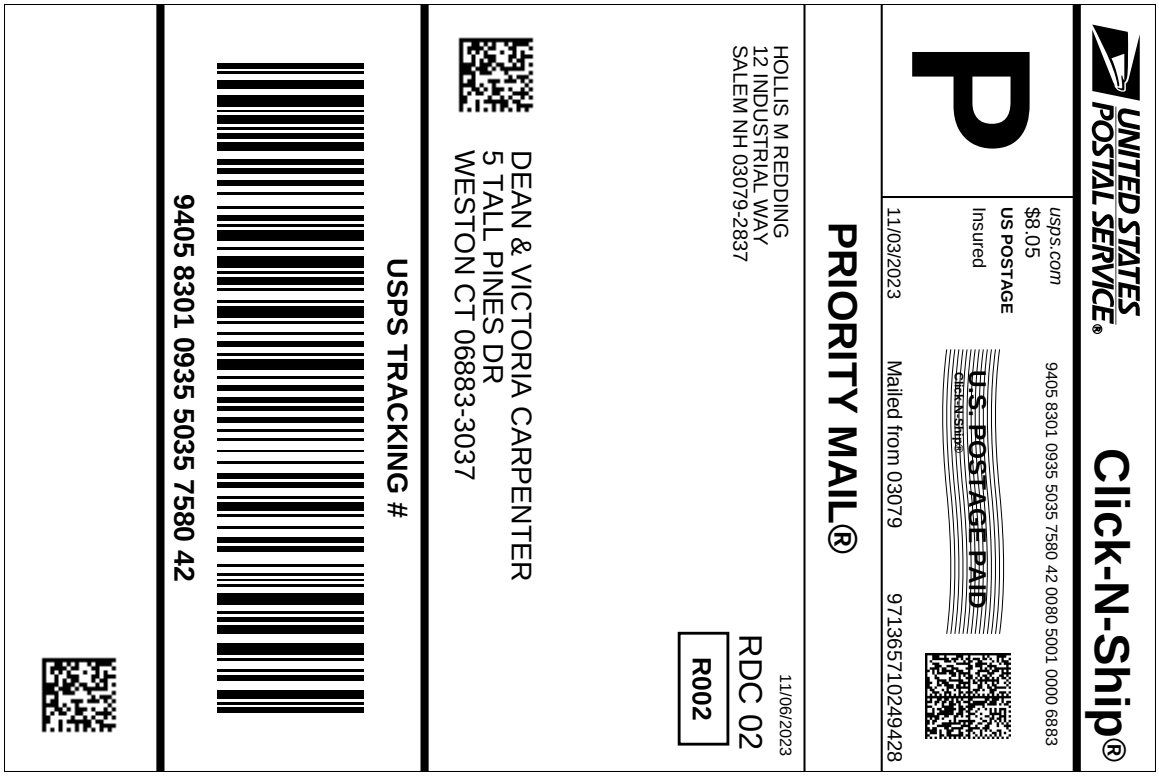

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9405 8301 0935 5035 7580 42

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Ship Date: 2023-11-03	**Extra Services:**	**$0.00**
	Fees:	**$0.00**
	Total:	**$8.05**

From: **HOLLIS M REDDING**
12 INDUSTRIAL WAY
SALEM NH 03079-2837

To:

DEAN & VICTORIA CARPENTER
5 TALL PINES DR
WESTON CT 06883-3037

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