



STATE OF CONNECTICUT  
*CONNECTICUT SITING COUNCIL*

Ten Franklin Square, New Britain, CT 06051

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**VIA ELECTRONIC MAIL**

February 15, 2022

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

**RE: EM-CING-062-220119** – New Cingular Wireless PCS, LLC (AT&T) notice of intent to modify an existing telecommunications facility located at 191 (a/k/a 265) Benham Street, Hamden, Connecticut.

Dear Ms. Redding:

The Connecticut Siting Council (Council) is in receipt of your correspondence of February 10, 2022 submitted in response to the Council's February 8, 2022 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman  
Executive Director

MAB/CMW/emr

**From:** Hollis Redding <HRedding@saigrp.com>  
**Sent:** Thursday, February 10, 2022 9:21 AM  
**To:** Robidoux, Evan <Evan.Robidoux@ct.gov>  
**Cc:** CSC-DL Siting Council <Siting.Council@ct.gov>  
**Subject:** RE: Council Incomplete Letter for EM-CING-062-220119 (Benham Street, Hamden)

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Good morning-

Attached please find my response to the incomplete letter of 2/8/22. A revised structural analysis is attached. Please let me know if you have any questions. Thank you. Hollis

Hollis M. Redding



SAI Communications LLC  
Mobile: 860-834-6964  
[hredding@saigrp.com](mailto:hredding@saigrp.com)



February 10, 2022

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

Re: Response to Incomplete Letter EM-CING-062-220119  
New Cingular Wireless PCS LLC ("AT&T") Site CT2040  
265 Benham Street, Hamden, CT 06514

Dear Ms. Bachman:

I am in receipt of your incomplete letter of February 8, 2022. Attached please find a revised structural analysis per your request. Page 9 Section 1.7 shows the stress capacity percentage and pages 56-69 show the calculations. Please let me know if the revised structural deems the exempt modification complete or if you need further information. Thank you.

Sincerely,

*Hollis M. Redding*

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

Enclosures

## *Structural Analysis Report*

*65' Existing Roof Top Mounted  
NUDD Guyed Lattice Tower*

*Proposed AT&T Mobility  
Antenna Upgrade*

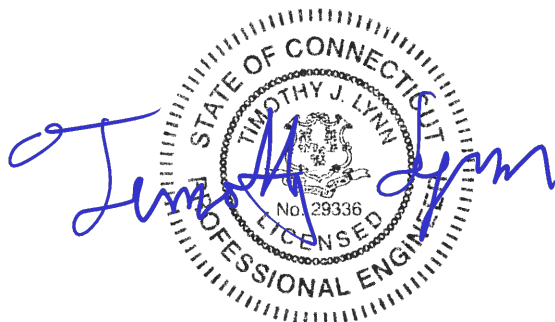
*AT&T Site Ref: CT2040*

*265 Benham Street  
Hamden, CT*

*CEN TEK Project No. 21111.00*

~~*Date: October 25, 2021*~~

*Rev 1: February 9, 2022*



**Prepared for:**  
AT&T Mobility  
500 Enterprise Drive, Suite 3A  
Rocky Hill, CT 06405

## **Table of Contents**

### **SECTION 1 - REPORT**

- INTRODUCTION
- ANTENNA AND APPURTENANCE SUMMARY
- PRIMARY ASSUMPTIONS USED IN THE ANALYSIS
- ANALYSIS
- TOWER LOADING
- TOWER CAPACITY
- GUY ANCHORAGE TO BUILDING
- CONCLUSION AND RECOMMENDATIONS

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

- STANDARD ENGINEERING CONDITIONS
- GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

### **SECTION 3 – CALCULATIONS**

- tnxTower INPUT/OUTPUT SUMMARY
- tnxTower FEED LINE PLAN
- tnxTower FEED LINE DISTRIBUTION
- tnxTower GUY ANCHOR AND REACTIONS DIAGRAM
- tnxTower DETAILED OUTPUT
- MathCAD GUY ANCHOR BOLT CAPACITY
- ROOF BEAM CHECK – ANCHOR POINT
- ROOF BEAM CHECK – TOWER BASE

### **SECTION 4 – REFERENCE MATERIALS**

- AT&T RF DATA SHEET

## *I n t r o d u c t i o n*

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

The host tower is a 65-ft, four-section, three-legged guyed lattice tower originally designed and manufactured by Fred A Nudd Corporation. The tower type, geometry and structure member sizes were taken from a previous structural analysis report prepared by Centek Engineering project no. 16034.07 dated September 6, 2016.

The tower is made up of four (4) vertical sections consisting of A36 MOD-50 solid steel legs. Diagonal and horizontal bracing consists of A36 solid round and steel angle construction. The vertical tower legs are connected together with bolted flanges while bracing is connected by fully welded connections. The width of the tower face is 2'-6".

Antenna and appurtenance inventory was taken from the aforementioned Centek structural analysis report, a tower mapping prepared by ProVertic dated May 10, 2021 and an AT&T RF datasheet.

## *A n t e n n a   a n d   A p p u r t e n a n c e   S u m m a r y*

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

- MUNICIPAL (Existing):  
Antennas: One (1) 2-ft dish leg mounted with an elevation of 108-ft above grade (66-ft above tower base).  
Cable: One (1) 7/8" dia. coax cable.
- MUNICIPAL (Existing):  
Antennas: Two (2) 1-ftx1-ft panel antennas leg mounted with an elevation of 107-ft above grade (65-ft above tower base).  
Cable: Two (2) 3/8" dia. coax cables
- MUNICIPAL (Existing):  
Antennas: One (1) 10-ft Omni-directional whip antenna mounted on a 2-ft side arm with an elevation of 106-ft above grade (64-ft above tower base).  
Cable: One (1) 7/8" dia. coax cable running on the face of the existing tower as specified in Section 3 of this report.
- MUNICIPAL (Existing):  
Antennas: One (1) 20-ft dipole antenna mounted on a 3-ft side arm with an elevation of 106-ft above grade (64-ft above tower base).  
Cable: One (1) 7/8" dia. coax cable running on the face of the existing tower as specified in Section 3 of this report.
- MUNICIPAL (Existing):  
Antennas: One (1) 1-ftx1-ft panel antennas leg mounted with an elevation of 104-ft above grade (62-ft above tower base).  
Cable: One (1) 3/8" dia. coax cable.

- MUNICIPAL (Existing):  
Antennas: One (1) 1-ftx1-ft panel antennas leg mounted with an elevation of 99.5-ft above grade (57.5-ft above tower base).  
Cable: One (1) 3/8" dia. coax cable.
- MUNICIPAL (Existing):  
Antennas: One (1) 20-ft dipole antenna mounted on a 3-ft side arm with an elevation of 85-ft above grade (43-ft above tower base).  
Cable: One (1) 7/8" dia. coax cable running on the face of the existing tower as specified in Section 3 of this report.
- VERIZON (Existing to Remain):  
Antennas: Four (4) Andrew DB844G65ZAXY, three (3) Andrew HBXX-6517DS panel antennas, two (2) Andrew LNX-6514DS panel antennas, two (2) RFS APL866513 panel antennas, one (1) Andrew SBNHH-1D45B, two (2) Andrew SBNHH-1D65B and one (1) JMA X7C-FRO-640 panel antennas mounted to existing T-frames with a RAD center elevation of 80-ft above existing grade (38-ft above tower base).  
Appurtenances: Three (3) Alcatel-Lucent RRH2x60-AWS remote radio heads, three (3) Alcatel-Lucent RRH2x60-700 remote radio heads and two (2) main distribution boxes mounted to existing T-frames with a RAD center elevation of 80-ft above existing grade (38-ft above tower base).  
Coax Cables: Twelve (12) 1-5/8" Ø coax cables and two (2) 1-5/8" Ø fiber line running on the face of the existing tower as specified in Section 3 of this report.
- AT&T (Existing to Remain):  
Antennas: Three (3) KMW AMX-CD-16-65-00T-RET panel antennas, three (3) KMW EPBQ-654L8H6-L2 panel antennas mounted on three (3) proposed tower stand-off sector frames with a RAD center elevation of 70-ft above existing grade (28-ft above tower base).  
Appurtenances: Three (3) CCI DTMABP7819VG12A TMAs, six (6) Ericsson RRUS-32 remote radio heads, three (3) 4426 remote radio heads and three (3) surge arrestors mounted on (3) tower stand-off sector frames with a RAD center elevation of 70-ft above existing grade (28-ft above tower base).  
Coax Cables: Six (6) 1-5/8" Ø coax cables and six (6) DC power cables and two (2) fiber cables running on a face of the existing tower as specified in Section 3 of this report.
- AT&T (Existing to Remove):  
Antennas: Three (3) CCI HPA-65R-BUU-H6 panel antennas mounted on (3) tower stand-off sector frames with a RAD center elevation of 70-ft above existing grade (28-ft above tower base).  
Appurtenances: Three (3) Ericsson RRUS-11 b12 mounted and three (3) Ericsson RRUS 4478 b5 on three (3) tower stand-off sector frames with a RAD center elevation of 70-ft above existing grade (28-ft above tower base).

**CEN TEK** Engineering, Inc.

Structural Analysis – 65-ft NUDD Guyed Lattice Tower

AT&T Mobility Antenna Upgrade – CT2040

Hamden, CT

Rev 1 ~ February 9, 2022

- **AT&T (Proposed):**
  - Antennas:** Three (3) CCI DMP65R-BU6DA panel antennas mounted on three (3) proposed sector frames with a RAD center elevation of 70-ft above existing grade (28-ft above tower base).
  - Appurtenances:** Three (3) Ericsson 4449 b5/b12 remote radio and three (3) Ericsson 4478 b14 remote radio heads mounted on three (3) proposed sector frames with a RAD center elevation of 70-ft above existing grade (28-ft above tower base).



### *Primary Assumptions Used in the Analysis*

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

## A n a l y s i s

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

The existing tower was analyzed for the controlling basic wind speed (3-second gust) with no ice and the applicable wind and ice combination to determine stresses in members as per guidelines of TIA-222-G-2005 entitled “Structural Standard for Antenna Support Structures and Antennas”, the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Load and Resistance Factor Design (LRFD).

The controlling wind speed is determined by evaluating the local available wind speed data as provided in Appendix N of the CSBC<sup>1</sup> and the wind speed data available in the TIA-222-G-2005 Standard.

## T o w e r L o a d i n g

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA-222-G-2005, gravity loads of the tower structure and its components, and the application of 0.75” radial ice on the tower structure and its components.

Basic Wind Speed:	Hamden; $v = 97$ mph (3 second gust)	<i>[Appendix N of the 2018 CT Building Code]</i>
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Load Cases:	<u>Load Case 1</u> ; 97 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation.	<i>[Appendix N of the 2018 CT Building Code]</i>
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	<u>Load Case 2</u> ; 50 mph wind speed w/ 0.75” radial ice plus gravity load – used in calculation of tower stresses.	<i>[Annex B of TIA-222-G-2005]</i>
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<sup>1</sup> The 2015 International Building Code as amended by the 2018 Connecticut State Building Code (CSBC).

## Tower Capacity

- Calculated stresses were found to be within allowable limits.

Tower Section	Elevation (AGL)	Stress Ratio (percentage of capacity)	Result
Leg (T4)	42'-0"-62'-0"	72.9%	<b>PASS</b>
Diagonal (T3)	62'-0"-82'-0"	99.4%	<b>PASS</b>
Guy B (T4)	42'-0"-62'-0"	40.4%	<b>PASS</b>

## Existing Guy Anchors and Tower Base

Guy forces are transferred to the existing building structure via six (6) 9/16" and three (3) 3/4" Ø galvanized steel guy wires with turnbuckles. All guy anchorage posts are positively attached to the existing building structure and consist of 6"x6"x1/4" tube steel with 1/2" thick guy connection plates with three 5/8" Ø A325-N bolts in double shear. Connections to the existing building were originally designed by Natcomm for Verizon Wireless on October 02, 2000, reference project no. 985094.

The guyed tower base is pin connected to a 1-3/4" thick x 24" square base plate welded to an existing W8 steel dunnage frame. Frame loads are then transferred down onto the existing concrete roof structure via four (4) 6"x6"x1/4" tube steel posts with 1-1/4" thick x 12in square base plates.

Review of the anchor and tower base connections consisted of verification of applied loads obtained from the tower design calculations and code checks of allowable stresses:

- The worst case tower base and guy anchor reactions developed from the governing Load Case 2 were used in the verification of the anchorage:

Tower Guy Reactions	
Vector	Guy C
Horizontal (In Plane of GW)	15 kips
Horizontal (Out of Plane of GW)	0 kips
Vertical	24 kips
Tower Base Reactions	
Vector	Proposed Reaction
Horizontal Shear	1 kips
Axial Compression	67kips

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

Location	Design Limit	Load	Stress Ratio (percentage of capacity)	Result
Guy Anchor B	Shear	28.1 kips	75%	<b>PASS</b>

### Host Building

- Calculated stresses were found to be within allowable limits.

Location	Stress Ratio (percentage of capacity)	Result
Guy Anchor	67.3%	<b>PASS</b>
Tower Base	87.5%	<b>PASS</b>

**CEN TEK** Engineering, Inc.

Structural Analysis – 65-ft NUDD Guyed Lattice Tower

AT&T Mobility Antenna Upgrade – CT2040

Hamden, CT

Rev 1 ~ February 9, 2022

### Conclusion

This analysis shows that the subject tower and host building are **adequate** to support the proposed modified antenna configuration.

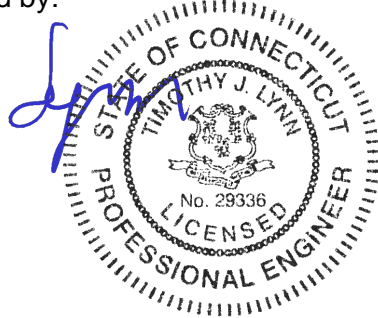
The analysis is based, in part, on the information provided to this office by AT&T Mobility. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

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:

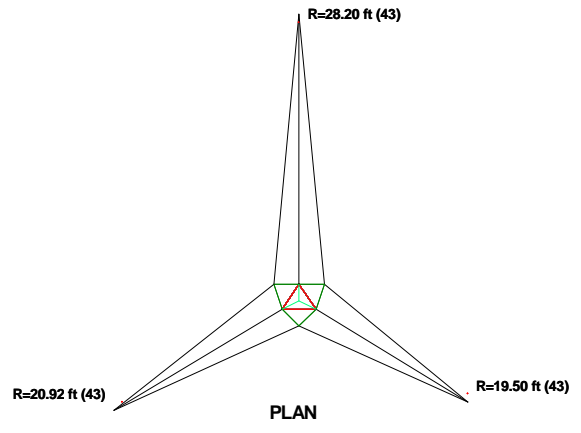
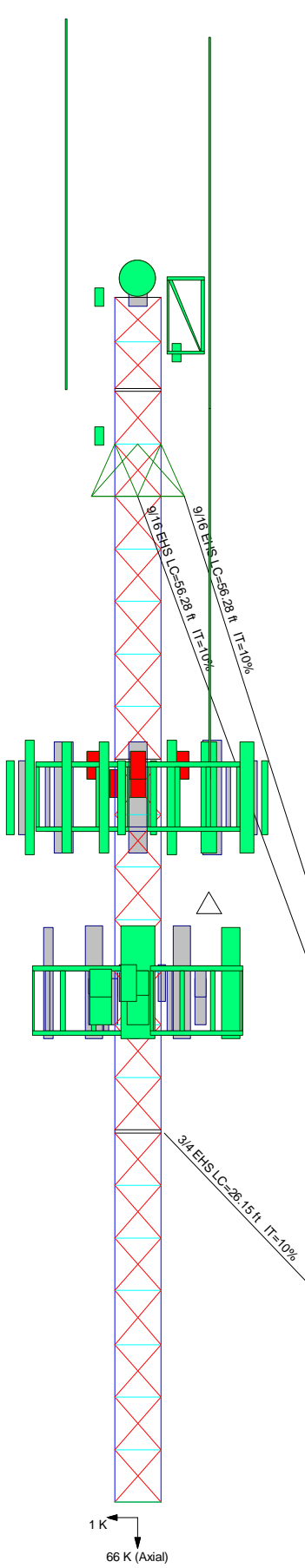
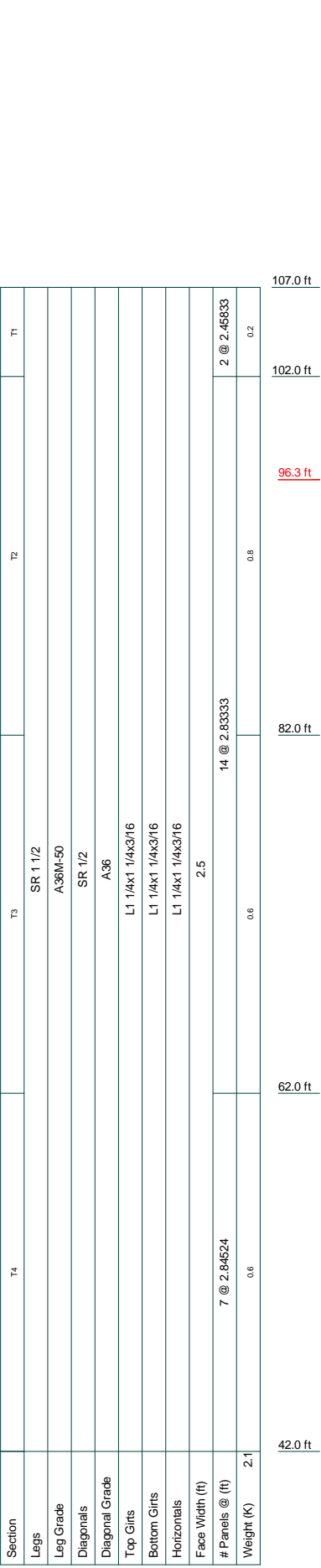
- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or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

## GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

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

### TnxTower Features:

- TnxTower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-G (2005) standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD 14th Edition or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- TnxTower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.



**DESIGNED APPURTENANCE LOADING**

TYPE	ELEVATION	TYPE	ELEVATION
2' Dish	108	4426 B66 (ATI - Existing)	70
1' x 1' Panel	107	4449 B5/B12 (ATI - Proposed)	70
1' x 1' Panel	107	4449 B5/B12 (ATI - Proposed)	70
10' x 2' Dia Omni (Municipal)	106	4449 B5/B12 (ATI - Proposed)	70
2-ft Stand Off (Municipal)	106	4478 B14 (ATI - Proposed)	70
20' 4-Bay Dipole (Municipal)	106	4478 B14 (ATI - Proposed)	70
1' x 1' Panel	104	4478 B14 (ATI - Proposed)	70
1' x 1' Panel	99.5	DC6-48-60-18-8F Surge Arrestor (ATI - Existing)	70
3' Side arm mount (Municipal)	85	DC6-48-60-18-8F Surge Arrestor (ATI - Existing)	70
20' 4-Bay Dipole (Municipal)	85	DC6-48-60-18-8F Surge Arrestor (ATI - Existing)	70
RRH2x60-AWS (Verizon - Existing)	81	DC6-48-60-18-8F Surge Arrestor (ATI - Existing)	70
RRH2x60-AWS (Verizon - Existing)	81	AM-X-CD-16-65-00T-RET(72") (ATI - Existing)	70
RRH2x60-07-U (Verizon - Existing)	81	AM-X-CD-16-65-00T-RET(72") (ATI - Existing)	70
RRH2x60-07-U (Verizon - Existing)	81	AM-X-CD-16-65-00T-RET(72") (ATI - Existing)	70
RRH2x60-07-U (Verizon - Existing)	81	AM-X-CD-16-65-00T-RET(72") (ATI - Existing)	70
DB-T1-6Z-8AB-0Z (Verizon - Existing)	80	AM-X-CD-16-65-00T-RET(72") (ATI - Existing)	70
DB844G65ZAXY (Verizon - Existing)	80	AM-X-CD-16-65-00T-RET(72") (ATI - Existing)	70
HBXX-6517DS (Verizon - Existing)	80	DMP65R-BU6DA (ATI - Proposed)	70
LNX-6514DS-VTM (Verizon - Existing)	80	DMP65R-BU6DA (ATI - Proposed)	70
SBNHH-1D65B (Verizon - Existing)	80	DMP65R-BU6DA (ATI - Proposed)	70
DB844G65ZAXY (Verizon - Existing)	80	EPBQ-654L8H6-L2 (ATI - Existing)	70
DB-T1-6Z-8AB-0Z (Verizon - Existing)	80	EPBQ-654L8H6-L2 (ATI - Existing)	70
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	80	EPBQ-654L8H6-L2 (ATI - Existing)	70
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	80	SitePro VFA12-HD (ATI - Existing)	69
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	80	SitePro VFA12-HD (ATI - Existing)	69
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	80	DTMABP7819VG12A TMA (ATI - Existing)	69
SBNHH-1D65B (Verizon - Existing)	80	RRUS-32 (ATI - Existing)	69
DB844G65ZAXY (Verizon - Existing)	80	RRUS-32 (ATI - Existing)	69
APL866513-42T0 (Verizon - Existing)	80	RRUS-32 (ATI - Existing)	69
SBNHH-1D45B (Verizon - Existing)	80	RRUS-32 (ATI - Existing)	69
APL866513-42T0 (Verizon - Existing)	80	RRUS-32 (ATI - Existing)	69
HBXX-6517DS (Verizon - Existing)	80	RRUS-32 (ATI - Existing)	69
LNX-6514DS-VTM (Verizon - Existing)	80	DTMABP7819VG12A TMA (ATI - Existing)	69
X7C-FR0-640-V (Verizon - Existing)	80	DTMABP7819VG12A TMA (ATI - Existing)	69
DB844G65ZAXY (Verizon - Existing)	80	SitePro VFA12-HD (ATI - Existing)	69
4426 B66 (ATI - Existing)	70		
4426 B66 (ATI - Existing)	70		

**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A36M-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

**TOWER DESIGN NOTES**

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 99.4%

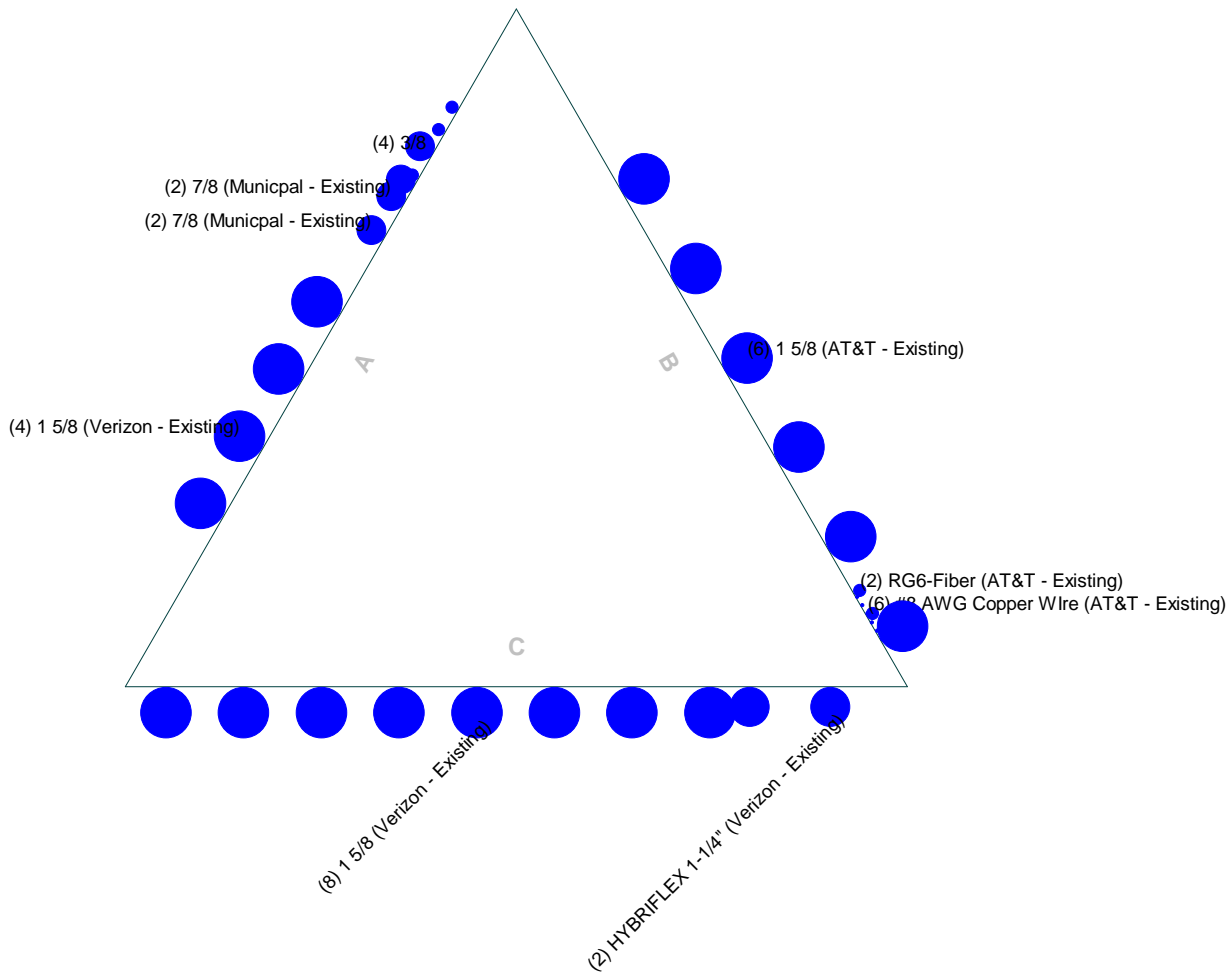
ALL REACTIONS ARE FACTORED

<b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job: <b>21111.00 - CT2040</b>
	Project: <b>65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT</b>
Client: AT&T Mobility	Drawn by: TJL
Code: TIA-222-G	Date: 10/25/21
Path:	Scale: NTS
<small>J:\Jobs\2111100\W105_Structural\Backup Documentation\ERI100_NUDD_Guyed_Twr_Hamden_CT.dwg</small>	Dwg No. E-1



# Feed Line Plan

— Round   
 — Flat   
 — App In Face   
 — App Out Face

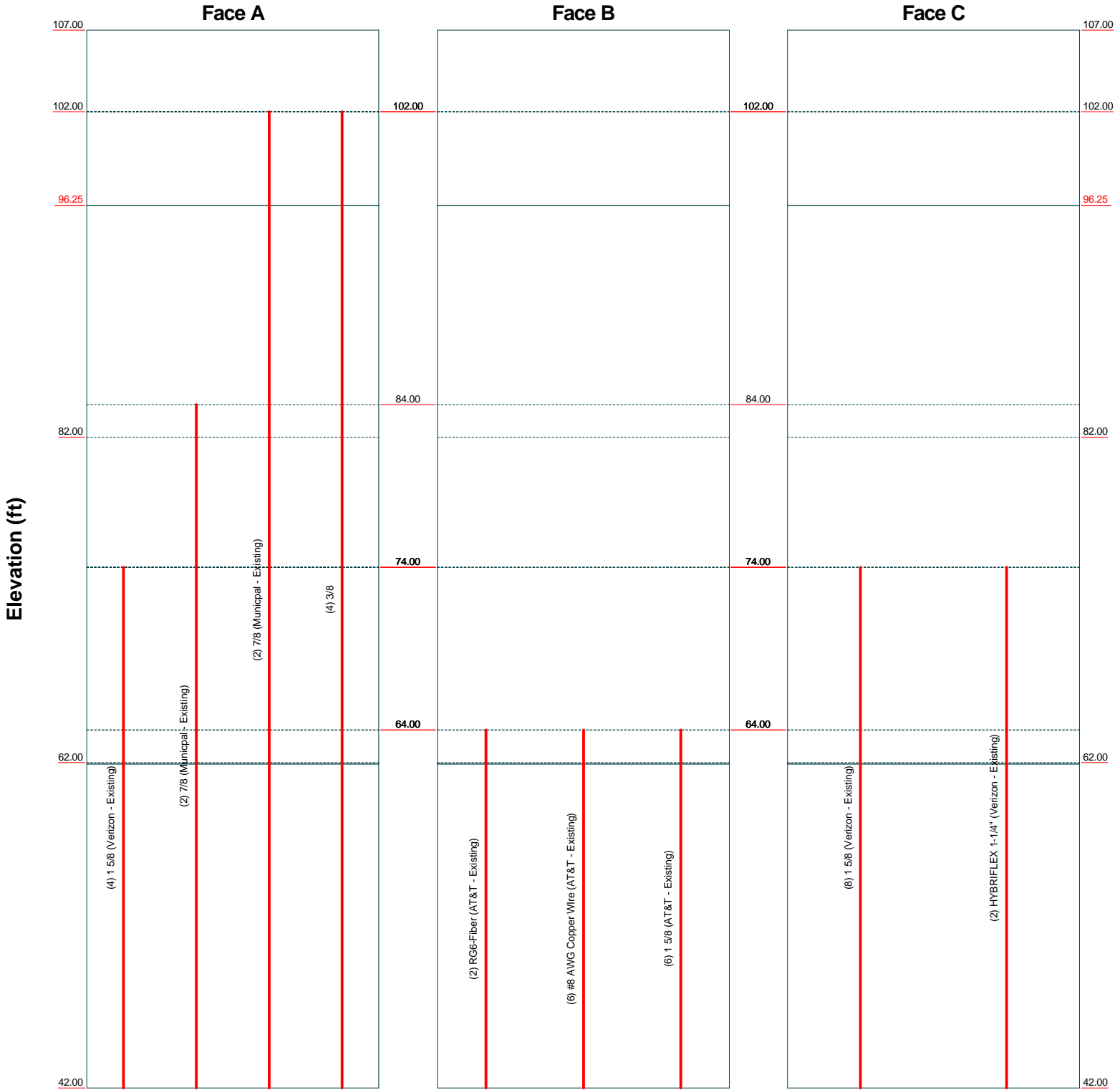


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		Project: <b>65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT</b>	
Client: AT&T Mobility	Drawn by: T.J.L.	App'd:	
Code: TIA-222-G	Date: 10/25/21	Scale: NTS	
Path: J:\Jobs\2111100\W105_StructuralBackup\Documentation\ER1100_NUDD_Guyed_Twr_Hamden_CT.dwg	Dwg No. E-7		

# Feed Line Distribution Chart

## 42' - 107'

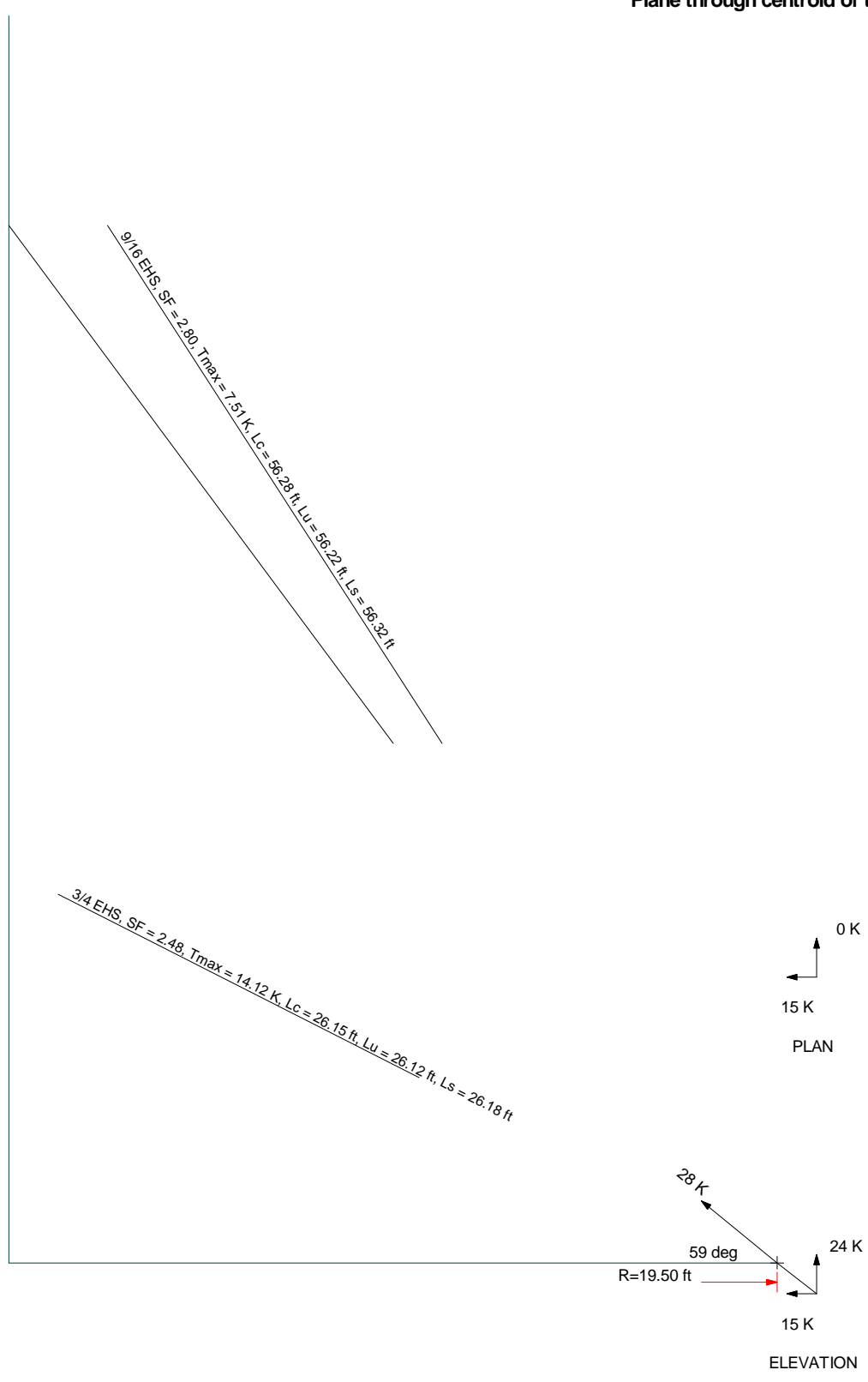
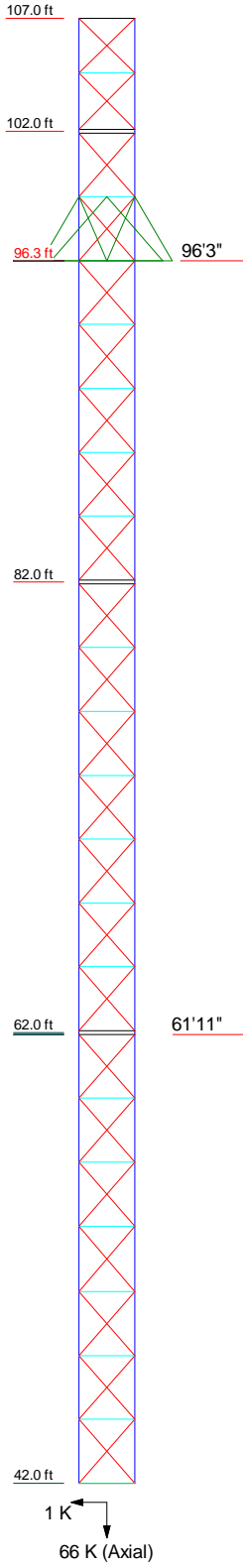
— Round   
 — Flat   
 — App In Face   
 — App Out Face   
 — Truss Leg



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			Project: <b>65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT</b>		
Client: AT&T Mobility		Drawn by: TJL		App'd:	
Code: TIA-222-G		Date: 10/25/21		Scale: NTS	
Path: J:\Jobs\2111100\W105_StructuralBackup Documentation\ER1100_NUDD_Guyed_Twr_Hamden_CT.dwg			Dwg No. E-7		

**Guy Tensions and Tower Reactions**  
**TIA-222-G - 97 mph/50 mph 0.750 in Ice Exposure B**

**Maximum Values**  
**Anchor 'B' @19.5 ft Azimuth 120 deg Elev 43 ft**  
**Plane through centroid of tower**



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	Project: <b>65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT</b>		
	Client: AT&T Mobility	Drawn by: TJL	App'd:
	Code: TIA-222-G	Date: 10/25/21	Scale: NTS
	Path: J:\Jobs\2111100\W105 Structural\Backup Documentation\ER1100_NUDD_Guyed_Twr_Hamden_CT.dwg	Dwg No. E-6	

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	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

## Tower Input Data

The main tower is a 3x guyed tower with an overall height of 107.00 ft above the ground line.

The base of the tower is set at an elevation of 42.00 ft above the ground line.

The face width of the tower is 2.50 ft at the top and 2.50 ft at the base.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Basic wind speed of 97 mph.

Structure Class II.

Exposure Category B.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 0.750 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

Tension only take-up is 0.031 in.

Pressures are calculated at each section.

Stress ratio used in tower member design is 1.

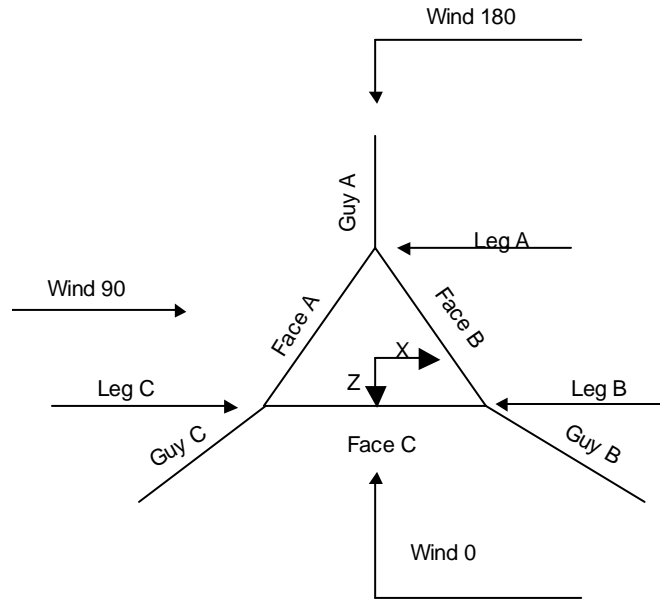
Safety factor used in guy design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Options

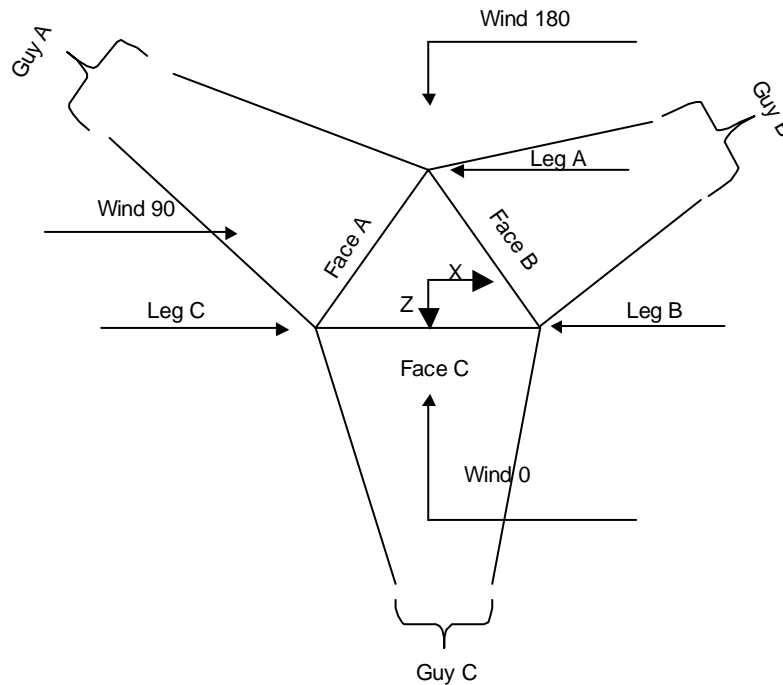
<ul style="list-style-type: none"> <li>Consider Moments - Legs</li> <li>Consider Moments - Horizontals</li> <li>Consider Moments - Diagonals</li> <li>Use Moment Magnification</li> <li>√ Use Code Stress Ratios</li> <li>√ Use Code Safety Factors - Guys</li> <li>Escalate Ice</li> <li>Always Use Max Kz</li> <li>Use Special Wind Profile</li> <li>√ Include Bolts In Member Capacity</li> <li>√ Leg Bolts Are At Top Of Section</li> <li>Secondary Horizontal Braces Leg</li> <li>Use Diamond Inner Bracing (4 Sided)</li> <li>√ SR Members Have Cut Ends</li> <li>SR Members Are Concentric</li> </ul>	<ul style="list-style-type: none"> <li>Distribute Leg Loads As Uniform</li> <li>Assume Legs Pinned</li> <li>Assume Rigid Index Plate</li> <li>Use Clear Spans For Wind Area</li> <li>√ Use Clear Spans For KL/r</li> <li>√ Retension Guys To Initial Tension</li> <li>Bypass Mast Stability Checks</li> <li>Use Azimuth Dish Coefficients</li> <li>√ Project Wind Area of Appurt.</li> <li>√ Autocalc Torque Arm Areas</li> <li>Add IBC .6D+W Combination</li> <li>√ Sort Capacity Reports By Component</li> <li>Triangulate Diamond Inner Bracing</li> <li>Treat Feed Line Bundles As Cylinder</li> <li>Ignore KL/ry For 60 Deg. Angle Legs</li> </ul>	<ul style="list-style-type: none"> <li>Use ASCE 10 X-Brace Ly Rules</li> <li>Calculate Redundant Bracing Forces</li> <li>Ignore Redundant Members in FEA</li> <li>SR Leg Bolts Resist Compression</li> <li>√ All Leg Panels Have Same Allowable</li> <li>Offset Girt At Foundation</li> <li>√ Consider Feed Line Torque</li> <li>Include Angle Block Shear Check</li> <li>Use TIA-222-G Bracing Resist. Exemption</li> <li>Use TIA-222-G Tension Splice Exemption</li> <li style="text-align: center;">Poles</li> <li>Include Shear-Torsion Interaction</li> <li>Always Use Sub-Critical Flow</li> <li>Use Top Mounted Sockets</li> <li>Pole Without Linear Attachments</li> <li>Pole With Shroud Or No Appurtenances</li> <li>Outside and Inside Corner Radii Are Known</li> </ul>
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<b>Job</b>	21111.00 - CT2040	<b>Page</b>	2 of 38
<b>Project</b>	65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b>	15:06:46 10/25/21
<b>Client</b>	AT&T Mobility	<b>Designed by</b>	TJL



**Corner & Starmount Guyed Tower**

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b> 21111.00 - CT2040	<b>Page</b> 3 of 38
	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL



**Face Guyed**

### Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	107.00-102.00			2.50	1	5.00
T2	102.00-82.00			2.50	1	20.00
T3	82.00-62.00			2.50	1	20.00
T4	62.00-42.00			2.50	1	20.00

### Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	107.00-102.00	2.46	TX Brace	No	Yes	0.000	1.000

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	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T2	102.00-82.00	2.83	TX Brace	No	Yes	1.000	1.000
T3	82.00-62.00	2.83	TX Brace	No	Yes	1.000	1.000
T4	62.00-42.00	2.85	TX Brace	No	Yes	1.000	0.000

### Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 107.00-102.00	Solid Round	1 1/2	A36M-50 (50 ksi)	Solid Round	1/2	A36 (36 ksi)
T2 102.00-82.00	Solid Round	1 1/2	A36M-50 (50 ksi)	Solid Round	1/2	A36 (36 ksi)
T3 82.00-62.00	Solid Round	1 1/2	A36M-50 (50 ksi)	Solid Round	1/2	A36 (36 ksi)
T4 62.00-42.00	Solid Round	1 1/2	A36M-50 (50 ksi)	Solid Round	1/2	A36 (36 ksi)

### Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 107.00-102.00	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T2 102.00-82.00	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T3 82.00-62.00	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T4 62.00-42.00	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)

### Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 107.00-102.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T2 102.00-82.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T3 82.00-62.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T4 62.00-42.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)





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	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 107.00-102.00	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 102.00-82.00	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 82.00-62.00	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 62.00-42.00	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

### Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
				Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 107.00-102.00	Flange	0.875 A325N	1	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T2 102.00-82.00	Flange	0.875 A325N	1	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T3 82.00-62.00	Flange	0.875 A325N	1	0.000 A325N	0	0.500 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T4 62.00-42.00	Flange	0.875 A325N	1	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0

### Guy Data

Guy Elevation ft	Guy Grade	Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L <sub>u</sub> ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
96.25	EHS	A 9/16	3.50	10%	21000	0.671	59.60	28.20	0.0000	43.00	100%
		B 9/16	3.50	10%	21000	0.671	56.24	19.50	0.0000	43.00	100%
		C 9/16	3.50	10%	21000	0.671	56.71	20.92	0.0000	43.00	100%
61.9167	EHS	A 3/4	5.83	10%	19000	1.155	32.74	28.20	0.0000	43.00	100%
		B 3/4	5.83	10%	19000	1.155	26.13	19.50	0.0000	43.00	100%
		C 3/4	5.83	10%	19000	1.155	27.13	20.92	0.0000	43.00	100%

### Guy Data(cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
96.25	Torque Arm	5.00	45.0000	Dog Ear	A36 (36 ksi)	Single Angle	L2x2x5/16 L3x3x1/4

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	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
61.9167	Corner						

**Guy Data (cont'd)**

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap	Pull-Off Grade	Pull-Off Type	Pull-Off Size
96.25	A36 (36 ksi)	Solid Round				A36 (36 ksi)	Single Angle	
61.92	A36 (36 ksi)	Solid Round				A36 (36 ksi)	Single Angle	

**Guy Data (cont'd)**

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
96.25	0.04	0.04	0.04		0.34	0.30	0.31	
61.9167	0.04	0.03	0.03		1.0 sec/pulse 0.11	0.9 sec/pulse 0.07	1.0 sec/pulse 0.07	
					0.6 sec/pulse	0.4 sec/pulse	0.5 sec/pulse	

**Guy Data (cont'd)**

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm		Pull Off		Diagonal	
			K <sub>x</sub>	K <sub>y</sub>	K <sub>x</sub>	K <sub>y</sub>	K <sub>x</sub>	K <sub>y</sub>
96.25	Yes	Yes	1	1	1	1	1	1
61.9167	No	No			1	1	1	1

**Guy Data (cont'd)**

Guy Elevation ft	Torque-Arm				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U
96.25	0.000	0	0.000	1	0.625	0	0.000	0.75	0.625	0	0.000	0.75
	A325N				A325N				A325N			
61.9167	0.000	0	0.000	1	0.625	0	0.000	0.75	0.625	0	0.000	0.75
	A325N				A325N				A325N			

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	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJJ

### Guy Pressures

Guy Elevation ft	Guy Location	z ft	q <sub>z</sub> psf	q <sub>z</sub> Ice psf	Ice Thickness in
96.25	A	69.63	18	5	1.616
	B	69.63	18	5	1.616
	C	69.63	18	5	1.616
61.9167	A	52.46	17	4	1.571
	B	52.46	17	4	1.571
	C	52.46	17	4	1.571

### Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top Bottom K	F <sub>x</sub> K	F <sub>y</sub> K	F <sub>z</sub> K	M <sub>x</sub> kip-ft	M <sub>y</sub> kip-ft	M <sub>z</sub> kip-ft	
96.25	A	63.2217	3.54	-0.15	3.16	-1.58	-4.56	4.16	-7.90	
			3.50	0.15	3.16	-1.58	-4.56	-4.16	7.90	
	B	71.1026	3.54	1.06	3.35	0.43	9.66	3.05	0.00	
			3.50	0.90	3.35	0.70	-4.83	-3.05	-8.37	
	C	69.7581	3.54	-0.97	3.32	0.74	-4.79	3.24	8.30	
			3.50	-1.12	3.32	0.47	9.58	-3.24	0.00	
61.9167	A	35.2599	Sum:	<b>-0.14</b>	19.65	<b>-0.82</b>	<b>0.50</b>	0.00	<b>-0.07</b>	
			5.85	0.00	3.39	-4.77	-4.89	0.00	0.00	
	B	46.3325	5.83	3.49	4.24	2.02	3.06	0.00	-5.30	
			5.85	-3.63	4.09	2.09	2.95	-0.00	5.11	
	C	44.1644	5.83	Sum:	<b>-0.14</b>	11.72	<b>-0.66</b>	<b>1.11</b>	0.00	<b>-0.19</b>
			5.85							

### Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top Bottom K	F <sub>x</sub> K	F <sub>y</sub> K	F <sub>z</sub> K	M <sub>x</sub> kip-ft	M <sub>y</sub> kip-ft	M <sub>z</sub> kip-ft
96.25	A	63.2217	5.10	-0.21	4.58	-2.23	-6.61	5.87	-11.45
			4.83	0.21	4.58	-2.23	-6.61	-5.87	11.45
	B	71.1026	5.03	1.47	4.78	0.60	13.79	4.24	0.00

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b>	21111.00 - CT2040	<b>Page</b>	9 of 38
	<b>Project</b>	65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b>	15:06:46 10/25/21
	<b>Client</b>	AT&T Mobility	<b>Designed by</b>	TJL

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F <sub>x</sub>	F <sub>y</sub>	F <sub>z</sub>	M <sub>x</sub>	M <sub>y</sub>	M <sub>z</sub>	
ft		°		K	K	K	kip-ft	kip-ft	kip-ft	
61.9167	B	71.1026	4.77	1.25	4.78	0.97	-6.90	-4.24	-11.94	
			5.03							
	C	69.7581	4.77	-1.35	4.75	1.03	-6.85	4.52	11.87	
			5.04							
	C	69.7581	4.78	-1.57	4.75	0.66	13.71	-4.52	0.00	
			5.04							
	A	35.2599	7.95	4.78	0.00	4.71	-6.53	-6.80	0.00	0.00
				8.06						
	B	46.3325	7.90	7.95	4.76	5.83	2.75	4.21	0.00	-7.29
				8.01						
	C	44.1644	7.91	7.90	-4.95	5.62	2.86	4.06	-0.00	7.03
				8.02						
			Sum:	-0.19	16.17	-0.93	1.46	0.00	-0.26	

### Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F <sub>x</sub>	F <sub>y</sub>	F <sub>z</sub>	M <sub>x</sub>	M <sub>y</sub>	M <sub>z</sub>
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
96.25	A	63.2217	3.54	-0.15	3.16	-1.58	-4.56	4.16	-7.90
			3.50						
	A	63.2217	3.54	0.15	3.16	-1.58	-4.56	-4.16	7.90
			3.50						
	B	71.1026	3.54	1.06	3.35	0.43	9.66	3.05	0.00
			3.50						
	B	71.1026	3.54	0.90	3.35	0.70	-4.83	-3.05	-8.37
			3.50						
	C	69.7581	3.54	-0.97	3.32	0.74	-4.79	3.24	8.30
			3.50						
	C	69.7581	3.54	-1.12	3.32	0.47	9.58	-3.24	0.00
			3.50						
A	35.2599	5.83	Sum:	-0.14	19.65	-0.82	0.50	0.00	-0.07
			5.85	0.00	3.39	-4.77	-4.89	0.00	0.00
B	46.3325	5.83	5.83	3.49	4.24	2.02	3.06	0.00	-5.30
			5.85						
C	44.1644	5.83	5.85	-3.63	4.09	2.09	2.95	-0.00	5.11
			5.83						
			Sum:	-0.14	11.72	-0.66	1.11	0.00	-0.19

### Guy-Tensioning Information

Temperature At Time Of Tensioning						
0 F	20 F	40 F	60 F	80 F	100 F	120 F

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b> 21111.00 - CT2040	<b>Page</b> 10 of 38
	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

Guy Elevation		H	V	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept
ft		ft	ft	K	ft	K	ft	K	ft	K	ft	K	ft	K	ft	K	ft
96.25	A	26.87	53.25	3.823	0.31	3.715	0.32	3.608	0.33	3.500	0.34	3.393	0.35	3.285	0.36	3.178	0.37
	B	18.23	53.25	3.667	0.29	3.611	0.29	3.556	0.30	3.500	0.30	3.444	0.31	3.389	0.31	3.333	0.32
	C	19.64	53.25	3.691	0.29	3.627	0.30	3.563	0.30	3.500	0.31	3.437	0.31	3.373	0.32	3.310	0.32
61.9167	A	26.76	18.92	7.488	0.08	6.935	0.09	6.382	0.10	5.830	0.11	5.278	0.12	4.728	0.13	4.178	0.15
	B	18.06	18.92	7.017	0.06	6.621	0.06	6.225	0.06	5.830	0.07	5.435	0.07	5.040	0.08	4.645	0.08
	C	19.48	18.92	7.111	0.06	6.684	0.06	6.257	0.07	5.830	0.07	5.403	0.08	4.977	0.09	4.551	0.09

### Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	# Row	# Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8 (Verizon - Existing)	A	No	No	Ar (CaAa)	74.00 - 42.00	0.000	-0.1	4	4	1.000 1.980	1.980		1.04
1 5/8 (Verizon - Existing)	C	No	No	Ar (CaAa)	74.00 - 42.00	0.000	0.1	8	8	1.000	1.980		1.04
7/8 (Municipal - Existing)	A	No	No	Ar (CaAa)	84.00 - 42.00	0.000	0.2	2	2	1.110	1.110		0.54
7/8 (Municipal - Existing)	A	No	No	Ar (CaAa)	102.00 - 42.00	0.000	0.25	2	2	1.110	1.110		0.54
RG6-Fiber (AT&T - Existing)	B	No	No	Ar (CaAa)	64.00 - 42.00	0.000	0.38	2	2	0.500	0.500		1.00
#8 AWG Copper Wre (AT&T - Existing)	B	No	No	Ar (CaAa)	64.00 - 42.00	0.000	0.4	6	6	0.250	0.129		0.05
1 5/8 (AT&T - Existing)	B	No	No	Ar (CaAa)	64.00 - 42.00	0.000	0.1	6	6	1.980	1.980		1.04
HYBRIFLEX 1-1/4" (Verizon - Existing)	C	No	No	Ar (CaAa)	74.00 - 42.00	0.000	-0.35	2	2	1.540	1.540		1.30
3/8	A	No	No	Ar (CaAa)	102.00 - 42.00	0.000	0.3	4	4	0.500	0.500		0.40

### Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight K
T1	107.00-102.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T2	102.00-82.00	A	0.000	0.000	8.884	0.000	0.06
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T3	82.00-62.00	A	0.000	0.000	22.384	0.000	0.13
		B	0.000	0.000	2.730	0.000	0.02

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b> 21111.00 - CT2040	<b>Page</b> 11 of 38
	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
T4	62.00-42.00	C	0.000	0.000	22.704	0.000	0.13
		A	0.000	0.000	28.720	0.000	0.16
		B	0.000	0.000	27.302	0.000	0.17
		C	0.000	0.000	37.840	0.000	0.22

### Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
T1	107.00-102.00	A	1.683	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T2	102.00-82.00	A	1.662	0.000	0.000	41.544	0.000	0.43
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T3	82.00-62.00	A	1.622	0.000	0.000	81.347	0.000	0.90
		B		0.000	0.000	9.464	0.000	0.12
		C		0.000	0.000	53.708	0.000	0.76
T4	62.00-42.00	A	1.570	0.000	0.000	95.038	0.000	1.08
		B		0.000	0.000	93.613	0.000	1.19
		C		0.000	0.000	88.852	0.000	1.23

### Feed Line Center of Pressure

Section	Elevation ft	CP <sub>x</sub> in	CP <sub>z</sub> in	CP <sub>x</sub> Ice in	CP <sub>z</sub> Ice in
T1	107.00-102.00	0.000	0.000	0.000	0.000
T2	102.00-82.00	-0.928	-2.923	-0.662	-2.040
T3	82.00-62.00	-1.822	0.703	-1.027	-0.552
T4	62.00-42.00	0.343	1.282	1.036	0.366

### Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T2	3		7/8 82.00 - 84.00	0.6000	0.3012
T2	4		7/8 82.00 - 102.00	0.6000	0.3012
T2	9		3/8 82.00 - 102.00	0.6000	0.3012
T3	1		1 5/8 62.00 - 74.00	0.6000	0.3126
T3	2		1 5/8 62.00 - 74.00	0.6000	0.3126
T3	3		7/8 62.00 - 82.00	0.6000	0.3126
T3	4		7/8 62.00 - 82.00	0.6000	0.3126
T3	5	RG6-Fiber	62.00 - 64.00	0.6000	0.3126
T3	6	#8 AWG Copper Wire	62.00 - 64.00	0.6000	0.3126
T3	7		1 5/8 62.00 - 64.00	0.6000	0.3126
T3	8	HYBRIFLEX 1-1/4"	62.00 - 74.00	0.6000	0.3126

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b> 21111.00 - CT2040	<b>Page</b> 12 of 38
	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	$K_a$ No Ice	$K_a$ Ice
T3	9	3/8	62.00 - 82.00	0.6000	0.3126
T4	1	1 5/8	42.00 - 62.00	0.6000	0.3268
T4	2	1 5/8	42.00 - 62.00	0.6000	0.3268
T4	3	7/8	42.00 - 62.00	0.6000	0.3268
T4	4	7/8	42.00 - 62.00	0.6000	0.3268
T4	5	RG6-Fiber	42.00 - 62.00	0.6000	0.3268
T4	6	#8 AWG Copper Wire	42.00 - 62.00	0.6000	0.3268
T4	7	1 5/8	42.00 - 62.00	0.6000	0.3268
T4	8	HYBRIFLEX 1-1/4"	42.00 - 62.00	0.6000	0.3268
T4	9	3/8	42.00 - 62.00	0.6000	0.3268

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	$C_{AA}$ Front	$C_{AA}$ Side	Weight
			Horz Lateral	Vert					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
DB844G65ZAXY (Verizon - Existing)	A	From Leg	3.00	0.0000	80.00	No Ice	4.34	3.61	0.02
			6.00	1/2" Ice		4.66	3.92	0.05	
			0.00	1" Ice		4.98	4.23	0.09	
HBXX-6517DS (Verizon - Existing)	A	From Leg	3.00	0.0000	80.00	No Ice	8.53	5.24	0.05
			4.00	1/2" Ice		9.00	5.71	0.10	
			0.00	1" Ice		9.48	6.18	0.16	
LNX-6514DS-VTM (Verizon - Existing)	A	From Leg	3.00	0.0000	80.00	No Ice	8.17	5.41	0.04
			0.00	1/2" Ice		8.63	5.86	0.09	
			0.00	1" Ice		9.10	6.33	0.15	
SBNHH-1D65B (Verizon - Existing)	A	From Leg	3.00	0.0000	80.00	No Ice	8.08	5.34	0.04
			-4.00	1/2" Ice		8.53	5.79	0.09	
			0.00	1" Ice		9.00	6.26	0.15	
DB844G65ZAXY (Verizon - Existing)	A	From Leg	3.00	0.0000	80.00	No Ice	4.34	3.61	0.02
			-6.00	1/2" Ice		4.66	3.92	0.05	
			0.00	1" Ice		4.98	4.23	0.09	
APL866513-42T0 (Verizon - Existing)	B	From Leg	3.00	0.0000	80.00	No Ice	4.05	3.61	0.02
			6.00	1/2" Ice		4.36	3.92	0.05	
			0.00	1" Ice		4.68	4.23	0.08	
HBXX-6517DS (Verizon - Existing)	B	From Leg	3.00	0.0000	80.00	No Ice	8.53	5.24	0.05
			4.00	1/2" Ice		9.00	5.71	0.10	
			0.00	1" Ice		9.48	6.18	0.16	
X7C-FR0-640-V (Verizon - Existing)	B	From Leg	3.00	0.0000	80.00	No Ice	11.84	6.51	0.05
			0.00	1/2" Ice		12.33	6.97	0.12	
			0.00	1" Ice		12.82	7.44	0.20	
SBNHH-1D45B (Verizon - Existing)	B	From Leg	3.00	0.0000	80.00	No Ice	11.40	5.28	0.07
			-4.00	1/2" Ice		11.89	5.74	0.13	
			0.00	1" Ice		12.38	6.20	0.20	
APL866513-42T0 (Verizon - Existing)	B	From Leg	3.00	0.0000	80.00	No Ice	4.05	3.61	0.02
			-6.00	1/2" Ice		4.36	3.92	0.05	
			0.00	1" Ice		4.68	4.23	0.08	
DB844G65ZAXY (Verizon - Existing)	C	From Leg	3.00	0.0000	80.00	No Ice	4.34	3.61	0.02
			6.00	1/2" Ice		4.66	3.92	0.05	
			0.00	1" Ice		4.98	4.23	0.09	
HBXX-6517DS (Verizon - Existing)	C	From Leg	3.00	0.0000	80.00	No Ice	8.53	5.24	0.05
			4.00	1/2" Ice		9.00	5.71	0.10	

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b>		21111.00 - CT2040		<b>Page</b>		13 of 38	
	<b>Project</b>		65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT		<b>Date</b>		15:06:46 10/25/21	
	<b>Client</b>		AT&T Mobility		<b>Designed by</b>		TJL	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K	
			Horz Lateral ft	Vert ft						
LNX-6514DS-VTM (Verizon - Existing)	C	From Leg	0.00		0.0000	80.00	1" Ice	9.48	6.18	0.16
			3.00				No Ice	8.17	5.41	0.04
			0.00				1/2" Ice	8.63	5.86	0.09
			0.00				1" Ice	9.10	6.33	0.15
SBNHH-1D65B (Verizon - Existing)	C	From Leg	3.00		0.0000	80.00	No Ice	8.08	5.34	0.04
			-4.00				1/2" Ice	8.53	5.79	0.09
			0.00				1" Ice	9.00	6.26	0.15
			3.00				No Ice	4.34	3.61	0.02
DB844G65ZAXY (Verizon - Existing)	C	From Leg	-6.00		0.0000	80.00	1/2" Ice	4.66	3.92	0.05
			0.00				1" Ice	4.98	4.23	0.09
			0.50				No Ice	4.80	2.00	0.04
			0.00				1/2" Ice	5.07	2.19	0.08
DB-T1-6Z-8AB-0Z (Verizon - Existing)	C	From Face	0.00		0.0000	80.00	1" Ice	5.35	2.39	0.12
			0.50				No Ice	4.80	2.00	0.04
			0.00				1/2" Ice	5.07	2.19	0.08
			0.00				1" Ice	5.35	2.39	0.12
DB-T1-6Z-8AB-0Z (Verizon - Existing)	A	From Face	0.50		0.0000	80.00	No Ice	4.80	2.00	0.04
			0.00				1/2" Ice	5.07	2.19	0.08
			0.00				1" Ice	5.35	2.39	0.12
			2.00				No Ice	3.36	2.03	0.06
RRH2x60-AWS (Verizon - Existing)	A	From Face	0.00		0.0000	81.00	1/2" Ice	3.61	2.26	0.08
			0.00				1" Ice	3.88	2.50	0.11
			0.00				No Ice	3.36	2.03	0.06
			2.00				1/2" Ice	3.61	2.26	0.08
RRH2x60-AWS (Verizon - Existing)	B	From Face	0.00		0.0000	81.00	1" Ice	3.88	2.50	0.11
			2.00				No Ice	3.36	2.03	0.06
			0.00				1/2" Ice	3.61	2.26	0.08
			0.00				1" Ice	3.88	2.50	0.11
RRH2x60-AWS (Verizon - Existing)	C	From Face	2.00		0.0000	81.00	No Ice	3.36	2.03	0.06
			0.00				1/2" Ice	3.61	2.26	0.08
			0.00				1" Ice	3.88	2.50	0.11
			2.00				No Ice	2.10	1.41	0.05
RRH2x60-07-U (Verizon - Existing)	A	From Face	0.00		0.0000	81.00	1/2" Ice	2.29	1.56	0.07
			0.00				1" Ice	2.48	1.74	0.09
			2.00				No Ice	2.10	1.41	0.05
			0.00				1/2" Ice	2.29	1.56	0.07
RRH2x60-07-U (Verizon - Existing)	B	From Face	0.00		0.0000	81.00	1" Ice	2.48	1.74	0.09
			2.00				No Ice	2.10	1.41	0.05
			0.00				1/2" Ice	2.29	1.56	0.07
			0.00				1" Ice	2.48	1.74	0.09
RRH2x60-07-U (Verizon - Existing)	C	From Face	2.00		0.0000	81.00	No Ice	2.10	1.41	0.05
			0.00				1/2" Ice	2.29	1.56	0.07
			0.00				1" Ice	2.48	1.74	0.09
			2.00				No Ice	13.60	13.60	0.47
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	A	From Leg	0.00		0.0000	80.00	1/2" Ice	18.40	18.40	0.60
			0.00				1" Ice	23.20	23.20	0.73
			2.00				No Ice	13.60	13.60	0.47
			0.00				1/2" Ice	18.40	18.40	0.60
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	B	From Leg	2.00		0.0000	80.00	1" Ice	23.20	23.20	0.73
			0.00				No Ice	13.60	13.60	0.47
			0.00				1/2" Ice	18.40	18.40	0.60
			0.00				1" Ice	23.20	23.20	0.73
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	C	From Leg	2.00		0.0000	80.00	No Ice	13.60	13.60	0.47
			0.00				1/2" Ice	18.40	18.40	0.60
			0.00				1" Ice	23.20	23.20	0.73
			0.50				No Ice	1.91	1.91	0.02
DC6-48-60-18-8F Surge Arrestor (AT&T - Existing)	A	From Face	0.50		0.0000	70.00	1/2" Ice	2.10	2.10	0.04
			0.00				1" Ice	2.29	2.29	0.06
			-5.00				No Ice	8.02	4.64	0.05
			0.00				1/2" Ice	8.48	5.09	0.10
AM-X-CD-16-65-00T-RET(7 2") (AT&T - Existing)	A	From Face	0.00		0.0000	70.00	1" Ice	8.94	5.54	0.15
			2.00				No Ice	8.02	4.64	0.05
			-5.00				1/2" Ice	8.48	5.09	0.10
			0.00				1" Ice	8.94	5.54	0.15
AM-X-CD-16-65-00T-RET(7 2") (AT&T - Existing)	B	From Face	2.00		0.0000	70.00	No Ice	8.02	4.64	0.05
			-5.00				1/2" Ice	8.48	5.09	0.10
			0.00				1" Ice	8.94	5.54	0.15
			2.00				No Ice	8.02	4.64	0.05
AM-X-CD-16-65-00T-RET(7 2") (AT&T - Existing)	C	From Face	-5.00		0.0000	70.00	1/2" Ice	8.48	5.09	0.10
			0.00				1" Ice	8.94	5.54	0.15
			2.00				No Ice	8.02	4.64	0.05
			0.00				1/2" Ice	8.48	5.09	0.10
DMP65R-BU6DA (AT&T - Proposed)	A	From Face	2.00		0.0000	70.00	No Ice	12.71	5.62	0.08
			5.00				1/2" Ice	13.21	6.07	0.15



<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b>		21111.00 - CT2040		<b>Page</b>		14 of 38	
	<b>Project</b>		65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT		<b>Date</b>		15:06:46 10/25/21	
	<b>Client</b>		AT&T Mobility		<b>Designed by</b>		TJL	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K	
DMP65R-BU6DA (AT&T - Proposed)	B	From Face	0.00		0.0000	70.00	1" Ice	13.71	6.53	0.23
			2.00				No Ice	12.71	5.62	0.08
			5.00				1/2" Ice	13.21	6.07	0.15
			0.00				1" Ice	13.71	6.53	0.23
DMP65R-BU6DA (AT&T - Proposed)	C	From Face	2.00		0.0000	70.00	No Ice	12.71	5.62	0.08
			5.00				1/2" Ice	13.21	6.07	0.15
			0.00				1" Ice	13.71	6.53	0.23
			0.00				1" Ice	13.71	6.53	0.23
EPBQ-654L8H6-L2 (AT&T - Existing)	A	From Face	2.00		0.0000	70.00	No Ice	13.24	4.96	0.07
			0.00				1/2" Ice	13.74	5.41	0.15
			0.00				1" Ice	14.26	5.88	0.22
			0.00				1" Ice	14.26	5.88	0.22
EPBQ-654L8H6-L2 (AT&T - Existing)	B	From Face	2.00		0.0000	70.00	No Ice	13.24	4.96	0.07
			0.00				1/2" Ice	13.74	5.41	0.15
			0.00				1" Ice	14.26	5.88	0.22
			0.00				1" Ice	14.26	5.88	0.22
EPBQ-654L8H6-L2 (AT&T - Existing)	C	From Face	2.00		0.0000	70.00	No Ice	13.24	4.96	0.07
			0.00				1/2" Ice	13.74	5.41	0.15
			0.00				1" Ice	14.26	5.88	0.22
			0.00				1" Ice	14.26	5.88	0.22
DTMABP7819VG12A TMA (AT&T - Existing)	A	From Face	2.00		0.0000	69.00	No Ice	0.00	0.00	0.02
			5.00				1/2" Ice	0.00	0.00	0.03
			0.00				1" Ice	0.00	0.00	0.04
			0.00				1" Ice	0.00	0.00	0.04
DTMABP7819VG12A TMA (AT&T - Existing)	B	From Face	2.00		0.0000	69.00	No Ice	0.00	0.00	0.02
			5.00				1/2" Ice	0.00	0.00	0.03
			0.00				1" Ice	0.00	0.00	0.04
			0.00				1" Ice	0.00	0.00	0.04
DTMABP7819VG12A TMA (AT&T - Existing)	C	From Face	2.00		0.0000	69.00	No Ice	0.00	0.00	0.02
			5.00				1/2" Ice	0.00	0.00	0.03
			0.00				1" Ice	0.00	0.00	0.04
			0.00				1" Ice	0.00	0.00	0.04
RRUS-32 (AT&T - Existing)	A	From Face	2.00		0.0000	69.00	No Ice	3.31	2.42	0.08
			0.00				1/2" Ice	3.56	2.64	0.10
			0.00				1" Ice	3.81	2.86	0.14
			0.00				1" Ice	3.81	2.86	0.14
RRUS-32 (AT&T - Existing)	B	From Face	2.00		0.0000	69.00	No Ice	3.31	2.42	0.08
			0.00				1/2" Ice	3.56	2.64	0.10
			0.00				1" Ice	3.81	2.86	0.14
			0.00				1" Ice	3.81	2.86	0.14
RRUS-32 (AT&T - Existing)	C	From Face	2.00		0.0000	69.00	No Ice	3.31	2.42	0.08
			0.00				1/2" Ice	3.56	2.64	0.10
			0.00				1" Ice	3.81	2.86	0.14
			0.00				1" Ice	3.81	2.86	0.14
RRUS-32 (AT&T - Existing)	A	From Face	2.00		0.0000	69.00	No Ice	3.31	2.42	0.08
			2.00				1/2" Ice	3.56	2.64	0.10
			0.00				1" Ice	3.81	2.86	0.14
			0.00				1" Ice	3.81	2.86	0.14
RRUS-32 (AT&T - Existing)	B	From Face	2.00		0.0000	69.00	No Ice	3.31	2.42	0.08
			2.00				1/2" Ice	3.56	2.64	0.10
			0.00				1" Ice	3.81	2.86	0.14
			0.00				1" Ice	3.81	2.86	0.14
RRUS-32 (AT&T - Existing)	C	From Face	2.00		0.0000	69.00	No Ice	3.31	2.42	0.08
			2.00				1/2" Ice	3.56	2.64	0.10
			0.00				1" Ice	3.81	2.86	0.14
			0.00				1" Ice	3.81	2.86	0.14
4426 B66 (AT&T - Existing)	A	From Face	2.00		0.0000	70.00	No Ice	1.65	0.73	0.05
			0.00				1/2" Ice	1.81	0.84	0.06
			0.00				1" Ice	1.98	0.97	0.08
			0.00				1" Ice	1.98	0.97	0.08
4426 B66 (AT&T - Existing)	B	From Face	2.00		0.0000	70.00	No Ice	1.65	0.73	0.05
			0.00				1/2" Ice	1.81	0.84	0.06
			0.00				1" Ice	1.98	0.97	0.08
			0.00				1" Ice	1.98	0.97	0.08
4426 B66 (AT&T - Existing)	C	From Face	2.00		0.0000	70.00	No Ice	1.65	0.73	0.05
			0.00				1/2" Ice	1.81	0.84	0.06
			0.00				1" Ice	1.98	0.97	0.08
			0.00				1" Ice	1.98	0.97	0.08
4449 B5/B12 (AT&T - Proposed)	A	From Face	2.00		0.0000	70.00	No Ice	1.97	1.41	0.07
			2.00				1/2" Ice	2.14	1.56	0.09
			0.00				1" Ice	2.33	1.73	0.11
			0.00				1" Ice	2.33	1.73	0.11
4449 B5/B12 (AT&T - Proposed)	B	From Face	2.00		0.0000	70.00	No Ice	1.97	1.41	0.07
			2.00				1/2" Ice	2.14	1.56	0.09

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b>	21111.00 - CT2040	<b>Page</b>	15 of 38
	<b>Project</b>	65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b>	15:06:46 10/25/21
	<b>Client</b>	AT&T Mobility	<b>Designed by</b>	TJL

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C <sub>AA</sub>		Weight K	
			Horz Lateral ft	Vert ft			Front ft <sup>2</sup>	Side ft <sup>2</sup>		
4449 B5/B12 (AT&T - Proposed)	C	From Face	0.00	2.00	0.0000	70.00	1" Ice	2.33	1.73	0.11
			2.00	0.00			No Ice	1.97	1.41	0.07
			2.00	0.00			1/2" Ice	2.14	1.56	0.09
4478 B14 (AT&T - Proposed)	A	From Face	0.00	2.00	0.0000	70.00	1" Ice	2.33	1.73	0.11
			2.00	0.00			No Ice	1.84	1.06	0.06
			0.00	0.00			1/2" Ice	2.01	1.20	0.08
4478 B14 (AT&T - Proposed)	B	From Face	0.00	2.00	0.0000	70.00	1" Ice	2.19	1.34	0.09
			2.00	0.00			No Ice	1.84	1.06	0.06
			0.00	0.00			1/2" Ice	2.01	1.20	0.08
4478 B14 (AT&T - Proposed)	C	From Face	0.00	2.00	0.0000	70.00	1" Ice	2.19	1.34	0.09
			2.00	0.00			No Ice	1.84	1.06	0.06
			0.00	0.00			1/2" Ice	2.01	1.20	0.08
DC6-48-60-18-8F Surge Arrestor (AT&T - Existing)	B	From Face	0.00	0.50	0.0000	70.00	1" Ice	2.19	1.34	0.09
			0.50	0.00			No Ice	1.91	1.91	0.02
			0.00	0.00			1/2" Ice	2.10	2.10	0.04
DC6-48-60-18-8F Surge Arrestor (AT&T - Existing)	C	From Face	0.00	0.50	0.0000	70.00	1" Ice	2.29	2.29	0.06
			0.50	0.00			No Ice	1.91	1.91	0.02
			0.00	0.00			1/2" Ice	2.10	2.10	0.04
SitePro VFA12-HD (AT&T - Existing)	A	From Leg	0.00	2.25	0.0000	69.00	1" Ice	2.29	2.29	0.06
			2.25	0.00			No Ice	21.00	21.00	0.75
			0.00	0.00			1/2" Ice	25.00	25.00	0.90
SitePro VFA12-HD (AT&T - Existing)	B	From Leg	0.00	2.25	0.0000	69.00	1" Ice	29.00	29.00	1.05
			2.25	0.00			No Ice	21.00	21.00	0.75
			0.00	0.00			1/2" Ice	25.00	25.00	0.90
SitePro VFA12-HD (AT&T - Existing)	C	From Leg	0.00	2.25	0.0000	69.00	1" Ice	29.00	29.00	1.05
			2.25	0.00			No Ice	21.00	21.00	0.75
			0.00	0.00			1/2" Ice	25.00	25.00	0.90
10' x 2" Dia Omni (Municipal)	B	From Leg	0.00	3.00	0.0000	106.00	1" Ice	29.00	29.00	1.05
			3.00	0.00			No Ice	2.00	2.00	0.02
			0.00	0.00			1/2" Ice	3.02	3.02	0.03
2-ft Stand Off (Municipal)	B	From Leg	0.00	1.50	0.0000	106.00	1" Ice	4.07	4.07	0.05
			1.50	0.00			No Ice	1.07	1.07	0.02
			0.00	0.00			1/2" Ice	1.62	1.62	0.03
20' 4-Bay Dipole (Municipal)	C	From Leg	0.00	3.00	0.0000	106.00	1" Ice	2.17	2.17	0.04
			3.00	0.00			No Ice	4.00	4.00	0.06
			0.00	0.00			1/2" Ice	6.00	6.00	0.10
3' Side arm mount (Municipal)	B	From Leg	0.00	6.00	0.0000	85.00	1" Ice	8.00	8.00	0.14
			1.50	0.00			No Ice	2.00	2.00	0.07
			0.00	0.00			1/2" Ice	2.60	2.60	0.08
20' 4-Bay Dipole (Municipal)	B	From Leg	0.00	3.00	0.0000	85.00	1" Ice	3.20	3.20	0.09
			3.00	0.00			No Ice	4.00	4.00	0.06
			0.00	0.00			1/2" Ice	6.00	6.00	0.10
1' x 1' Panel	A	From Leg	0.00	1.00	0.0000	107.00	1" Ice	8.00	8.00	0.14
			1.00	0.00			No Ice	1.20	0.32	0.02
			0.00	0.00			1/2" Ice	1.34	0.40	0.03
1' x 1' Panel	B	From Leg	0.00	1.00	0.0000	104.00	1" Ice	1.48	0.49	0.04
			1.00	0.00			No Ice	1.20	0.32	0.02
			0.00	0.00			1/2" Ice	1.34	0.40	0.03
1' x 1' Panel	C	From Leg	0.00	1.00	0.0000	107.00	1" Ice	1.48	0.49	0.04
			1.00	0.00			No Ice	1.20	0.32	0.02
			0.00	0.00			1/2" Ice	1.34	0.40	0.03
1' x 1' Panel	C	From Leg	0.00	1.00	0.0000	99.50	1" Ice	1.48	0.49	0.04
			1.00	0.00			No Ice	1.20	0.32	0.02
			0.00	0.00			1/2" Ice	1.34	0.40	0.03
			0.00				1" Ice	1.48	0.49	0.04

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b> 21111.00 - CT2040	<b>Page</b> 16 of 38
	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

### Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				ft	°	°	ft	ft	ft <sup>2</sup>	K	
2' Dish		Paraboloid w/Radome	None		Worst		108.00	2.00	No Ice 1/2" Ice 1" Ice	28.27 29.07 29.87	0.05 0.10 0.12

### Tower Pressures - No Ice

$G_H = 0.850$

Section Elevation	z	K <sub>Z</sub>	q <sub>z</sub>	A <sub>G</sub>	F a c e	A <sub>F</sub>	A <sub>R</sub>	A <sub>leg</sub>	Leg %	C <sub>A</sub> A <sub>A</sub> In Face	C <sub>A</sub> A <sub>A</sub> Out Face
ft	ft		psf	ft <sup>2</sup>		ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>		ft <sup>2</sup>	ft <sup>2</sup>
T1 107.00-102.00	104.50	1.001	20	13.125	A	0.781	1.834	1.250	47.79	0.000	0.000
					B	0.781	1.834			0.000	0.000
					C	0.781	1.834			0.000	0.000
T2 102.00-82.00	92.00	0.965	20	52.500	A	2.083	7.204	5.000	53.84	8.884	0.000
					B	2.083	7.204			0.000	0.000
					C	2.083	7.204			0.000	0.000
T3 82.00-62.00	72.00	0.9	18	52.500	A	2.083	7.204	5.000	53.84	22.384	0.000
					B	2.083	7.204			0.000	0.000
					C	2.083	7.204			0.000	0.000
T4 62.00-42.00	52.00	0.82	17	52.500	A	2.083	7.209	5.000	53.81	28.720	0.000
					B	2.083	7.209			0.000	0.000
					C	2.083	7.209			0.000	0.000

### Tower Pressure - With Ice

$G_H = 0.850$

Section Elevation	z	K <sub>Z</sub>	q <sub>z</sub>	t <sub>z</sub>	A <sub>G</sub>	F a c e	A <sub>F</sub>	A <sub>R</sub>	A <sub>leg</sub>	Leg %	C <sub>A</sub> A <sub>A</sub> In Face	C <sub>A</sub> A <sub>A</sub> Out Face
ft	ft		psf	in	ft <sup>2</sup>		ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>		ft <sup>2</sup>	ft <sup>2</sup>
T1 107.00-102.00	104.50	1.001	5	1.683	14.528	A	0.781	10.678	4.055	35.39	0.000	0.000
						B	0.781	10.678			0.000	0.000
						C	0.781	10.678			0.000	0.000
T2 102.00-82.00	92.00	0.965	5	1.662	58.040	A	2.083	38.477	16.080	39.64	41.544	0.000
						B	2.083	38.477			0.000	0.000
						C	2.083	38.477			0.000	0.000
T3 82.00-62.00	72.00	0.9	5	1.622	57.906	A	2.083	37.719	15.811	39.72	81.347	0.000
						B	2.083	37.719			0.000	0.000
						C	2.083	37.719			0.000	0.000
T4 62.00-42.00	52.00	0.82	4	1.570	57.733	A	2.083	36.780	15.465	39.79	95.038	0.000
						B	2.083	36.780			0.000	0.000
						C	2.083	36.780			0.000	0.000

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b> 21111.00 - CT2040	<b>Page</b> 17 of 38
	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

**Tower Pressure - Service**

$G_H = 0.850$

Section Elevation ft	z ft	$K_Z$	$q_z$ psf	$A_G$ ft <sup>2</sup>	F a c e	$A_F$ ft <sup>2</sup>	$A_R$ ft <sup>2</sup>	$A_{leg}$ ft <sup>2</sup>	Leg %	$C_A A_A$ In Face ft <sup>2</sup>	$C_A A_A$ Out Face ft <sup>2</sup>
T1 107.00-102.00	104.50	1.001	8	13.125	A	0.781	1.834	1.250	47.79	0.000	0.000
					B	0.781	1.834			0.000	0.000
					C	0.781	1.834			0.000	0.000
T2 102.00-82.00	92.00	0.965	8	52.500	A	2.083	7.204	5.000	53.84	8.884	0.000
					B	2.083	7.204			0.000	0.000
					C	2.083	7.204			0.000	0.000
T3 82.00-62.00	72.00	0.9	7	52.500	A	2.083	7.204	5.000	53.84	22.384	0.000
					B	2.083	7.204			0.000	0.000
					C	2.083	7.204			0.000	0.000
T4 62.00-42.00	52.00	0.82	6	52.500	A	2.083	7.209	5.000	53.81	28.720	0.000
					B	2.083	7.209			0.000	0.000
					C	2.083	7.209			0.000	0.000

**Tower Forces - No Ice - Wind Normal To Face**

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	$C_F$	$q_z$ psf	$D_F$	$D_R$	$A_E$ ft <sup>2</sup>	F K	w plf	Ctrl. Face
T1 107.00-102.00	0.00	0.16	A	0.199	2.598	20	1	1	1.835	0.08	16.61	C
			B	0.199	2.598	1	1	1.835				
			C	0.199	2.598	1	1	1.835				
T2 102.00-82.00	0.06	0.58 TA 0.17	A	0.177	2.675	20	1	1	6.196	0.37	18.39	C
			B	0.177	2.675	1	1	6.196				
			C	0.177	2.675	1	1	6.196				
T3 82.00-62.00	0.27	0.58	A	0.177	2.675	18	1	1	6.196	0.71	35.44	C
			B	0.177	2.675	1	1	6.196				
			C	0.177	2.675	1	1	6.196				
T4 62.00-42.00	0.55	0.58	A	0.177	2.675	17	1	1	6.199	1.04	52.00	C
			B	0.177	2.675	1	1	6.199				
			C	0.177	2.675	1	1	6.199				
Sum Weight:	0.88	2.08								2.20		

**Tower Forces - No Ice - Wind 45 To Face**

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	$C_F$	$q_z$ psf	$D_F$	$D_R$	$A_E$ ft <sup>2</sup>	F K	w plf	Ctrl. Face
T1 107.00-102.00	0.00	0.16	A	0.199	2.598	20	0.825	1	1.698	0.08	15.37	C
			B	0.199	2.598	0.825	1	1.698				
			C	0.199	2.598	0.825	1	1.698				

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b> 21111.00 - CT2040	<b>Page</b> 18 of 38
	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C <sub>F</sub>	q <sub>z</sub> psf	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub> ft <sup>2</sup>	F K	w plf	Ctrl. Face
T2 102.00-82.00	0.06	0.58	A	0.177	2.675	20	0.825	1	5.831	0.35	17.57	C
		TA 0.17	B	0.177	2.675		0.825	1	5.831			
			C	0.177	2.675		0.825	1	5.831			
T3 82.00-62.00	0.27	0.58	A	0.177	2.675	18	0.825	1	5.831	0.69	34.67	C
			B	0.177	2.675		0.825	1	5.831			
			C	0.177	2.675		0.825	1	5.831			
T4 62.00-42.00	0.55	0.58	A	0.177	2.675	17	0.825	1	5.834	1.03	51.31	C
			B	0.177	2.675		0.825	1	5.834			
			C	0.177	2.675		0.825	1	5.834			
Sum Weight:	0.88	2.08								2.15		

**Tower Forces - No Ice - Wind 60 To Face**

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C <sub>F</sub>	q <sub>z</sub> psf	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub> ft <sup>2</sup>	F K	w plf	Ctrl. Face
T1 107.00-102.00	0.00	0.16	A	0.199	2.598	20	0.8	1	1.679	0.08	15.19	C
			B	0.199	2.598		0.8	1	1.679			
			C	0.199	2.598		0.8	1	1.679			
T2 102.00-82.00	0.06	0.58	A	0.177	2.675	20	0.8	1	5.779	0.35	17.46	C
		TA 0.17	B	0.177	2.675		0.8	1	5.779			
			C	0.177	2.675		0.8	1	5.779			
T3 82.00-62.00	0.27	0.58	A	0.177	2.675	18	0.8	1	5.779	0.69	34.56	C
			B	0.177	2.675		0.8	1	5.779			
			C	0.177	2.675		0.8	1	5.779			
T4 62.00-42.00	0.55	0.58	A	0.177	2.675	17	0.8	1	5.782	1.02	51.21	C
			B	0.177	2.675		0.8	1	5.782			
			C	0.177	2.675		0.8	1	5.782			
Sum Weight:	0.88	2.08								2.14		

**Tower Forces - No Ice - Wind 90 To Face**

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C <sub>F</sub>	q <sub>z</sub> psf	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub> ft <sup>2</sup>	F K	w plf	Ctrl. Face
T1 107.00-102.00	0.00	0.16	A	0.199	2.598	20	0.85	1	1.718	0.08	15.55	C
			B	0.199	2.598		0.85	1	1.718			
			C	0.199	2.598		0.85	1	1.718			
T2 102.00-82.00	0.06	0.58	A	0.177	2.675	20	0.85	1	5.883	0.35	17.69	C
		TA 0.17	B	0.177	2.675		0.85	1	5.883			
			C	0.177	2.675		0.85	1	5.883			
T3 82.00-62.00	0.27	0.58	A	0.177	2.675	18	0.85	1	5.883	0.70	34.78	C
			B	0.177	2.675		0.85	1	5.883			
			C	0.177	2.675		0.85	1	5.883			
T4 62.00-42.00	0.55	0.58	A	0.177	2.675	17	0.85	1	5.886	1.03	51.40	C
			B	0.177	2.675		0.85	1	5.886			
			C	0.177	2.675		0.85	1	5.886			

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b>	21111.00 - CT2040	<b>Page</b>	19 of 38
	<b>Project</b>	65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b>	15:06:46 10/25/21
	<b>Client</b>	AT&T Mobility	<b>Designed by</b>	TJL

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	q <sub>z</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	K	K				psf			ft <sup>2</sup>	K	plf	
Sum Weight:	0.88	2.08								2.16		

**Tower Forces - With Ice - Wind Normal To Face**

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	q <sub>z</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	K	K				psf			ft <sup>2</sup>	K	plf	
T1 107.00-102.00	0.00	0.61	A	0.789	1.808	5	1	1	10.145	0.08	16.98	C
			B	0.789	1.808		1	1	10.145			
			C	0.789	1.808		1	1	10.145			
T2 102.00-82.00	0.43	2.08	A	0.699	1.776	5	1	1	33.259	0.32	15.97	C
		TA 0.56	B	0.699	1.776		1	1	33.259			
			C	0.699	1.776		1	1	33.259			
T3 82.00-62.00	1.79	2.02	A	0.687	1.776	5	1	1	32.340	0.43	21.34	C
			B	0.687	1.776		1	1	32.340			
			C	0.687	1.776		1	1	32.340			
T4 62.00-42.00	3.50	1.95	A	0.673	1.777	4	1	1	31.223	0.46*	22.98	C
			B	0.673	1.777		1	1	31.223			
			C	0.673	1.777		1	1	31.223			
Sum Weight:	5.72	7.22			*2.1A <sub>g</sub> limit					1.29		

**Tower Forces - With Ice - Wind 45 To Face**

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	q <sub>z</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	K	K				psf			ft <sup>2</sup>	K	plf	
T1 107.00-102.00	0.00	0.61	A	0.789	1.808	5	0.825	1	10.008	0.08	16.75	C
			B	0.789	1.808		0.825	1	10.008			
			C	0.789	1.808		0.825	1	10.008			
T2 102.00-82.00	0.43	2.08	A	0.699	1.776	5	0.825	1	32.894	0.32	15.82	C
		TA 0.56	B	0.699	1.776		0.825	1	32.894			
			C	0.699	1.776		0.825	1	32.894			
T3 82.00-62.00	1.79	2.02	A	0.687	1.776	5	0.825	1	31.976	0.42	21.21	C
			B	0.687	1.776		0.825	1	31.976			
			C	0.687	1.776		0.825	1	31.976			
T4 62.00-42.00	3.50	1.95	A	0.673	1.777	4	0.825	1	30.858	0.46*	22.98	C
			B	0.673	1.777		0.825	1	30.858			
			C	0.673	1.777		0.825	1	30.858			
Sum Weight:	5.72	7.22			*2.1A <sub>g</sub> limit					1.28		

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b> 21111.00 - CT2040	<b>Page</b> 20 of 38
	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

**Tower Forces - With Ice - Wind 60 To Face**

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	q <sub>z</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	K	K				psf			ft <sup>2</sup>	K	plf	
T1 107.00-102.00	0.00	0.61	A	0.789	1.808	5	0.8	1	9.989	0.08	16.72	C
			B	0.789	1.808		0.8	1	9.989			
			C	0.789	1.808		0.8	1	9.989			
T2 102.00-82.00	0.43	2.08	A	0.699	1.776	5	0.8	1	32.842	0.32	15.80	C
		TA 0.56	B	0.699	1.776		0.8	1	32.842			
			C	0.699	1.776		0.8	1	32.842			
T3 82.00-62.00	1.79	2.02	A	0.687	1.776	5	0.8	1	31.924	0.42	21.19	C
			B	0.687	1.776		0.8	1	31.924			
			C	0.687	1.776		0.8	1	31.924			
T4 62.00-42.00	3.50	1.95	A	0.673	1.777	4	0.8	1	30.806	0.46*	22.98	C
			B	0.673	1.777		0.8	1	30.806			
			C	0.673	1.777		0.8	1	30.806			
Sum Weight:	5.72	7.22			*2.1A <sub>g</sub> limit					1.28		

**Tower Forces - With Ice - Wind 90 To Face**

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	q <sub>z</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	K	K				psf			ft <sup>2</sup>	K	plf	
T1 107.00-102.00	0.00	0.61	A	0.789	1.808	5	0.85	1	10.028	0.08	16.78	C
			B	0.789	1.808		0.85	1	10.028			
			C	0.789	1.808		0.85	1	10.028			
T2 102.00-82.00	0.43	2.08	A	0.699	1.776	5	0.85	1	32.947	0.32	15.85	C
		TA 0.56	B	0.699	1.776		0.85	1	32.947			
			C	0.699	1.776		0.85	1	32.947			
T3 82.00-62.00	1.79	2.02	A	0.687	1.776	5	0.85	1	32.028	0.42	21.23	C
			B	0.687	1.776		0.85	1	32.028			
			C	0.687	1.776		0.85	1	32.028			
T4 62.00-42.00	3.50	1.95	A	0.673	1.777	4	0.85	1	30.910	0.46*	22.98	C
			B	0.673	1.777		0.85	1	30.910			
			C	0.673	1.777		0.85	1	30.910			
Sum Weight:	5.72	7.22			*2.1A <sub>g</sub> limit					1.28		

**Tower Forces - Service - Wind Normal To Face**

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	q <sub>z</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	K	K				psf			ft <sup>2</sup>	K	plf	
T1 107.00-102.00	0.00	0.16	A	0.199	2.598	8	1	1	1.835	0.03	6.35	C
			B	0.199	2.598		1	1	1.835			
			C	0.199	2.598		1	1	1.835			
T2	0.06	0.58	A	0.177	2.675	8	1	1	6.196	0.14	7.04	C

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b> 21111.00 - CT2040	<b>Page</b> 21 of 38
	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJJ

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C <sub>F</sub>	q <sub>z</sub> psf	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub> ft <sup>2</sup>	F K	w plf	Ctrl. Face
102.00-82.00		TA 0.17	B	0.177	2.675		1	1	6.196			
			C	0.177	2.675		1	1	6.196			
T3	0.27	0.58	A	0.177	2.675	7	1	1	6.196	0.27	13.56	C
82.00-62.00			B	0.177	2.675		1	1	6.196			
			C	0.177	2.675		1	1	6.196			
T4	0.55	0.58	A	0.177	2.675	6	1	1	6.199	0.40	19.90	C
62.00-42.00			B	0.177	2.675		1	1	6.199			
			C	0.177	2.675		1	1	6.199			
Sum Weight:	0.88	2.08								0.84		

### Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C <sub>F</sub>	q <sub>z</sub> psf	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub> ft <sup>2</sup>	F K	w plf	Ctrl. Face
T1	0.00	0.16	A	0.199	2.598	8	0.825	1	1.698	0.03	5.88	C
107.00-102.00			B	0.199	2.598		0.825	1	1.698			
			C	0.199	2.598		0.825	1	1.698			
T2	0.06	0.58	A	0.177	2.675	8	0.825	1	5.831	0.13	6.72	C
102.00-82.00		TA 0.17	B	0.177	2.675		0.825	1	5.831			
			C	0.177	2.675		0.825	1	5.831			
T3	0.27	0.58	A	0.177	2.675	7	0.825	1	5.831	0.27	13.27	C
82.00-62.00			B	0.177	2.675		0.825	1	5.831			
			C	0.177	2.675		0.825	1	5.831			
T4	0.55	0.58	A	0.177	2.675	6	0.825	1	5.834	0.39	19.63	C
62.00-42.00			B	0.177	2.675		0.825	1	5.834			
			C	0.177	2.675		0.825	1	5.834			
Sum Weight:	0.88	2.08								0.82		

### Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C <sub>F</sub>	q <sub>z</sub> psf	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub> ft <sup>2</sup>	F K	w plf	Ctrl. Face
T1	0.00	0.16	A	0.199	2.598	8	0.8	1	1.679	0.03	5.81	C
107.00-102.00			B	0.199	2.598		0.8	1	1.679			
			C	0.199	2.598		0.8	1	1.679			
T2	0.06	0.58	A	0.177	2.675	8	0.8	1	5.779	0.13	6.68	C
102.00-82.00		TA 0.17	B	0.177	2.675		0.8	1	5.779			
			C	0.177	2.675		0.8	1	5.779			
T3	0.27	0.58	A	0.177	2.675	7	0.8	1	5.779	0.26	13.22	C
82.00-62.00			B	0.177	2.675		0.8	1	5.779			
			C	0.177	2.675		0.8	1	5.779			
T4	0.55	0.58	A	0.177	2.675	6	0.8	1	5.782	0.39	19.59	C
62.00-42.00			B	0.177	2.675		0.8	1	5.782			
			C	0.177	2.675		0.8	1	5.782			
Sum Weight:	0.88	2.08								0.82		



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	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

**Tower Forces - Service - Wind 90 To Face**

Section Elevation	Add Weight	Self Weight	F a c e	e	C <sub>F</sub>	q <sub>z</sub>	D <sub>F</sub>	D <sub>R</sub>	A <sub>E</sub>	F	w	Ctrl. Face
ft	K	K				psf			ft <sup>2</sup>	K	plf	
T1 107.00-102.00	0.00	0.16	A	0.199	2.598	8	0.85	1	1.718	0.03	5.95	C
			B	0.199	2.598		0.85	1	1.718			
			C	0.199	2.598		0.85	1	1.718			
T2 102.00-82.00	0.06	TA 0.17	A	0.177	2.675	8	0.85	1	5.883	0.14	6.77	C
			B	0.177	2.675		0.85	1	5.883			
			C	0.177	2.675		0.85	1	5.883			
T3 82.00-62.00	0.27	0.58	A	0.177	2.675	7	0.85	1	5.883	0.27	13.31	C
			B	0.177	2.675		0.85	1	5.883			
			C	0.177	2.675		0.85	1	5.883			
T4 62.00-42.00	0.55	0.58	A	0.177	2.675	6	0.85	1	5.886	0.39	19.67	C
			B	0.177	2.675		0.85	1	5.886			
			C	0.177	2.675		0.85	1	5.886			
Sum Weight:	0.88	2.08								0.82		

**Force Totals (Does not include forces on guys)**

Load Case	Vertical Forces	Sum of Forces X	Sum of Forces Z	Sum of Torques
	K	K	K	kip-ft
Leg Weight	1.23			
Bracing Weight	0.85			
Total Member Self-Weight	2.08			
Guy Weight	0.33			
Total Weight	9.98			
Wind 0 deg - No Ice		-0.04	-6.88	0.24
Wind 30 deg - No Ice		3.40	-5.90	0.42
Wind 45 deg - No Ice		4.82	-4.80	0.48
Wind 60 deg - No Ice		5.91	-3.38	0.50
Wind 90 deg - No Ice		6.86	0.04	0.44
Wind 120 deg - No Ice		6.00	3.47	0.26
Wind 135 deg - No Ice		4.89	4.88	0.14
Wind 150 deg - No Ice		3.46	5.94	0.01
Wind 180 deg - No Ice		0.04	6.82	-0.24
Wind 210 deg - No Ice		-3.40	5.90	-0.42
Wind 225 deg - No Ice		-4.82	4.80	-0.48
Wind 240 deg - No Ice		-5.96	3.41	-0.50
Wind 270 deg - No Ice		-6.86	-0.04	-0.44
Wind 300 deg - No Ice		-5.95	-3.44	-0.26
Wind 315 deg - No Ice		-4.87	-4.85	-0.14
Wind 330 deg - No Ice		-3.46	-5.94	-0.01
Member Ice	5.14			
Guy Ice	1.87			
Total Weight Ice	32.26			
Wind 0 deg - Ice		-0.01	-3.11	0.16
Wind 30 deg - Ice		1.55	-2.68	0.26

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	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Wind 45 deg - Ice		2.19	-2.19	0.28
Wind 60 deg - Ice		2.69	-1.54	0.28
Wind 90 deg - Ice		3.11	0.01	0.24
Wind 120 deg - Ice		2.70	1.56	0.12
Wind 135 deg - Ice		2.21	2.20	0.05
Wind 150 deg - Ice		1.56	2.69	-0.02
Wind 180 deg - Ice		0.01	3.10	-0.16
Wind 210 deg - Ice		-1.55	2.68	-0.26
Wind 225 deg - Ice		-2.19	2.19	-0.28
Wind 240 deg - Ice		-2.69	1.55	-0.28
Wind 270 deg - Ice		-3.11	-0.01	-0.24
Wind 300 deg - Ice		-2.70	-1.56	-0.12
Wind 315 deg - Ice		-2.21	-2.20	-0.05
Wind 330 deg - Ice		-1.56	-2.69	0.02
Total Weight	9.98			
Wind 0 deg - Service		-0.01	-2.63	0.09
Wind 30 deg - Service		1.30	-2.26	0.16
Wind 45 deg - Service		1.84	-1.84	0.18
Wind 60 deg - Service		2.26	-1.29	0.19
Wind 90 deg - Service		2.62	0.01	0.17
Wind 120 deg - Service		2.29	1.33	0.10
Wind 135 deg - Service		1.87	1.87	0.05
Wind 150 deg - Service		1.32	2.27	0.00
Wind 180 deg - Service		0.01	2.61	-0.09
Wind 210 deg - Service		-1.30	2.26	-0.16
Wind 225 deg - Service		-1.84	1.84	-0.18
Wind 240 deg - Service		-2.28	1.30	-0.19
Wind 270 deg - Service		-2.62	-0.01	-0.17
Wind 300 deg - Service		-2.27	-1.32	-0.10
Wind 315 deg - Service		-1.86	-1.86	-0.05
Wind 330 deg - Service		-1.32	-2.27	-0.00

## Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.6 Wind 45 deg - No Ice+1.0 Guy
5	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
6	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
7	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
8	1.2 Dead+1.6 Wind 135 deg - No Ice+1.0 Guy
9	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
10	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
11	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
12	1.2 Dead+1.6 Wind 225 deg - No Ice+1.0 Guy
13	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
14	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
15	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
16	1.2 Dead+1.6 Wind 315 deg - No Ice+1.0 Guy
17	1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
18	1.2 Dead+1.0 Ice+1.0 Temp+Guy

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	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

Comb. No.	Description
19	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
28	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
29	1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp+1.0 Guy
30	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
31	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
32	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
33	1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp+1.0 Guy
34	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
35	Dead+Wind 0 deg - Service+Guy
36	Dead+Wind 30 deg - Service+Guy
37	Dead+Wind 45 deg - Service+Guy
38	Dead+Wind 60 deg - Service+Guy
39	Dead+Wind 90 deg - Service+Guy
40	Dead+Wind 120 deg - Service+Guy
41	Dead+Wind 135 deg - Service+Guy
42	Dead+Wind 150 deg - Service+Guy
43	Dead+Wind 180 deg - Service+Guy
44	Dead+Wind 210 deg - Service+Guy
45	Dead+Wind 225 deg - Service+Guy
46	Dead+Wind 240 deg - Service+Guy
47	Dead+Wind 270 deg - Service+Guy
48	Dead+Wind 300 deg - Service+Guy
49	Dead+Wind 315 deg - Service+Guy
50	Dead+Wind 330 deg - Service+Guy

### Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft		
T1	107 - 102	Leg	Max Tension	10	2.96	-0.00	0.04		
			Max. Compression	13	-7.94	-0.05	0.01		
			Max. Mx	6	-4.53	0.06	-0.02		
			Max. My	16	-5.89	0.04	-0.06		
			Max. Vy	14	-0.54	-0.00	0.01		
			Max. Vx	10	0.54	-0.00	-0.00		
			Diagonal	Max Tension	14	4.52	0.00	0.00	
				Max Compression	1	0.00	0.00	0.00	
			Horizontal	Max. Compression	12	-5.49	0.00	0.00	
				Max. Mx	24	-5.46	-0.01	0.00	
		Top Girt	Max. Vy	24	0.01	0.00	0.00		
			Max Tension	1	0.00	0.00	0.00		
		Bottom Girt	Max. Compression	5	-2.87	0.00	0.00		
			Max. Mx	31	-2.76	-0.01	0.00		
			Max. Vy	31	0.01	0.00	0.00		
			Max Tension	1	0.00	0.00	0.00		
			Max. Compression	13	-2.80	0.00	0.00		
			Max. Mx	25	-2.68	-0.01	0.00		
		T2	102 - 82	Leg	Max. Vy	25	0.01	0.00	0.00
					Max Tension	7	3.90	-0.16	-0.11
Max. Compression	10				-22.32	-0.01	-0.21		

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b> 21111.00 - CT2040	<b>Page</b> 25 of 38
	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	6	-17.19	-0.18	0.00
			Max. My	10	-22.32	-0.01	-0.21
			Max. Vy	6	-0.54	-0.17	-0.02
			Max. Vx	10	-0.78	-0.01	-0.21
		Diagonal	Max Tension	9	4.40	0.00	0.00
		Horizontal	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-5.69	0.00	0.00
			Max. Mx	25	-4.22	-0.01	0.00
			Max. Vy	25	-0.01	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
		Top Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-2.54	0.00	0.00
			Max. Mx	26	-2.47	-0.01	0.00
			Max. Vy	26	-0.01	0.00	0.00
		Bottom Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	10	-2.60	0.00	0.00
			Max. Mx	27	-2.09	-0.01	0.00
			Max. Vy	27	-0.01	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
		Guy A	Bottom Tension	10	6.36		
			Top Tension	10	6.40		
			Top Cable Vert	10	5.73		
			Top Cable Norm	10	2.85		
			Top Cable Tan	10	0.00		
			Bot Cable Vert	10	-5.66		
			Bot Cable Norm	10	2.91		
			Bot Cable Tan	10	0.00		
		Guy B	Bottom Tension	14	7.47		
			Top Tension	14	7.51		
			Top Cable Vert	14	7.11		
			Top Cable Norm	14	2.42		
			Top Cable Tan	14	0.01		
			Bot Cable Vert	14	-7.05		
			Bot Cable Norm	14	2.48		
			Bot Cable Tan	14	0.02		
		Guy C	Bottom Tension	6	7.26		
			Top Tension	6	7.30		
			Top Cable Vert	6	6.85		
			Top Cable Norm	6	2.51		
			Top Cable Tan	6	0.01		
			Bot Cable Vert	6	-6.79		
			Bot Cable Norm	6	2.57		
			Bot Cable Tan	6	0.02		
		Torque Arm Top	Max Tension	14	7.52	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	32	4.73	-0.02	0.00
			Max. My	14	7.50	0.00	0.00
			Max. Vy	32	0.02	0.00	0.00
			Max. Vx	14	-0.00	0.00	0.00
		Torque Arm Bottom	Max Tension	8	0.50	0.00	0.00
			Max. Compression	14	-5.67	0.00	0.00
			Max. Mx	34	-1.37	-0.01	0.00
			Max. My	13	-3.71	0.00	0.00
			Max. Vy	34	0.02	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
T3	82 - 62	Leg	Max Tension	15	8.70	-0.20	-0.12
			Max. Compression	2	-28.93	-0.00	-0.11
			Max. Mx	6	-13.49	0.42	-0.00
			Max. My	2	-19.99	0.00	-0.41
			Max. Vy	14	-3.25	0.07	0.01
			Max. Vx	10	3.43	-0.00	-0.06

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	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft		
T4	62 - 42	Diagonal	Max Tension	16	6.33	0.00	0.00		
			Horizontal	Max Tension	1	0.00	0.00	0.00	
		Horizontal	Max. Compression	10	-5.01	0.00	0.00		
			Max. Mx	31	-4.24	-0.01	0.00		
			Max. My	14	-4.02	0.00	-0.00		
			Max. Vy	31	-0.01	0.00	0.00		
			Max. Vx	14	-0.00	0.00	0.00		
			Top Girt	Max Tension	1	0.00	0.00	0.00	
		Top Girt	Max. Compression	15	-2.40	0.00	0.00		
			Max. Mx	27	-2.10	-0.01	0.00		
			Max. Vy	27	-0.01	0.00	0.00		
			Max. Vx	13	-0.00	0.00	0.00		
		Bottom Girt	Max Tension	1	0.00	0.00	0.00		
			Max. Compression	16	-1.87	0.00	0.00		
			Max. Mx	28	-1.48	-0.01	0.00		
			Max. Vy	28	-0.01	0.00	0.00		
		Leg	Leg	Max. Vx	Max. Vx	13	-0.00	0.00	0.00
					Max Tension	15	8.70	0.06	0.03
				Max. Compression	Max. Compression	2	-31.61	0.00	-0.04
					Max. Mx	14	-9.68	0.34	0.12
				Max. My	Max. My	10	-10.17	-0.00	-0.35
					Max. Vy	14	-3.25	0.34	0.12
				Max. Vx	Max. Vx	10	3.43	-0.00	-0.35
					Max Tension	15	4.17	0.00	0.00
				Diagonal	Max Tension	1	0.00	0.00	0.00
					Horizontal	Max. Compression	6	-4.20	0.00
		Horizontal	Max. Mx	26	-3.36	-0.01	0.00		
			Max. Vy	26	0.01	0.00	0.00		
			Max. Vx	13	-0.00	0.00	0.00		
			Top Girt	Max Tension	2	1.97	0.00	0.00	
		Top Girt	Max. Compression	15	-1.56	0.00	0.00		
			Max. Mx	28	0.75	-0.01	0.00		
			Max. Vy	28	0.01	0.00	0.00		
			Max. Vx	14	-0.00	0.00	0.00		
		Bottom Girt	Max Tension	1	0.00	0.00	0.00		
			Max. Compression	17	-0.15	0.00	0.00		
			Max. Mx	31	-0.13	-0.01	0.00		
			Max. Vy	31	0.01	0.00	0.00		
		Max. Vx	Max. Vx	13	-0.00	0.00	0.00		
			Guy A	Bottom Tension	10	11.36			
		Guy A	Guy A	Top Tension	10	11.38			
				Top Cable Vert	10	6.59			
				Top Cable Norm	10	9.28			
				Top Cable Tan	10	0.00			
				Bot Cable Vert	10	-6.53			
				Bot Cable Norm	10	9.30			
				Bot Cable Tan	10	0.00			
				Guy B	Bottom Tension	15	14.10		
					Top Tension	15	14.12		
				Guy B	Guy B	Top Cable Vert	15	10.22	
Top Cable Norm	15	9.75							
Top Cable Tan	15	0.00							
Bot Cable Vert	15	-10.17							
Bot Cable Norm	15	9.77							
Bot Cable Tan	15	0.00							
Guy C	Guy C	Bottom Tension	5	13.43					
		Top Tension	5	13.45					
		Top Cable Vert	5	9.38					
		Top Cable Norm	5	9.64					
		Top Cable Tan	5	0.00					
Bot Cable Vert	5	-9.33							

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	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Base Beam	Bot Cable Norm	5	9.66		
			Bot Cable Tan	5	0.00		
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-3.50	0.02	0.00
			Max. Mx	22	-22.04	-31.79	-0.05
			Max. My	14	-15.30	-22.06	0.13
			Max. Vy	22	-22.04	-31.79	-0.05
			Max. Vx	14	0.09	-22.06	0.13

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Guy C @ 20.92 ft Elev 43 ft Azimuth 240 deg	Max. Vert	13	-1.11	-0.29	0.17
	Max. H <sub>x</sub>	13	-1.11	-0.29	0.17
	Max. H <sub>z</sub>	5	-22.67	-12.70	7.33
	Min. Vert	5	-22.67	-12.70	7.33
	Min. H <sub>x</sub>	5	-22.67	-12.70	7.33
	Min. H <sub>z</sub>	13	-1.11	-0.29	0.17
Guy B @ 19.5 ft Elev 43 ft Azimuth 120 deg	Max. Vert	7	-1.32	0.33	0.20
	Max. H <sub>x</sub>	15	-23.99	12.63	7.29
	Max. H <sub>z</sub>	15	-23.99	12.63	7.29
	Min. Vert	15	-23.99	12.63	7.29
	Min. H <sub>x</sub>	7	-1.32	0.33	0.20
	Min. H <sub>z</sub>	7	-1.32	0.33	0.20
Guy A @ 28.2 ft Elev 43 ft Azimuth 0 deg  Mast	Max. Vert	2	-0.62	0.00	-0.30
	Max. H <sub>x</sub>	14	-8.70	0.14	-7.32
	Max. H <sub>z</sub>	2	-0.62	0.00	-0.30
	Min. Vert	10	-17.73	-0.01	-15.04
	Min. H <sub>x</sub>	7	-14.27	-0.14	-12.17
	Min. H <sub>z</sub>	10	-17.73	-0.01	-15.04
	Max. Vert	22	66.11	0.23	-0.12
	Max. H <sub>x</sub>	6	45.16	0.64	-0.04
	Max. H <sub>z</sub>	10	42.60	0.01	0.33
	Max. M <sub>x</sub>	1	0.00	-0.01	-0.04
	Max. M <sub>z</sub>	1	0.00	-0.01	-0.04
	Max. Torsion	1	0.00	-0.01	-0.04
	Min. Vert	43	40.91	-0.00	0.04
	Min. H <sub>x</sub>	14	45.87	-0.68	-0.08
	Min. H <sub>z</sub>	2	51.20	-0.05	-0.66
	Min. M <sub>x</sub>	1	0.00	-0.01	-0.04
	Min. M <sub>z</sub>	1	0.00	-0.01	-0.04
	Min. Torsion	1	0.00	-0.01	-0.04

### Tower Mast Reaction Summary

<p style="text-align: center;"><b>tnxTower</b></p> <p style="text-align: center;"><b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587</p>	<p style="text-align: center;"><b>Job</b></p> <p style="text-align: center;">21111.00 - CT2040</p>	<p style="text-align: center;"><b>Page</b></p> <p style="text-align: center;">28 of 38</p>
	<p style="text-align: center;"><b>Project</b></p> <p style="text-align: center;">65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT</p>	<p style="text-align: center;"><b>Date</b></p> <p style="text-align: center;">15:06:46 10/25/21</p>
	<p style="text-align: center;"><b>Client</b></p> <p style="text-align: center;">AT&amp;T Mobility</p>	<p style="text-align: center;"><b>Designed by</b></p> <p style="text-align: center;">TJL</p>

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
Dead Only	40.96	0.01	0.04	0.00	0.00	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	51.20	0.05	0.66	0.00	0.00	0.00
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	47.13	-0.28	0.51	0.00	0.00	0.00
1.2 Dead+1.6 Wind 45 deg - No Ice+1.0 Guy	44.47	-0.43	0.40	0.00	0.00	0.00
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	43.61	-0.55	0.25	0.00	0.00	0.00
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	45.16	-0.64	0.04	0.00	0.00	0.00
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	46.78	-0.52	-0.12	0.00	0.00	0.00
1.2 Dead+1.6 Wind 135 deg - No Ice+1.0 Guy	45.65	-0.43	-0.20	0.00	0.00	0.00
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	43.83	-0.33	-0.28	0.00	0.00	0.00
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	42.60	-0.01	-0.33	0.00	0.00	0.00
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	43.92	0.31	-0.26	0.00	0.00	0.00
1.2 Dead+1.6 Wind 225 deg - No Ice+1.0 Guy	45.92	0.43	-0.17	0.00	0.00	0.00
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	47.38	0.56	-0.09	0.00	0.00	0.00
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	45.87	0.68	0.08	0.00	0.00	0.00
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	43.79	0.60	0.30	0.00	0.00	0.00
1.2 Dead+1.6 Wind 315 deg - No Ice+1.0 Guy	44.93	0.49	0.45	0.00	0.00	0.00
1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	47.80	0.36	0.56	0.00	0.00	0.00
1.2 Dead+1.0 Ice+1.0 Temp+Guy	65.73	-0.01	0.04	0.00	0.00	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	65.99	0.00	0.16	0.00	0.00	0.00
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	66.06	-0.13	0.15	0.00	0.00	0.00
1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp+1.0 Guy	66.10	-0.19	0.14	0.00	0.00	0.00
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	66.11	-0.23	0.12	0.00	0.00	0.00
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	66.04	-0.25	0.06	0.00	0.00	0.00
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	65.93	-0.21	-0.02	0.00	0.00	0.00
1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp+1.0 Guy	65.89	-0.18	-0.06	0.00	0.00	0.00
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	65.88	-0.13	-0.09	0.00	0.00	0.00
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	65.87	-0.02	-0.11	0.00	0.00	0.00
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	65.85	0.10	-0.08	0.00	0.00	0.00
1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp+1.0 Guy	65.86	0.14	-0.05	0.00	0.00	0.00
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	65.89	0.19	-0.01	0.00	0.00	0.00
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	66.02	0.23	0.08	0.00	0.00	0.00

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	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
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Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	66.11	0.22	0.14	0.00	0.00	0.00
1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp+1.0 Guy	66.10	0.18	0.15	0.00	0.00	0.00
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	66.06	0.13	0.16	0.00	0.00	0.00
Dead+Wind 0 deg - Service+Guy	41.03	0.02	0.13	0.00	0.00	0.00
Dead+Wind 30 deg - Service+Guy	41.03	-0.06	0.11	0.00	0.00	0.00
Dead+Wind 45 deg - Service+Guy	41.03	-0.09	0.10	0.00	0.00	0.00
Dead+Wind 60 deg - Service+Guy	41.02	-0.11	0.08	0.00	0.00	0.00
Dead+Wind 90 deg - Service+Guy	40.99	-0.14	0.04	0.00	0.00	0.00
Dead+Wind 120 deg - Service+Guy	40.96	-0.12	-0.00	0.00	0.00	0.00
Dead+Wind 135 deg - Service+Guy	40.94	-0.10	-0.02	0.00	0.00	0.00
Dead+Wind 150 deg - Service+Guy	40.93	-0.07	-0.03	0.00	0.00	0.00
Dead+Wind 180 deg - Service+Guy	40.91	0.00	-0.04	0.00	0.00	0.00
Dead+Wind 210 deg - Service+Guy	40.91	0.08	-0.02	0.00	0.00	0.00
Dead+Wind 225 deg - Service+Guy	40.92	0.11	-0.01	0.00	0.00	0.00
Dead+Wind 240 deg - Service+Guy	40.93	0.13	0.01	0.00	0.00	0.00
Dead+Wind 270 deg - Service+Guy	40.97	0.15	0.05	0.00	0.00	0.00
Dead+Wind 300 deg - Service+Guy	41.00	0.14	0.09	0.00	0.00	0.00
Dead+Wind 315 deg - Service+Guy	41.01	0.12	0.11	0.00	0.00	0.00
Dead+Wind 330 deg - Service+Guy	41.02	0.09	0.12	0.00	0.00	0.00

## Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-9.98	0.00	-0.00	9.98	-0.00	0.047%
2	-0.06	-11.90	-11.51	0.06	11.90	11.50	0.094%
3	5.70	-11.90	-9.88	-5.70	11.90	9.87	0.050%
4	8.09	-11.89	-8.04	-8.09	11.89	8.03	0.059%
5	9.92	-11.90	-5.66	-9.92	11.89	5.65	0.045%
6	11.52	-11.91	0.06	-11.51	11.91	-0.05	0.046%
7	10.06	-11.93	5.81	-10.06	11.93	-5.81	0.053%
8	8.21	-11.93	8.16	-8.20	11.93	-8.16	0.068%
9	5.80	-11.92	9.94	-5.80	11.92	-9.94	0.045%
10	0.06	-11.91	11.42	-0.06	11.91	-11.42	0.027%
11	-5.70	-11.92	9.88	5.69	11.92	-9.88	0.058%
12	-8.09	-11.92	8.04	8.08	11.92	-8.04	0.045%
13	-10.00	-11.92	5.71	9.99	11.92	-5.70	0.086%
14	-11.52	-11.91	-0.06	11.51	11.91	0.06	0.039%



<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b>	21111.00 - CT2040	<b>Page</b>	30 of 38
	<b>Project</b>	65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b>	15:06:46 10/25/21
	<b>Client</b>	AT&T Mobility	<b>Designed by</b>	TJL

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
15	-9.98	-11.89	-5.77	9.98	11.89	5.76	0.023%
16	-8.17	-11.89	-8.13	8.18	11.89	8.12	0.045%
17	-5.80	-11.90	-9.94	5.81	11.90	9.93	0.067%
18	0.00	-34.19	0.00	-0.00	34.19	-0.00	0.010%
19	-0.01	-34.18	-3.65	0.01	34.18	3.65	0.012%
20	1.83	-34.18	-3.16	-1.83	34.18	3.15	0.015%
21	2.60	-34.17	-2.57	-2.60	34.17	2.57	0.018%
22	3.19	-34.17	-1.82	-3.19	34.17	1.81	0.019%
23	3.69	-34.19	0.01	-3.69	34.19	-0.02	0.015%
24	3.21	-34.21	1.84	-3.21	34.21	-1.84	0.009%
25	2.62	-34.21	2.59	-2.62	34.21	-2.60	0.018%
26	1.85	-34.20	3.17	-1.85	34.20	-3.17	0.012%
27	0.01	-34.20	3.65	-0.02	34.20	-3.65	0.019%
28	-1.83	-34.20	3.16	1.83	34.20	-3.16	0.014%
29	-2.60	-34.20	2.57	2.59	34.20	-2.58	0.021%
30	-3.19	-34.20	1.82	3.19	34.20	-1.82	0.010%
31	-3.69	-34.19	-0.01	3.69	34.19	0.01	0.018%
32	-3.20	-34.17	-1.84	3.20	34.17	1.83	0.007%
33	-2.61	-34.17	-2.59	2.61	34.17	2.59	0.020%
34	-1.85	-34.17	-3.17	1.85	34.17	3.16	0.017%
35	-0.01	-9.98	-2.75	0.01	9.98	2.75	0.035%
36	1.36	-9.98	-2.36	-1.36	9.98	2.36	0.032%
37	1.93	-9.98	-1.92	-1.93	9.98	1.92	0.033%
38	2.37	-9.98	-1.35	-2.37	9.98	1.35	0.035%
39	2.75	-9.98	0.01	-2.75	9.98	-0.02	0.035%
40	2.41	-9.98	1.39	-2.40	9.98	-1.39	0.025%
41	1.96	-9.98	1.95	-1.96	9.98	-1.95	0.017%
42	1.39	-9.98	2.38	-1.39	9.98	-2.38	0.012%
43	0.01	-9.98	2.73	-0.01	9.98	-2.73	0.007%
44	-1.36	-9.98	2.36	1.36	9.98	-2.36	0.017%
45	-1.93	-9.98	1.92	-1.93	9.98	-1.92	0.022%
46	-2.39	-9.98	1.37	2.39	9.98	-1.36	0.032%
47	-2.75	-9.98	-0.01	2.75	9.98	0.01	0.044%
48	-2.39	-9.98	-1.38	2.38	9.98	1.38	0.044%
49	-1.95	-9.98	-1.94	1.95	9.98	1.94	0.041%
50	-1.39	-9.98	-2.38	1.39	9.98	2.37	0.037%

### Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	7	0.00000001	0.00038656
2	Yes	13	0.00089738	0.00056514
3	Yes	12	0.00000001	0.00035969
4	Yes	9	0.00093703	0.00064360
5	Yes	7	0.00091054	0.00079089
6	Yes	10	0.00000001	0.00034795
7	Yes	11	0.00000001	0.00034148
8	Yes	10	0.00087875	0.00043845
9	Yes	9	0.00000001	0.00032075
10	Yes	6	0.00000001	0.00051522
11	Yes	9	0.00000001	0.00042004
12	Yes	11	0.00000001	0.00030176
13	Yes	11	0.00097619	0.00056346
14	Yes	11	0.00000001	0.00029907
15	Yes	8	0.00000001	0.00048716

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b> 21111.00 - CT2040	<b>Page</b> 31 of 38
	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

16	Yes	10	0.00000001	0.00046755
17	Yes	12	0.00079151	0.00047128
18	Yes	7	0.00000001	0.00026986
19	Yes	7	0.00000001	0.00028218
20	Yes	7	0.00000001	0.00037216
21	Yes	7	0.00000001	0.00044557
22	Yes	7	0.00000001	0.00047911
23	Yes	7	0.00000001	0.00040647
24	Yes	7	0.00000001	0.00024495
25	Yes	6	0.00000001	0.00039635
26	Yes	6	0.00000001	0.00026656
27	Yes	5	0.00000001	0.00030903
28	Yes	6	0.00000001	0.00031839
29	Yes	6	0.00000001	0.00046806
30	Yes	7	0.00000001	0.00029255
31	Yes	7	0.00000001	0.00048657
32	Yes	8	0.00000001	0.00022644
33	Yes	7	0.00000001	0.00053471
34	Yes	7	0.00000001	0.00044461
35	Yes	5	0.00000001	0.00021515
36	Yes	5	0.00000001	0.00020751
37	Yes	5	0.00000001	0.00023258
38	Yes	5	0.00000001	0.00024291
39	Yes	5	0.00000001	0.00024098
40	Yes	5	0.00000001	0.00015582
41	Yes	5	0.00000001	0.00010694
42	Yes	5	0.00000001	0.00008557
43	Yes	5	0.00000001	0.00007285
44	Yes	5	0.00000001	0.00013080
45	Yes	5	0.00000001	0.00015945
46	Yes	5	0.00000001	0.00022048
47	Yes	5	0.00000001	0.00028194
48	Yes	5	0.00000001	0.00027965
49	Yes	5	0.00000001	0.00025539
50	Yes	5	0.00000001	0.00022564

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	107 - 102	0.653	48	0.0355	0.0303
T2	102 - 82	0.614	49	0.0340	0.0277
T3	82 - 62	0.468	49	0.0523	0.0407
T4	62 - 42	0.166	50	0.0556	0.0439

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
108.00	2' Dish	48	0.653	0.0355	0.0303	26835
107.00	1' x 1' Panel	48	0.653	0.0355	0.0303	26835
106.00	10' x 2" Dia Omni	48	0.645	0.0350	0.0296	26835
104.00	1' x 1' Panel	48	0.629	0.0343	0.0284	26835
99.50	1' x 1' Panel	49	0.598	0.0346	0.0275	28838

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b> 21111.00 - CT2040	<b>Page</b> 32 of 38
	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
96.25	Guy	49	0.579	0.0368	0.0286	55274
85.00	3' Side arm mount	49	0.500	0.0495	0.0384	17681
81.00	RRH2x60-AWS	49	0.456	0.0530	0.0414	16361
80.00	DB844G65ZAXY	49	0.442	0.0537	0.0419	17379
70.00	DC6-48-60-18-8F Surge Arrestor	50	0.287	0.0559	0.0440	106836
69.00	DTMABP7819VG12A TMA	50	0.271	0.0558	0.0440	64571
61.92	Guy	50	0.165	0.0556	0.0439	18624

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	107 - 102	2.901	2	0.1683	0.1836
T2	102 - 82	2.717	2	0.1620	0.1677
T3	82 - 62	2.064	2	0.2170	0.2050
T4	62 - 42	0.795	2	0.2542	0.2181

### Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
108.00	2' Dish	2	2.901	0.1683	0.1836	7596
107.00	1' x 1' Panel	2	2.901	0.1683	0.1836	7596
106.00	10' x 2" Dia Omni	2	2.863	0.1666	0.1800	7596
104.00	1' x 1' Panel	2	2.788	0.1636	0.1732	7596
99.50	1' x 1' Panel	2	2.638	0.1629	0.1634	8549
96.25	Guy	2	2.546	0.1684	0.1626	20950
85.00	3' Side arm mount	2	2.198	0.2067	0.1966	4537
81.00	RRH2x60-AWS	2	2.013	0.2200	0.2073	4119
80.00	DB844G65ZAXY	2	1.959	0.2229	0.2093	4344
70.00	DC6-48-60-18-8F Surge Arrestor	2	1.312	0.2429	0.2177	37972
69.00	DTMABP7819VG12A TMA	2	1.244	0.2444	0.2178	19015
61.92	Guy	2	0.790	0.2543	0.2181	4873

### Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T1	107	Leg	A325N	0.875	1	2.27	40.59	0.056	✓	1 Bolt Tension
T2	102	Leg	A325N	0.875	1	2.96	40.59	0.073	✓	1 Bolt Tension
T3	82	Leg	A325N	0.875	1	6.31	40.59	0.156	✓	1 Bolt Tension
T4	62	Leg	A325N	0.875	1	9.46	40.59	0.233	✓	1 Bolt Tension

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b> 21111.00 - CT2040	<b>Page</b> 33 of 38
	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
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### Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual $T_u$ K	Allowable $\phi T_n$ K	Required S.F.	Actual S.F.
T2	96.25 (A) (244)	9/16 EHS	3.50	35.00	6.40	21.00	1.000	3.283 ✓
	96.25 (A) (245)	9/16 EHS	3.50	35.00	6.27	21.00	1.000	3.347 ✓
	96.25 (B) (238)	9/16 EHS	3.50	35.00	7.51	21.00	1.000	2.798 ✓
	96.25 (B) (239)	9/16 EHS	3.50	35.00	7.36	21.00	1.000	2.852 ✓
	96.25 (C) (232)	9/16 EHS	3.50	35.00	7.09	21.00	1.000	2.962 ✓
	96.25 (C) (233)	9/16 EHS	3.50	35.00	7.30	21.00	1.000	2.878 ✓
T4	61.92 (A) (252)	3/4 EHS	5.83	58.30	11.38	34.98	1.000	3.073 ✓
	61.92 (B) (251)	3/4 EHS	5.83	58.30	14.12	34.98	1.000	2.476 ✓
	61.92 (C) (250)	3/4 EHS	5.83	58.30	13.45	34.98	1.000	2.601 ✓

### Compression Checks

### Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	$L_u$ ft	$Kl/r$	A $in^2$	Mast Stability Index	$P_u$ K	$\phi P_n$ K	Ratio $P_u / \phi P_n$
T1	107 - 102	1 1/2	5.00	2.46	78.7 K=1.00	1.767	1.00	-7.94	50.58	0.157 <sup>1</sup> ✓
T2	102 - 82	1 1/2	20.00	2.83	90.7 K=1.00	1.767	1.00	-22.32	43.60	0.512 <sup>1</sup> ✓
T3	82 - 62	1 1/2	20.00	2.83	90.7 K=1.00	1.767	1.00	-28.93	43.60	0.664 <sup>1</sup> ✓
T4	62 - 42	1 1/2	20.00	2.85	91.0 K=1.00	1.767	1.00	-31.61	43.38	0.729 <sup>1</sup> ✓

<sup>1</sup>  $P_u / \phi P_n$  controls

### Horizontal Design Data (Compression)

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b> 21111.00 - CT2040	<b>Page</b> 34 of 38
	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	107 - 102	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-5.49	6.71	0.818 <sup>1</sup> ✓
T2	102 - 82	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-5.69	6.71	0.848 <sup>1</sup> ✓
T3	82 - 62	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-5.01	6.71	0.747 <sup>1</sup> ✓
T4	62 - 42	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-4.20	6.71	0.626 <sup>1</sup> ✓

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	107 - 102	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-2.87	6.71	0.428 <sup>1</sup> ✓
T2	102 - 82	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-2.54	6.71	0.379 <sup>1</sup> ✓
T3	82 - 62	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-2.40	6.71	0.358 <sup>1</sup> ✓
T4	62 - 42	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-1.56	6.71	0.232 <sup>1</sup> ✓

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	107 - 102	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-2.80	6.71	0.418 <sup>1</sup> ✓
T2	102 - 82	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-2.60	6.71	0.388 <sup>1</sup> ✓
T3	82 - 62	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-1.87	6.71	0.278 <sup>1</sup> ✓
T4	62 - 42	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-0.15	6.71	0.022 <sup>1</sup> ✓

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b> 21111.00 - CT2040	<b>Page</b> 35 of 38
	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

### Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$ <sup>1</sup>
T2	102 - 82 (236)	L3x3x1/4	2.50	2.44	84.7 K=1.71	1.440	-5.21	31.98	0.163 <sup>1</sup> ✓
T2	102 - 82 (237)	L3x3x1/4	2.50	2.44	84.7 K=1.71	1.440	-4.61	31.98	0.144 <sup>1</sup> ✓
T2	102 - 82 (242)	L3x3x1/4	2.50	2.44	84.7 K=1.71	1.440	-5.67	31.98	0.177 <sup>1</sup> ✓
T2	102 - 82 (243)	L3x3x1/4	2.50	2.44	84.7 K=1.71	1.440	-5.52	31.98	0.173 <sup>1</sup> ✓
T2	102 - 82 (248)	L3x3x1/4	2.50	2.44	84.7 K=1.71	1.440	-5.53	31.98	0.173 <sup>1</sup> ✓
T2	102 - 82 (249)	L3x3x1/4	2.50	2.44	84.7 K=1.71	1.440	-4.77	31.98	0.149 <sup>1</sup> ✓

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Tension Checks

#### Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$ <sup>1</sup>
T1	107 - 102	1 1/2	5.00	2.46	78.7	1.767	2.96	79.52	0.037 <sup>1</sup> ✓
T2	102 - 82	1 1/2	20.00	2.83	90.7	1.767	3.90	79.52	0.049 <sup>1</sup> ✓
T3	82 - 62	1 1/2	20.00	2.83	90.7	1.767	8.70	79.52	0.109 <sup>1</sup> ✓
T4	62 - 42	1 1/2	20.00	2.85	91.0	1.767	8.70	79.52	0.109 <sup>1</sup> ✓

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

#### Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$ <sup>1</sup>
T1	107 - 102	1/2	3.51	3.33	319.8	0.196	4.52	6.36	0.710 <sup>1</sup> ✓
T2	102 - 82	1/2	3.78	3.59	344.6	0.196	4.40	6.36	0.692 <sup>1</sup> ✓

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b> 21111.00 - CT2040	<b>Page</b> 36 of 38
	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJJ

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T3	82 - 62	1/2	3.78	3.59	344.6	0.196	6.33	6.36	0.994 <sup>1</sup>
T4	62 - 42	1/2	3.79	3.60	345.4	0.196	4.17	6.36	0.655 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T4	62 - 42	L1 1/4x1 1/4x3/16	2.50	2.38	75.7	0.434	1.97	14.05	0.141 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T2	102 - 82 (234)	L2x2x5/16	3.78	3.68	73.6	1.150	7.27	37.26	0.195 <sup>1</sup>
T2	102 - 82 (235)	L2x2x5/16	3.78	3.68	73.6	1.150	6.14	37.26	0.165 <sup>1</sup>
T2	102 - 82 (240)	L2x2x5/16	3.78	3.68	73.6	1.150	7.36	37.26	0.198 <sup>1</sup>
T2	102 - 82 (241)	L2x2x5/16	3.78	3.68	73.6	1.150	7.04	37.26	0.189 <sup>1</sup>
T2	102 - 82 (246)	L2x2x5/16	3.78	3.68	73.6	1.150	7.52	37.26	0.202 <sup>1</sup>
T2	102 - 82 (247)	L2x2x5/16	3.78	3.68	73.6	1.150	6.05	37.26	0.162 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T2	102 - 82 (236)	L3x3x1/4	2.50	2.44	31.5	1.440	0.47	46.66	0.010 <sup>1</sup>

<b>tnxTower</b>  <b>Centek Engineering Inc.</b> 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	<b>Job</b> 21111.00 - CT2040	<b>Page</b> 37 of 38
	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio P <sub>u</sub> / φP <sub>n</sub>
T2	102 - 82 (237)	L3x3x1/4	2.50	2.44	31.5	1.440	0.17	46.66	0.004 <sup>1</sup> ✓
T2	102 - 82 (242)	L3x3x1/4	2.50	2.44	31.5	1.440	0.00	46.66	0.000 <sup>1</sup> ✓
T2	102 - 82 (248)	L3x3x1/4	2.50	2.44	31.5	1.440	0.50	46.66	0.011 <sup>1</sup> ✓
T2	102 - 82 (249)	L3x3x1/4	2.50	2.44	31.5	1.440	0.15	46.66	0.003 <sup>1</sup> ✓

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	φP <sub>allow</sub> K	% Capacity	Pass Fail	
T1	107 - 102	Leg	1 1/2	1	-7.94	50.58	15.7	Pass	
T2	102 - 82	Leg	1 1/2	27	-22.32	43.60	51.2	Pass	
T3	82 - 62	Leg	1 1/2	96	-28.93	43.60	66.4	Pass	
T4	62 - 42	Leg	1 1/2	165	-31.61	43.38	72.9	Pass	
T1	107 - 102	Diagonal	1/2	11	4.52	6.36	71.0	Pass	
T2	102 - 82	Diagonal	1/2	72	4.40	6.36	69.2	Pass	
T3	82 - 62	Diagonal	1/2	105	6.33	6.36	99.4	Pass	
T4	62 - 42	Diagonal	1/2	226	4.17	6.36	65.5	Pass	
T1	107 - 102	Horizontal	L1 1/4x1 1/4x3/16	17	-5.49	6.71	81.8	Pass	
T2	102 - 82	Horizontal	L1 1/4x1 1/4x3/16	85	-5.69	6.71	84.8	Pass	
T3	82 - 62	Horizontal	L1 1/4x1 1/4x3/16	154	-5.01	6.71	74.7	Pass	
T4	62 - 42	Horizontal	L1 1/4x1 1/4x3/16	225	-4.20	6.71	62.6	Pass	
T1	107 - 102	Top Girt	L1 1/4x1 1/4x3/16	5	-2.87	6.71	42.8	Pass	
T2	102 - 82	Top Girt	L1 1/4x1 1/4x3/16	30	-2.54	6.71	37.9	Pass	
T3	82 - 62	Top Girt	L1 1/4x1 1/4x3/16	99	-2.40	6.71	35.8	Pass	
T4	62 - 42	Top Girt	L1 1/4x1 1/4x3/16	168	-1.56	6.71	23.2	Pass	
T1	107 - 102	Bottom Girt	L1 1/4x1 1/4x3/16	8	-2.80	6.71	41.8	Pass	
T2	102 - 82	Bottom Girt	L1 1/4x1 1/4x3/16	31	-2.60	6.71	38.8	Pass	
T3	82 - 62	Bottom Girt	L1 1/4x1 1/4x3/16	100	-1.87	6.71	27.8	Pass	
T4	62 - 42	Bottom Girt	L1 1/4x1 1/4x3/16	170	-0.15	6.71	2.2	Pass	
T2	102 - 82	Guy A@96.25	9/16	244	6.40	21.00	30.5	Pass	
T4	62 - 42	Guy A@61.9167	3/4	252	11.38	34.98	32.5	Pass	
T2	102 - 82	Guy B@96.25	9/16	238	7.51	21.00	35.7	Pass	
T4	62 - 42	Guy B@61.9167	3/4	251	14.12	34.98	40.4	Pass	
T2	102 - 82	Guy C@96.25	9/16	233	7.30	21.00	34.8	Pass	
T4	62 - 42	Guy C@61.9167	3/4	250	13.45	34.98	38.4	Pass	
T2	102 - 82	Torque Arm Top@96.25	L2x2x5/16	246	7.52	37.26	20.2	Pass	
T2	102 - 82	Torque Arm Bottom@96.25	L3x3x1/4	242	-5.67	31.98	17.7	Pass	
							Summary		
							Leg (T4)	72.9	Pass
							Diagonal (T3)	99.4	Pass
							Horizontal (T2)	84.8	Pass
							Top Girt (T1)	42.8	Pass



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	<b>Project</b> 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	<b>Date</b> 15:06:46 10/25/21
	<b>Client</b> AT&T Mobility	<b>Designed by</b> TJL

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail
						Bottom Girt (T1)	41.8	Pass
						Guy A (T4)	32.5	Pass
						Guy B (T4)	40.4	Pass
						Guy C (T4)	38.4	Pass
						Torque Arm Top (T2)	20.2	Pass
						Torque Arm Bottom (T2)	17.7	Pass
						Bolt Checks	23.3	Pass
						<b>RATING =</b>	<b>99.4</b>	<b>Pass</b>

**Guy Anchor Connection Bolts Capacity Check:**

**Input Data:**

GuyAnchorReactions:

GuyAnchorB @ 19.5ft:

Horz Force (H) =	F <sub>h</sub> := 15-kips	(Input From trnTower)
Vertical Force (V)=	F <sub>v</sub> := 24-kips	(Input From trnTower)
Resultant Force (R) =	F <sub>r</sub> := 28kips	(Input From trnTower)

**Guy Anchor B Connection Bolt Data:**

Bolt Design Shear Stress:	$\phi F_{nv} := 20.3\text{ksi}$	
Diameter of Bolt =	D := 0.625-in	(User Input)
<u>Calculated Bolt Properties:</u>		
GrossArea of Bolt =	$A_g := \frac{\pi}{4} \cdot D^2 = 0.307 \cdot \text{in}^2$	
Number of Shear Planes =	N <sub>sp</sub> := 6	(3 Bolts in Double Shear Considered)

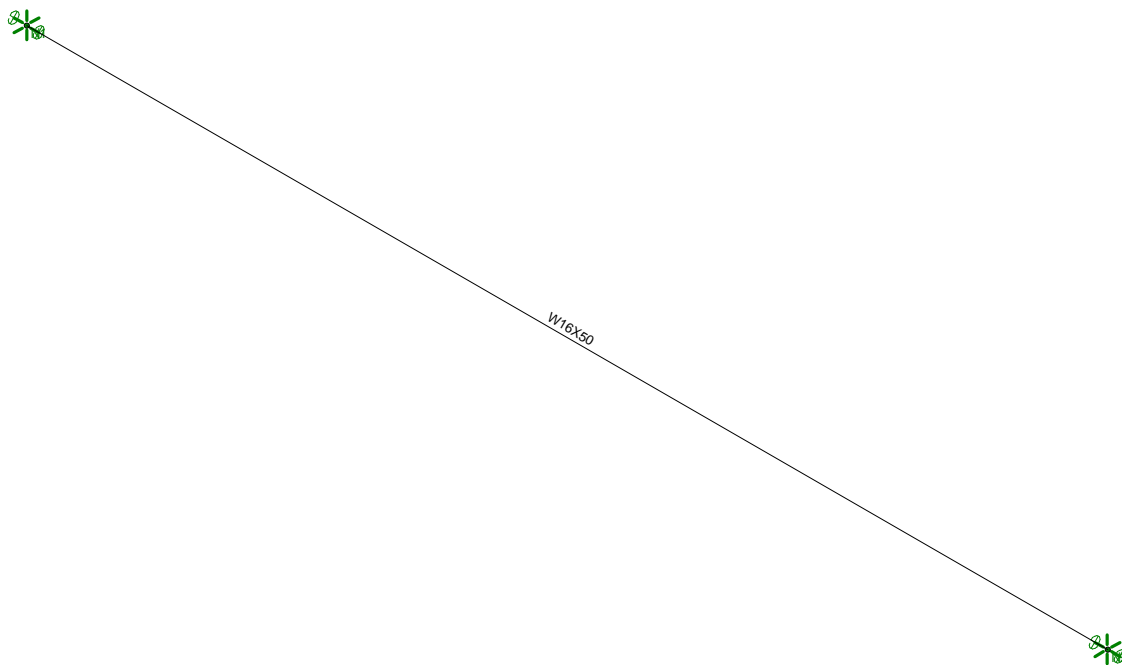
Check Anchor Connection Bolt Shear Force:

Maximum Shear Stress in 1 Bolt =  $f_v := \frac{F_r}{(A_g \cdot N_{sp})} \quad f_v = 15.21\text{-ksi}$

Condition1 =  $\text{Condition1} := \text{if} \left( \frac{f_v}{\phi F_{nv}} \leq 1.00, \text{"OK"}, \text{"Overstressed"} \right)$

$\frac{f_v}{\phi F_{nv}} = 0.75$

Condition1 = "OK"



Centek

TJL

21111.00

CT2040 - Guy Anchor Roof Beam  
Member Framing

Feb 9, 2022 at 9:56 AM

Guy Anchor - Roof Beam.r3d

**(Global) Model Settings**

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-12: ASD
Wood Code	AWC NDS-15: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-14
Masonry Code	ACI 530-13: ASD
Aluminum Code	AA ADM1-15: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

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

**(Global) Model Settings, Continued**

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	.145
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#6
Footing Top Bar Cover (in)	1.5
Footing Bottom Bar	#6
Footing Bottom Bar Cover (in)	3
Pedestal Bar	#6
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#4

**Hot Rolled Steel Properties**

	Label	E [ksi]	G [ksi]	Nu	Therm (\... Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65 .49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65 .49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65 .49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65 .527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65 .527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65 .49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65 .49	50	1.4	65	1.3



**Hot Rolled Steel Section Sets**

	Label	Shape	Type	Design List	Material	Design Ru... A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	W16x50	W16X50	Beam	None	A36 Gr.36	Typical	14.7	37.2	659 1.52

**Hot Rolled Steel Design Parameters**

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...Lcomp bot[...L-torq...	Kyy	Kzz	Cb	Funci...
1	M1	W16x50	27			1				Lateral

**Member Primary Data**

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
1	M1	N1	N2			W16x50	Beam	None	A36 Gr.36	Typical

**Joint Coordinates and Temperatures**

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	27	0	0	0	

**Joint Boundary Conditions**

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1	Reaction	Reaction	Reaction	Reaction		
2	N2	Reaction	Reaction	Reaction	Reaction		

**Member Point Loads (BLC 4 : Guy Anchor Reaction)**

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	24	20

**Member Distributed Loads (BLC 2 : Roof Dead Load)**

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-0.675	-0.675	0	0
2	M1	Y	-0.225	-0.225	0	0

**Member Distributed Loads (BLC 3 : Roof Snow Load)**

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-0.27	-0.27	0	0

**Basic Load Cases**

	BLC Description	Category	X Gra...Y Gra...Z Gra...	Joint	Point	Distrib...Area(... Surfa...
1	Self Weight	DL				
2	Roof Dead Load	DL				2
3	Roof Snow Load	SL				1
4	Guy Anchor Reaction	LL			1	

### Load Combinations

	Description	So...P...	S...	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
1	IBC 16-8	Yes	Y	DL	1										
2	IBC 16-9	Yes	Y	DL	1	LL	1	LLS	1						
3	IBC 16-10 (b)	Yes	Y	DL	1	SL	1	SLN	1						
4	IBC 16-11 (b)	Yes	Y	DL	1	LL	.75	LLS	.75	SL	.75	SLN	.75		

### Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	0	4	16.47	3	0	4	0	4	0	4	0	4
2		min	0	1	6.603	2	0	1	0	1	0	1	0	1
3	N2	max	0	4	16.47	3	0	4	0	4	0	4	0	4
4		min	0	1	-4.952	2	0	1	0	1	0	1	0	1
5	Totals:	max	0	4	32.941	3	0	4						
6		min	0	1	1.651	2	0	1						

### Envelope Joint Displacements

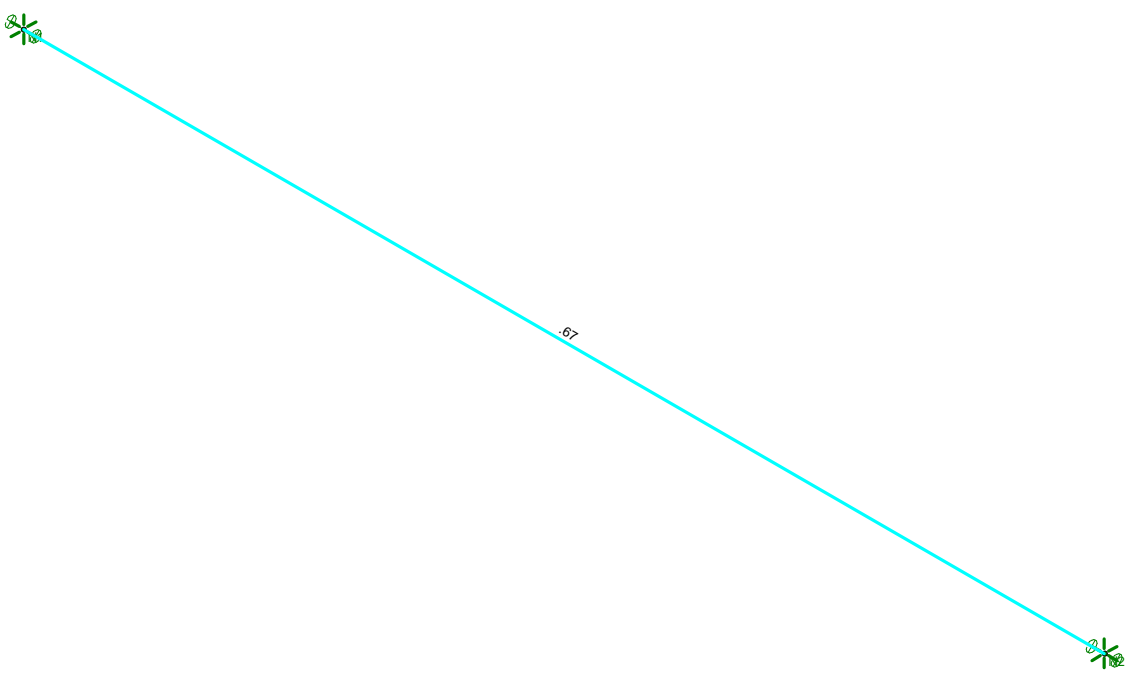
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
1	N1	max	0	4	0	4	0	4	0	4	0	4	-7.312e-04	2
2		min	0	1	0	1	0	1	0	1	0	1	-9.424e-03	3
3	N2	max	0	4	0	4	0	4	0	4	0	4	9.424e-03	3
4		min	0	1	0	1	0	1	0	1	0	1	-1.878e-03	2

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

	Memb...	Shape	Code Check	L...	LC	Sh...L...	Dir	...Pnc/o...Pnt/o...	Mnyy/om [k-ft]	Mn...	Cb	Eqn
1	M1	W16X50	.673	1...	3	.185 0	y	3 53.264 316.886	29.281	165...	1	H1...



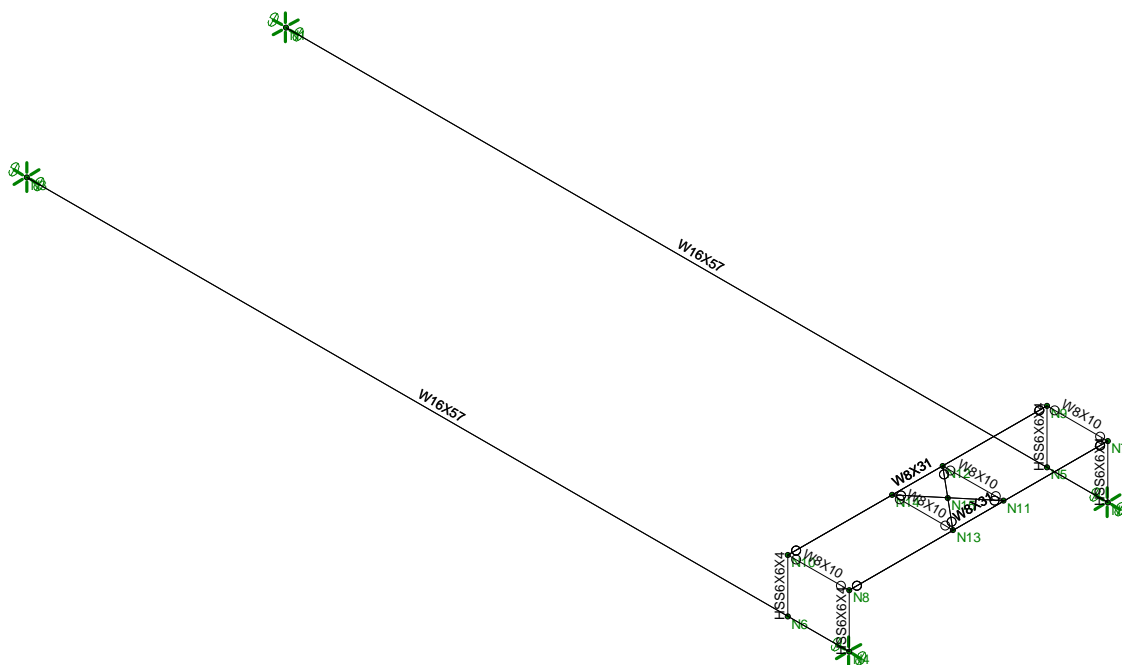
Code Check (Env)	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

Centek	CT2040 - Guy Anchor Roof Beam Unity Check	
TJL		Feb 9, 2022 at 10:01 AM
21111.00		Guy Anchor - Roof Beam.r3d





Envelope Only Solution

Centek	CT2040 - Tower Base Roof Beam Member Framing	Feb 9, 2022 at 12:33 PM
TJL		Tower Base - Roof Beam.r3d
21111.00		

**(Global) Model Settings**

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-12: ASD
Wood Code	AWC NDS-15: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-14
Masonry Code	ACI 530-13: ASD
Aluminum Code	AA ADM1-15: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

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

**(Global) Model Settings, Continued**

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	.145
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#6
Footing Top Bar Cover (in)	1.5
Footing Bottom Bar	#6
Footing Bottom Bar Cover (in)	3
Pedestal Bar	#6
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#4

**Hot Rolled Steel Properties**

	Label	E [ksi]	G [ksi]	Nu	Therm (\... Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65 .49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65 .49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65 .49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65 .527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65 .527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65 .49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65 .49	50	1.4	65	1.3

### Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in <sup>2</sup> ]	Iyy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
1	W16x57	W16X57	Beam	None	A36 Gr.36	Typical	16.8	43.1	758	2.22
2	W8x31	W8X31	Beam	None	A36 Gr.36	Typical	9.13	37.1	110	.536
3	W8x10	W8X10	Beam	None	A36 Gr.36	Typical	2.96	2.09	30.8	.043
4	HSS6x6x1/4	HSS6X6X4	Column	Wide Flange	A500 Gr.B ...	Typical	5.24	28.6	28.6	45.6

### Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...]	Lcomp bot[...]	L-torq...	Kyy	Kzz	Cb	Functi...
1	M1	W16x57	27			1						Lateral
2	M2	W16x57	27			1						Lateral
3	M3	HSS6x6x1/4	1.75			Lbyy						Lateral
4	M4	HSS6x6x1/4	1.75			Lbyy						Lateral
5	M5	HSS6x6x1/4	1.75			Lbyy						Lateral
6	M6	HSS6x6x1/4	1.75			Lbyy						Lateral
7	M7	W8x31	8.5			Segment						Lateral
8	M8	W8x31	8.5			Segment						Lateral
9	M9	W8x10	2			Lbyy						Lateral
10	M10	W8x10	2			Lbyy						Lateral
11	M11	W8x10	2			Lbyy						Lateral
12	M12	W8x10	2			Lbyy						Lateral

### Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...)	Section/Shape	Type	Design List	Material	Design ...
1	M1	N1	N2			W16x57	Beam	None	A36 Gr.36	Typical
2	M2	N3	N4			W16x57	Beam	None	A36 Gr.36	Typical
3	M3	N10	N6			HSS6x6x1/4	Column	Wide Flange...	A500 Gr.B Rect	Typical
4	M4	N8	N4			HSS6x6x1/4	Column	Wide Flange...	A500 Gr.B Rect	Typical
5	M5	N9	N5			HSS6x6x1/4	Column	Wide Flange...	A500 Gr.B Rect	Typical
6	M6	N7	N2			HSS6x6x1/4	Column	Wide Flange...	A500 Gr.B Rect	Typical
7	M7	N10	N9			W8x31	Beam	None	A36 Gr.36	Typical
8	M8	N8	N7			W8x31	Beam	None	A36 Gr.36	Typical
9	M9	N10	N8			W8x10	Beam	None	A36 Gr.36	Typical
10	M10	N9	N7			W8x10	Beam	None	A36 Gr.36	Typical
11	M11	N12	N11			W8x10	Beam	None	A36 Gr.36	Typical
12	M12	N14	N13			W8x10	Beam	None	A36 Gr.36	Typical
13	M13	N14	N11			RIGID	None	None	RIGID	Typical
14	M14	N13	N12			RIGID	None	None	RIGID	Typical

### Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	27	0	0	0	
3	N3	0	0	8.5	0	
4	N4	27	0	8.5	0	
5	N5	25	0	0	0	
6	N6	25	0	8.5	0	
7	N7	27	1.75	0	0	

**Joint Coordinates and Temperatures (Continued)**

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
8	N8	27	1.75	8.5	0	
9	N9	25	1.75	0	0	
10	N10	25	1.75	8.5	0	
11	N11	27	1.75	3.415	0	
12	N12	25	1.75	3.415	0	
13	N13	27	1.75	5.085	0	
14	N14	25	1.75	5.085	0	
15	N15	26	1.75	4.25	0	

**Joint Boundary Conditions**

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1	Reaction	Reaction	Reaction	Reaction		
2	N2	Reaction	Reaction	Reaction	Reaction		
3	N3	Reaction	Reaction	Reaction	Reaction		
4	N4	Reaction	Reaction	Reaction	Reaction		
5	N5						
6	N6						
7	N7						
8	N8						
9	N9						
10	N10						
11	N11						
12	N12						
13	N13						
14	N14						

**Member Point Loads**

Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
No Data to Print ...			

**Member Distributed Loads (BLC 2 : Roof Dead Load)**

	Member Label	Direction	Start Magnitude[k/ft,...]	End Magnitude[k/ft,F...]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-0.975	-0.975	0	0
2	M2	Y	-0.975	-0.975	0	0
3	M1	Y	-0.225	-0.225	0	0
4	M2	Y	-0.225	-0.225	0	0

**Member Distributed Loads (BLC 3 : Roof Snow Load)**

	Member Label	Direction	Start Magnitude[k/ft,...]	End Magnitude[k/ft,F...]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-0.39	-0.39	0	0
2	M2	Y	-0.39	-0.39	0	0

### Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distrib...	Area(...	Surfa...
1	Self Weight	DL		-1						
2	Roof Dead Load	DL						4		
3	Roof Snow Load	SL						2		
4	Tower Load	DL				1				

### Load Combinations

	Description	So...	P...	S...	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
1	IBC 16-8	Yes	Y		DL	1									
2	IBC 16-9	Yes	Y		DL	1	LL	1	LLS	1					
3	IBC 16-10 (b)	Yes	Y		DL	1	SL	1	SLN	1					
4	IBC 16-11 (b)	Yes	Y		DL	1	LL	.75	LLS	.75	SL	.75	SLN	.75	

### Envelope Joint Reactions

Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	.076	3	23.306	3	0	4	0	4	0	4	4
		min	.065	1	18.033	1	0	1	0	1	0	1	0
3	N2	max	-.065	2	49.039	3	0	2	0	2	0	4	0
		min	-.076	3	43.782	1	0	3	0	3	0	1	0
5	N3	max	.076	3	23.306	3	0	4	0	4	0	4	0
		min	.065	1	18.033	1	0	1	0	1	0	1	0
7	N4	max	-.065	2	49.039	3	0	2	0	2	0	4	0
		min	-.076	3	43.782	1	0	3	0	3	0	1	0
9	Totals:	max	0	4	144.69	3	0	2					
		min	0	1	123.63	1	0	3					

### Envelope Joint Displacements

Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
1	N1	max	0	4	0	4	0	4	0	4	0	-9.492e-03	2
		min	0	1	0	1	0	1	0	1	0	-1.212e-02	3
3	N2	max	0	4	0	4	0	4	0	4	0	1.293e-02	3
		min	0	1	0	1	0	1	0	1	0	1.03e-02	1
5	N3	max	0	4	0	4	0	4	0	4	0	-9.492e-03	2
		min	0	1	0	1	0	1	0	1	0	-1.212e-02	3
7	N4	max	0	4	0	4	0	4	0	4	0	1.293e-02	3
		min	0	1	0	1	0	1	0	1	0	1.03e-02	1
9	N5	max	0	2	-.253	2	0	4	0	4	0	1.24e-02	3
		min	0	3	-.317	3	0	1	0	1	0	9.846e-03	1
11	N6	max	0	2	-.253	2	0	4	0	4	0	1.24e-02	3
		min	0	3	-.317	3	0	1	0	1	0	9.846e-03	1
13	N7	max	-.213	2	-.002	3	0	4	0	4	0	1.27e-02	3
		min	-.268	3	-.002	1	0	1	0	1	0	1.01e-02	1
15	N8	max	-.213	2	-.002	3	0	4	0	4	0	1.27e-02	3
		min	-.268	3	-.002	1	0	1	0	1	0	1.01e-02	1
17	N9	max	-.213	2	-.256	2	0	4	0	4	0	1.282e-02	3
		min	-.267	3	-.32	3	0	1	0	1	0	1.02e-02	1
19	N10	max	-.213	2	-.256	2	0	4	0	4	0	1.282e-02	3
		min	-.267	3	-.32	3	0	1	0	1	0	1.02e-02	1

**Envelope Joint Displacements (Continued)**

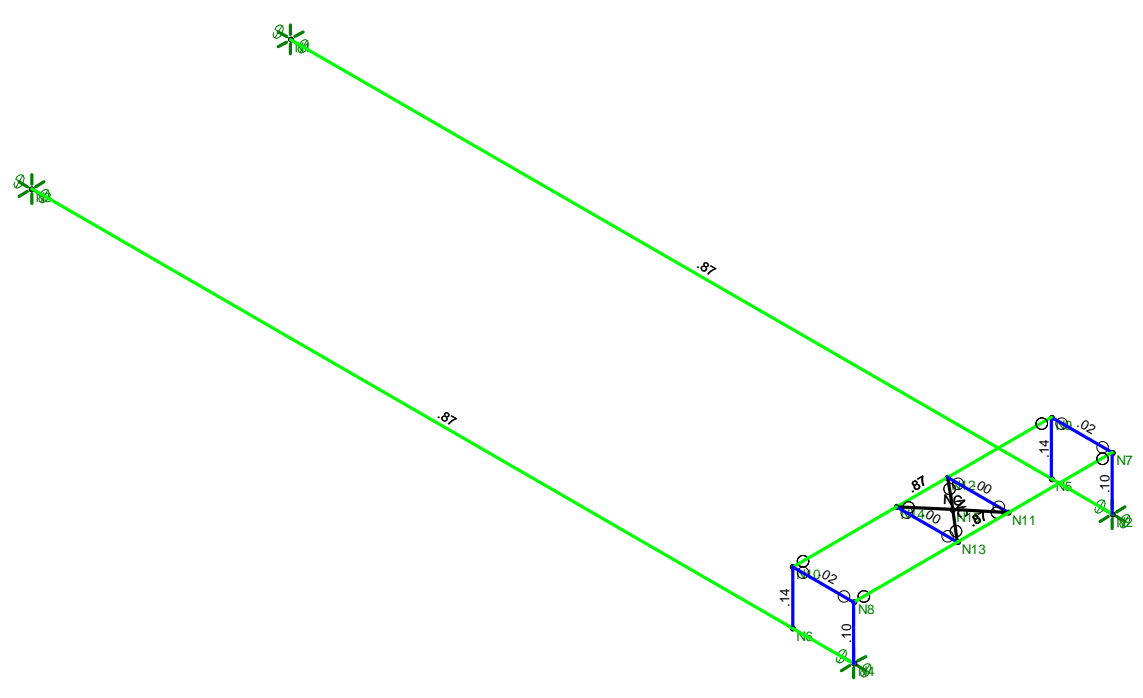
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
21	N11	max	-.213	2	-.244	2	0	4	2.226e-03	3	1.817e-06	3	1.587e-02	3
22		min	-.268	3	-.244	3	0	1	2.226e-03	1	1.555e-06	1	1.321e-02	1
23	N12	max	-.213	2	-.497	2	0	4	2.225e-03	2	-1.555e-06	2	1.054e-02	3
24		min	-.268	3	-.561	3	0	1	2.225e-03	3	-1.817e-06	3	7.876e-03	1
25	N13	max	-.213	2	-.244	2	0	4	-2.226e-03	2	-1.555e-06	2	1.587e-02	3
26		min	-.268	3	-.244	3	0	1	-2.226e-03	3	-1.817e-06	3	1.321e-02	1
27	N14	max	-.213	2	-.497	2	0	4	-2.225e-03	3	1.817e-06	3	1.054e-02	3
28		min	-.268	3	-.561	3	0	1	-2.225e-03	1	1.555e-06	1	7.876e-03	1
29	N15	max	-.213	2	-.371	2	0	4	0	4	0	4	1.321e-02	3
30		min	-.268	3	-.403	3	0	1	0	1	0	1	1.054e-02	1

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

	Memb...	Shape	Code Check	L...	LC	Sh...L...	Dir	...Pnc/o...Pnt/o...	Mnyy/om [k-ft]	Mn...	Cb	Eqn
1	M1	W16X57	.875	1...	3	.346	27 y	3 61.712 362.156	33.952	188...	1	H1..
2	M2	W16X57	.875	1...	3	.346	27 y	3 61.712 362.156	33.952	188...	1	H1..
3	M3	HSS6X6X4	.136	1...	3	.032	0 y	3 143.5...144.335	25.709	25....	1...	H1..
4	M4	HSS6X6X4	.097	1...	3	.018	0 y	3 143.5...144.335	25.709	25....	1...	H1..
5	M5	HSS6X6X4	.136	1...	3	.032	0 y	3 143.5...144.335	25.709	25....	1...	H1..
6	M6	HSS6X6X4	.097	1...	3	.018	0 y	3 143.5...144.335	25.709	25....	1...	H1..
7	M7	W8X31	.865	4...	3	.442	8.5 y	2 171.9...196.814	25.329	54....	1	H1..
8	M8	W8X31	.866	4...	3	.449	8.5 y	3 171.9...196.814	25.329	54....	1	H1..
9	M9	W8X10	.017	0	3	.001	0 y	4 60.669 63.808	2.982	15....	1...	H1..
10	M10	W8X10	.017	0	3	.001	0 y	4 60.669 63.808	2.982	15....	1...	H1..
11	M11	W8X10	.000	1	4	.001	0 y	3 60.669 63.808	2.982	15....	1...	H1..
12	M12	W8X10	.000	1	4	.001	0 y	3 60.669 63.808	2.982	15....	1...	H1..



Code Check (Env)	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

Centek	CT2040 - Tower Base Roof Beam Unity Check	Feb 9, 2022 at 12:32 PM
TJL		Tower Base - Roof Beam.r3d
21111.00		



Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	CT102040	DATE:	4/3/2018	RF DESIGN ENG:	Parinder Singh	RF PERF ENG:		RFDS PROGRAM TYPE:	2021 LTE Next Carrier
ISSUE:	Bronze Standard	Approved? (Y/N):	Yes	RF DESIGN PHONE:	510-493-3024	RF PERF PHONE:		RFDS TECHNOLOGY:	LTE
REVISION:	Preliminary	RF MANAGER:	John Benedetto	RF DESIGN EMAIL:	SPIN6B@ATT.COM	RF PERF EMAIL:		STATE/STATUS:	Preliminary/Approved
				ADDITIONAL WORKFLOW NOTIFICATIONS:		RFDS ID:	4165484		
				RFDS VERSION:	2.00	Created By:	sp656b	Updated By:	sp656b
				UMTS FREQUENCY:	850	Created:	9/22/2020	Updated:	3/31/2021
				LTE FREQUENCY:	700,850,1900,AWS,WCS	EXPIRATION DATE:			
				5G FREQUENCY:	850	ESTIMATED SQM:	18,049	Calculation ID:	202109011217474900
				IPLAN JOB # 1:	NER-RCTB-20-03271	PRD   SUB GRP #1:	LTE Next Carrier   LTE 6C		
				IPLAN JOB # 2:	NER-RCTB-20-03338	PRD   SUB GRP #2:	Antenna Modifications   4TXRX Antenna Retrofit		
				IPLAN JOB # 3:		PRD   SUB GRP #3:			
				IPLAN JOB # 4:		PRD   SUB GRP #4:			
				IPLAN JOB # 5:		PRD   SUB GRP #5:			
				IPLAN JOB # 6:		PRD   SUB GRP #6:			
				IPLAN JOB # 7:		PRD   SUB GRP #7:			
				IPLAN JOB # 8:		PRD   SUB GRP #8:			

LTE 6C 700 UPPER D & LTE 700 BC 4TXRX Antenna Retrofit

Section 2 - LOCATION INFORMATION

USID:	61171	FA LOCATION CODE:	10035317	LOCATION NAME:	HAMDEN BENHAM ST	ORACLE PRJT # 1:	2051A0WQB8	PACE JOB #1:	MRCTB049073
REGION:	NORTHEAST	MARKET CLUSTER:	NEW ENGLAND	MARKET:	CONNECTICUT	ORACLE PRJT # 2:	2051A0WRPK	PACE JOB #2:	MRCTB049067
ADDRESS:	265 BENHAM STREET	CITY:	HAMDEN	STATE:	CT	ORACLE PRJT # 3:		PACE JOB #3:	
ZIP CODE:	06514	COUNTY:	NEW HAVEN	LONG (DEC. DEG.):	-72.9314711	ORACLE PRJT # 4:		PACE JOB #4:	
LATITUDE (D-M-S):	41d 22m 12.66996s	LONGITUDE (D-M-S):	-72d -55m 53.29596s	LAT. (DEC. DEG.):	41.3701861	ORACLE PRJT # 5:		PACE JOB #5:	
				ORACLE PRJT # 6:		PACE JOB #6:			
				ORACLE PRJT # 7:		PACE JOB #7:			
				ORACLE PRJT # 8:		PACE JOB #8:			
				BORDER CELL WITH CONTOUR COORD:		SEARCH RING NAME:			
				AM STUDY REQ'D (Y/N):	No	SEARCH RING ID:			
				FREQ COORD:		BTA:		MSA / RSA:	
				RF DISTRICT:	NPO TRIAGE	LAC(UMTS):	05988		
				RF ZONE:	HOTSEAT	RNC(UMTS):	BRIDGEPORT RNC07 ERICSSON 3820		
				PARENT NAME(UMTS):	BRPTCT04CRBR07	MME POOL ID(LTE):	FF01		

DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:

2040 SACRED HEART - RT15 NO/SO TO RTE 10 (EXIT 60) HMDN END OF EXIT GO SOUTH (RIGHT) 3RD RIGHT ONTO BENHAM ST GO TO 2ND LIGHT (1/2 MI) AND TURN RIGHT AT LIGHT (CHERRY HILL ON LEFT) FOLLOW YELLOW STRIPED ROAD TO END THEN GO LEFT INTO STUDENT PARKING AREA AND GO TO END COME OUT SAME WAY ANTENNA ACCESS NEEDS 24HR NOTICE W/SISTER ANN MARIA 2034448976 CIENNA LOCATED INSIDE SHELTER. LTE RADIOS ARE LOCATED ON STRUCTURE OF ROOF

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):		STRUCTURE TYPE:	GUYED	MARKET LOCATION 700 Mhz Band:		
ADDITIONAL REGULATORY?:	No	HEIGHT OVERALL (ft):	0.00	FCC ASR NUMBER:		MARKET LOCATION 850 Mhz Band:		
SUB-LEASE RIGHTS?:	No	STRUCTURE HEIGHT (ft):	82.00			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

SECTOR	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

SECTOR	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 3	BBU 4	BBU 5	BBU 6														
BBU ID:	250429	257806	210605	379815	366897	702382														
TECHNOLOGY:	UMTS	UMTS	UMTS	UMTS	LTE	5G														
BBU NAME:	CTU2040	CTU6040	CTV2040	CTV6040	CTL02040	CTCN002040														
BBU USID:	61171	61171	61171	61171	61171	61171														
CELL ID / BCF:	CTV2040	CTV6040	CTV2040	CTV6040	CTL02040	CTCN002040														
BT/ATID:	318V	318V	318U	318W	318L	318N														
4-9 DIGIT SITE ID:	2040	6040	2040	6040	2040	2040														
COW OR TOY?:	No	No	No	No	No	No														
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED														
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL														
BTS LOCATION ID:	INTERNAL	INTERNAL	INTERNAL	INTERNAL	INTERNAL	INTERNAL														
BASE STATION TYPE:	OVERLAY	OVERLAY	BASE	OVERLAY	BASE	BASE														
EQUIPMENT NAME:	HAMDEN - SACRED HEART	HAMDEN - SACRED HEART	HAMDEN BENHAM ST	HAMDEN 265 BENHAM STREET	HAMDEN BENHAM ST	HAMDEN BENHAM ST														
DISASTER PRIORITY:	0	0	0	3	3	3														
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON	ERICSSON	ERICSSON	ERICSSON														
EQUIPMENT TYPE (Model):	3206 INDOOR	3206 INDOOR	3206 INDOOR	3206 INDOOR	6601 INDOOR MU	BASEBAND 6630														
BASEBAND CONFIGURATION:						xxxxx / 346630 / xxxxx														
MARKET STATE CODE:					CT	CT														
NODE B NUMBER:	0	0	0	0	2040	2040														
SIDEHAUL SWITCH VENDOR:																				
SIDEHAUL SWITCH MODEL:																				
SIDEHAUL SWITCH NAME:																				
CSS - CTS COMMON ID:	CTU2040	CTU6040	CTV2040	CTV6040	CTL02040	CTCN002040														
CSS - SECONDARY FUNCTION ID:																				

**Section 6/7 - BBU INFORMATION - final**

	BBU 1	BBU 2	BBU 3	BBU 4																
BBU ID:	210605	379815	366897	702382																
TECHNOLOGY:	UMTS	UMTS	LTE	LTE,5G																
BBU NAME:	CTV2040	CTV6040	CTL02040	CTL008406,CTCN002040																
BBU USID:	61171	61171	61171	61171																
CELL ID / BCF:	CTV2040	CTV6040	CTL02040	CTCN002040																
BT/ATID:	318U	318W	318L	318N																
4-9 DIGIT SITE ID:	2040	6040	2040	2040																
COW OR TOY?:	No	No	No	No																
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED																
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL																
BTS LOCATION ID:	INTERNAL	INTERNAL	INTERNAL	INTERNAL																
BASE STATION TYPE:	BASE	OVERLAY	BASE	BASE																
EQUIPMENT NAME:	HAMDEN BENHAM ST	HAMDEN 265 BENHAM STREET	HAMDEN BENHAM ST	CTCN002040																
DISASTER PRIORITY:	0	3	3	3																
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON	ERICSSON																
EQUIPMENT TYPE (Model):	3206 INDOOR	3206 INDOOR	6601 RADIONODE 6216	2102 COMPACT																
BASEBAND CONFIGURATION:			1x6601 / 1x5216 / 1xXMMU03 - IDLe	1x6601 / 1x6630 Mixed-Mode / 1xXMMU																
MARKET STATE CODE:			CT	CT,CTC																
NODE B NUMBER:	0	0	2040	840,2040																
SIDEHAUL SWITCH VENDOR:																				
SIDEHAUL SWITCH MODEL:																				
SIDEHAUL SWITCH NAME:																				
CSS - CTS COMMON ID:	CTV2040	CTV6040	CTL02040	CTCN002040																
CSS - SECONDARY FUNCTION ID:																				

Section 7b - Radio INFORMATION - existing

Section 7b - Radio INFORMATION - final

Section 8 - RBS/SECTOR ASSOCIATION - existing

	BBU 1	BBU 2	BBU 3	BBU 4	BBU 5	BBU 6													
<b>CTS Common ID</b>	CTU2040	CTV6040	CTV2040	CTV6040	CTL02040	CTCN002040													
<b>Soft Sector IDs</b>	CTU20407	CTU60404	CTV20401	CTV6040A	CTL02040_2A_2	CTCN002040_N005A_1													
	CTU20408	CTU60405	CTV20402	CTV6040B	CTL02040_2B_2	CTCN002040_N005B_1													
	CTU20409	CTU60406	CTV20403	CTV6040C	CTL02040_2C_2	CTCN002040_N005C_1													
		CTU60407			CTL02040_3A_1														
		CTU60408			CTL02040_3B_1														
		CTU60409			CTL02040_3C_1														
					CTL02040_7A_1														
					CTL02040_7B_1														
					CTL02040_7C_1														
					CTL02040_8A_1														
					CTL02040_8B_1														
					CTL02040_8C_1														
					CTL02040_9A_1														
					CTL02040_9A_2														
					CTL02040_9B_1														
					CTL02040_9B_2														
					CTL02040_9C_1														
					CTL02040_9C_2														

Section 8 - RBS/SECTOR ASSOCIATION - final

	BBU 1	BBU 2	BBU 3	BBU 4															
<b>CTS Common ID</b>	CTV2040	CTV6040	CTL02040	CTL00840R,CTCN002040															
<b>Soft Sector IDs</b>	CTV20401		CTL02040_3A_1	CTCN002040_N005A_1															
	CTV20402		CTL02040_3B_1	CTCN002040_N005B_1															
	CTV20403		CTL02040_3C_1	CTCN002040_N005C_1															
			CTL02040_7A_1	CTL00840_2A_2															
			CTL02040_7A_3 F	CTL00840_2B_2															
			CTL02040_7B_1	CTL00840_2C_2															
			CTL02040_7B_3 F	CTL00840_9A_1															
			CTL02040_7C_1	CTL00840_9A_2															
			CTL02040_7C_3 F	CTL00840_9B_1															
			CTL02040_8A_1	CTL00840_9B_2															
			CTL02040_8B_1	CTL00840_9C_1															
			CTL02040_8C_1	CTL00840_9C_2															

Section 9 - SOFT SECTOR ID - existing

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850														
USEID (excluding Hard Sector)	61171.850.3G.1	61171.1900.3G.1	61171.850.3G.2	61171.1900.3G.2	61171.1900.3G.3																							
SECTOR A SOFT SECTOR ID	CTV20401	CTU20407	CTV6040A	CTU60407	CTU60404	CTU02040 7A 1	CTU02040 8A 1	CTU02040 9A 1	CTU02040 2A 2	CTU02040 3A 1	CTU02040 9A 2			CTCN002040 N005A 1														
SECTOR B	CTV20402	CTU020408	CTV6040B	CTU60408	CTU60405	CTU02040 7B 1	CTU02040 8B 1	CTU02040 9B 1	CTU02040 2B 2	CTU02040 3B 1	CTU02040 9B 2			CTCN002040 N005B 1														
SECTOR C	CTV20403	CTU20409	CTV6040C	CTU60409	CTU60406	CTU02040 7C 1	CTU02040 8C 1	CTU02040 9C 1	CTU02040 2C 2	CTU02040 3C 1	CTU02040 9C 2			CTCN002040 N005C 1														
SECTOR D																												
SECTOR E																												
SECTOR F																												
OMNI																												

Section 9 - SOFT SECTOR ID - final

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850														
USEID (excluding Hard Sector)	61171.850.3G.1																											
SECTOR A SOFT SECTOR ID	CTV20401					CTU02040 7A 1	CTU02040 8A 1	CTU00840 9A 1		CTU02040 3A 1	CTU00840 9A 2	CTU00840 2A 2	CTU02040 7A 3 F	CTCN002040 N005A 1														
SECTOR B	CTV20402					CTU02040 7B 1	CTU02040 8B 1	CTU00840 9B 1		CTU02040 3B 1	CTU00840 9B 2	CTU00840 2B 2	CTU02040 7B 3 F	CTCN002040 N005B 1														
SECTOR C	CTV20403					CTU02040 7C 1	CTU02040 8C 1	CTU00840 9C 1		CTU02040 3C 1	CTU00840 9C 2	CTU00840 2C 2	CTU02040 7C 3 F	CTCN002040 N005C 1														
SECTOR D																												
SECTOR E																												
SECTOR F																												
OMNI																												

Section 9 - Cell Number - existing

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850													
USEID (excluding Hard Sector)	61171.850.3G.1	61171.1900.3G.1	61171.850.3G.2	61171.1900.3G.2	61171.1900.3G.3																						
SECTOR A CELL NUMBER						15	1	8	192	149	178			25													
SECTOR B						16	2	9	193	150	179			49													
SECTOR C						17	3	10	194	151	180			73													
SECTOR D																											
SECTOR E																											
SECTOR F																											
OMNI																											

Section 9 - Cell Number - final

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850													
USEID (excluding Hard Sector)	61171.850.3G.1																										
SECTOR A CELL NUMBER						15	1	8		149	178	192	171	25													
SECTOR B						16	2	9		150	179	193	172	49													
SECTOR C						17	3	10		151	180	194	173	73													
SECTOR D																											
SECTOR E																											
SECTOR F																											
OMNI																											

Section 10 - CID/SAC - existing

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 1900	LTE 4TH AWS	LTE 5TH 700	SG 1ST 850														
SECTOR A CID/SAC	20401	20407	60401	60407	60404																							
SECTOR B	20402	20408	60402	60408	60405																							
SECTOR C	20403	20409	60403	60409	60406																							
SECTOR D																												
SECTOR E																												
SECTOR F																												
OMNI																												

Section 10 - CID/SAC - final

	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 1900	LTE 4TH AWS	LTE 5TH 700	SG 1ST 850														
SECTOR A CID/SAC	20401																											
SECTOR B	20402																											
SECTOR C	20403																											
SECTOR D																												
SECTOR E																												
SECTOR F																												
OMNI																												











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	AM-X-CD-16-65-00T-RET		EPBQ-654L8H6-L2	HPA-66R-BLU-H6			
ANTENNA VENDOR	KMW		KMW	CCI Products			
ANTENNA SIZE (H x W x D)	72X11.8X5.9		73X21X6.3	72X14.8X9			
ANTENNA WEIGHT	48.5		72.8	51			
AZIMUTH	150		20	20			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	70		70	70			
ANTENNA TIP HEIGHT	73		73	73			
MECHANICAL DOWN TILT	0		0	0			
FEEDER AMOUNT	2						
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # if # of inches)							
Antenna RET Motor (QTY/MODEL)	Built-In RET		Built-In RET	Built-In RET			
SURGE ARRESTOR (QTY/MODEL)							
DUPLEXER (QTY/MODEL)	2	CM1007-DBPXC-003					
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)	1	860-10006					
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1	DTMABP7819VG 12A					
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMA (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)			2	DC6-48-60-18-8F	1	DC6-48-60-08F	
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)					1	RRUS-11 B12	
RRH - 850 band (QTY/MODEL)			1	4478 B5			
RRH - 1900 band (QTY/MODEL)			1	RRUS-32 B2			
RRH - AWS band (QTY/MODEL)			1	4426 B66			
RRH - WCS band (QTY/MODEL)					1	RRUS-32 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 (AolG)	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			CTV20401	CTV20401		UMTS 850	00T-RET_850MHz_0	16.1	150	2	NONE	Andrew 1-5/B (850)	154.04						529.66		1		
ANTENNA POSITION 3	PORT 1			CTL02040_8A_1	CTL02040_8A_1		LTE 850	L2_851MHz_04D T	15.38	20	4	TOP	FIBER	0						1000			5	
	PORT 2			CTCND02040_N 025A_1	CTCND02040_N 025A_1		5G 850	L2_851MHz_04D T	15.38	20	4	TOP	FIBER	0						1000			5	
	PORT 3			CTL02040_9A_1	CTL02040_9A_1		LTE 1900	L2_1930MHz_02 DT	16.04	20	2	TOP	FIBER	0						3664.3757			6	
	PORT 4			CTL02040_9A_2	CTL02040_9A_2		LTE 1900	L2_1930MHz_02 DT	16.04	20	2	TOP	FIBER	0						3664.3757			6	
	PORT 7			CTL02040_2A_2	CTL02040_2A_2		LTE AWS	L2_2130MHz_02 DT	15.99	20	2	TOP	FIBER	0						3837.0724			6	

ANTENNA POSITION 4	PORT 1		CTL02040_7A_1	CTL02040_7A_1	LTE 700	HB_719MHZ_04 DT	14.16	20	4	TOP	FIBER	0						1475.7065	7	
	PORT 3		CTL02040_3A_1	CTL02040_3A_1	LTE WCS	HB_2360MHZ_03 DT	17.45	20	3	TOP	FIBER	0						1285.2866	8	

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	JM-X-CD-16-65-00T-RET		EPBQ-654L8H6-L2	HPA-65R-BLU-H6			
ANTENNA VENDOR	KMW		KMW	CCI Products			
ANTENNA SIZE (H x W x D)	72X11.8X5.9		73X21X6.3	72X14.8X9			
ANTENNA WEIGHT	48.5		72.8	51			
AZIMUTH	260		150	150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	70		70	70			
ANTENNA TIP HEIGHT	73		73	73			
MECHANICAL DOWNTILT	0		0	0			
FEEDER AMOUNT	2						
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # if # of inches)							
Antenna RET Motor (QTY/MODEL)	Built-In RET		Built-In RET	Built-In RET			
SURGE ARRESTOR (QTY/MODEL)							
DUPLEXER (QTY/MODEL)	2	CM1007-DBPXC-003					
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1	DTMABP7819VG 12A					
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMA5 (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	RRUS-11 B12		
RRH - 850 band (QTY/MODEL)			1	4478 B5			
RRH - 1900 band (QTY/MODEL)			1	RRUS-32 B2			
RRH - AWS band (QTY/MODEL)			1	4426 B66			
RRH - WCS band (QTY/MODEL)				1	RRUS-32 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 (AolG)	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			CTV20402	CTV20402		UMTS 850	00T-RET_850MHz_0	16.1	260	2	NONE	Andrew 1-5/B (850)	154.04					529.66			9	
ANTENNA POSITION 3	PORT 1			CTL02040_8B_1	CTL02040_8B_1		LTE 850	L2_851MHz_05D T	15.44	150	5	TOP	FIBER	0					1000				13
	PORT 2			CTCN002040_N 005B_1	CTCN002040_N 005B_1		5G 850	L2_851MHz_05D T	15.44	150	5	TOP	FIBER	0					1000				13
	PORT 3			CTL02040_9B_1	CTL02040_9B_1		LTE 1900	L2_1930MHz_04 DT	16.23	150	4	TOP	FIBER	0					3664.3757				14
	PORT 4			CTL02040_9B_2	CTL02040_9B_2		LTE 1900	L2_1930MHz_04 DT	16.23	150	4	TOP	FIBER	0					3664.3757				14
	PORT 7			CTL02040_2B_2	CTL02040_2B_2		LTE AWS	L2_2130MHz_04 DT	16.14	150	4	TOP	FIBER	0					3837.0724				14

ANTENNA POSITION 4	PORT 1			CTL02040_7B_1	CTL02040_7B_1	LTE 700	HB_719MHZ_05 DT	14.11	150	5	TOP	FIBER	0						1475.7065	15	
	PORT 3			CTL02040_3B_1	CTL02040_3B_1	LTE WCS	HB_2360MHZ_03 DT	17.45	150	3	TOP	FIBER	0						1285.2866	16	

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	JAM-X-CD-16-65-00T-RET		EPBQ-654L8H6-L2	HPA-65R-BLU-H6			
ANTENNA VENDOR	KMW		KMW	CCI Products			
ANTENNA SIZE (H x W x D)	72X11.8X5.9		73X21X6.3	72X14.8X9			
ANTENNA WEIGHT	48.5		72.8	51			
AZIMUTH	20		260	260			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	70		70	70			
ANTENNA TIP HEIGHT	73		73	73			
MECHANICAL DOWN TILT	0		0	0			
FEEDER AMOUNT	2						
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # if # of inches)							
Antenna RET Motor (QTY/MODEL)	Built-In RET		Built-In RET	Built-In RET			
SURGE ARRESTOR (QTY/MODEL)							
DUPLEXER (QTY/MODEL)	2	CM1007-DBPXC-003					
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1	DTMABP7819VG 12A					
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMA (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	RRUS-11 B12		
RRH - 850 band (QTY/MODEL)			1	4478 B5			
RRH - 1900 band (QTY/MODEL)			1	RRUS-32 B2			
RRH - AWS band (QTY/MODEL)			1	4426 B66			
RRH - WCS band (QTY/MODEL)				1	RRUS-32 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 (AolG)	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			CTV20403	CTV20403		UMTS 850	00T-RET-850MHz_0	16.1	20	2	NONE	Andrew 1-5/B (850)	154.04						529.66		17	
ANTENNA POSITION 3	PORT 1			CTL02040_8C_1	CTL02040_8C_1		LTE 850	L2_851MHz_020T	15.28	260	2	TOP	FIBER	0						1000		21	
	PORT 2			CTCN002040_N 095C_1	CTCN002040_N 095C_1		5G 850	L2_851MHz_020T	15.28	260	2	TOP	FIBER	0						1000		21	
	PORT 3			CTL02040_9C_1	CTL02040_9C_1		LTE 1900	L2_1930MHz_04DT	16.23	260	4	TOP	FIBER	0						3664.3757		22	
	PORT 4			CTL02040_9C_2	CTL02040_9C_2		LTE 1900	L2_1930MHz_04DT	16.23	260	4	TOP	FIBER	0						3664.3757		22	
	PORT 7			CTL02040_2C_2	CTL02040_2C_2		LTE AWS	L2_2130MHz_04DT	16.14	260	4	TOP	FIBER	0						3837.0724		22	

ANTENNA POSITION 4	PORT 1		CTL02040_7C_1	CTL02040_7C_1	LTE 700	HB_719MHZ_02 DT	14.28	260	2	TOP	FIBER	0						1475.7065	23
	PORT 3		CTL02040_3C_1	CTL02040_3C_1	LTE WCS	HB_2360MHZ_03 DT	17.45	260	3	TOP	FIBER	0						1285.2866	24



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?		Yes					
ANTENNA MAKE - MODEL	DMP66R-BUKDA						
ANTENNA VENDOR	CCI						
ANTENNA SIZE (H x W x D)	71.2x20.7x7.7						
ANTENNA WEIGHT	79.4						
AZIMUTH	20						
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	70						
ANTENNA TIP HEIGHT	73						
MECHANICAL DOWNTILT	0						
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Bulk-In RET						
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)	1	4449 B5/B12	1	4478 B14			
RRH - 850 band (QTY/MODEL)		with another band					
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)	1	Y Cable					
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	Arrange antenna and radio positions as per PD.Swap LTE antenna with 8 port antenna. Swap and add radios. Add IDLe and Y cable.						
Local Market Note 2							
Local Market Note 3	1x6601 / 1x5216 / 2x20MU03 / 1x6630 + IDLe						

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/IT 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(casing)
ANTENNA POSITION 1	PORT 1		61171.A.700.4G_1	CTL02040_7A_1	CTL02040_7A_1		LTE 700	BUSD_725MHz_G4DT	13	20	4	TOP	FIBER	0						1475.7065		7	
	PORT 2		61171.A.850.4G_1	CTL02040_8A_1	CTL02040_8A_1		LTE 850	BUSD_850MHz_G4DT	13.1	20	4	TOP	FIBER	0						1475.7065		7	
	PORT 5		61171.A.850.5G_1	CTCN002040_N026A_1	CTCN002040_N026A_1		5G 850	BUSD_850MHz_G4DT	13.1	20	4	TOP	FIBER	0						1475.7065		7	
ANTENNA POSITION 2	PORT 1		61171.A.700.4G_5	CTL02040_7A_3_F	CTL02040_7A_3_F		LTE 700	L2_776MHz_04DT	14.9	20	4	TOP	FIBER	0						1000		5	

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?		Yes					
ANTENNA MAKE - MODEL	DMP6SR-BUKDA						
ANTENNA VENDOR	CCI						
ANTENNA SIZE (H x W x D)	71.2x20.7x7.7						
ANTENNA WEIGHT	79.4						
AZIMUTH	150						
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	70						
ANTENNA TIP HEIGHT	73						
MECHANICAL DOWNTILT	0						
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Bulk-In RET						
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)	1	4449 B5/B12	1	4478 B14			
RRH - 850 band (QTY/MODEL)		with another band					
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)	1	Y Cable					
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	Arrange antenna and radio positions as per PD.Swap LTE antenna with 8 port antenna. Swap and add radios. Add IDLe and Y cable.						
Local Market Note 2							
Local Market Note 3	1x6601 / 1x5216 / 2x20MU03 / 1x6630 + IDLe						

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/IT 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(casing)
ANTENNA POSITION 1	PORT 1		61171.B.700.4G_1	CTL02040_7B_1	CTL02040_7B_1		LTE 700	BUSD_725MHz_GSDT	12.9	150	5	TOP	FIBER	0						1475.7065		15	
	PORT 2		61171.B.850.4G_1	CTL02040_8B_1	CTL02040_8B_1		LTE 850	BUSD_850MHz_GSDT	13.1	150	5	TOP	FIBER	0						1475.7065		15	
	PORT 5		61171.B.850.5G_1	CTCN002040_N 0205_1	CTCN002040_N 0205_1		5G 850	BUSD_850MHz_GSDT	13.1	150	5	TOP	FIBER	0						1475.7065		15	
ANTENNA POSITION 2	PORT 1		61171.B.700.4G_5	CTL02040_7B_3 F	CTL02040_7B_3 F		LTE 700	L2_776MHz_05D T	14.95	150	5	TOP	FIBER	0						1000		13	

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?		Yes					
ANTENNA MAKE - MODEL	DMP6SR-BUEDA						
ANTENNA VENDOR	CCI						
ANTENNA SIZE (H x W x D)	71.2x20.7x7.7						
ANTENNA WEIGHT	79.4						
AZIMUTH	260						
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	70						
ANTENNA TIP HEIGHT	73						
MECHANICAL DOWNTILT	0						
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Built-in RET						
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMA5 (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 B5/B12	1	4478 B14			
RRH - 850 band (QTY/MODEL)		with another band					
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)	1	Y Cable					
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1		and radio positions as per					
Local Market Note 2							
Local Market Note 3		1.2xXMU03 / 1x6630 + IDLE					

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(casing)
ANTENNA POSITION 1	PORT 1		61171.C.700.4G_1	CTL02040_7C_1	CTL02040_7C_1		LTE 700	BUSD_725MHz_02DT	13.2	260	2	TOP	FIBER	0						1475.7065		23	
	PORT 2		61171.C.850.4G_1	CTL02040_8C_1	CTL02040_8C_1		LTE 850	BUSD_850MHz_02DT	13.1	260	2	TOP	FIBER	0						1475.7065		23	
	PORT 5		61171.C.850.5G_1	CTCN002040_N 095C_1	CTCN002040_N 095C_1		5G 850	BUSD_850MHz_02DT	13.1	260	2	TOP	FIBER	0						1475.7065		23	
ANTENNA POSITION 2	PORT 1		61171.C.700.4G_5	CTL02040_7C_3 F	CTL02040_7C_3 F		LTE 700	L2_776MHz_02DT	14.78	260	2	TOP	FIBER	0						1000		21	

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	DMP65R-BUSDA	EPBQ-654L8H6-L2		AM-X-CD-16-65-00T-RET			
ANTENNA VENDOR	CCI	KMW		KMW			
ANTENNA SIZE (H x W x D)	71.2X20.7X7.7	73X21X6.3		72X11.8X5.9			
ANTENNA WEIGHT	79.4	72.8		48.5			
AZIMUTH	20	20		150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	70	70		70			
ANTENNA TIP HEIGHT	73	73		73			
MECHANICAL DOWNTILT	0	0		0			
FEEDER AMOUNT				2			
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Bulk-In RET	Bulk-In RET		Bulk-In RET			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)				2	CM1007-DBPVC-003		
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)				1	860-10006		
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)				1	DTMABP7819VG 12A		
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMA (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)	1	DC6-48-60-08F	2	DC6-48-60-18-8F			
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)	1	4449 B5/B12	1	4478 B14			
RRH - 850 band (QTY/MODEL)		with another band					
RRH - 1900 band (QTY/MODEL)			1	RRUS-32 B2			
RRH - AWS band (QTY/MODEL)			1	4426 B66			
RRH - WCS band (QTY/MODEL)	1	RRUS-32 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)	1	Y Cable					
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	Arrange antenna and radio positions as per PD.Swap LTE antenna with 8 port antenna. Swap and add radios. Add Idle and Y cable.						
Local Market Note 2							
Local Market Note 3	1x6601 / 1x5216 / 2x20M03 / 1x6630 + Idle						

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/IT 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(casing)
ANTENNA POSITION 1	PORT 1	61171.A.700.4G.1	61171.A.700.4G.1	CTL02040_7A_1	CTL02040_7A_1		LTE 700	BUSD_725MHz_04DT	13	20	4	TOP	FIBER	0						1475.7065		7	
	PORT 2	61171.A.850.4G.1	61171.A.850.4G.1	CTL02040_8A_1	CTL02040_8A_1		LTE 850	BUSD_850MHz_04DT	13.1	20	4	TOP	FIBER	0						1475.7065		7	
	PORT 3	61171.A.WCS.4.G.1	61171.A.WCS.4.G.1	CTL02040_3A_1	CTL02040_3A_1		LTE WCS	BUSD_235MHz_03DT	17.2	20	3	TOP	FIBER	0						1285.2866		8	
	PORT 4	61171.A.850.5G.1	61171.A.850.5G.1	CTCN002040_N.005A_1	CTCN002040_N.005A_1		5G 850	BUSD_850MHz_04DT	13.1	20	4	TOP	FIBER	0						1475.7065		7	
	PORT 5	61171.A.700.4G.1mp5	61171.A.700.4G.5	CTL02040_7A_3.F	CTL02040_7A_3.F		LTE 700	L2 776MHz_04DT	14.9	20	4	TOP	FIBER	0						1000		5	
ANTENNA POSITION 2	PORT 3	61171.A.1900.4.G.1mp1	61171.A.1900.4.G.1	CTL00840_8A_1	CTL00840_8A_1		LTE 1900	BUAD_1930MHz_02DT	15.6	20	0	TOP	FIBER	0						3664.3757		8	

ANTENNA POSITION 4	PORT 4	61171.A.1900.4 G.1mp2	61171.A.1900.4 G.4	CTL00840_9A_2	CTL00840_9A_2	LTE 1900	BU4D_1930MHz .02DT	15.6	20	0	TOP	FIBER	0						3664.3757	6	
	PORT 7	61171.A.AWS.4 G.1mp4	61171.A.AWS.4 G.4	CTL00840_2A_2	CTL00840_2A_2	LTE AWS	BU4D_2170MHz .02DT	16.2	20	0	TOP	FIBER	0						3637.0724	6	
ANTENNA POSITION 4	PORT 1	61171.A.850.3G. 1		CTV20401	CTV20401	UMTS 850	00T- RET_850MHz_0	16.1	150	2	NONE	Andrew 1-5/8 (850)	154.04						529.66	1	

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	DMP6SR-BUGDA	EPBQ-654L8H6-L2		AM-X-CD-16-65-00T-RET			
ANTENNA VENDOR	CCI	KMW		KMW			
ANTENNA SIZE (H x W x D)	71.2X20.7X7.7	73X21X6.3		72X11.8X5.9			
ANTENNA WEIGHT	79.4	72.8		48.5			
AZIMUTH	150	150		260			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	70	70		70			
ANTENNA TIP HEIGHT	73	73		73			
MECHANICAL DOWNTILT	0	0		0			
FEEDER AMOUNT				2			
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Built-In RET	Built-In RET		Built-In RET			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)				2	CM1007-DBPXBC-003		
DIPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)				1	DTMABP7819VG 12A		
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMA5 (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	4449 B5/B12 with another band	1	4478 B14			
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)			1	RRUS-32 B2			
RRH - AWS band (QTY/MODEL)			1	4426 B66			
RRH - WCS band (QTY/MODEL)	1	RRUS-32 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)	1	Y Cable					
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	Arrange antenna and radio positions as per PD Swap LTE antenna with 8 port antenna. Swap and add radios. Add IDLs and Y cable.						
Local Market Note 2							
Local Market Note 3	1:6601 / 1:5216 / 2:XMU03 / 1:4630 = IDLs						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (AtoI)	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	61171.B.700.4G.1	61171.B.700.4G.1	CTL02040_7B_1	CTL02040_7B_1		LTE 700	BUGD_725MHz_GSDT	12.9	150	5	TOP	FIBER	0					1475.7065			15	
	PORT 2	61171.B.850.4G.1	61171.B.850.4G.1	CTL02040_8B_1	CTL02040_8B_1		LTE 850	BUGD_850MHz_GSDT	13.1	150	5	TOP	FIBER	0					1475.7065			15	
	PORT 3	61171.B.WCS.4 G.1	61171.B.WCS.4 G.1	CTL02040_3B_1	CTL02040_3B_1		LTE WCS	BUGD_235MHz_GSDT	17.2	150	3	TOP	FIBER	0					1285.2866			16	
	PORT 5	61171.B.850.5G.1	61171.B.850.5G.1	CTL002040_N 0208_1	CTL002040_N 0208_1		5G 850	BUGD_850MHz_GSDT	13.1	150	5	TOP	FIBER	0						1475.7065			15
ANTENNA POSITION 2	PORT 1	61171.B.700.4G.1mp5	61171.B.700.4G.1	CTL02040_7B_3 F	CTL02040_7B_3 F		LTE 700	L2_776MHz_05D T	14.95	150	5	TOP	FIBER	0					1000			13	
	PORT 3	61171.B.1900.4 G.1mp1	61171.B.1900.4 G.1	CTL00840_9B_1	CTL00840_9B_1		LTE 1900	BU4D_1930MHz_02DT	15.6	150	0	TOP	FIBER	0					3664.3757			14	
	PORT 4	61171.B.1900.4 G.1mp2	61171.B.1900.4 G.4	CTL00840_9B_2	CTL00840_9B_2		LTE 1900	BU4D_1930MHz_02DT	15.6	150	0	TOP	FIBER	0					3664.3757			14	

		61171.B.AWS.4 G.tmp4	61171.B.AWS.4 G.4	CTL00840_2B_2	CTL00840_2B_2		LTE_AWS	BURD_2170MHz 02DT	16.2	150	0	TOP	FIBER	0					3837.0724		14	
ANTENNA POSITION 4	PORT 1	61171.B.850.3G. 1		CTV20402	CTV20402		UMTS_850	00T- RET_850MHz_0	16.1	260	2	NONE	Andrew 1-5/B (850)	154.04					529.66		9	

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	DMP6SR-BUGDA	EPBQ-654L8H6-L2		AM-X-CD-16-65-00T-RET			
ANTENNA VENDOR	CCI	KMW		KMW			
ANTENNA SIZE (H x W x D)	71.2X20.7X7.7	73X21X6.3		72X11.8X5.9			
ANTENNA WEIGHT	79.4	72.8		48.5			
AZIMUTH	260	260		20			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	70	70		70			
ANTENNA TIP HEIGHT	73	73		73			
MECHANICAL DOWNTILT	0	0		0			
FEEDER AMOUNT				2			
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # it is of inches)							
Antenna RET Motor (QTY/MODEL)	Built-In RET	Built-In RET		Built-In RET			
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)				2	CM1007-DBPXBC-003		
DIPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)				1	DTMABP7819VG 12A		
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMA5 (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	4449 B5/B12 with another band	1	4478 B14			
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)			1	RRUS-32 B2			
RRH - AWS band (QTY/MODEL)			1	4426 B66			
RRH - WCS band (QTY/MODEL)	1	RRUS-32 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)	1	Y Cable					
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	Arrange antenna and radio positions as per PD Swap LTE antenna with 8 port antenna. Swap and add radios. Add IDLe and Y cable.						
Local Market Note 2							
Local Market Note 3	1:6601 / 1:5216 / 2:XMU03 / 1:4630 = IDLe						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (AtoI)	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	61171.C.700.4G.1mp5	61171.C.700.4G.1	CTL02040_7C.1	CTL02040_7C.1		LTE 700	BU6D_725MHz_02DT	13.2	260	2	TOP	FIBER	0					1475.7065			23	
	PORT 2	61171.C.850.4G.1	61171.C.850.4G.1	CTL02040_8C.1	CTL02040_8C.1		LTE 850	BU6D_850MHz_02DT	13.1	260	2	TOP	FIBER	0					1475.7065			23	
	PORT 3	61171.C.WCS.4 G.1	61171.C.WCS.4 G.1	CTL02040_3C.1	CTL02040_3C.1		LTE WCS	BU6D_235MHz_03DT	17.2	260	3	TOP	FIBER	0					1285.2866			24	
	PORT 5	61171.C.850.5G.1	61171.C.850.5G.1	CTLN002040_N 095C_1	CTLN002040_N 095C_1		5G 850	BU6D_850MHz_02DT	13.1	260	2	TOP	FIBER	0						1475.7065			23
ANTENNA POSITION 2	PORT 1	61171.C.700.4G.1mp5	61171.C.700.4G.1	CTL02040_7C.3 F	CTL02040_7C.3 F		LTE 700	L2_776MHz_02DT	14.78	260	2	TOP	FIBER	0					1000			21	
	PORT 3	61171.C.1900.4 G.1mp1	61171.C.1900.4 G.1	CTL00840_9C.1	CTL00840_9C.1		LTE 1900	BU4D_1930MHz_02DT	15.6	260	0	TOP	FIBER	0					3664.3757			22	
	PORT 4	61171.C.1900.4 G.1mp2	61171.C.1900.4 G.4	CTL00840_9C.2	CTL00840_9C.2		LTE 1900	BU4D_1930MHz_02DT	15.6	260	0	TOP	FIBER	0					3664.3757			22	



		61171.C.AWS.4 G.tmp4	61171.C.AWS.4 G.4	CTL00840_2C.2	CTL00840_2C.2		LTE_AWS	BURD_2170MHz 02DT	16.2	260	0	TOP	FIBER	0					3837.0724		22	
ANTENNA POSITION 4	PORT 1	61171.C.850.3G. 1		CTV20403	CTV20403		UMTS_850	00T- RET_850MHz_0	16.1	20	2	NONE	Andrew 1-5/B (850)	154.04					529.66		17	