



NSS **NORTHEAST**
SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Denise Sabo
199 Brickyard Rd Farmington, CT 06032
860-209-4690
denise@northeastsitesolutions.com

November 18, 2015

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
81 Montevideo Road, Avon CT 06001
Latitude: 41.80333
Longitude: -72.80111
T-Mobile Site#: CT11284A_L700

Dear Ms. Bachman:

T-Mobile currently maintains three antennas at the 136-foot level of the existing 150-foot self-support tower at 81 Montevideo Road, Avon Ct 06001. The tower is owned by Monte, LLC. The property is owned by Monte, LLC. T-Mobile now intends to replace one (1) of its existing antennas with one (1) new 1900/2100 MHz antenna. The antenna would be installed at the 136-foot level of the tower.

This facility was approved by the Town in application #3486 on June 11 1999. This approval included the condition(s) that If, in the future, the antennas and associated equipment should create an interference or problem with any public safety communication system, the applicant should take the necessary steps to correct the problem. This modification complies with the aforementioned condition(s).

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-SOj-73, a copy of this letter is being sent to Brandon Robertson, Town Manager for the Town of Avon, as well as the property owner and the tower owner.



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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Denise Sabo

Mobile: 860-209-4690

Fax: 413-521-0558

Office: 199 Brickyard Rd, Farmington, CT 06032

Email: denise@northeastsitesolutions.com

Attachments

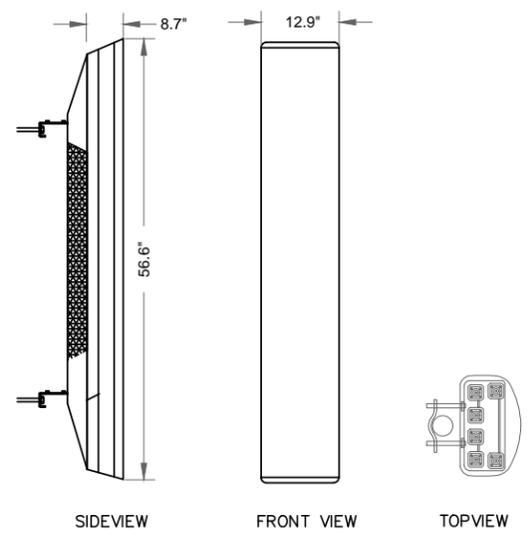
cc: Bandon Robertson- Town Manager - as elected official
Monte, LLC - as tower owner
Monte, LLC - as property owner

Exhibit A

STRUCTURAL ANALYSIS PENDING

T-Mobile
T-MOBILE NORTHEAST, LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 OFFICE: (860) 692-7100
 FAX: (860) 692-7159

ATLANTIS DESIGN GROUP, INC.
 286 Old Connecticut Path,
 Wayland, MA 01778
 Phone number: 617-852-3811
 Fax Number : 781-742-2247

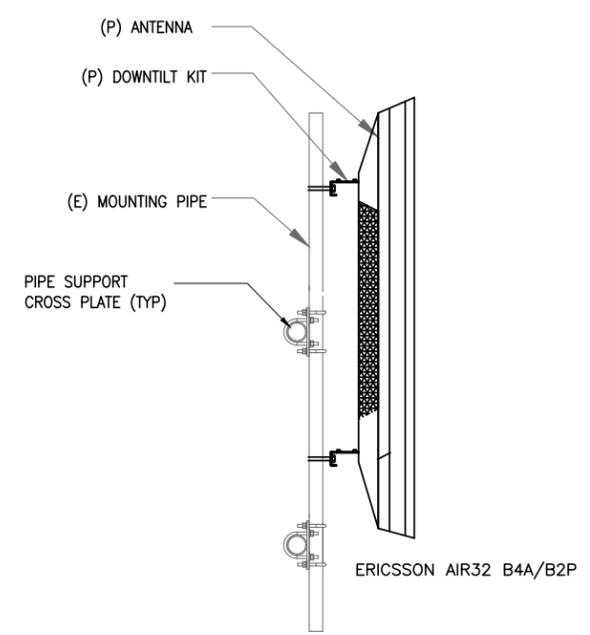


MANUFACTURER: ERICSSON
 MODEL NO.: ERICSSON AIR32 B4A/B2P
 DIMENSIONS - HxWxD, (IN) 56.6"x12.9"x8.7"

**ERICSSON AIR32 B4A/B2P
 ANTENNA DETAIL**

SCALE: N.T.S

1
 A-3



ANTENNA MOUNT DETAIL

SCALE: N.T.S

2
 A-3

| SUBMITTALS | | |
|------------|-------------------|----------|
| DATE | DESCRIPTION | REVISION |
| 10/29/15 | ISSUED FOR REVIEW | A |
| 10/29/15 | FINAL CD | 0 |
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| | | |
| | | |

| DEPT. | DATE | APP'D | REVISIONS |
|----------|------|-------|-----------|
| RFE | | | |
| RF MAN. | | | |
| ZONING | | | |
| OPS | | | |
| CONSTR. | | | |
| SITE AC. | | | |

PROJECT NO: CT11284A
 DRAWN BY: MB
 CHECKED BY: KM

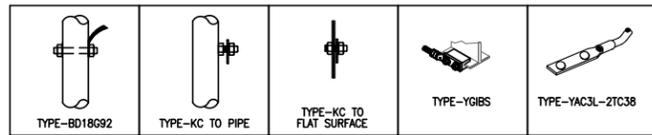


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SITE NUMBER
CT11284A
 SITE NAME
 AVON_1
 SITE ADDRESS
 81 MONTEVIDEO ROAD
 AVON, CT 06001

SHEET TITLE
 DETAILS

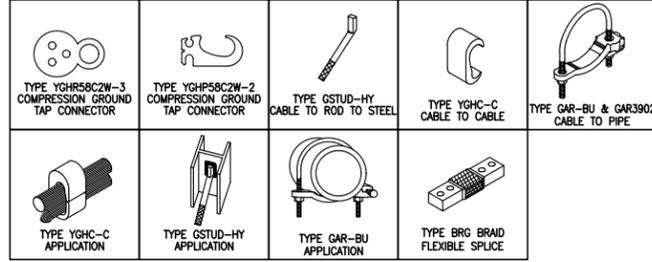
SHEET NUMBER
A-3



BURNDY GROUNDING DETAILS

SCALE: N.T.S.

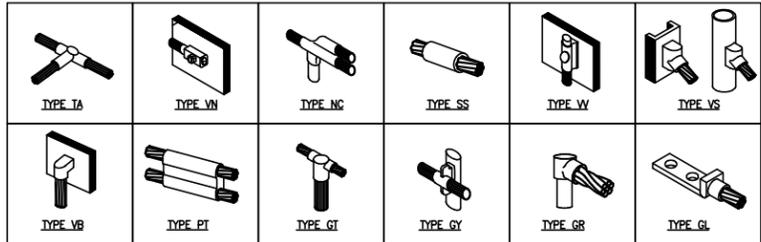
1
E-2



BURNDY GROUNDING PRODUCTS

SCALE: N.T.S.

2
E-2



CADWELD GROUNDING CONNECTION PRODUCTS

SCALE: N.T.S.

3
E-2

TERMINATION TYPES:

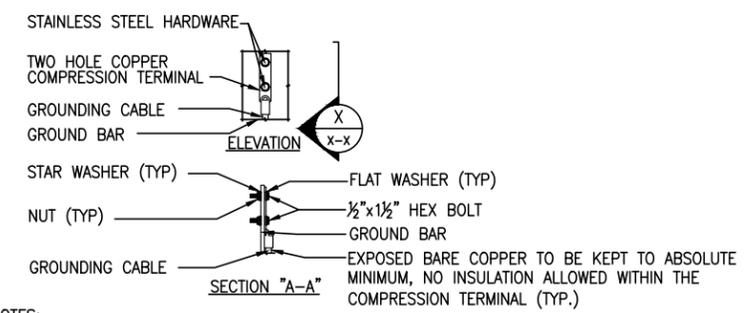
- A. MECHANICAL COMPRESSION LUG
- B. DOUBLE BARRELL COMPRESSION CONNECTOR
- C. EXOTHERMIC TERMINATION
- D. BEAM CLAMP

| | SOLID #2 TINNED COPPER | #6 GROUND LEAD | #2/0 STRANDED MAIN DOWN CONDUCTOR | MASTER GRND BAR | STRUCTURAL OR TOWER STEEL | BLDG SERVICE ENTR OR GRND RING | GROUND ROD |
|---|------------------------|----------------|-----------------------------------|-----------------|---------------------------|--------------------------------|------------|
| SOLID #2 TINNED COPPER | B OR C | B OR C | | C | A, C, OR D | | C |
| #6 GROUND LEAD | B OR C | | | A | A, C, OR D | | |
| #2/0 STRANDED GRNDG ELECTRODE CONDUCTOR | | | A | A | A, C, OR D | A | |
| MASTER GROUND BAR | C | A | A | | | | |
| STRUCTURAL OR TOWER STEEL GROUND RING | A, C, OR D | A, C, OR D | A, C, OR D | | | | |

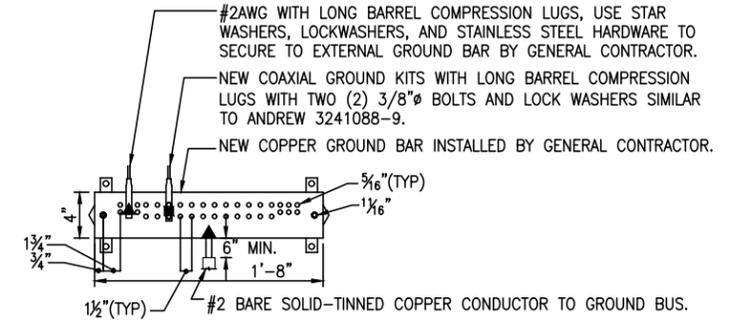
GROUNDING TERMINATION MARTIX

SCALE: N.T.S.

4
E-2



- NOTES:
- OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

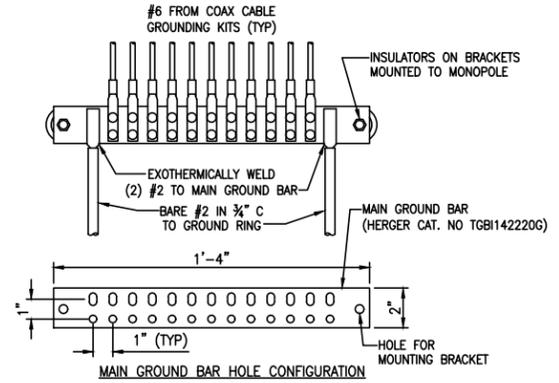


- NOTES:
- ALL HARDWARE STAINLESS STEEL COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
 - FOR GROUND BOND TO STEEL ONLY: INSERT A TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH KOPR-SHIELD.
 - ALL HOLES ARE COUNTERSUNK 1/8".

TYPICAL GROUND BAR CONNECTIONS DETAIL

SCALE: N.T.S.

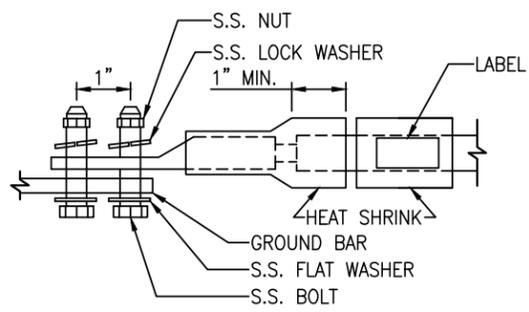
5
E-2



GROUND BAR DETAIL

SCALE: N.T.S.

6
E-2



- LUG NOTES:
- ALL HARDWARE IS 18-8 STAINLESS STEEL, INCLUDING LOCK WASHERS.
 - ALL HARDWARE SHALL BE S.S. 3/8" OR LARGER.
 - FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH ANTI-OXIDIZATION COMPOUND PRIOR TO MATING.

GROUND BAR DETAIL

SCALE: N.T.S.

7
E-2

T-Mobile
T-MOBILE NORTHEAST, LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 OFFICE: (860) 692-7100
 FAX: (860) 692-7159

ATLANTIS DESIGN GROUP, INC.
 286 Old Connecticut Path,
 Wayland, MA 01778
 Phone number: 617-852-3611
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| SUBMITTALS | | |
|------------|-------------------|----------|
| DATE | DESCRIPTION | REVISION |
| 10/29/15 | ISSUED FOR REVIEW | A |
| 10/29/15 | FINAL CD | 0 |

| DEPT. | DATE | APP'D | REVISIONS |
|----------|------|-------|-----------|
| RFE | | | |
| RF MAN. | | | |
| ZONING | | | |
| OPS | | | |
| CONSTR. | | | |
| SITE AC. | | | |

| | |
|-------------|----------|
| PROJECT NO: | CT11284A |
| DRAWN BY: | MB |
| CHECKED BY: | KM |

STATE OF CONNECTICUT
 HOSSEIN VAHEDI
 NO. ARI. 11182
 LICENSED ARCHITECT
 PROFESSIONAL SEAL

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SITE NUMBER
CT11284A
 SITE NAME
 AVON_1
 SITE ADDRESS
 81 MONTEVIDEO ROAD
 AVON, CT 06001

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
E-2

Exhibit B

**STRUCTURAL ANALYSIS REPORT
SELF SUPPORT TOWER**



Prepared For:



**35 Griffin Road South
Bloomfield, CT 06002**



**Site ID: CT11284A
Site Name: Avon_1
81 Montevideo Road
Avon, CT 06001**

November 9, 2015

Submitted By:

Atlantis Design Group, Inc.
1340 Centre Street, Suite 212
Newton, Massachusetts 02459
Phone: 617-965-0789, Fax: 617-213-5056

**STRUCTURAL ANALYSIS REPORT
SELF SUPPORT TOWER**



Prepared For:



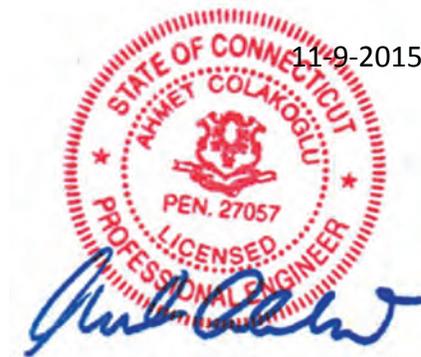
**35 Griffin Road South
Bloomfield, CT 06002**

RESULT: PASS

**Site ID: CT11284A
Site Name: Avon_1
81 Montevideo Road
Avon, CT 06001**

Prepared By:

**Destek Engineering, LLC
Professional Engineering Corporation
License # PEC 001429**



**Ahmet Colakoglu, P.E.
Connecticut Professional Engineer
License No: 27057**

CONTENTS

1.0 – SUBJECT AND REFERENCES

1.1 – STRUCTURE

2.0 – EXISTING AND PROPOSED APPURTENANCES

3.0 – CODES AND LOADING

4.0 – STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING
STRUCTURES

5.0 – ANALYSIS AND ASSUMPTIONS

6.0 – RESULTS AND CONCLUSION

APPENDICES

A –SOFTWARE OUTPUT

1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of the existing 150 feet tall self-support tower located at 81 Montevideo Road, Avon, CT, 06001 for additions and alterations proposed by T-Mobile.

The structural analysis is based on the following documentation provided to Destek Engineering, LLC (Destek):

- Structural Analysis for CT11284A prepared by EBI Consulting, dated 09/12/2014.
- Network Modernization RFDS v3.0 provided by T-Mobile, dated 10/15/2015.

1.1 STRUCTURE

The subject structure is a 3-sided, 150'-0" tall self-support tower formed by (7) 20' sections and (1) 10' sections. The top (3) sections are solid rod legs X-braced with solid rod diagonals. The remaining sections are formed by truss legs X-braced with single angle diagonals. The tower is 5' wide at the top and 14' wide at the base with a slope change at 90'. Please refer to the software output in Appendix A for tower geometry, member sizes, and other details.

2.0 EXISTING AND PROPOSED APPURTENANCES

Proposed changes to the antennas are tabulated below:

Existing Configuration of T-Mobile Appurtenances:

| Rad Center (ft) | Antenna & TMA | Mount Type | Feedlines |
|-----------------|--|------------------|-------------------------------|
| 136.0 | (1) AIR21 B4A/B12P (1) AIR21 B2A/B4P (1) LNX-6515DS-VTM (1) dd B4 TMA (1) RRUS11 B12 | (1) Sector Mount | (4) 1-5/8" (1) Fiber Cable |

Proposed and Final Configuration of T-Mobile Appurtenances:

| Rad Center (ft) | Antenna & TMA | Mount Type | Feedlines |
|-----------------|--|------------------|-------------------------------|
| 136.0 | (1) AIR32 B4A/B12P (1) AIR21 B2A/B4P (1) LNX-6515DS-VTM (1) dd B4 TMA (1) RRUS11 B12 | (1) Sector Mount | (4) 1-5/8" (1) Fiber Cable |

Existing Appurtenances by Others:

| Rad Center (ft) | Antenna & TMA | Mount Type | Feedlines |
|-----------------|---|------------------------------------|---------------------------------|
| 149.0 | (1) 4' Lightning Rod | Leg | - |
| 149.0 | (1) 8' Omni | Leg | (1) 7/8" |
| 147.0 | (3) APXVSP18-C (3) APXV9TM14-ALU-120 (3) TD-RRH 8x20W | (2) Sector Frames (1) Stand-off | (6) 1-OC-144 Power/Fiber Cables |
| 145.0 | (3) 1900 MHz 4x40W RRH (3) 800 MHz 2x50W RRH | | |
| 121.0 | (1) 15' Omni | (1) Stand-off | (1) 7/8" |
| 117.0 | (1) 20' Omni | (1) Stand-off | (1) 1-1/4" |
| 108.0 | (1) 10' Dipole | (1) Stand-off | (1) 7/8" |
| 105.0 | (1) 8' Omni | (1) Stand-off | (1) 1-1/4" |
| 102.0 | (1) 8' Omni | Leg | (1) 1/2" |
| 98.0 | (1) 12' Omni | (1) Stand-off | (1) 7/8" |
| 84.0 | (1) 4' Parabolic Dish | (1) Stand-off | (1) 1/4" |
| 78.0 | (1) 4' Parabolic Dish | (1) Stand-off | (1) 1/4" |
| 74.0 | (1) GPS | Leg | (1) 1/2" |
| 72.0 | (1) 4' Parabolic Dish | (1) Stand-off | (1) 1/4" |
| 67.0 | (1) GPS | Leg | (1) 1/4" |
| 12.0 | (1) GPS | Leg | (2) 1/2" |

3.0 CODES AND LOADING

The tower was analyzed per *TIA/EIA-222-F* as referenced by *2005 Connecticut State Building Code* with all of the adopted Addendums and Supplements, International Code Council. The following wind loading was used in compliance with the standard for Hartford County:

- Basic wind speed 80 mph without ice (W)
- Basic wind speed 38 mph with 1" radial escalating ice (W_i)

The following load combinations were used with wind blowing at 0°, 60° and 90°, measured from a line normal to the face of the tower.

- $D + W_o$
- $D + W_i + I$

D: Dead Load

W_o : Wind Load, without ice

W_i : Wind Load with ice

I: Ice Gravity Load

4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

The analysis is based on the information provided to Destek and is assumed to be current and correct. Unless otherwise noted, the structure and the foundation system are assumed to be in good condition, free of defects and can achieve theoretical strength.

It is assumed that the structure has been maintained and shall be maintained during its service. The superstructure and the foundation system are assumed to be designed with proper engineering practice and fabricated, constructed and erected in accordance with the design documents. Destek will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, etc. or lack of maintenance.

The analysis results presented in this report are only applicable for the previously mentioned existing and proposed additions and alterations. Any deviation of the proposed equipment and placement, etc., will require Destek to generate an additional structural analysis.

5.0 ANALYSIS AND ASSUMPTIONS

The tower was analyzed by utilizing tnxTower, a non-linear, three-dimensional, finite element-analysis software package, a product of Tower Numerics, Inc. Software output for this analysis is provided in Appendix A of this report.

6.0 RESULTS AND CONCLUSION

Based on an analysis per *TIA/EIA-222-F*, the existing tower is found to have **adequate** structural capacity for the proposed modifications by T-Mobile. For the aforementioned load combinations and as a maximum, the tower diagonals between 110 feet and 130 feet are stressed to **60.4%** of capacity. Maximum usage of the tower legs and bottom girts are **59.8%** and **56.5%**.

The tower foundation could not be analyzed due to lack of information.

Reactions:

| Maximums | Destek Analysis |
|-------------------------|-----------------|
| Base Compression (kips) | 139.0 |
| Base Uplift (kips) | 121.8 |
| Base Shear (kips) | 13.3 |
| Base Moment (kip-ft) | 1598 |

Therefore, the proposed additions and alterations by T-Mobile can be implemented as intended with the conditions outlined in this report.

Should you have any questions about this report, please contact Ahmet Colakoglu at (770) 693-0835 or acolakoglu@destekengineering.com.

APPENDIX A
SOFTWARE OUTPUT

DESIGNED APPURTENANCE LOADING

| TYPE | ELEVATION | TYPE | ELEVATION |
|---------------------------------|-----------|-------------------|-----------|
| 2" Dia 8'Omni | 149 | RRUS 11 B12 | 136 |
| Lighting Rod | 149 | dd B4 TMA | 136 |
| APXVSP18-C-A20 w/ Mount Pipe | 147 | Valmont 10' Frame | 136 |
| APXVSP18-C-A20 w/ Mount Pipe | 147 | 15' Omni | 121 |
| APXVSP18-C-A20 w/ Mount Pipe | 147 | 6' Side Arm Mount | 121 |
| APXV9TM14-ALU-I20 w/ Mount Pipe | 147 | 20' Omni | 117 |
| APXV9TM14-ALU-I20 w/ Mount Pipe | 147 | 6' Side Arm Mount | 117 |
| APXV9TM14-ALU-I20 w/ Mount Pipe | 147 | 10' Dipole | 108 |
| PIROD 12' Lightweight T-Frame | 147 | 6' Side Arm Mount | 108 |
| PIROD 12' Lightweight T-Frame | 147 | 8' Whip | 105 |
| 2' Side Arm Mount | 147 | 4' Side Arm Mount | 105 |
| TD-RRH8x20 | 147 | 8' Omni | 102 |
| TD-RRH8x20 | 147 | 12' Omni | 98 |
| TD-RRH8x20 | 147 | 6' Side Arm Mount | 98 |
| 1900MHz 4X40W RRH | 145 | 3' Side Arm Mount | 84 |
| 1900MHz 4X40W RRH | 145 | 4' Dish | 84 |
| 1900MHz 4X40W RRH | 145 | 3' Side Arm Mount | 78 |
| 800MHz 2X50W RRH | 145 | 4' Dish | 78 |
| 800MHz 2X50W RRH | 145 | GPS | 74 |
| 800MHz 2X50W RRH | 145 | 3' Side Arm Mount | 72 |
| AIR21 B2A/B4P with pipe | 136 | 4' Dish | 72 |
| AIR 32 B4A/B2P w/ Mount Pipe | 136 | GPS | 67 |
| LNX-6515DS-VTM w/ Mount Pipe | 136 | GPS | 12 |

SYMBOL LIST

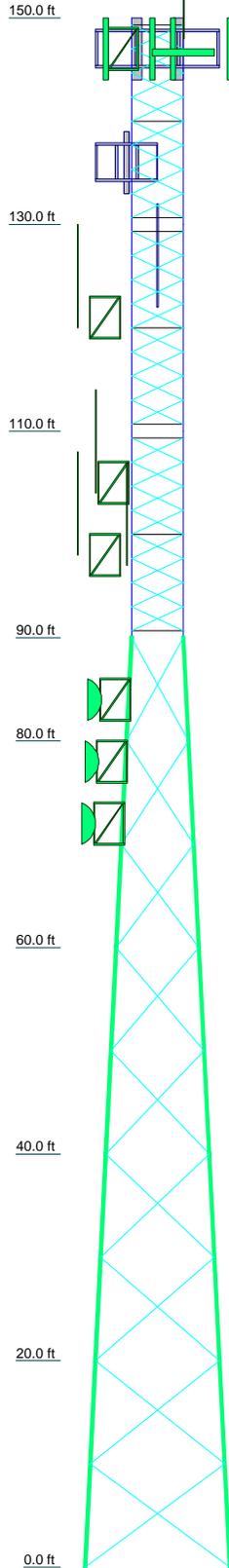
| MARK | SIZE | MARK | SIZE |
|------|----------------|------|------|
| A | Valmont 216415 | | |

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

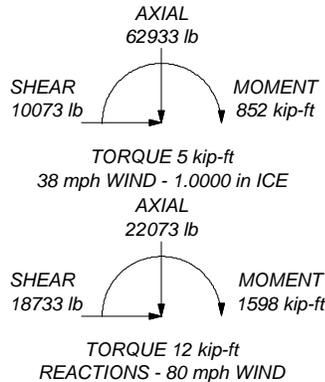
1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 60.4%



MAX. CORNER REACTIONS AT BASE:

DOWN: 138963 lb
SHEAR: 13288 lb

UPLIFT: -121778 lb
SHEAR: 11771 lb



| | | |
|------|-----------------|--------|
| T1 | SR 1 3/4" solid | 1153.3 |
| T2 | SR 2" solid | 1308.6 |
| T3 | SR 2 1/4" solid | 1707.5 |
| T4 | A | 1127.6 |
| T5 | Valmont 216413 | 2320.1 |
| T6 | A572-50 | 2822.6 |
| T7 | Valmont 195557 | 2950.3 |
| T8 | | 3047.3 |
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| T100 | | |

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|--|--|---|---|
| | Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | | Job: CT11284A Project: 1564017 |
| | Client: T-Mobile Code: TIA/EIA-222-F Path: | Drawn by: Ahmet Colakoglu Date: 11/09/15 | App'd: Scale: NTS Dwg No. E-1 |

| | | |
|--|---------------------------|---------------------------------------|
| <p>tnxTower</p> <p>Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX:</p> | Job CT11284A | Page 1 of 35 |
| | Project 1564017 | Date 17:33:12 11/09/15 |
| | Client T-Mobile | Designed by Ahmet Colakoglu |

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 150.00 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 5.00 ft at the top and 14.00 ft at the base.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

Basic wind speed of 80 mph.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 38 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 50 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

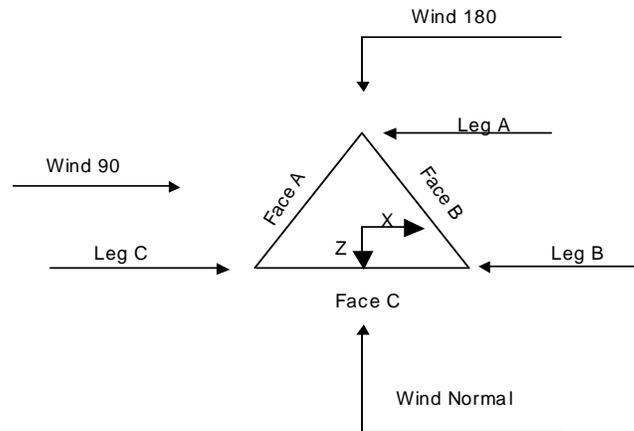
Stress ratio used in tower member design is 1.333.

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

Options

| | | |
|--|--|--|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys √ Escalate Ice Always Use Max Kz Use Special Wind Profile √ Include Bolts In Member Capacity Leg Bolts Are At Top Of Section √ Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) Add IBC .6D+W Combination | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area √ Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas SR Members Have Cut Ends √ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Use TIA-222-G Tension Splice Capacity Exemption | <ul style="list-style-type: none"> Treat Feedline Bundles As Cylinder Use ASCE 10 X-Brace Ly Rules √ Calculate Redundant Bracing Forces Ignore Redundant Members in FEA √ SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feedline Torque √ Include Angle Block Shear Check <p style="text-align: center;">Poles</p> <ul style="list-style-type: none"> Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets |
|--|--|--|

| | | |
|---|---------------------------|---------------------------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job CT11284A | Page 2 of 35 |
| | Project 1564017 | Date 17:33:12 11/09/15 |
| | Client T-Mobile | Designed by Ahmet Colakoglu |



Triangular Tower

Tower Section Geometry

| Tower Section | Tower Elevation | Assembly Database | Description | Section Width | Number of Sections | Section Length |
|---------------|-----------------|-------------------|-------------|---------------|--------------------|----------------|
| | <i>ft</i> | | | <i>ft</i> | | <i>ft</i> |
| T1 | 150.00-130.00 | | | 5.00 | 1 | 20.00 |
| T2 | 130.00-110.00 | | | 5.00 | 1 | 20.00 |
| T3 | 110.00-90.00 | | | 5.00 | 1 | 20.00 |
| T4 | 90.00-80.00 | | | 5.00 | 1 | 10.00 |
| T5 | 80.00-60.00 | | | 6.00 | 1 | 20.00 |
| T6 | 60.00-40.00 | | | 8.00 | 1 | 20.00 |
| T7 | 40.00-20.00 | | | 10.00 | 1 | 20.00 |
| T8 | 20.00-0.00 | | | 12.00 | 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 |
|---------------|-----------------|------------------|--------------|------------------------|-----------------|-----------------|--------------------|
| | <i>ft</i> | <i>ft</i> | | | | <i>in</i> | <i>in</i> |
| T1 | 150.00-130.00 | 2.33 | X Brace | No | No | 8.0000 | 8.0000 |
| T2 | 130.00-110.00 | 2.33 | X Brace | No | No | 8.0000 | 8.0000 |
| T3 | 110.00-90.00 | 2.33 | X Brace | No | No | 8.0000 | 8.0000 |
| T4 | 90.00-80.00 | 10.00 | X Brace | No | No | 0.0000 | 0.0000 |
| T5 | 80.00-60.00 | 10.00 | X Brace | No | No | 0.0000 | 0.0000 |
| T6 | 60.00-40.00 | 10.00 | X Brace | No | No | 0.0000 | 0.0000 |
| T7 | 40.00-20.00 | 10.00 | X Brace | No | No | 0.0000 | 0.0000 |

| | | | | |
|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 3 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

| Tower Section | Tower Elevation | Diagonal Spacing | Bracing Type | Has K Brace End Panels | Has Horizontals | Top Girt Offset | Bottom Girt Offset |
|---------------|-----------------|------------------|--------------|------------------------|-----------------|-----------------|--------------------|
| | ft | ft | | No | No | in | in |
| T8 | 20.00-0.00 | 10.00 | X Brace | No | No | 0.0000 | 0.0000 |

Tower Section Geometry (cont'd)

| Tower Elevation | Leg Type | Leg Size | Leg Grade | Diagonal Type | Diagonal Size | Diagonal Grade |
|------------------|-------------|----------------|------------------|---------------|---------------|------------------|
| ft | | | | | | |
| T1 150.00-130.00 | Solid Round | 1 3/4" solid | A572-50 (50 ksi) | Solid Round | 7/8 | A572-50 (50 ksi) |
| T2 130.00-110.00 | Solid Round | 2" solid | A572-50 (50 ksi) | Solid Round | 7/8 | A572-50 (50 ksi) |
| T3 110.00-90.00 | Solid Round | 2 1/4" solid | A572-50 (50 ksi) | Solid Round | 1 | A572-50 (50 ksi) |
| T4 90.00-80.00 | Truss Leg | Valmont 216415 | A572-50 (50 ksi) | Single Angle | L3x3x5/16 | A36 (36 ksi) |
| T5 80.00-60.00 | Truss Leg | Valmont 216413 | A572-50 (50 ksi) | Single Angle | L3x3x5/16 | A36 (36 ksi) |
| T6 60.00-40.00 | Truss Leg | Valmont 195557 | A572-50 (50 ksi) | Single Angle | L3x3x5/16 | A36 (36 ksi) |
| T7 40.00-20.00 | Truss Leg | Valmont 195557 | A572-50 (50 ksi) | Single Angle | L3x3x5/16 | A36 (36 ksi) |
| T8 20.00-0.00 | Truss Leg | Valmont 195557 | A572-50 (50 ksi) | Single Angle | L3x3x5/16 | A36 (36 ksi) |

Tower Section Geometry (cont'd)

| Tower Elevation | Top Girt Type | Top Girt Size | Top Girt Grade | Bottom Girt Type | Bottom Girt Size | Bottom Girt Grade |
|------------------|---------------|---------------|------------------|------------------|------------------|-------------------|
| ft | | | | | | |
| T1 150.00-130.00 | Solid Round | 1 | A572-50 (50 ksi) | Solid Round | 1 | A572-50 (50 ksi) |
| T2 130.00-110.00 | Solid Round | 1 | A572-50 (50 ksi) | Solid Round | 1 | A572-50 (50 ksi) |
| T3 110.00-90.00 | Solid Round | 1 1/4 | A572-50 (50 ksi) | Solid Round | 1 1/4 | A572-50 (50 ksi) |

Tower Section Geometry (cont'd)

| Tower Elevation | No. of Mid Girts | Mid Girt Type | Mid Girt Size | Mid Girt Grade | Horizontal Type | Horizontal Size | Horizontal Grade |
|------------------|------------------|---------------|---------------|------------------|-----------------|-----------------|------------------|
| ft | | | | | | | |
| T1 150.00-130.00 | 1 | Solid Round | 1 | A572-50 (50 ksi) | Pipe | | A572-50 (50 ksi) |
| T2 130.00-110.00 | 1 | Solid Round | 1 | A572-50 (50 ksi) | Pipe | | A572-50 (50 ksi) |
| T3 110.00-90.00 | 1 | Solid Round | 1 1/4 | A572-50 | Pipe | | A572-50 |

| | | | | |
|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 5 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

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

Tower Section Geometry (cont'd)

| Tower Elevation ft | Truss-Leg K Factors | | | | | |
|-----------------------|--------------------------------|-------------------|-------------------|----------------------------------|-------------------|-------------------|
| | Truss-Legs Used As Leg Members | | | Truss-Legs Used As Inner Members | | |
| | Leg Panels | X Brace Diagonals | Z Brace Diagonals | Leg Panels | X Brace Diagonals | Z Brace Diagonals |
| T4 90.00-80.00 | 1 | 0.5 | 0.85 | 1 | 0.5 | 0.85 |
| T5 80.00-60.00 | 1 | 0.5 | 0.85 | 1 | 0.5 | 0.85 |
| T6 60.00-40.00 | 1 | 0.5 | 0.85 | 1 | 0.5 | 0.85 |
| T7 40.00-20.00 | 1 | 0.5 | 0.85 | 1 | 0.5 | 0.85 |
| T8 20.00-0.00 | 1 | 0.5 | 0.85 | 1 | 0.5 | 0.85 |

Tower Section Geometry (cont'd)

| Tower Elevation ft | Leg | | Diagonal | | Top Girt | | Bottom Girt | | Mid Girt | | Long Horizontal | | Short Horizontal | |
|-----------------------|---------------------------|---|---------------------------|------|---------------------------|------|---------------------------|------|---------------------------|------|---------------------------|------|---------------------------|------|
| | 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 150.00-130.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |
| T2 130.00-110.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |
| T3 110.00-90.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |
| T4 90.00-80.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |
| T5 80.00-60.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |
| T6 60.00-40.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |
| T7 40.00-20.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |
| T8 20.00-0.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |

Tower Section Geometry (cont'd)

| Tower Elevation ft | Leg Connection Type | Leg | | Diagonal | | Top Girt | | Bottom Girt | | Mid Girt | | Long Horizontal | | Short Horizontal | |
|-----------------------|---------------------|-----------------|-----|-----------------|-----|-----------------|-----|-----------------|-----|-----------------|-----|-----------------|-----|------------------|-----|
| | | Bolt Size in | No. | Bolt Size in | No. |
| T1 150.00-130.00 | Sleeve DS | 0.6250 | 5 | A325N | | 0.6250 | 0 | A325N | | 0.6250 | 0 | A325N | | 0.6250 | 0 |
| T2 130.00-110.00 | Sleeve DS | 0.7500 | 5 | A325N | | 0.6250 | 0 | A325N | | 0.6250 | 0 | A325N | | 0.6250 | 0 |

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|---|---------------------------|---------------------------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job CT11284A | Page 6 of 35 |
| | Project 1564017 | Date 17:33:12 11/09/15 |
| | Client T-Mobile | Designed by Ahmet Colakoglu |

| Tower Elevation ft | Leg Connection Type | Leg | | Diagonal | | Top Girt | | Bottom Girt | | Mid Girt | | Long Horizontal | | Short Horizontal | |
|--------------------|---------------------|-----------------|-----|-----------------|-----|-----------------|-----|-----------------|-----|-----------------|-----|-----------------|-----|------------------|-----|
| | | Bolt Size in | No. | Bolt Size in | No. |
| T3 110.00-90.00 | Flange | 1.0000 A325N | 6 | 0.6250 A325N | 0 | 0.6250 A325N | 0 |
| T4 90.00-80.00 | Flange | 1.0000 A325N | 6 | 1.2500 A325N | 1 | 0.6250 A325N | 0 | 0.6250 A325N | 0 | 0.6250 A325N | 0 | 0.6250 A325N | 0 | 0.6250 A325N | 0 |
| T5 80.00-60.00 | Flange | 1.0000 A325N | 6 | 1.2500 A325N | 1 | 0.6250 A325N | 0 | 0.6250 A325N | 0 | 0.6250 A325N | 0 | 0.6250 A325N | 0 | 0.6250 A325N | 0 |
| T6 60.00-40.00 | Flange | 1.0000 A325N | 6 | 1.2500 A325N | 1 | 0.6250 A325N | 0 | 0.6250 A325N | 0 | 0.6250 A325N | 0 | 0.6250 A325N | 0 | 0.6250 A325N | 0 |
| T7 40.00-20.00 | Flange | 1.0000 A325N | 6 | 1.2500 A325N | 1 | 0.7500 A325N | 0 | 0.6250 A325N | 0 | 0.6250 A325N | 0 | 0.7500 A325N | 0 | 0.6250 A325N | 0 |
| T8 20.00-0.00 | Flange | 1.0000 A687 | 6 | 1.2500 A325N | 1 | 0.7500 A325N | 0 | 0.6250 A325N | 0 | 0.6250 A325N | 0 | 0.7500 A325N | 0 | 0.6250 A325N | 0 |

Feed Line/Linear Appurtenances - Entered As Round Or Flat

| Description | Face or Leg | Allow Shield | Component Type | Placement ft | Total Number | Number Per Row | Clear Spacing in | Width or Diameter in | Perimeter in | Weight plf |
|----------------------------------|-------------|--------------|----------------|---------------|--------------|----------------|------------------|----------------------|--------------|------------|
| LDF5-50A(7/8") ***T-Mobile*** | C | Yes | Ar (CfAe) | 150.00 - 0.00 | 1 | 1 | 1.0900 | 1.0900 | | 0.33 |
| LDF7-50A(1-5/8") | C | Yes | Ar (CfAe) | 136.00 - 0.00 | 6 | 6 | 1.9800 | 1.9800 | | 0.82 |
| Hybird *** | C | Yes | Ar (CfAe) | 136.00 - 0.00 | 1 | 1 | 1.5840 | 1.5840 | | 1.61 |
| Fiber Cable | A | Yes | Ar (CfAe) | 147.00 - 0.00 | 3 | 3 | 1.5400 | 1.5400 | | 1.00 |
| Fiber Cable *** | A | Yes | Ar (CfAe) | 147.00 - 0.00 | 3 | 3 | 1.5400 | 1.5400 | | 1.00 |
| LDF5-50A(7/8") | C | Yes | Ar (CfAe) | 121.00 - 0.00 | 1 | 1 | 1.0900 | 1.0900 | | 0.33 |
| LDF6-50A(1-1/4") | A | Yes | Ar (CfAe) | 117.00 - 0.00 | 1 | 1 | 1.5500 | 1.5500 | | 0.66 |
| LDF5-50A(7/8") | C | Yes | Ar (CfAe) | 108.00 - 0.00 | 1 | 1 | 1.0900 | 1.0900 | | 0.33 |
| LDF6-50A(1-1/4") | C | Yes | Ar (CfAe) | 105.00 - 0.00 | 1 | 1 | 1.5500 | 1.5500 | | 0.66 |
| LDF4-50A(1/2") | C | Yes | Ar (CfAe) | 102.00 - 0.00 | 1 | 1 | 0.6300 | 0.6300 | | 0.15 |
| LDF5-50A(7/8") | C | Yes | Ar (CfAe) | 98.00 - 0.00 | 1 | 1 | 1.0900 | 1.0900 | | 0.33 |
| LDF1-50A(1/4") | C | Yes | Ar (CfAe) | 84.00 - 0.00 | 1 | 1 | 0.2900 | 0.2900 | | 0.07 |
| LDF1-50A(1/4") | C | Yes | Ar (CfAe) | 78.00 - 0.00 | 1 | 1 | 0.2900 | 0.2900 | | 0.07 |
| LDF4-50A(1/2") | A | Yes | Ar (CfAe) | 74.00 - 0.00 | 1 | 1 | 0.6300 | 0.6300 | | 0.15 |
| LDF1-50A(1/4") | C | Yes | Ar (CfAe) | 72.00 - 0.00 | 1 | 1 | 0.2900 | 0.2900 | | 0.07 |
| LDF1-50A(1/4") | C | Yes | Ar (CfAe) | 67.00 - 0.00 | 1 | 1 | 0.2900 | 0.2900 | | 0.07 |
| LDF4-50A(1/2") | C | Yes | Ar (CfAe) | 12.00 - 0.00 | 2 | 2 | 0.6300 | 0.6300 | | 0.15 |

Feed Line/Linear Appurtenances Section Areas

| Tower Section | Tower Elevation ft | Face | A _R ft ² | A _F ft ² | C _A A _A In Face ft ² | C _A A _A Out Face ft ² | Weight lb |
|---------------|--------------------|------|--------------------------------|--------------------------------|---|--|-----------|
| T1 | 150.00-130.00 | A | 13.090 | 0.000 | 0.000 | 0.000 | 102.00 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | 8.549 | 0.000 | 0.000 | 0.000 | 45.78 |
| T2 | 130.00-110.00 | A | 16.304 | 0.000 | 0.000 | 0.000 | 124.62 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | 25.256 | 0.000 | 0.000 | 0.000 | 140.83 |
| T3 | 110.00-90.00 | A | 17.983 | 0.000 | 0.000 | 0.000 | 133.20 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |

| | | | | |
|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 7 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

| Tower Section | Tower Elevation ft | Face | A_R ft ² | A_F ft ² | C_{AA} In Face ft ² | C_{AA} Out Face ft ² | Weight lb |
|---------------|-----------------------|------|--------------------------|--------------------------|--|---|--------------|
| T4 | 90.00-80.00 | C | 31.003 | 0.000 | 0.000 | 0.000 | 164.08 |
| | | A | 8.992 | 0.000 | 0.000 | 0.000 | 66.60 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| T5 | 80.00-60.00 | C | 16.767 | 0.000 | 0.000 | 0.000 | 86.88 |
| | | A | 18.718 | 0.000 | 0.000 | 0.000 | 135.30 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| T6 | 60.00-40.00 | C | 34.718 | 0.000 | 0.000 | 0.000 | 177.19 |
| | | A | 19.033 | 0.000 | 0.000 | 0.000 | 136.20 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| T7 | 40.00-20.00 | C | 35.273 | 0.000 | 0.000 | 0.000 | 178.80 |
| | | A | 19.033 | 0.000 | 0.000 | 0.000 | 136.20 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| T8 | 20.00-0.00 | C | 35.273 | 0.000 | 0.000 | 0.000 | 178.80 |
| | | A | 19.033 | 0.000 | 0.000 | 0.000 | 136.20 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | 36.533 | 0.000 | 0.000 | 0.000 | 182.40 |

Feed Line/Linear Appurtenances Section Areas - With Ice

| Tower Section | Tower Elevation ft | Face or Leg | Ice Thickness in | A_R ft ² | A_F ft ² | C_{AA} In Face ft ² | C_{AA} Out Face ft ² | Weight lb |
|---------------|-----------------------|-------------|---------------------|--------------------------|--------------------------|--|---|--------------|
| T1 | 150.00-130.00 | A | 1.189 | 11.103 | 17.453 | 0.000 | 0.000 | 506.76 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | | 9.942 | 9.900 | 0.000 | 0.000 | 329.28 |
| T2 | 130.00-110.00 | A | 1.168 | 15.183 | 20.533 | 0.000 | 0.000 | 619.62 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | | 22.572 | 33.000 | 0.000 | 0.000 | 953.74 |
| T3 | 110.00-90.00 | A | 1.142 | 19.140 | 20.533 | 0.000 | 0.000 | 666.61 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | | 39.823 | 33.000 | 0.000 | 0.000 | 1155.98 |
| T4 | 90.00-80.00 | A | 1.120 | 9.460 | 10.267 | 0.000 | 0.000 | 328.11 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | | 24.200 | 16.500 | 0.000 | 0.000 | 620.65 |
| T5 | 80.00-60.00 | A | 1.094 | 21.950 | 20.533 | 0.000 | 0.000 | 678.56 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | | 57.800 | 33.000 | 0.000 | 0.000 | 1309.31 |
| T6 | 60.00-40.00 | A | 1.051 | 22.782 | 20.533 | 0.000 | 0.000 | 670.34 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | | 60.818 | 33.000 | 0.000 | 0.000 | 1300.99 |
| T7 | 40.00-20.00 | A | 1.000 | 22.100 | 20.533 | 0.000 | 0.000 | 643.73 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | | 58.773 | 33.000 | 0.000 | 0.000 | 1240.42 |
| T8 | 20.00-0.00 | A | 1.000 | 22.100 | 20.533 | 0.000 | 0.000 | 643.73 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | | 61.403 | 34.260 | 0.000 | 0.000 | 1281.93 |

Feed Line Shielding

| Section | Elevation ft | Face | A_R ft ² | A_R Ice ft ² | A_F ft ² | A_F Ice ft ² |
|---------|-----------------|------|--------------------------|---------------------------------|--------------------------|---------------------------------|
| T1 | 150.00-130.00 | A | 1.006 | 8.042 | 0.000 | 0.000 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 |

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|---|---------------------------|---------------------------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job CT11284A | Page 8 of 35 |
| | Project 1564017 | Date 17:33:12 11/09/15 |
| | Client T-Mobile | Designed by Ahmet Colakoglu |

| Section | Elevation | Face | A_R | A_R | A_F | A_F |
|---------|---------------|------|-----------------|------------------------|-----------------|------------------------|
| | ft | | ft ² | Ice ft ² | ft ² | Ice ft ² |
| T2 | 130.00-110.00 | C | 0.657 | 5.588 | 0.000 | 0.000 |
| | | A | 1.253 | 9.924 | 0.000 | 0.000 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 |
| T3 | 110.00-90.00 | C | 1.941 | 15.441 | 0.000 | 0.000 |
| | | A | 1.604 | 11.340 | 0.000 | 0.000 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 |
| T4 | 90.00-80.00 | C | 2.765 | 20.815 | 0.000 | 0.000 |
| | | A | 0.000 | 1.527 | 0.932 | 2.044 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 |
| T5 | 80.00-60.00 | C | 0.000 | 3.150 | 1.738 | 4.218 |
| | | A | 0.000 | 2.712 | 1.638 | 3.717 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 |
| T6 | 60.00-40.00 | C | 0.000 | 5.796 | 3.037 | 7.944 |
| | | A | 0.000 | 2.273 | 1.425 | 3.243 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 |
| T7 | 40.00-20.00 | C | 0.000 | 4.923 | 2.641 | 7.025 |
| | | A | 0.000 | 1.923 | 1.287 | 2.884 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 |
| T8 | 20.00-0.00 | C | 0.000 | 4.139 | 2.386 | 6.208 |
| | | A | 0.000 | 1.794 | 1.201 | 2.691 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 |
| | | C | 0.000 | 4.026 | 2.306 | 6.038 |

Feed Line Center of Pressure

| Section | Elevation | CP_x | CP_z | CP_x | CP_z |
|---------|---------------|---------|--------|-----------|-----------|
| | ft | in | in | Ice in | Ice in |
| T1 | 150.00-130.00 | -3.1624 | 0.5731 | -0.9328 | 0.8467 |
| T2 | 130.00-110.00 | -2.9235 | 3.5845 | -1.0625 | 2.5435 |
| T3 | 110.00-90.00 | -2.7632 | 3.9324 | -1.1727 | 3.2285 |
| T4 | 90.00-80.00 | -2.2191 | 3.5139 | -1.0268 | 2.9957 |
| T5 | 80.00-60.00 | -2.8872 | 4.5277 | -1.4986 | 4.2577 |
| T6 | 60.00-40.00 | -3.4978 | 5.4788 | -1.9878 | 5.5589 |
| T7 | 40.00-20.00 | -4.1358 | 6.4752 | -2.4802 | 6.7897 |
| T8 | 20.00-0.00 | -4.6876 | 7.7029 | -2.8557 | 7.8991 |

Discrete Tower Loads

| Description | Face or Leg | Offset Type | Offsets: Horz Lateral Vert ft ft ft | Azimuth Adjustment ° | Placement ft | $C_A A_A$ Front ft ² | $C_A A_A$ Side ft ² | Weight lb | |
|--------------|-------------------|----------------|---|----------------------------|-----------------|---------------------------------------|--------------------------------------|--------------|--------|
| 2" Dia 8'Omn | B | From Leg | 0.00 | 0.0000 | 149.00 | No Ice | 2.00 | 2.00 | 5.00 |
| | | | 0.00 | | | 1/2" Ice | 3.03 | 3.03 | 18.00 |
| | | | 4.00 | | | 1" Ice | 4.06 | 4.06 | 31.00 |
| | | | | | | 2" Ice | 6.12 | 6.12 | 57.00 |
| Lighting Rod | C | From Leg | 0.00 | 0.0000 | 149.00 | 4" Ice | 10.24 | 10.24 | 109.00 |
| | | | | | | No Ice | 0.25 | 0.25 | 31.00 |

| | | | | |
|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 9 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

| Description | Face or Leg | Offset Type | Offsets: | | Azimuth Adjustment | Placement | C _{AA} Front | C _{AA} Side | Weight |
|-------------------------------|-------------|-------------|----------|---------|--------------------|-----------------|-----------------------|----------------------|--------|
| | | | Horz | Lateral | | | | | |
| | | | Vert | ° | ft | ft ² | ft ² | lb | |
| | | | ft | | | | | | |
| | | | ft | | | | | | |
| | | | 0.00 | | | 1/2" Ice | 0.66 | 0.66 | 33.82 |
| | | | 2.00 | | | 1" Ice | 1.07 | 1.07 | 36.64 |
| | | | | | | 2" Ice | 1.89 | 1.89 | 42.28 |
| | | | | | | 4" Ice | 3.53 | 3.53 | 53.56 |
| *** | | | | | | | | | |
| APXVSPP18-C-A20 w/ Mount Pipe | A | From Leg | 0.00 | 0.0000 | 147.00 | No Ice | 8.26 | 5.44 | 60.65 |
| | | | 2.00 | | | 1/2" Ice | 8.81 | 5.98 | 113.03 |
| | | | 0.00 | | | 1" Ice | 9.77 | 9.02 | 165.41 |
| | | | | | | 2" Ice | 11.03 | 10.84 | 405.98 |
| | | | | | | 4" Ice | 13.68 | 14.85 | 908.95 |
| APXVSPP18-C-A20 w/ Mount Pipe | B | From Leg | 0.00 | 0.0000 | 147.00 | No Ice | 8.26 | 5.44 | 60.65 |
| | | | 2.00 | | | 1/2" Ice | 8.81 | 5.98 | 113.03 |
| | | | 0.00 | | | 1" Ice | 9.77 | 9.02 | 165.41 |
| | | | | | | 2" Ice | 11.03 | 10.84 | 405.98 |
| | | | | | | 4" Ice | 13.68 | 14.85 | 908.95 |
| APXVSPP18-C-A20 w/ Mount Pipe | B | From Leg | 0.00 | 0.0000 | 147.00 | No Ice | 8.26 | 5.44 | 60.65 |
| | | | 6.00 | | | 1/2" Ice | 8.81 | 5.98 | 113.03 |
| | | | 0.00 | | | 1" Ice | 9.77 | 9.02 | 165.41 |
| | | | | | | 2" Ice | 11.03 | 10.84 | 405.98 |
| | | | | | | 4" Ice | 13.68 | 14.85 | 908.95 |
| *** | | | | | | | | | |
| 15' Omni | C | From Leg | 6.00 | 0.0000 | 121.00 | No Ice | 3.75 | 3.75 | 40.00 |
| | | | 0.00 | | | 1/2" Ice | 5.28 | 5.28 | 67.80 |
| | | | 4.00 | | | 1" Ice | 6.81 | 6.81 | 95.60 |
| | | | | | | 2" Ice | 9.87 | 9.87 | 151.20 |
| | | | | | | 4" Ice | 15.99 | 15.99 | 262.40 |
| 6' Side Arm Mount | C | From Leg | 3.00 | 0.0000 | 121.00 | No Ice | 4.54 | 1.23 | 53.00 |
| | | | 0.00 | | | 1/2" Ice | 7.80 | 2.55 | 78.75 |
| | | | 0.00 | | | 1" Ice | 11.06 | 3.87 | 104.50 |
| | | | | | | 2" Ice | 17.58 | 6.51 | 156.00 |
| | | | | | | 4" Ice | 30.62 | 11.79 | 259.00 |
| 20' Omni | A | From Leg | 6.00 | 0.0000 | 117.00 | No Ice | 5.00 | 5.00 | 55.00 |
| | | | 0.00 | | | 1/2" Ice | 7.03 | 7.03 | 100.00 |
| | | | 10.00 | | | 1" Ice | 9.06 | 9.06 | 145.00 |
| | | | | | | 2" Ice | 13.12 | 13.12 | 235.00 |
| | | | | | | 4" Ice | 21.24 | 21.24 | 415.00 |
| 6' Side Arm Mount | A | From Leg | 3.00 | 0.0000 | 117.00 | No Ice | 4.54 | 1.23 | 53.00 |
| | | | 0.00 | | | 1/2" Ice | 7.80 | 2.55 | 78.75 |
| | | | 0.00 | | | 1" Ice | 11.06 | 3.87 | 104.50 |
| | | | | | | 2" Ice | 17.58 | 6.51 | 156.00 |
| | | | | | | 4" Ice | 30.62 | 11.79 | 259.00 |
| 10' Dipole | A | From Leg | 6.00 | 0.0000 | 108.00 | No Ice | 4.00 | 4.00 | 55.00 |
| | | | 0.00 | | | 1/2" Ice | 6.00 | 6.00 | 100.00 |
| | | | 4.00 | | | 1" Ice | 8.00 | 8.00 | 145.00 |
| | | | | | | 2" Ice | 12.00 | 12.00 | 235.00 |
| | | | | | | 4" Ice | 20.00 | 20.00 | 415.00 |
| 6' Side Arm Mount | A | From Leg | 3.00 | 0.0000 | 108.00 | No Ice | 4.54 | 1.23 | 53.00 |
| | | | 0.00 | | | 1/2" Ice | 7.80 | 2.55 | 78.75 |
| | | | 0.00 | | | 1" Ice | 11.06 | 3.87 | 104.50 |
| | | | | | | 2" Ice | 17.58 | 6.51 | 156.00 |
| | | | | | | 4" Ice | 30.62 | 11.79 | 259.00 |
| 8' Whip | C | From Leg | 4.00 | 0.0000 | 105.00 | No Ice | 1.36 | 1.36 | 44.00 |
| | | | 0.00 | | | 1/2" Ice | 2.26 | 2.26 | 56.00 |
| | | | 4.00 | | | 1" Ice | 3.16 | 3.16 | 68.00 |
| | | | | | | 2" Ice | 4.96 | 4.96 | 92.00 |
| | | | | | | 4" Ice | 8.56 | 8.56 | 140.00 |
| 4' Side Arm Mount | C | From Leg | 2.00 | 0.0000 | 105.00 | No Ice | 2.72 | 2.72 | 50.00 |

| | | | | |
|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 10 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

| Description | Face or Leg | Offset Type | Offsets: | | Azimuth Adjustment | Placement | C _{AA} Front | C _{AA} Side | Weight |
|-------------------|-------------|-------------|----------|---------|--------------------|-----------|-----------------------|----------------------|--------|
| | | | Horz | Lateral | | | | | |
| | | | ft | ft | | | | | |
| | | | 0.00 | | | 1/2" Ice | 4.91 | 4.91 | 89.00 |
| | | | 0.00 | | | 1" Ice | 7.10 | 7.10 | 128.00 |
| | | | | | | 2" Ice | 11.48 | 11.48 | 206.00 |
| | | | | | | 4" Ice | 20.24 | 20.24 | 362.00 |
| 8' Omni | C | From Leg | 0.50 | | 0.0000 | 102.00 | No Ice | 2.20 | 30.00 |
| | | | 0.00 | | | | 1/2" Ice | 3.03 | 46.30 |
| | | | 0.00 | | | | 1" Ice | 3.86 | 62.60 |
| | | | | | | | 2" Ice | 5.52 | 95.20 |
| | | | | | | | 4" Ice | 8.84 | 160.40 |
| 12' Omni | C | From Leg | 6.00 | | 0.0000 | 98.00 | No Ice | 3.00 | 35.00 |
| | | | 0.00 | | | | 1/2" Ice | 4.23 | 57.30 |
| | | | 5.00 | | | | 1" Ice | 5.46 | 79.60 |
| | | | | | | | 2" Ice | 7.92 | 124.20 |
| | | | | | | | 4" Ice | 12.84 | 213.40 |
| 6' Side Arm Mount | C | From Leg | 3.00 | | 0.0000 | 98.00 | No Ice | 4.54 | 53.00 |
| | | | 0.00 | | | | 1/2" Ice | 7.80 | 78.75 |
| | | | 0.00 | | | | 1" Ice | 11.06 | 104.50 |
| | | | | | | | 2" Ice | 17.58 | 156.00 |
| | | | | | | | 4" Ice | 30.62 | 259.00 |
| 3' Side Arm Mount | C | From Leg | 1.50 | | 0.0000 | 84.00 | No Ice | 2.00 | 38.00 |
| | | | 0.00 | | | | 1/2" Ice | 3.70 | 67.00 |
| | | | 0.00 | | | | 1" Ice | 5.40 | 96.00 |
| | | | | | | | 2" Ice | 8.80 | 154.00 |
| | | | | | | | 4" Ice | 15.60 | 270.00 |
| 3' Side Arm Mount | C | From Leg | 1.50 | | 0.0000 | 78.00 | No Ice | 2.00 | 38.00 |
| | | | 0.00 | | | | 1/2" Ice | 3.70 | 67.00 |
| | | | 0.00 | | | | 1" Ice | 5.40 | 96.00 |
| | | | | | | | 2" Ice | 8.80 | 154.00 |
| | | | | | | | 4" Ice | 15.60 | 270.00 |
| 3' Side Arm Mount | C | From Leg | 1.50 | | 0.0000 | 72.00 | No Ice | 2.00 | 38.00 |
| | | | 0.00 | | | | 1/2" Ice | 3.70 | 67.00 |
| | | | 0.00 | | | | 1" Ice | 5.40 | 96.00 |
| | | | | | | | 2" Ice | 8.80 | 154.00 |
| | | | | | | | 4" Ice | 15.60 | 270.00 |
| GPS | A | From Leg | 0.50 | | 0.0000 | 74.00 | No Ice | 1.00 | 10.00 |
| | | | 0.00 | | | | 1/2" Ice | 1.50 | 15.00 |
| | | | 0.00 | | | | 1" Ice | 2.00 | 20.00 |
| | | | | | | | 2" Ice | 3.00 | 30.00 |
| | | | | | | | 4" Ice | 5.00 | 50.00 |
| GPS | C | From Leg | 0.50 | | 0.0000 | 67.00 | No Ice | 1.00 | 10.00 |
| | | | 0.00 | | | | 1/2" Ice | 1.50 | 15.00 |
| | | | 0.00 | | | | 1" Ice | 2.00 | 20.00 |
| | | | | | | | 2" Ice | 3.00 | 30.00 |
| | | | | | | | 4" Ice | 5.00 | 50.00 |
| GPS | B | From Leg | 0.50 | | 0.0000 | 12.00 | No Ice | 1.00 | 10.00 |
| | | | 0.00 | | | | 1/2" Ice | 1.50 | 15.00 |
| | | | 0.00 | | | | 1" Ice | 2.00 | 20.00 |
| | | | | | | | 2" Ice | 3.00 | 30.00 |
| | | | | | | | 4" Ice | 5.00 | 50.00 |
| *** | | | | | | | | | |
| 1900MHz 4X40W RRH | A | From Leg | 0.00 | | 0.0000 | 145.00 | No Ice | 2.71 | 59.50 |
| | | | 1.00 | | | | 1/2" Ice | 2.95 | 82.63 |
| | | | 0.00 | | | | 1" Ice | 3.20 | 105.77 |
| | | | | | | | 2" Ice | 3.72 | 172.22 |
| | | | | | | | 4" Ice | 4.86 | 346.02 |
| 1900MHz 4X40W RRH | B | From Leg | 0.00 | | 0.0000 | 145.00 | No Ice | 2.71 | 59.50 |
| | | | 1.00 | | | | 1/2" Ice | 2.95 | 82.63 |

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|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 11 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

| Description | Face or Leg | Offset Type | Offsets: | | Azimuth Adjustment ° | Placement ft | C _{AA} Front ft ² | C _{AA} Side ft ² | Weight lb |
|------------------------------------|-------------------|----------------|------------|---------------|----------------------------|-----------------|---|--|--------------|
| | | | Horz ft | Lateral ft | | | | | |
| | | | | 0.00 | | | | | |
| | | | | | | 1" Ice | 3.20 | 3.09 | 105.77 |
| | | | | | | 2" Ice | 3.72 | 3.61 | 172.22 |
| | | | | | | 4" Ice | 4.86 | 4.74 | 346.02 |
| 1900MHz 4X40W RRH | C | From Leg | 0.00 | 0.0000 | 145.00 | No Ice | 2.71 | 2.61 | 59.50 |
| | | | 1.00 | | | 1/2" Ice | 2.95 | 2.85 | 82.63 |
| | | | 0.00 | | | 1" Ice | 3.20 | 3.09 | 105.77 |
| | | | | | | 2" Ice | 3.72 | 3.61 | 172.22 |
| | | | | | | 4" Ice | 4.86 | 4.74 | 346.02 |
| 800MHZ 2X50W RRH | A | From Leg | 0.00 | 0.0000 | 145.00 | No Ice | 2.49 | 2.07 | 64.00 |
| | | | 1.00 | | | 1/2" Ice | 2.71 | 2.27 | 86.12 |
| | | | 0.00 | | | 1" Ice | 2.93 | 2.48 | 108.24 |
| | | | | | | 2" Ice | 3.41 | 2.93 | 152.48 |
| | | | | | | 4" Ice | 4.46 | 3.93 | 240.96 |
| 800MHZ 2X50W RRH | B | From Leg | 0.00 | 0.0000 | 145.00 | No Ice | 2.49 | 2.07 | 64.00 |
| | | | 1.00 | | | 1/2" Ice | 2.71 | 2.27 | 86.12 |
| | | | 0.00 | | | 1" Ice | 2.93 | 2.48 | 108.24 |
| | | | | | | 2" Ice | 3.41 | 2.93 | 152.48 |
| | | | | | | 4" Ice | 4.46 | 3.93 | 240.96 |
| 800MHZ 2X50W RRH | C | From Leg | 0.00 | 0.0000 | 145.00 | No Ice | 2.49 | 2.07 | 64.00 |
| | | | 1.00 | | | 1/2" Ice | 2.71 | 2.27 | 86.12 |
| | | | 0.00 | | | 1" Ice | 2.93 | 2.48 | 108.24 |
| | | | | | | 2" Ice | 3.41 | 2.93 | 152.48 |
| | | | | | | 4" Ice | 4.46 | 3.93 | 240.96 |
| APXV9TM14-ALU-I20 w/ Mount Pipe | A | From Leg | 4.00 | 0.0000 | 147.00 | No Ice | 8.20 | 6.75 | 128.00 |
| | | | -2.00 | | | 1/2" Ice | 8.85 | 7.59 | 202.00 |
| | | | 0.00 | | | 1" Ice | 9.70 | 8.43 | 276.00 |
| | | | | | | 2" Ice | 11.40 | 10.11 | 424.00 |
| | | | | | | 4" Ice | 14.80 | 13.47 | 720.00 |
| APXV9TM14-ALU-I20 w/ Mount Pipe | B | From Leg | 4.00 | 0.0000 | 147.00 | No Ice | 8.20 | 6.75 | 128.00 |
| | | | -2.00 | | | 1/2" Ice | 8.85 | 7.59 | 202.00 |
| | | | 0.00 | | | 1" Ice | 9.70 | 8.43 | 276.00 |
| | | | | | | 2" Ice | 11.40 | 10.11 | 424.00 |
| | | | | | | 4" Ice | 14.80 | 13.47 | 720.00 |
| APXV9TM14-ALU-I20 w/ Mount Pipe | C | From Leg | 4.00 | 0.0000 | 147.00 | No Ice | 8.20 | 6.75 | 128.00 |
| | | | -2.00 | | | 1/2" Ice | 8.85 | 7.59 | 202.00 |
| | | | 0.00 | | | 1" Ice | 9.70 | 8.43 | 276.00 |
| | | | | | | 2" Ice | 11.40 | 10.11 | 424.00 |
| | | | | | | 4" Ice | 14.80 | 13.47 | 720.00 |
| PiROD 12' Lightweight T-Frame | A | From Leg | 0.00 | 0.0000 | 147.00 | No Ice | 10.20 | 10.20 | 253.00 |
| | | | 0.00 | | | 1/2" Ice | 16.20 | 16.20 | 355.00 |
| | | | 0.00 | | | 1" Ice | 22.20 | 22.20 | 457.00 |
| | | | | | | 2" Ice | 34.20 | 34.20 | 661.00 |
| | | | | | | 4" Ice | 58.20 | 58.20 | 1069.00 |
| PiROD 12' Lightweight T-Frame | B | From Leg | 0.00 | 0.0000 | 147.00 | No Ice | 10.20 | 10.20 | 253.00 |
| | | | 0.00 | | | 1/2" Ice | 16.20 | 16.20 | 355.00 |
| | | | 0.00 | | | 1" Ice | 22.20 | 22.20 | 457.00 |
| | | | | | | 2" Ice | 34.20 | 34.20 | 661.00 |
| | | | | | | 4" Ice | 58.20 | 58.20 | 1069.00 |
| 2' Side Arm Mount | C | From Leg | 1.00 | 0.0000 | 147.00 | No Ice | 2.00 | 2.00 | 38.00 |
| | | | 0.00 | | | 1/2" Ice | 3.70 | 3.70 | 67.00 |
| | | | 0.00 | | | 1" Ice | 5.40 | 5.40 | 96.00 |
| | | | | | | 2" Ice | 8.80 | 8.80 | 154.00 |
| | | | | | | 4" Ice | 15.60 | 15.60 | 270.00 |
| TD-RRH8x20 | A | From Leg | 1.00 | 0.0000 | 147.00 | No Ice | 4.32 | 1.41 | 66.14 |
| | | | -0.50 | | | 1/2" Ice | 4.60 | 1.61 | 90.08 |
| | | | 0.00 | | | 1" Ice | 4.89 | 1.83 | 114.01 |
| | | | | | | 2" Ice | 5.50 | 2.28 | 182.73 |

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|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 12 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

| Description | Face or Leg | Offset Type | Offsets: | | Azimuth Adjustment | Placement | C _{AA} Front | C _{AA} Side | Weight |
|------------------------------|-------------|-------------|----------|---------|--------------------|-----------|-----------------------|----------------------|---------|
| | | | Horz | Lateral | | | | | |
| TD-RRH8x20 | B | From Leg | 1.00 | 0.0000 | 147.00 | 4" Ice | 6.82 | 3.30 | 362.17 |
| | | | -0.50 | 0.0000 | | No Ice | 4.32 | 1.41 | 66.14 |
| | | | 0.00 | | | 1/2" Ice | 4.60 | 1.61 | 90.08 |
| | | | | | | 1" Ice | 4.89 | 1.83 | 114.01 |
| | | | | | | 2" Ice | 5.50 | 2.28 | 182.73 |
| TD-RRH8x20 | C | From Leg | 1.00 | 0.0000 | 147.00 | 4" Ice | 6.82 | 3.30 | 362.17 |
| | | | -0.50 | 0.0000 | | No Ice | 4.32 | 1.41 | 66.14 |
| | | | 0.00 | | | 1/2" Ice | 4.60 | 1.61 | 90.08 |
| | | | | | | 1" Ice | 4.89 | 1.83 | 114.01 |
| | | | | | | 2" Ice | 5.50 | 2.28 | 182.73 |
| ***T-Mobile*** | | | | | | | | | |
| AIR21 B2A/B4P with pipe | A | From Face | 2.00 | 0.0000 | 136.00 | No Ice | 6.87 | 6.29 | 134.62 |
| | | | 0.00 | 0.0000 | | 1/2" Ice | 7.38 | 7.05 | 201.01 |
| | | | 0.00 | | | 1" Ice | 7.90 | 7.84 | 267.41 |
| | | | | | | 2" Ice | 8.96 | 9.46 | 445.12 |
| | | | | | | 4" Ice | 11.23 | 13.02 | 896.75 |
| AIR 32 B4A/B2P w/ Mount Pipe | A | From Face | 2.00 | 0.0000 | 136.00 | No Ice | 7.34 | 6.15 | 126.67 |
| | | | 0.00 | 0.0000 | | 1/2" Ice | 7.87 | 7.01 | 187.64 |
| | | | 0.00 | | | 1" Ice | 8.39 | 7.80 | 248.61 |
| | | | | | | 2" Ice | 9.47 | 9.43 | 415.03 |
| | | | | | | 4" Ice | 11.76 | 12.91 | 858.98 |
| LNX-6515DS-VTM w/ Mount Pipe | A | From Face | 2.00 | 0.0000 | 136.00 | No Ice | 11.68 | 10.28 | 96.11 |
| | | | 0.00 | 0.0000 | | 1/2" Ice | 12.40 | 11.81 | 189.92 |
| | | | 0.00 | | | 1" Ice | 13.14 | 13.34 | 283.73 |
| | | | | | | 2" Ice | 14.60 | 16.40 | 471.35 |
| | | | | | | 4" Ice | 17.87 | 22.52 | 846.59 |
| RRUS 11 B12 | A | From Face | 2.00 | 0.0000 | 136.00 | No Ice | 3.31 | 1.36 | 50.70 |
| | | | 0.00 | 0.0000 | | 1/2" Ice | 3.55 | 1.54 | 71.57 |
| | | | 0.00 | | | 1" Ice | 3.80 | 1.73 | 92.44 |
| | | | | | | 2" Ice | 4.33 | 2.13 | 153.24 |
| | | | | | | 4" Ice | 5.50 | 3.04 | 313.85 |
| dd B4 TMA | A | From Face | 2.00 | 0.0000 | 136.00 | No Ice | 0.64 | 0.52 | 22.43 |
| | | | 0.00 | 0.0000 | | 1/2" Ice | 0.82 | 0.71 | 31.53 |
| | | | 0.00 | | | 1" Ice | 1.00 | 0.91 | 40.63 |
| | | | | | | 2" Ice | 1.43 | 1.39 | 73.26 |
| | | | | | | 4" Ice | 2.47 | 2.57 | 178.83 |
| Valmont 10' Frame | A | From Face | 2.00 | 0.0000 | 136.00 | No Ice | 13.80 | 3.75 | 275.00 |
| | | | 0.00 | 0.0000 | | 1/2" Ice | 18.42 | 5.95 | 388.00 |
| | | | 0.00 | | | 1" Ice | 23.04 | 8.15 | 501.00 |
| | | | | | | 2" Ice | 32.28 | 12.55 | 727.00 |
| | | | | | | 4" Ice | 50.76 | 21.35 | 1179.00 |

Dishes

| Description | Face or Leg | Dish Type | Offset Type | Offsets: | | Azimuth Adjustment | 3 dB Beam Width | Elevation | Outside Diameter | Aperture Area | Weight | |
|-------------|-------------|----------------|-------------|----------|---------|--------------------|-----------------|-----------|------------------|---------------|--------|--------|
| | | | | Horz | Lateral | | | | | | | Vert |
| 4' Dish | C | Paraboloid w/o | From | 3.00 | 0.0000 | 0.0000 | | 84.00 | 4.00 | No Ice | 12.57 | 150.00 |

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|---|---------------------------|---------------------------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job CT11284A | Page 13 of 35 |
| | Project 1564017 | Date 17:33:12 11/09/15 |
| | Client T-Mobile | Designed by Ahmet Colakoglu |

| Description | Face or Leg | Dish Type | Offset Type | Offsets: Horz Lateral Vert ft | Azimuth Adjustment ° | 3 dB Beam Width ° | Elevation ft | Outside Diameter ft | Aperture Area ft ² | Weight lb |
|-------------|-------------|-----------------------|-------------|-------------------------------|----------------------|-------------------|--------------|---------------------|--|--|
| | | Radome | Leg | 0.00 0.00 | | | | | 1/2" Ice 13.10 1" Ice 13.62 2" Ice 14.68 4" Ice 16.80 | 217.00 284.00 418.00 686.00 |
| 4' Dish | C | Paraboloid w/o Radome | From Leg | 3.00 0.00 0.00 | 0.0000 | | 78.00 | 4.00 | No Ice 12.57 1/2" Ice 13.10 1" Ice 13.62 2" Ice 14.68 4" Ice 16.80 | 150.00 217.00 284.00 418.00 686.00 |
| 4' Dish | C | Paraboloid w/o Radome | From Leg | 3.00 0.00 0.00 | 0.0000 | | 72.00 | 4.00 | No Ice 12.57 1/2" Ice 13.10 1" Ice 13.62 2" Ice 14.68 4" Ice 16.80 | 150.00 217.00 284.00 418.00 686.00 |

Truss-Leg Properties

| Section Designation | Area in ² | Area Ice in ² | Self Weight lb | Ice Weight lb | Equiv. Diameter in | Equiv. Diameter Ice in | Leg Area in ² |
|---------------------|----------------------|--------------------------|----------------|---------------|--------------------|------------------------|--------------------------|
| Valmont 216415 | 676.4589 | 2533.9498 | 460.55 | 744.05 | 4.6976 | 17.5969 | 5.3014 |
| Valmont 216413 | 1357.0019 | 5007.2665 | 461.81 | 1442.41 | 4.7118 | 17.3863 | 5.3014 |
| Valmont 195557 | 1493.9209 | 5018.4372 | 597.42 | 1372.81 | 5.1872 | 17.4251 | 7.2158 |
| Valmont 195557 | 1493.9209 | 4733.1127 | 597.42 | 1261.92 | 5.1872 | 16.4344 | 7.2158 |
| Valmont 195557 | 1493.9209 | 4733.1127 | 597.42 | 1261.92 | 5.1872 | 16.4344 | 7.2158 |

Tower Pressures - No Ice

$$G_H = 1.133$$

| Section Elevation ft | z ft | K _Z | q _z psf | A _G ft ² | F _a c e | A _F ft ² | A _R ft ² | A _{leg} ft ² | Leg % | C _A A _A In Face ft ² | C _A A _A Out Face ft ² |
|----------------------|--------|----------------|--------------------|--------------------------------|--------------------|--------------------------------|--------------------------------|----------------------------------|-------|---|--|
| T1 150.00-130.00 | 140.00 | 1.511 | 25 | 102.917 | A | 0.000 | 25.380 | 5.833 | 22.98 | 0.000 | 0.000 |
| | | | | | B | 0.000 | 13.296 | | 43.87 | 0.000 | 0.000 |
| | | | | | C | 0.000 | 21.188 | | 27.53 | 0.000 | 0.000 |
| T2 130.00-110.00 | 120.00 | 1.446 | 24 | 103.333 | A | 0.000 | 29.149 | 6.667 | 22.87 | 0.000 | 0.000 |
| | | | | | B | 0.000 | 14.098 | | 47.29 | 0.000 | 0.000 |
| | | | | | C | 0.000 | 37.412 | | 17.82 | 0.000 | 0.000 |
| T3 110.00-90.00 | 100.00 | 1.373 | 22 | 103.750 | A | 0.000 | 32.464 | 7.500 | 23.10 | 0.000 | 0.000 |
| | | | | | B | 0.000 | 16.085 | | 46.63 | 0.000 | 0.000 |
| | | | | | C | 0.000 | 44.322 | | 16.92 | 0.000 | 0.000 |
| T4 90.00-80.00 | 85.00 | 1.31 | 21 | 66.264 | A | 4.314 | 16.834 | 7.842 | 37.08 | 0.000 | 0.000 |
| | | | | | B | 5.246 | 7.842 | | 59.92 | 0.000 | 0.000 |
| | | | | | C | 3.508 | 24.609 | | 27.89 | 0.000 | 0.000 |
| T5 80.00-60.00 | 70.00 | 1.24 | 20 | 162.528 | A | 9.143 | 34.451 | 15.732 | 36.09 | 0.000 | 0.000 |
| | | | | | B | 10.781 | 15.732 | | 59.34 | 0.000 | 0.000 |
| | | | | | C | 7.744 | 50.450 | | 27.03 | 0.000 | 0.000 |
| T6 60.00-40.00 | 50.00 | 1.126 | 18 | 202.945 | A | 10.898 | 36.353 | 17.320 | 36.65 | 0.000 | 0.000 |
| | | | | | B | 12.323 | 17.320 | | 58.43 | 0.000 | 0.000 |

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|---|---------------------------|---------------------------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job CT11284A | Page 14 of 35 |
| | Project 1564017 | Date 17:33:12 11/09/15 |
| | Client T-Mobile | Designed by Ahmet Colakoglu |

| Section Elevation ft | z ft | K _Z | q _z psf | A _G ft ² | F a c e | A _F ft ² | A _R ft ² | A _{leg} ft ² | Leg % | C _A A _A In Face ft ² | C _A A _A Out Face ft ² |
|-------------------------|---------|----------------|-----------------------|-----------------------------------|------------------|-----------------------------------|-----------------------------------|-------------------------------------|----------|--|---|
| T7 40.00-20.00 | 30.00 | 1 | 16 | 242.945 | C | 9.682 | 52.593 | 17.320 | 27.81 | 0.000 | 0.000 |
| | | | | | A | 12.638 | 36.353 | | 35.35 | 0.000 | 0.000 |
| | | | | | B | 13.925 | 17.320 | | 55.43 | 0.000 | 0.000 |
| T8 20.00-0.00 | 10.00 | 1 | 16 | 282.945 | C | 11.539 | 52.593 | 17.320 | 27.01 | 0.000 | 0.000 |
| | | | | | A | 14.397 | 36.353 | | 34.13 | 0.000 | 0.000 |
| | | | | | B | 15.598 | 17.320 | | 52.61 | 0.000 | 0.000 |
| | | | | | C | 13.292 | 53.853 | | 25.79 | 0.000 | 0.000 |

Tower Pressure - With Ice

$$G_H = 1.133$$

| Section Elevation ft | z ft | K _Z | q _z psf | t _z in | A _G ft ² | F a c e | A _F ft ² | A _R ft ² | A _{leg} ft ² | Leg % | C _A A _A In Face ft ² | C _A A _A Out Face ft ² |
|-------------------------|---------|----------------|-----------------------|----------------------|-----------------------------------|------------------|-----------------------------------|-----------------------------------|-------------------------------------|----------|--|---|
| T1 150.00-130.00 | 140.00 | 1.511 | 6 | 1.1894 | 106.881 | A | 17.453 | 44.163 | 13.762 | 22.34 | 0.000 | 0.000 |
| | | | | | | B | 0.000 | 41.102 | | 33.48 | 0.000 | 0.000 |
| | | | | | | C | 9.900 | 45.456 | | 24.86 | 0.000 | 0.000 |
| T2 130.00-110.00 | 120.00 | 1.446 | 5 | 1.1676 | 107.225 | A | 20.533 | 46.569 | 14.450 | 21.53 | 0.000 | 0.000 |
| | | | | | | B | 0.000 | 41.310 | | 34.98 | 0.000 | 0.000 |
| | | | | | | C | 33.000 | 48.441 | | 17.74 | 0.000 | 0.000 |
| T3 110.00-90.00 | 100.00 | 1.373 | 5 | 1.1423 | 107.558 | A | 20.533 | 50.426 | 15.115 | 21.30 | 0.000 | 0.000 |
| | | | | | | B | 0.000 | 42.626 | | 35.46 | 0.000 | 0.000 |
| | | | | | | C | 33.000 | 61.635 | | 15.97 | 0.000 | 0.000 |
| T4 90.00-80.00 | 85.00 | 1.31 | 5 | 1.1202 | 68.133 | A | 13.468 | 41.113 | 29.377 | 53.82 | 0.000 | 0.000 |
| | | | | | | B | 5.246 | 33.180 | | 76.45 | 0.000 | 0.000 |
| | | | | | | C | 17.527 | 54.230 | | 40.94 | 0.000 | 0.000 |
| T5 80.00-60.00 | 70.00 | 1.24 | 5 | 1.0944 | 166.181 | A | 27.598 | 84.926 | 58.051 | 51.59 | 0.000 | 0.000 |
| | | | | | | B | 10.781 | 65.688 | | 75.91 | 0.000 | 0.000 |
| | | | | | | C | 35.837 | 117.692 | | 37.81 | 0.000 | 0.000 |
| T6 60.00-40.00 | 50.00 | 1.126 | 4 | 1.0511 | 206.453 | A | 29.613 | 87.073 | 58.180 | 49.86 | 0.000 | 0.000 |
| | | | | | | B | 12.323 | 66.564 | | 73.75 | 0.000 | 0.000 |
| | | | | | | C | 38.298 | 122.460 | | 36.19 | 0.000 | 0.000 |
| T7 40.00-20.00 | 30.00 | 1 | 4 | 1.0000 | 246.283 | A | 31.575 | 84.063 | 54.873 | 47.45 | 0.000 | 0.000 |
| | | | | | | B | 13.925 | 63.886 | | 70.52 | 0.000 | 0.000 |
| | | | | | | C | 40.718 | 118.521 | | 34.46 | 0.000 | 0.000 |
| T8 20.00-0.00 | 10.00 | 1 | 4 | 1.0000 | 286.283 | A | 33.441 | 85.275 | 54.873 | 46.22 | 0.000 | 0.000 |
| | | | | | | B | 15.598 | 64.969 | | 68.11 | 0.000 | 0.000 |
| | | | | | | C | 43.820 | 122.346 | | 33.02 | 0.000 | 0.000 |

Tower Pressure - Service

$$G_H = 1.133$$

| Section Elevation ft | z ft | K _Z | q _z psf | A _G ft ² | F a c e | A _F ft ² | A _R ft ² | A _{leg} ft ² | Leg % | C _A A _A In Face ft ² | C _A A _A Out Face ft ² |
|-------------------------|---------|----------------|-----------------------|-----------------------------------|------------------|-----------------------------------|-----------------------------------|-------------------------------------|----------|--|---|
| T1 150.00-130.00 | 140.00 | 1.511 | 10 | 102.917 | A | 0.000 | 25.380 | 5.833 | 22.98 | 0.000 | 0.000 |
| | | | | | B | 0.000 | 13.296 | | 43.87 | 0.000 | 0.000 |
| | | | | | C | 0.000 | 21.188 | | 27.53 | 0.000 | 0.000 |

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|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 15 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

| Section Elevation ft | z ft | K _Z | q _z psf | A _G ft ² | F a c e | A _F ft ² | A _R ft ² | A _{leg} ft ² | Leg % | C _A A _A In Face ft ² | C _A A _A Out Face ft ² |
|-------------------------|---------|----------------|-----------------------|-----------------------------------|------------------|-----------------------------------|-----------------------------------|-------------------------------------|----------|--|---|
| T2 130.00-110.00 | 120.00 | 1.446 | 9 | 103.333 | A | 0.000 | 29.149 | 6.667 | 22.87 | 0.000 | 0.000 |
| | | | | | B | 0.000 | 14.098 | | 47.29 | 0.000 | 0.000 |
| | | | | | C | 0.000 | 37.412 | | 17.82 | 0.000 | 0.000 |
| T3 110.00-90.00 | 100.00 | 1.373 | 9 | 103.750 | A | 0.000 | 32.464 | 7.500 | 23.10 | 0.000 | 0.000 |
| | | | | | B | 0.000 | 16.085 | | 46.63 | 0.000 | 0.000 |
| | | | | | C | 0.000 | 44.322 | | 16.92 | 0.000 | 0.000 |
| T4 90.00-80.00 | 85.00 | 1.31 | 8 | 66.264 | A | 4.314 | 16.834 | 7.842 | 37.08 | 0.000 | 0.000 |
| | | | | | B | 5.246 | 7.842 | | 59.92 | 0.000 | 0.000 |
| | | | | | C | 3.508 | 24.609 | | 27.89 | 0.000 | 0.000 |
| T5 80.00-60.00 | 70.00 | 1.24 | 8 | 162.528 | A | 9.143 | 34.451 | 15.732 | 36.09 | 0.000 | 0.000 |
| | | | | | B | 10.781 | 15.732 | | 59.34 | 0.000 | 0.000 |
| | | | | | C | 7.744 | 50.450 | | 27.03 | 0.000 | 0.000 |
| T6 60.00-40.00 | 50.00 | 1.126 | 7 | 202.945 | A | 10.898 | 36.353 | 17.320 | 36.65 | 0.000 | 0.000 |
| | | | | | B | 12.323 | 17.320 | | 58.43 | 0.000 | 0.000 |
| | | | | | C | 9.682 | 52.593 | | 27.81 | 0.000 | 0.000 |
| T7 40.00-20.00 | 30.00 | 1 | 6 | 242.945 | A | 12.638 | 36.353 | 17.320 | 35.35 | 0.000 | 0.000 |
| | | | | | B | 13.925 | 17.320 | | 55.43 | 0.000 | 0.000 |
| | | | | | C | 11.539 | 52.593 | | 27.01 | 0.000 | 0.000 |
| T8 20.00-0.00 | 10.00 | 1 | 6 | 282.945 | A | 14.397 | 36.353 | 17.320 | 34.13 | 0.000 | 0.000 |
| | | | | | B | 15.598 | 17.320 | | 52.61 | 0.000 | 0.000 |
| | | | | | C | 13.292 | 53.853 | | 25.79 | 0.000 | 0.000 |

Tower Forces - No Ice - Wind Normal To Face

| Section Elevation ft | Add Weight lb | Self Weight lb | F a c e | e | C _F | R _R | D _F | D _R | A _E ft ² | F lb | w plf | Ctrl. Face |
|-------------------------|------------------|-------------------|------------------|-------|----------------|----------------|----------------|----------------|-----------------------------------|----------|----------|---------------|
| T1 150.00-130.00 | 147.78 | 1153.27 | A | 0.247 | 2.448 | 0.601 | 1 | 1 | 15.254 | 1047.66 | 52.38 | A |
| | | | B | 0.129 | 2.85 | 0.579 | 1 | 1 | 7.692 | | | |
| | | | C | 0.206 | 2.576 | 0.592 | 1 | 1 | 12.535 | | | |
| T2 130.00-110.00 | 265.45 | 1303.60 | A | 0.282 | 2.345 | 0.611 | 1 | 1 | 17.798 | 1371.62 | 68.58 | C |
| | | | B | 0.136 | 2.822 | 0.579 | 1 | 1 | 8.170 | | | |
| | | | C | 0.362 | 2.144 | 0.637 | 1 | 1 | 23.826 | | | |
| T3 110.00-90.00 | 297.28 | 1707.52 | A | 0.313 | 2.262 | 0.62 | 1 | 1 | 20.126 | 1507.59 | 75.38 | C |
| | | | B | 0.155 | 2.753 | 0.582 | 1 | 1 | 9.366 | | | |
| | | | C | 0.427 | 2.013 | 0.663 | 1 | 1 | 29.389 | | | |
| T4 90.00-80.00 | 153.48 | 1127.61 | A | 0.319 | 2.246 | 0.622 | 1 | 1 | 14.784 | 971.86 | 97.19 | C |
| | | | B | 0.198 | 2.604 | 0.59 | 1 | 1 | 9.872 | | | |
| | | | C | 0.424 | 2.018 | 0.662 | 1 | 1 | 19.795 | | | |
| T5 80.00-60.00 | 312.49 | 2320.10 | A | 0.268 | 2.384 | 0.607 | 1 | 1 | 30.044 | 1972.39 | 98.62 | C |
| | | | B | 0.163 | 2.724 | 0.584 | 1 | 1 | 19.962 | | | |
| | | | C | 0.358 | 2.153 | 0.635 | 1 | 1 | 39.799 | | | |
| T6 60.00-40.00 | 315.00 | 2822.61 | A | 0.233 | 2.49 | 0.598 | 1 | 1 | 32.624 | 2009.21 | 100.46 | C |
| | | | B | 0.146 | 2.786 | 0.581 | 1 | 1 | 22.384 | | | |
| | | | C | 0.307 | 2.278 | 0.618 | 1 | 1 | 42.186 | | | |
| T7 40.00-20.00 | 315.00 | 2930.28 | A | 0.202 | 2.59 | 0.591 | 1 | 1 | 34.113 | 1930.39 | 96.52 | C |
| | | | B | 0.129 | 2.852 | 0.578 | 1 | 1 | 23.944 | | | |
| | | | C | 0.264 | 2.396 | 0.606 | 1 | 1 | 43.386 | | | |
| T8 20.00-0.00 | 318.60 | 3047.35 | A | 0.179 | 2.666 | 0.586 | 1 | 1 | 35.715 | 2093.55 | 104.68 | C |
| | | | B | 0.116 | 2.899 | 0.577 | 1 | 1 | 25.590 | | | |
| | | | C | 0.237 | 2.476 | 0.599 | 1 | 1 | 45.535 | | | |
| Sum Weight: | 2125.08 | 16412.33 | | | | | | OTM | 862.01 kip-ft | 12904.27 | | |

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| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job CT11284A | Page 16 of 35 |
| | Project 1564017 | Date 17:33:12 11/09/15 |
| | Client T-Mobile | Designed by Ahmet Colakoglu |

Tower Forces - No Ice - Wind 60 To Face

| Section Elevation | Add Weight | Self Weight | F a c e | e | C _F | R _R | D _F | D _R | A _E | F | w | Ctrl. Face |
|---------------------|------------|-------------|---------|-------|----------------|----------------|----------------|----------------|------------------|----------|-------|------------|
| ft | lb | lb | | | | | | | ft ² | lb | plf | |
| T1 150.00-130.00 | 147.78 | 1153.27 | A | 0.247 | 2.448 | 0.601 | 0.8 | 1 | 15.254 | 1047.66 | 52.38 | A |
| | | | B | 0.129 | 2.85 | 0.579 | 0.8 | 1 | 7.692 | | | |
| | | | C | 0.206 | 2.576 | 0.592 | 0.8 | 1 | 12.535 | | | |
| T2 130.00-110.00 | 265.45 | 1303.60 | A | 0.282 | 2.345 | 0.611 | 0.8 | 1 | 17.798 | 1371.62 | 68.58 | C |
| | | | B | 0.136 | 2.822 | 0.579 | 0.8 | 1 | 8.170 | | | |
| | | | C | 0.362 | 2.144 | 0.637 | 0.8 | 1 | 23.826 | | | |
| T3 110.00-90.00 | 297.28 | 1707.52 | A | 0.313 | 2.262 | 0.62 | 0.8 | 1 | 20.126 | 1507.59 | 75.38 | C |
| | | | B | 0.155 | 2.753 | 0.582 | 0.8 | 1 | 9.366 | | | |
| | | | C | 0.427 | 2.013 | 0.663 | 0.8 | 1 | 29.389 | | | |
| T4 90.00-80.00 | 153.48 | 1127.61 | A | 0.319 | 2.246 | 0.622 | 0.8 | 1 | 13.921 | 937.42 | 93.74 | C |
| | | | B | 0.198 | 2.604 | 0.59 | 0.8 | 1 | 8.823 | | | |
| | | | C | 0.424 | 2.018 | 0.662 | 0.8 | 1 | 19.093 | | | |
| T5 80.00-60.00 | 312.49 | 2320.10 | A | 0.268 | 2.384 | 0.607 | 0.8 | 1 | 28.216 | 1895.63 | 94.78 | C |
| | | | B | 0.163 | 2.724 | 0.584 | 0.8 | 1 | 17.806 | | | |
| | | | C | 0.358 | 2.153 | 0.635 | 0.8 | 1 | 38.250 | | | |
| T6 60.00-40.00 | 315.00 | 2822.61 | A | 0.233 | 2.49 | 0.598 | 0.8 | 1 | 30.445 | 1916.98 | 95.85 | C |
| | | | B | 0.146 | 2.786 | 0.581 | 0.8 | 1 | 19.919 | | | |
| | | | C | 0.307 | 2.278 | 0.618 | 0.8 | 1 | 40.249 | | | |
| T7 40.00-20.00 | 315.00 | 2930.28 | A | 0.202 | 2.59 | 0.591 | 0.8 | 1 | 31.585 | 1827.71 | 91.39 | C |
| | | | B | 0.129 | 2.852 | 0.578 | 0.8 | 1 | 21.159 | | | |
| | | | C | 0.264 | 2.396 | 0.606 | 0.8 | 1 | 41.079 | | | |
| T8 20.00-0.00 | 318.60 | 3047.35 | A | 0.179 | 2.666 | 0.586 | 0.8 | 1 | 32.835 | 1971.32 | 98.57 | C |
| | | | B | 0.116 | 2.899 | 0.577 | 0.8 | 1 | 22.470 | | | |
| | | | C | 0.237 | 2.476 | 0.599 | 0.8 | 1 | 42.877 | | | |
| Sum Weight: | 2125.08 | 16412.33 | | | | | | OTM | 844.79 kip-ft | 12475.93 | | |

Tower Forces - No Ice - Wind 90 To Face

| Section Elevation | Add Weight | Self Weight | F a c e | e | C _F | R _R | D _F | D _R | A _E | F | w | Ctrl. Face |
|---------------------|------------|-------------|---------|-------|----------------|----------------|----------------|----------------|-----------------|---------|-------|------------|
| ft | lb | lb | | | | | | | ft ² | lb | plf | |
| T1 150.00-130.00 | 147.78 | 1153.27 | A | 0.247 | 2.448 | 0.601 | 0.85 | 1 | 15.254 | 1047.66 | 52.38 | A |
| | | | B | 0.129 | 2.85 | 0.579 | 0.85 | 1 | 7.692 | | | |
| | | | C | 0.206 | 2.576 | 0.592 | 0.85 | 1 | 12.535 | | | |
| T2 130.00-110.00 | 265.45 | 1303.60 | A | 0.282 | 2.345 | 0.611 | 0.85 | 1 | 17.798 | 1371.62 | 68.58 | C |
| | | | B | 0.136 | 2.822 | 0.579 | 0.85 | 1 | 8.170 | | | |
| | | | C | 0.362 | 2.144 | 0.637 | 0.85 | 1 | 23.826 | | | |
| T3 110.00-90.00 | 297.28 | 1707.52 | A | 0.313 | 2.262 | 0.62 | 0.85 | 1 | 20.126 | 1507.59 | 75.38 | C |
| | | | B | 0.155 | 2.753 | 0.582 | 0.85 | 1 | 9.366 | | | |
| | | | C | 0.427 | 2.013 | 0.663 | 0.85 | 1 | 29.389 | | | |
| T4 90.00-80.00 | 153.48 | 1127.61 | A | 0.319 | 2.246 | 0.622 | 0.85 | 1 | 14.136 | 946.03 | 94.60 | C |
| | | | B | 0.198 | 2.604 | 0.59 | 0.85 | 1 | 9.085 | | | |
| | | | C | 0.424 | 2.018 | 0.662 | 0.85 | 1 | 19.269 | | | |
| T5 80.00-60.00 | 312.49 | 2320.10 | A | 0.268 | 2.384 | 0.607 | 0.85 | 1 | 28.673 | 1914.82 | 95.74 | C |
| | | | B | 0.163 | 2.724 | 0.584 | 0.85 | 1 | 18.345 | | | |
| | | | C | 0.358 | 2.153 | 0.635 | 0.85 | 1 | 38.637 | | | |
| T6 60.00-40.00 | 315.00 | 2822.61 | A | 0.233 | 2.49 | 0.598 | 0.85 | 1 | 30.990 | 1940.04 | 97.00 | C |
| | | | B | 0.146 | 2.786 | 0.581 | 0.85 | 1 | 20.535 | | | |
| | | | C | 0.307 | 2.278 | 0.618 | 0.85 | 1 | 40.733 | | | |

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| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job CT11284A | Page 17 of 35 |
| | Project 1564017 | Date 17:33:12 11/09/15 |
| | Client T-Mobile | Designed by Ahmet Colakoglu |

| Section Elevation | Add Weight | Self Weight | F a c e | e | C _F | R _R | D _F | D _R | A _E | F | w | Ctrl. Face |
|-------------------|------------|-------------|---------|-------|----------------|----------------|----------------|----------------|------------------|----------|--------|------------|
| ft | lb | lb | | | | | | | ft ² | lb | plf | |
| T7 40.00-20.00 | 315.00 | 2930.28 | A | 0.202 | 2.59 | 0.591 | 0.85 | 1 | 32.217 | 1853.38 | 92.67 | C |
| | | | B | 0.129 | 2.852 | 0.578 | 0.85 | 1 | 21.855 | | | |
| | | | C | 0.264 | 2.396 | 0.606 | 0.85 | 1 | 41.656 | | | |
| T8 20.00-0.00 | 318.60 | 3047.35 | A | 0.179 | 2.666 | 0.586 | 0.85 | 1 | 33.555 | 2001.88 | 100.09 | C |
| | | | B | 0.116 | 2.899 | 0.577 | 0.85 | 1 | 23.250 | | | |
| | | | C | 0.237 | 2.476 | 0.599 | 0.85 | 1 | 43.541 | | | |
| Sum Weight: | 2125.08 | 16412.33 | | | | | | OTM | 849.10 kip-ft | 12583.02 | | |

Tower Forces - With Ice - Wind Normal To Face

| Section Elevation | Add Weight | Self Weight | F a c e | e | C _F | R _R | D _F | D _R | A _E | F | w | Ctrl. Face |
|---------------------|------------|-------------|---------|-------|--------------------------|----------------|----------------|----------------|------------------|---------|-------|------------|
| ft | lb | lb | | | | | | | ft ² | lb | plf | |
| T1 150.00-130.00 | 836.05 | 2347.15 | A | 0.576 | 1.82 | 0.739 | 1 | 1 | 50.112 | 577.55 | 28.88 | A |
| | | | B | 0.385 | 2.095 | 0.645 | 1 | 1 | 26.528 | | | |
| | | | C | 0.518 | 1.878 | 0.707 | 1 | 1 | 42.028 | | | |
| T2 130.00-110.00 | 1573.36 | 2485.49 | A | 0.626 | 1.79 | 0.77 | 1 | 1 | 56.379 | 812.56 | 40.63 | C |
| | | | B | 0.385 | 2.094 | 0.646 | 1 | 1 | 26.673 | | | |
| | | | C | 0.76 | 1.792 | 0.864 | 1 | 1 | 74.863 | | | |
| T3 110.00-90.00 | 1822.59 | 2933.63 | A | 0.66 | 1.779 | 0.792 | 1 | 1 | 60.470 | 1008.58 | 50.43 | C |
| | | | B | 0.396 | 2.071 | 0.65 | 1 | 1 | 27.711 | | | |
| | | | C | 0.88 | 1.897 | 0.965 | 1 | 1 | 92.466 | | | |
| T4 90.00-80.00 | 948.76 | 2734.91 | A | 0.801 | 1.817 | 0.897 | 1 | 1 | 50.358 | 748.07* | 74.81 | C |
| | | | B | 0.564 | 1.831 | 0.732 | 1 | 1 | 29.541 | | | |
| | | | C | 1 | 2.1 | 1 | 1 | 1 | 71.757 | | | |
| T5 80.00-60.00 | 1987.87 | 7671.46 | A | 0.677 | 1.776 | 0.804 | 1 | 1 | 95.863 | 1562.67 | 78.13 | C |
| | | | B | 0.46 | 1.957 | 0.678 | 1 | 1 | 55.317 | | | |
| | | | C | 0.924 | 1.96 | 1 | 1 | 1 | 153.529 | | | |
| T6 60.00-40.00 | 1971.34 | 8012.88 | A | 0.565 | 1.83 | 0.733 | 1 | 1 | 93.431 | 1240.69 | 62.03 | C |
| | | | B | 0.382 | 2.101 | 0.644 | 1 | 1 | 55.222 | | | |
| | | | C | 0.779 | 1.802 | 0.879 | 1 | 1 | 145.968 | | | |
| T7 40.00-20.00 | 1884.15 | 7827.77 | A | 0.47 | 1.943 | 0.682 | 1 | 1 | 88.943 | 997.25 | 49.86 | C |
| | | | B | 0.316 | 2.254 | 0.621 | 1 | 1 | 53.593 | | | |
| | | | C | 0.647 | 1.783 | 0.783 | 1 | 1 | 133.543 | | | |
| T8 20.00-0.00 | 1925.66 | 8058.85 | A | 0.415 | 2.036 | 0.658 | 1 | 1 | 89.526 | 1024.67 | 51.23 | C |
| | | | B | 0.281 | 2.347 | 0.61 | 1 | 1 | 55.255 | | | |
| | | | C | 0.58 | 1.817 | 0.742 | 1 | 1 | 134.579 | | | |
| Sum Weight: | 12949.77 | 42072.15 | | | 2A _g limit | | | OTM | 554.39 kip-ft | 7972.04 | | |

Tower Forces - With Ice - Wind 60 To Face

| Section Elevation | Add Weight | Self Weight | F a c e | e | C _F | R _R | D _F | D _R | A _E | F | w | Ctrl. Face |
|---------------------|------------|-------------|---------|-------|----------------|----------------|----------------|----------------|-----------------|--------|-------|------------|
| ft | lb | lb | | | | | | | ft ² | lb | plf | |
| T1 150.00-130.00 | 836.05 | 2347.15 | A | 0.576 | 1.82 | 0.739 | 0.8 | 1 | 46.621 | 537.32 | 26.87 | A |
| | | | B | 0.385 | 2.095 | 0.645 | 0.8 | 1 | 26.528 | | | |
| | | | C | 0.518 | 1.878 | 0.707 | 0.8 | 1 | 40.048 | | | |

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|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 18 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

| Section Elevation ft | Add Weight lb | Self Weight lb | F a c e | e | C _F | R _R | D _F | D _R | A _E ft ² | F lb | w plf | Ctrl. Face |
|-------------------------|------------------|-------------------|---------|-------|-----------------------------------|----------------|----------------|----------------|-----------------------------------|---------|----------|------------|
| T2 130.00-110.00 | 1573.36 | 2485.49 | A | 0.626 | 1.79 | 0.77 | 0.8 | 1 | 52.272 | 740.92 | 37.05 | C |
| | | | B | 0.385 | 2.094 | 0.646 | 0.8 | 1 | 26.673 | | | |
| | | | C | 0.76 | 1.792 | 0.864 | 0.8 | 1 | 68.263 | | | |
| T3 110.00-90.00 | 1822.59 | 2933.63 | A | 0.66 | 1.779 | 0.792 | 0.8 | 1 | 56.363 | 936.59 | 46.83 | C |
| | | | B | 0.396 | 2.071 | 0.65 | 0.8 | 1 | 27.711 | | | |
| | | | C | 0.88 | 1.897 | 0.965 | 0.8 | 1 | 85.866 | | | |
| T4 90.00-80.00 | 948.76 | 2734.91 | A | 0.801 | 1.817 | 0.897 | 0.8 | 1 | 47.664 | 748.07* | 74.81 | C |
| | | | B | 0.564 | 1.831 | 0.732 | 0.8 | 1 | 28.492 | | | |
| | | | C | 1 | 2.1 | 1 | 0.8 | 1 | 68.252 | | | |
| T5 80.00-60.00 | 1987.87 | 7671.46 | A | 0.677 | 1.776 | 0.804 | 0.8 | 1 | 90.344 | 1489.72 | 74.49 | C |
| | | | B | 0.46 | 1.957 | 0.678 | 0.8 | 1 | 53.161 | | | |
| | | | C | 0.924 | 1.96 | 1 | 0.8 | 1 | 146.361 | | | |
| T6 60.00-40.00 | 1971.34 | 8012.88 | A | 0.565 | 1.83 | 0.733 | 0.8 | 1 | 87.508 | 1175.59 | 58.78 | C |
| | | | B | 0.382 | 2.101 | 0.644 | 0.8 | 1 | 52.757 | | | |
| | | | C | 0.779 | 1.802 | 0.879 | 0.8 | 1 | 138.309 | | | |
| T7 40.00-20.00 | 1884.15 | 7827.77 | A | 0.47 | 1.943 | 0.682 | 0.8 | 1 | 82.628 | 936.43 | 46.82 | C |
| | | | B | 0.316 | 2.254 | 0.621 | 0.8 | 1 | 50.808 | | | |
| | | | C | 0.647 | 1.783 | 0.783 | 0.8 | 1 | 125.400 | | | |
| T8 20.00-0.00 | 1925.66 | 8058.85 | A | 0.415 | 2.036 | 0.658 | 0.8 | 1 | 82.838 | 957.95 | 47.90 | C |
| | | | B | 0.281 | 2.347 | 0.61 | 0.8 | 1 | 52.135 | | | |
| | | | C | 0.58 | 1.817 | 0.742 | 0.8 | 1 | 125.815 | | | |
| Sum Weight: | 12949.77 | 42072.15 | | | ² A _g limit | | | OTM | 522.11 kip-ft | 7522.58 | | |

Tower Forces - With Ice - Wind 90 To Face

| Section Elevation ft | Add Weight lb | Self Weight lb | F a c e | e | C _F | R _R | D _F | D _R | A _E ft ² | F lb | w plf | Ctrl. Face |
|-------------------------|------------------|-------------------|---------|-------|-----------------------------|----------------|----------------|----------------|-----------------------------------|---------|----------|------------|
| T1 150.00-130.00 | 836.05 | 2347.15 | A | 0.576 | 1.82 | 0.739 | 0.85 | 1 | 47.494 | 547.37 | 27.37 | A |
| | | | B | 0.385 | 2.095 | 0.645 | 0.85 | 1 | 26.528 | | | |
| | | | C | 0.518 | 1.878 | 0.707 | 0.85 | 1 | 40.543 | | | |
| T2 130.00-110.00 | 1573.36 | 2485.49 | A | 0.626 | 1.79 | 0.77 | 0.85 | 1 | 53.299 | 758.83 | 37.94 | C |
| | | | B | 0.385 | 2.094 | 0.646 | 0.85 | 1 | 26.673 | | | |
| | | | C | 0.76 | 1.792 | 0.864 | 0.85 | 1 | 69.913 | | | |
| T3 110.00-90.00 | 1822.59 | 2933.63 | A | 0.66 | 1.779 | 0.792 | 0.85 | 1 | 57.390 | 954.59 | 47.73 | C |
| | | | B | 0.396 | 2.071 | 0.65 | 0.85 | 1 | 27.711 | | | |
| | | | C | 0.88 | 1.897 | 0.965 | 0.85 | 1 | 87.516 | | | |
| T4 90.00-80.00 | 948.76 | 2734.91 | A | 0.801 | 1.817 | 0.897 | 0.85 | 1 | 48.338 | 748.07* | 74.81 | C |
| | | | B | 0.564 | 1.831 | 0.732 | 0.85 | 1 | 28.754 | | | |
| | | | C | 1 | 2.1 | 1 | 0.85 | 1 | 69.128 | | | |
| T5 80.00-60.00 | 1987.87 | 7671.46 | A | 0.677 | 1.776 | 0.804 | 0.85 | 1 | 91.724 | 1507.96 | 75.40 | C |
| | | | B | 0.46 | 1.957 | 0.678 | 0.85 | 1 | 53.700 | | | |
| | | | C | 0.924 | 1.96 | 1 | 0.85 | 1 | 148.153 | | | |
| T6 60.00-40.00 | 1971.34 | 8012.88 | A | 0.565 | 1.83 | 0.733 | 0.85 | 1 | 88.989 | 1191.87 | 59.59 | C |
| | | | B | 0.382 | 2.101 | 0.644 | 0.85 | 1 | 53.373 | | | |
| | | | C | 0.779 | 1.802 | 0.879 | 0.85 | 1 | 140.224 | | | |
| T7 40.00-20.00 | 1884.15 | 7827.77 | A | 0.47 | 1.943 | 0.682 | 0.85 | 1 | 84.206 | 951.64 | 47.58 | C |
| | | | B | 0.316 | 2.254 | 0.621 | 0.85 | 1 | 51.504 | | | |
| | | | C | 0.647 | 1.783 | 0.783 | 0.85 | 1 | 127.436 | | | |
| T8 20.00-0.00 | 1925.66 | 8058.85 | A | 0.415 | 2.036 | 0.658 | 0.85 | 1 | 84.510 | 974.63 | 48.73 | C |
| | | | B | 0.281 | 2.347 | 0.61 | 0.85 | 1 | 52.915 | | | |
| | | | C | 0.58 | 1.817 | 0.742 | 0.85 | 1 | 128.006 | | | |
| Sum Weight: | 12949.77 | 42072.15 | | | ² A _g | | | OTM | 530.18 | 7634.95 | | |

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|---|---------------------------|---------------------------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job CT11284A | Page 19 of 35 |
| | Project 1564017 | Date 17:33:12 11/09/15 |
| | Client T-Mobile | Designed by Ahmet Colakoglu |

| Section Elevation | Add Weight | Self Weight | F a c e | e | C _F | R _R | D _F | D _R | A _E | F | w | Ctrl. Face |
|-------------------|------------|-------------|---------|---|----------------|----------------|----------------|----------------|-----------------|----|-----|------------|
| ft | lb | lb | | | limit | | | | ft ² | lb | plf | |

Tower Forces - Service - Wind Normal To Face

| Section Elevation | Add Weight | Self Weight | F a c e | e | C _F | R _R | D _F | D _R | A _E | F | w | Ctrl. Face | |
|-------------------|------------|-------------|---------|-------|----------------|----------------|----------------|----------------|-----------------|---------|--------|------------|---|
| ft | lb | lb | | | | | | | ft ² | lb | plf | | |
| T1 | 147.78 | 1153.27 | A | 0.247 | 2.448 | 0.601 | 1 | 1 | 15.254 | 409.24 | 20.46 | A | |
| 150.00-130.00 | | | B | 0.129 | 2.85 | 0.579 | 1 | 1 | 7.692 | | | | |
| | | | C | 0.206 | 2.576 | 0.592 | 1 | 1 | 12.535 | | | | |
| | | | | | | | | | | | | | |
| T2 | 265.45 | 1303.60 | A | 0.282 | 2.345 | 0.611 | 1 | 1 | 17.798 | 535.79 | 26.79 | C | |
| 130.00-110.00 | | | B | 0.136 | 2.822 | 0.579 | 1 | 1 | 8.170 | | | | |
| | | | C | 0.362 | 2.144 | 0.637 | 1 | 1 | 23.826 | | | | |
| | | | | | | | | | | | | | |
| T3 | 297.28 | 1707.52 | A | 0.313 | 2.262 | 0.62 | 1 | 1 | 20.126 | 588.90 | 29.45 | C | |
| 110.00-90.00 | | | B | 0.155 | 2.753 | 0.582 | 1 | 1 | 9.366 | | | | |
| | | | C | 0.427 | 2.013 | 0.663 | 1 | 1 | 29.389 | | | | |
| | | | | | | | | | | | | | |
| T4 | 153.48 | 1127.61 | A | 0.319 | 2.246 | 0.622 | 1 | 1 | 14.784 | 379.63 | 37.96 | C | |
| 90.00-80.00 | | | B | 0.198 | 2.604 | 0.59 | 1 | 1 | 9.872 | | | | |
| | | | C | 0.424 | 2.018 | 0.662 | 1 | 1 | 19.795 | | | | |
| | | | | | | | | | | | | | |
| T5 | 312.49 | 2320.10 | A | 0.268 | 2.384 | 0.607 | 1 | 1 | 30.044 | 770.46 | 38.52 | C | |
| 80.00-60.00 | | | B | 0.163 | 2.724 | 0.584 | 1 | 1 | 19.962 | | | | |
| | | | C | 0.358 | 2.153 | 0.635 | 1 | 1 | 39.799 | | | | |
| | | | | | | | | | | | | | |
| T6 | 315.00 | 2822.61 | A | 0.233 | 2.49 | 0.598 | 1 | 1 | 32.624 | 784.85 | 39.24 | C | |
| 60.00-40.00 | | | B | 0.146 | 2.786 | 0.581 | 1 | 1 | 22.384 | | | | |
| | | | C | 0.307 | 2.278 | 0.618 | 1 | 1 | 42.186 | | | | |
| | | | | | | | | | | | | | |
| T7 | 315.00 | 2930.28 | A | 0.202 | 2.59 | 0.591 | 1 | 1 | 34.113 | 754.06 | 37.70 | C | |
| 40.00-20.00 | | | B | 0.129 | 2.852 | 0.578 | 1 | 1 | 23.944 | | | | |
| | | | C | 0.264 | 2.396 | 0.606 | 1 | 1 | 43.386 | | | | |
| | | | | | | | | | | | | | |
| T8 | 20.00-0.00 | 318.60 | 3047.35 | A | 0.179 | 2.666 | 0.586 | 1 | 1 | 35.715 | 817.79 | 40.89 | C |
| | | | B | 0.116 | 2.899 | 0.577 | 1 | 1 | 25.590 | | | | |
| | | | C | 0.237 | 2.476 | 0.599 | 1 | 1 | 45.535 | | | | |
| | | | | | | | | | | | | | |
| Sum Weight: | 2125.08 | 16412.33 | | | | | | OTM | 336.72 | 5040.73 | | | |

Tower Forces - Service - Wind 60 To Face

| Section Elevation | Add Weight | Self Weight | F a c e | e | C _F | R _R | D _F | D _R | A _E | F | w | Ctrl. Face | |
|-------------------|------------|-------------|---------|-------|----------------|----------------|----------------|----------------|-----------------|--------|-------|------------|--|
| ft | lb | lb | | | | | | | ft ² | lb | plf | | |
| T1 | 147.78 | 1153.27 | A | 0.247 | 2.448 | 0.601 | 0.8 | 1 | 15.254 | 409.24 | 20.46 | A | |
| 150.00-130.00 | | | B | 0.129 | 2.85 | 0.579 | 0.8 | 1 | 7.692 | | | | |
| | | | C | 0.206 | 2.576 | 0.592 | 0.8 | 1 | 12.535 | | | | |
| | | | | | | | | | | | | | |
| T2 | 265.45 | 1303.60 | A | 0.282 | 2.345 | 0.611 | 0.8 | 1 | 17.798 | 535.79 | 26.79 | C | |
| 130.00-110.00 | | | B | 0.136 | 2.822 | 0.579 | 0.8 | 1 | 8.170 | | | | |
| | | | C | 0.362 | 2.144 | 0.637 | 0.8 | 1 | 23.826 | | | | |
| | | | | | | | | | | | | | |
| T3 | 297.28 | 1707.52 | A | 0.313 | 2.262 | 0.62 | 0.8 | 1 | 20.126 | 588.90 | 29.45 | C | |
| 110.00-90.00 | | | B | 0.155 | 2.753 | 0.582 | 0.8 | 1 | 9.366 | | | | |
| | | | C | 0.427 | 2.013 | 0.663 | 0.8 | 1 | 29.389 | | | | |
| | | | | | | | | | | | | | |
| T4 | 153.48 | 1127.61 | A | 0.319 | 2.246 | 0.622 | 0.8 | 1 | 13.921 | 366.18 | 36.62 | C | |

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|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 20 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

| Section Elevation | Add Weight | Self Weight | F a c e | e | C _F | R _R | D _F | D _R | A _E | F | w | Ctrl. Face |
|-------------------|------------|-------------|---------|-------|----------------|----------------|----------------|----------------|------------------|---------|-------|------------|
| ft | lb | lb | | | | | | | ft ² | lb | plf | |
| 90.00-80.00 | | | B | 0.198 | 2.604 | 0.59 | 0.8 | 1 | 8.823 | | | |
| | | | C | 0.424 | 2.018 | 0.662 | 0.8 | 1 | 19.093 | | | |
| T5 | 312.49 | 2320.10 | A | 0.268 | 2.384 | 0.607 | 0.8 | 1 | 28.216 | 740.48 | 37.02 | C |
| 80.00-60.00 | | | B | 0.163 | 2.724 | 0.584 | 0.8 | 1 | 17.806 | | | |
| | | | C | 0.358 | 2.153 | 0.635 | 0.8 | 1 | 38.250 | | | |
| T6 | 315.00 | 2822.61 | A | 0.233 | 2.49 | 0.598 | 0.8 | 1 | 30.445 | 748.82 | 37.44 | C |
| 60.00-40.00 | | | B | 0.146 | 2.786 | 0.581 | 0.8 | 1 | 19.919 | | | |
| | | | C | 0.307 | 2.278 | 0.618 | 0.8 | 1 | 40.249 | | | |
| T7 | 315.00 | 2930.28 | A | 0.202 | 2.59 | 0.591 | 0.8 | 1 | 31.585 | 713.95 | 35.70 | C |
| 40.00-20.00 | | | B | 0.129 | 2.852 | 0.578 | 0.8 | 1 | 21.159 | | | |
| | | | C | 0.264 | 2.396 | 0.606 | 0.8 | 1 | 41.079 | | | |
| T8 20.00-0.00 | 318.60 | 3047.35 | A | 0.179 | 2.666 | 0.586 | 0.8 | 1 | 32.835 | 770.05 | 38.50 | C |
| | | | B | 0.116 | 2.899 | 0.577 | 0.8 | 1 | 22.470 | | | |
| | | | C | 0.237 | 2.476 | 0.599 | 0.8 | 1 | 42.877 | | | |
| Sum Weight: | 2125.08 | 16412.33 | | | | | | OTM | 330.00 kip-ft | 4873.41 | | |

Tower Forces - Service - Wind 90 To Face

| Section Elevation | Add Weight | Self Weight | F a c e | e | C _F | R _R | D _F | D _R | A _E | F | w | Ctrl. Face |
|-------------------|------------|-------------|---------|-------|----------------|----------------|----------------|----------------|------------------|---------|-------|------------|
| ft | lb | lb | | | | | | | ft ² | lb | plf | |
| T1 | 147.78 | 1153.27 | A | 0.247 | 2.448 | 0.601 | 0.85 | 1 | 15.254 | 409.24 | 20.46 | A |
| 150.00-130.00 | | | B | 0.129 | 2.85 | 0.579 | 0.85 | 1 | 7.692 | | | |
| | | | C | 0.206 | 2.576 | 0.592 | 0.85 | 1 | 12.535 | | | |
| T2 | 265.45 | 1303.60 | A | 0.282 | 2.345 | 0.611 | 0.85 | 1 | 17.798 | 535.79 | 26.79 | C |
| 130.00-110.00 | | | B | 0.136 | 2.822 | 0.579 | 0.85 | 1 | 8.170 | | | |
| | | | C | 0.362 | 2.144 | 0.637 | 0.85 | 1 | 23.826 | | | |
| T3 | 297.28 | 1707.52 | A | 0.313 | 2.262 | 0.62 | 0.85 | 1 | 20.126 | 588.90 | 29.45 | C |
| 110.00-90.00 | | | B | 0.155 | 2.753 | 0.582 | 0.85 | 1 | 9.366 | | | |
| | | | C | 0.427 | 2.013 | 0.663 | 0.85 | 1 | 29.389 | | | |
| T4 | 153.48 | 1127.61 | A | 0.319 | 2.246 | 0.622 | 0.85 | 1 | 14.136 | 369.54 | 36.95 | C |
| 90.00-80.00 | | | B | 0.198 | 2.604 | 0.59 | 0.85 | 1 | 9.085 | | | |
| | | | C | 0.424 | 2.018 | 0.662 | 0.85 | 1 | 19.269 | | | |
| T5 | 312.49 | 2320.10 | A | 0.268 | 2.384 | 0.607 | 0.85 | 1 | 28.673 | 747.98 | 37.40 | C |
| 80.00-60.00 | | | B | 0.163 | 2.724 | 0.584 | 0.85 | 1 | 18.345 | | | |
| | | | C | 0.358 | 2.153 | 0.635 | 0.85 | 1 | 38.637 | | | |
| T6 | 315.00 | 2822.61 | A | 0.233 | 2.49 | 0.598 | 0.85 | 1 | 30.990 | 757.83 | 37.89 | C |
| 60.00-40.00 | | | B | 0.146 | 2.786 | 0.581 | 0.85 | 1 | 20.535 | | | |
| | | | C | 0.307 | 2.278 | 0.618 | 0.85 | 1 | 40.733 | | | |
| T7 | 315.00 | 2930.28 | A | 0.202 | 2.59 | 0.591 | 0.85 | 1 | 32.217 | 723.98 | 36.20 | C |
| 40.00-20.00 | | | B | 0.129 | 2.852 | 0.578 | 0.85 | 1 | 21.855 | | | |
| | | | C | 0.264 | 2.396 | 0.606 | 0.85 | 1 | 41.656 | | | |
| T8 20.00-0.00 | 318.60 | 3047.35 | A | 0.179 | 2.666 | 0.586 | 0.85 | 1 | 33.555 | 781.98 | 39.10 | C |
| | | | B | 0.116 | 2.899 | 0.577 | 0.85 | 1 | 23.250 | | | |
| | | | C | 0.237 | 2.476 | 0.599 | 0.85 | 1 | 43.541 | | | |
| Sum Weight: | 2125.08 | 16412.33 | | | | | | OTM | 331.68 kip-ft | 4915.24 | | |

Force Totals

| | | | | |
|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 21 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

| Load Case | Vertical Forces lb | Sum of Forces X lb | Sum of Forces Z lb | Sum of Overturning Moments, M_x kip-ft | Sum of Overturning Moments, M_z kip-ft | Sum of Torques kip-ft |
|--------------------------|-----------------------|-----------------------|-----------------------|---|---|--------------------------|
| Leg Weight | 9409.71 | | | | | |
| Bracing Weight | 7002.63 | | | | | |
| Total Member Self-Weight | 16412.33 | | | 1.80 | 8.16 | |
| Total Weight | 22072.81 | | | 1.80 | 8.16 | |
| Wind 0 deg - No Ice | | 990.22 | -18450.90 | -1554.52 | -56.08 | -9.15 |
| Wind 30 deg - No Ice | | 9728.52 | -15481.34 | -1311.15 | -808.57 | -4.33 |
| Wind 60 deg - No Ice | | 16027.24 | -9087.53 | -762.37 | -1358.79 | -0.18 |
| Wind 90 deg - No Ice | | 18520.20 | -540.89 | -27.35 | -1574.81 | 4.08 |
| Wind 120 deg - No Ice | | 16761.23 | 8367.90 | 724.32 | -1415.13 | 9.09 |
| Wind 150 deg - No Ice | | 8964.37 | 15260.55 | 1310.59 | -771.57 | 11.57 |
| Wind 180 deg - No Ice | | 29.28 | 17655.97 | 1512.27 | -7.22 | 11.11 |
| Wind 210 deg - No Ice | | -8934.27 | 15458.73 | 1312.98 | 762.86 | 7.36 |
| Wind 240 deg - No Ice | | -16013.71 | 9079.72 | 757.24 | 1359.98 | 0.06 |
| Wind 270 deg - No Ice | | -18103.48 | -135.64 | -21.88 | 1558.58 | -7.10 |
| Wind 300 deg - No Ice | | -15563.05 | -8853.34 | -766.75 | 1351.94 | -10.93 |
| Wind 330 deg - No Ice | | -8982.53 | -15250.06 | -1306.18 | 789.30 | -11.57 |
| Member Ice | 25659.81 | | | | | |
| Total Weight Ice | 62933.47 | | | 14.50 | 22.97 | |
| Wind 0 deg - Ice | | 275.79 | -10051.89 | -800.64 | 3.23 | -3.34 |
| Wind 30 deg - Ice | | 5037.71 | -8375.01 | -666.58 | -385.77 | -1.29 |
| Wind 60 deg - Ice | | 8416.55 | -4847.44 | -378.98 | -663.27 | 0.61 |
| Wind 90 deg - Ice | | 9789.61 | -165.01 | 3.41 | -775.31 | 2.40 |
| Wind 120 deg - Ice | | 8863.63 | 4787.11 | 404.97 | -697.54 | 4.07 |
| Wind 150 deg - Ice | | 4794.48 | 8288.91 | 690.65 | -369.89 | 4.47 |
| Wind 180 deg - Ice | | -24.44 | 9512.06 | 790.29 | 23.09 | 3.79 |
| Wind 210 deg - Ice | | -4841.90 | 8369.43 | 695.14 | 416.43 | 2.03 |
| Wind 240 deg - Ice | | -8711.00 | 5017.44 | 419.84 | 729.77 | -0.73 |
| Wind 270 deg - Ice | | -9686.88 | -1.78 | 12.56 | 813.24 | -3.14 |
| Wind 300 deg - Ice | | -8270.44 | -4734.86 | -373.30 | 699.61 | -4.40 |
| Wind 330 deg - Ice | | -4798.95 | -8286.32 | -661.45 | 416.19 | -4.47 |
| Total Weight | 22072.81 | | | 1.80 | 8.16 | |
| Wind 0 deg - Service | | 386.80 | -7207.38 | -607.81 | -18.89 | -3.58 |
| Wind 30 deg - Service | | 3800.20 | -6047.40 | -512.75 | -312.83 | -1.69 |
| Wind 60 deg - Service | | 6260.64 | -3549.82 | -298.38 | -527.76 | -0.07 |
| Wind 90 deg - Service | | 7234.45 | -211.29 | -11.26 | -612.15 | 1.59 |
| Wind 120 deg - Service | | 6547.36 | 3268.71 | 282.36 | -549.77 | 3.55 |
| Wind 150 deg - Service | | 3501.71 | 5961.15 | 511.37 | -298.38 | 4.52 |
| Wind 180 deg - Service | | 11.44 | 6896.86 | 590.15 | 0.19 | 4.34 |
| Wind 210 deg - Service | | -3489.95 | 6038.57 | 512.31 | 301.01 | 2.87 |
| Wind 240 deg - Service | | -6255.36 | 3546.77 | 295.22 | 534.26 | 0.02 |
| Wind 270 deg - Service | | -7071.67 | -52.99 | -9.13 | 611.83 | -2.77 |
| Wind 300 deg - Service | | -6079.32 | -3458.34 | -300.09 | 531.12 | -4.27 |
| Wind 330 deg - Service | | -3508.80 | -5957.05 | -510.81 | 311.33 | -4.52 |

Load Combinations

| Comb. No. | Description |
|-----------|----------------------------|
| 1 | Dead Only |
| 2 | Dead+Wind 0 deg - No Ice |
| 3 | Dead+Wind 30 deg - No Ice |
| 4 | Dead+Wind 60 deg - No Ice |
| 5 | Dead+Wind 90 deg - No Ice |
| 6 | Dead+Wind 120 deg - No Ice |
| 7 | Dead+Wind 150 deg - No Ice |
| 8 | Dead+Wind 180 deg - No Ice |

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| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job CT11284A | Page 22 of 35 |
| | Project 1564017 | Date 17:33:12 11/09/15 |
| | Client T-Mobile | Designed by Ahmet Colakoglu |

| Comb. No. | Description |
|-----------|-----------------------------|
| 9 | Dead+Wind 210 deg - No Ice |
| 10 | Dead+Wind 240 deg - No Ice |
| 11 | Dead+Wind 270 deg - No Ice |
| 12 | Dead+Wind 300 deg - No Ice |
| 13 | Dead+Wind 330 deg - No Ice |
| 14 | Dead+Ice+Temp |
| 15 | Dead+Wind 0 deg+Ice+Temp |
| 16 | Dead+Wind 30 deg+Ice+Temp |
| 17 | Dead+Wind 60 deg+Ice+Temp |
| 18 | Dead+Wind 90 deg+Ice+Temp |
| 19 | Dead+Wind 120 deg+Ice+Temp |
| 20 | Dead+Wind 150 deg+Ice+Temp |
| 21 | Dead+Wind 180 deg+Ice+Temp |
| 22 | Dead+Wind 210 deg+Ice+Temp |
| 23 | Dead+Wind 240 deg+Ice+Temp |
| 24 | Dead+Wind 270 deg+Ice+Temp |
| 25 | Dead+Wind 300 deg+Ice+Temp |
| 26 | Dead+Wind 330 deg+Ice+Temp |
| 27 | Dead+Wind 0 deg - Service |
| 28 | Dead+Wind 30 deg - Service |
| 29 | Dead+Wind 60 deg - Service |
| 30 | Dead+Wind 90 deg - Service |
| 31 | Dead+Wind 120 deg - Service |
| 32 | Dead+Wind 150 deg - Service |
| 33 | Dead+Wind 180 deg - Service |
| 34 | Dead+Wind 210 deg - Service |
| 35 | Dead+Wind 240 deg - Service |
| 36 | Dead+Wind 270 deg - Service |
| 37 | Dead+Wind 300 deg - Service |
| 38 | Dead+Wind 330 deg - Service |

Maximum Member Forces

| Section No. | Elevation ft | Component Type | Condition | Gov. Load Comb. | Force lb | Major Axis Moment kip-ft | Minor Axis Moment kip-ft | |
|-------------|--------------|----------------|------------------|------------------|-----------|--------------------------|--------------------------|------|
| T1 | 150 - 130 | Leg | Max Tension | 12 | 13660.23 | -0.83 | -0.42 | |
| | | | Max. Compression | 2 | -15179.67 | -0.02 | 0.23 | |
| | | | Max. Mx | 5 | -13163.44 | 0.89 | 0.08 | |
| | | | Max. My | 8 | -7857.95 | 0.07 | 0.89 | |
| | | | Max. Vy | 5 | 1679.04 | -0.23 | -0.03 | |
| | | | Max. Vx | 8 | 1660.68 | -0.01 | -0.22 | |
| | | | Diagonal | Max Tension | 9 | 2305.09 | 0.00 | 0.00 |
| | | | | Max. Compression | 3 | -2293.82 | 0.00 | 0.00 |
| | | | | Max. Mx | 21 | 820.56 | -0.00 | 0.00 |
| | | | | Max. My | 8 | -2013.28 | -0.00 | 0.00 |
| | | Max. Vy | | 21 | 8.06 | -0.00 | 0.00 | |
| | | Top Girt | Max. Vx | 8 | 0.27 | -0.00 | 0.00 | |
| | | | Max Tension | 12 | 201.98 | 0.00 | 0.00 | |
| | | | Max. Compression | 6 | -222.80 | 0.00 | 0.00 | |
| | | | Max. Mx | 17 | 50.67 | 0.02 | 0.00 | |
| | | | Max. My | 13 | -15.13 | 0.00 | -0.00 | |
| | | Bottom Girt | Max. Vy | 17 | 14.63 | 0.00 | 0.00 | |
| | | | Max. Vx | 13 | -0.00 | 0.00 | 0.00 | |
| | | | Max Tension | 12 | 1153.28 | 0.00 | 0.00 | |
| | | | Max. Compression | 6 | -1175.59 | 0.00 | 0.00 | |
| Max. Mx | 19 | | -438.97 | 0.02 | 0.00 | | | |
| | | Max. My | 13 | 43.70 | 0.00 | -0.00 | | |
| | | Max. Vy | 19 | 14.63 | 0.00 | 0.00 | | |

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|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 23 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

| Section No. | Elevation ft | Component Type | Condition | Gov. Load Comb. | Force lb | Major Axis Moment kip-ft | Minor Axis Moment kip-ft | |
|-------------|------------------|------------------|------------------|------------------|-----------|--------------------------|--------------------------|-------|
| T2 | 130 - 110 | Mid Girt | Max. Vx | 13 | -0.00 | 0.00 | 0.00 | |
| | | | Max Tension | 12 | 158.26 | 0.00 | 0.00 | |
| | | | Max. Compression | 6 | -146.52 | 0.00 | 0.00 | |
| | | | Max. Mx | 19 | -49.60 | 0.02 | 0.00 | |
| | | | Max. My | 13 | 4.54 | 0.00 | -0.00 | |
| | | | Max. Vy | 19 | 14.63 | 0.00 | 0.00 | |
| | | Leg | Max. Vx | 13 | -0.00 | 0.00 | 0.00 | |
| | | | Max Tension | 12 | 40506.26 | -1.14 | -0.58 | |
| | | | Max. Compression | 6 | -42791.38 | -0.30 | -0.16 | |
| | | | Max. Mx | 5 | -13175.62 | -1.34 | -0.14 | |
| | | | Max. My | 8 | -7873.92 | -0.08 | -1.32 | |
| | | | Max. Vy | 5 | 2298.50 | -0.30 | -0.05 | |
| | | | Diagonal | Max. Vx | 8 | 2359.77 | -0.00 | -0.30 |
| | | | | Max Tension | 9 | 3421.34 | 0.00 | 0.00 |
| | | | | Max. Compression | 3 | -3376.02 | 0.00 | 0.00 |
| | | | | Max. Mx | 24 | 417.18 | -0.00 | 0.00 |
| | | | | Max. My | 3 | -3357.26 | -0.00 | -0.00 |
| | | | | Max. Vy | 24 | 8.02 | -0.00 | 0.00 |
| | | Top Girt | Max. Vx | 9 | -0.49 | -0.00 | 0.00 | |
| | | | Max Tension | 6 | 1313.45 | 0.00 | 0.00 | |
| | | | Max. Compression | 12 | -1279.76 | 0.00 | 0.00 | |
| | | | Max. Mx | 17 | -482.71 | 0.02 | 0.00 | |
| | | | Max. My | 13 | -18.70 | 0.00 | -0.00 | |
| | | | Max. Vy | 17 | 14.41 | 0.00 | 0.00 | |
| | | Bottom Girt | Max. Vx | 13 | -0.00 | 0.00 | 0.00 | |
| | | | Max Tension | 12 | 1575.41 | 0.00 | 0.00 | |
| | | | Max. Compression | 6 | -1642.12 | 0.00 | 0.00 | |
| | | | Max. Mx | 17 | 689.37 | 0.02 | 0.00 | |
| | | | Max. My | 13 | 136.29 | 0.00 | -0.00 | |
| | | | Max. Vy | 17 | 14.41 | 0.00 | 0.00 | |
| Mid Girt | Max. Vx | 13 | -0.00 | 0.00 | 0.00 | | | |
| | Max Tension | 12 | 161.83 | 0.00 | 0.00 | | | |
| | Max. Compression | 2 | -140.86 | 0.00 | 0.00 | | | |
| | Max. Mx | 17 | 74.77 | 0.02 | 0.00 | | | |
| | Max. My | 13 | 6.58 | 0.00 | -0.00 | | | |
| | Max. Vy | 17 | 14.41 | 0.00 | 0.00 | | | |
| | Leg | Max. Vx | 13 | -0.00 | 0.00 | 0.00 | | |
| | | Max Tension | 12 | 75179.13 | -0.28 | -0.13 | | |
| | | Max. Compression | 6 | -78522.98 | -1.76 | -0.85 | | |
| | | Max. Mx | 5 | -37092.84 | -1.82 | -0.23 | | |
| | | Max. My | 2 | -76241.89 | -0.27 | 1.89 | | |
| | | Max. Vy | 5 | 3132.97 | -1.77 | -0.30 | | |
| Diagonal | | Max. Vx | 2 | -3308.97 | -0.27 | 1.89 | | |
| | | Max Tension | 9 | 3800.74 | 0.00 | 0.00 | | |
| | | Max. Compression | 3 | -3899.96 | 0.00 | 0.00 | | |
| | | Max. Mx | 23 | 1503.60 | -0.01 | 0.00 | | |
| | | Max. My | 3 | -3876.30 | -0.00 | -0.00 | | |
| | | Max. Vy | 23 | 9.57 | -0.01 | 0.00 | | |
| Top Girt | Max. Vx | 3 | 0.94 | -0.00 | -0.00 | | | |
| | Max Tension | 6 | 1623.40 | 0.00 | 0.00 | | | |
| | Max. Compression | 12 | -1536.61 | 0.00 | 0.00 | | | |
| | Max. Mx | 17 | -666.73 | 0.02 | 0.00 | | | |
| | Max. My | 8 | 592.49 | 0.00 | -0.00 | | | |
| | Max. Vy | 17 | -18.79 | 0.00 | 0.00 | | | |
| Bottom Girt | Max. Vx | 8 | 0.00 | 0.00 | 0.00 | | | |
| | Max Tension | 12 | 1513.83 | 0.00 | 0.00 | | | |
| | Max. Compression | 6 | -1442.82 | 0.00 | 0.00 | | | |
| | Max. Mx | 14 | 31.92 | 0.02 | 0.00 | | | |
| | Max. My | 13 | -59.95 | 0.00 | -0.00 | | | |
| | Max. Vy | 14 | -18.79 | 0.00 | 0.00 | | | |
| Max. Vx | 13 | 0.00 | 0.00 | 0.00 | | | | |

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|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 24 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

| Section No. | Elevation ft | Component Type | Condition | Gov. Load Comb. | Force lb | Major Axis Moment kip-ft | Minor Axis Moment kip-ft | | | |
|-------------|------------------|----------------|------------------|------------------|------------|--------------------------|--------------------------|------------|-------|-------|
| T4 | 90 - 80 | Mid Girt | Max Tension | 12 | 361.77 | 0.00 | 0.00 | | | |
| | | | Max. Compression | 6 | -341.54 | 0.00 | 0.00 | | | |
| | | | Max. Mx | 17 | 173.69 | 0.02 | 0.00 | | | |
| | | | Max. My | 13 | 3.50 | 0.00 | -0.00 | | | |
| | | | Max. Vy | 17 | -18.79 | 0.00 | 0.00 | | | |
| | | | Max. Vx | 13 | 0.00 | 0.00 | 0.00 | | | |
| | | Leg | Max Tension | 12 | 73349.74 | -1.86 | 0.14 | | | |
| | | | Max. Compression | 6 | -76439.55 | 3.54 | -0.13 | | | |
| | | | Max. Mx | 12 | 73190.71 | -3.86 | 0.14 | | | |
| | | | Max. My | 13 | -5367.04 | -0.04 | 6.88 | | | |
| | | | Max. Vy | 4 | 366.28 | -3.79 | -0.11 | | | |
| | | | Max. Vx | 13 | -689.79 | -0.04 | 6.88 | | | |
| | | | Diagonal | Max Tension | 7 | 4795.59 | 0.00 | 0.00 | | |
| | | | | Max. Compression | 13 | -5296.66 | 0.00 | 0.00 | | |
| Max. Mx | 12 | 1969.99 | | 0.16 | -0.02 | | | | | |
| Max. My | 9 | -2320.53 | | -0.10 | -0.05 | | | | | |
| T5 | 80 - 60 | Leg | Max. Vy | 12 | 34.92 | 0.16 | -0.02 | | | |
| | | | Max. Vx | 9 | 9.91 | 0.00 | 0.00 | | | |
| | | | Max Tension | 12 | 86576.86 | -3.91 | 0.13 | | | |
| | | | Max. Compression | 6 | -92953.03 | 3.23 | -0.11 | | | |
| | | | Max. Mx | 6 | -87018.37 | 3.96 | -0.20 | | | |
| | | | Max. My | 13 | -6014.69 | -0.04 | 6.88 | | | |
| | | Diagonal | Max. Vy | 4 | -243.74 | -3.79 | -0.11 | | | |
| | | | Max. Vx | 13 | 598.14 | -0.04 | 6.88 | | | |
| | | | Max Tension | 2 | 4207.18 | 0.00 | 0.00 | | | |
| | | | Max. Compression | 8 | -3965.32 | 0.00 | 0.00 | | | |
| | | | Max. Mx | 6 | 3793.67 | 0.16 | 0.00 | | | |
| | | | Max. My | 8 | 324.35 | 0.13 | -0.02 | | | |
| | | | Max. Vy | 23 | -41.79 | 0.11 | 0.01 | | | |
| | | | Max. Vx | 8 | 4.88 | 0.00 | 0.00 | | | |
| T6 | 60 - 40 | Leg | Max Tension | 12 | 97890.74 | -3.42 | 0.05 | | | |
| | | | Max. Compression | 6 | -107863.58 | 3.06 | -0.16 | | | |
| | | | Max. Mx | 6 | -101114.81 | 3.45 | -0.11 | | | |
| | | | Max. My | 13 | -7074.24 | 0.06 | 3.45 | | | |
| | | | Max. Vy | 17 | 134.72 | -2.02 | -0.00 | | | |
| | | | Max. Vx | 13 | 118.33 | 0.06 | 3.45 | | | |
| | | Diagonal | Max Tension | 2 | 3259.07 | 0.00 | 0.00 | | | |
| | | | Max. Compression | 2 | -3344.96 | 0.00 | 0.00 | | | |
| | | | Max. Mx | 6 | 1446.95 | 0.10 | -0.01 | | | |
| | | | Max. My | 8 | 910.02 | 0.09 | -0.01 | | | |
| | | | Max. Vy | 25 | 43.73 | 0.08 | -0.01 | | | |
| | | | Max. Vx | 21 | 3.13 | 0.00 | 0.00 | | | |
| | | | T7 | 40 - 20 | Leg | Max Tension | 12 | 108401.73 | -2.98 | 0.04 |
| | | | | | | Max. Compression | 6 | -121602.78 | 3.32 | -0.09 |
| Max. Mx | 25 | 39637.61 | | | | -4.07 | 0.04 | | | |
| Max. My | 5 | -6281.65 | | | | 0.02 | 3.21 | | | |
| Max. Vy | 17 | 438.75 | | | | -4.01 | -0.01 | | | |
| Max. Vx | 13 | 198.80 | | | | -0.02 | 3.16 | | | |
| Diagonal | Max Tension | 9 | | | 3101.76 | 0.00 | 0.00 | | | |
| | Max. Compression | 2 | | | -3430.25 | 0.00 | 0.00 | | | |
| | Max. Mx | 23 | | | 1107.91 | 0.10 | 0.01 | | | |
| | Max. My | 20 | | | -1262.29 | 0.06 | -0.01 | | | |
| | Max. Vy | 25 | | | 48.51 | 0.09 | -0.01 | | | |
| | Max. Vx | 20 | | | 2.97 | 0.00 | 0.00 | | | |
| | T8 | 20 - 0 | | | Leg | Max Tension | 4 | 118094.02 | -2.86 | -0.08 |
| | | | | | | Max. Compression | 6 | -134273.72 | 0.00 | 0.00 |
| Max. Mx | | | 23 | -82366.05 | | 4.72 | 0.01 | | | |
| Max. My | | | 5 | -8550.30 | | -0.19 | 5.35 | | | |
| Max. Vy | | | 17 | -654.34 | | -4.01 | -0.01 | | | |
| Max. Vx | | | 13 | 579.71 | | -0.18 | 5.22 | | | |
| Diagonal | | | Max Tension | 8 | 4085.11 | 0.00 | 0.00 | | | |

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|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 25 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

| Section No. | Elevation ft | Component Type | Condition | Gov. Load Comb. | Force lb | Major Axis Moment kip-ft | Minor Axis Moment kip-ft |
|-------------|--------------|----------------|------------------|-----------------|----------|--------------------------|--------------------------|
| | | | Max. Compression | 2 | -4600.46 | 0.00 | 0.00 |
| | | | Max. Mx | 25 | -456.17 | 0.12 | 0.01 |
| | | | Max. My | 25 | -2912.44 | 0.08 | 0.02 |
| | | | Max. Vy | 25 | 55.65 | 0.12 | 0.01 |
| | | | Max. Vx | 25 | -3.51 | 0.00 | 0.00 |

Maximum Reactions

| Location | Condition | Gov. Load Comb. | Vertical lb | Horizontal, X lb | Horizontal, Z lb |
|----------|---------------------|-----------------|-------------|------------------|------------------|
| Leg C | Max. Vert | 10 | 136364.45 | 11306.12 | -6561.46 |
| | Max. H _x | 10 | 136364.45 | 11306.12 | -6561.46 |
| | Max. H _z | 4 | -121778.47 | -10182.26 | 5906.67 |
| | Min. Vert | 4 | -121778.47 | -10182.26 | 5906.67 |
| | Min. H _x | 4 | -121778.47 | -10182.26 | 5906.67 |
| | Min. H _z | 10 | 136364.45 | 11306.12 | -6561.46 |
| Leg B | Max. Vert | 6 | 138962.96 | -11700.00 | -6299.66 |
| | Max. H _x | 12 | -121489.04 | 10187.06 | 5362.79 |
| | Max. H _z | 12 | -121489.04 | 10187.06 | 5362.79 |
| | Min. Vert | 12 | -121489.04 | 10187.06 | 5362.79 |
| | Min. H _x | 6 | 138962.96 | -11700.00 | -6299.66 |
| | Min. H _z | 6 | 138962.96 | -11700.00 | -6299.66 |
| Leg A | Max. Vert | 2 | 136210.03 | -423.78 | 13089.43 |
| | Max. H _x | 7 | -101285.63 | 581.42 | -9674.53 |
| | Max. H _z | 2 | 136210.03 | -423.78 | 13089.43 |
| | Min. Vert | 8 | -118005.71 | 473.28 | -11291.23 |
| | Min. H _x | 12 | 70923.81 | -646.36 | 6669.49 |
| | Min. H _z | 8 | -118005.71 | 473.28 | -11291.23 |

Tower Mast Reaction Summary

| Load Combination | Vertical lb | Shear _x lb | Shear _z lb | Overturning Moment, M _x kip-ft | Overturning Moment, M _z kip-ft | Torque kip-ft |
|----------------------------|-------------|-----------------------|-----------------------|---|---|---------------|
| Dead Only | 22072.81 | 0.40 | 0.07 | 1.80 | 8.14 | 0.00 |
| Dead+Wind 0 deg - No Ice | 22072.80 | 990.22 | -18449.59 | -1562.25 | -56.08 | -9.23 |
| Dead+Wind 30 deg - No Ice | 22072.80 | 9727.70 | -15480.19 | -1317.71 | -812.41 | -4.40 |
| Dead+Wind 60 deg - No Ice | 22072.81 | 16026.57 | -9087.16 | -766.16 | -1365.56 | -0.22 |
| Dead+Wind 90 deg - No Ice | 22072.80 | 18518.74 | -540.77 | -27.33 | -1582.62 | 4.07 |
| Dead+Wind 120 deg - No Ice | 22072.80 | 16760.05 | 8367.26 | 728.12 | -1422.09 | 9.13 |
| Dead+Wind 150 deg - No Ice | 22072.80 | 8963.74 | 15259.24 | 1317.23 | -775.47 | 11.64 |
| Dead+Wind 180 deg - No Ice | 22072.81 | 29.27 | 17655.21 | 1519.95 | -7.26 | 11.18 |
| Dead+Wind 210 deg - No Ice | 22072.80 | -8933.68 | 15457.44 | 1319.49 | 766.70 | 7.42 |
| Dead+Wind 240 deg - No Ice | 22072.80 | -16012.56 | 9079.11 | 760.93 | 1366.77 | 0.10 |
| Dead+Wind 270 deg - No Ice | 22072.80 | -18102.00 | -135.47 | -22.04 | 1566.42 | -7.09 |
| Dead+Wind 300 deg - No Ice | 22072.81 | -15562.36 | -8852.94 | -770.70 | 1358.89 | -10.96 |
| Dead+Wind 330 deg - No Ice | 22072.80 | -8981.65 | -15248.87 | -1312.79 | 793.38 | -11.64 |
| Dead+Ice+Temp | 62933.47 | 0.32 | -0.04 | 14.56 | 23.28 | -0.00 |
| Dead+Wind 0 deg+Ice+Temp | 62933.47 | 275.81 | -10051.49 | -810.23 | 3.57 | -3.43 |
| Dead+Wind 30 deg+Ice+Temp | 62933.47 | 5037.52 | -8374.66 | -674.55 | -390.12 | -1.35 |
| Dead+Wind 60 deg+Ice+Temp | 62933.47 | 8416.21 | -4847.24 | -383.51 | -670.97 | 0.59 |
| Dead+Wind 90 deg+Ice+Temp | 62933.47 | 9789.22 | -165.01 | 3.46 | -784.36 | 2.42 |

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|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 26 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

| Load Combination | Vertical | Shear _x | Shear _z | Overturning Moment, M _x | Overturning Moment, M _z | Torque |
|-----------------------------|----------|--------------------|--------------------|------------------------------------|------------------------------------|--------|
| | lb | lb | lb | kip-ft | kip-ft | kip-ft |
| Dead+Wind 120 deg+Ice+Temp | 62933.47 | 8863.29 | 4786.90 | 409.85 | -705.66 | 4.13 |
| Dead+Wind 150 deg+Ice+Temp | 62933.47 | 4794.30 | 8288.55 | 698.84 | -374.16 | 4.56 |
| Dead+Wind 180 deg+Ice+Temp | 62933.47 | -24.43 | 9511.64 | 799.66 | 23.50 | 3.88 |
| Dead+Wind 210 deg+Ice+Temp | 62933.47 | -4841.68 | 8369.07 | 703.33 | 421.53 | 2.10 |
| Dead+Wind 240 deg+Ice+Temp | 62933.47 | -8710.62 | 5017.23 | 424.76 | 738.63 | -0.70 |
| Dead+Wind 270 deg+Ice+Temp | 62933.47 | -9686.44 | -1.77 | 12.62 | 823.09 | -3.16 |
| Dead+Wind 300 deg+Ice+Temp | 62933.47 | -8270.06 | -4734.65 | -377.85 | 708.14 | -4.46 |
| Dead+Wind 330 deg+Ice+Temp | 62933.47 | -4798.72 | -8285.98 | -669.42 | 421.36 | -4.56 |
| Dead+Wind 0 deg - Service | 22072.81 | 386.82 | -7206.84 | -609.17 | -16.91 | -3.60 |
| Dead+Wind 30 deg - Service | 22072.81 | 3799.92 | -6046.93 | -513.64 | -312.35 | -1.72 |
| Dead+Wind 60 deg - Service | 22072.81 | 6260.14 | -3549.54 | -298.17 | -528.39 | -0.09 |
| Dead+Wind 90 deg - Service | 22072.81 | 7233.89 | -211.27 | -9.58 | -613.21 | 1.59 |
| Dead+Wind 120 deg - Service | 22072.81 | 6546.87 | 3268.44 | 285.52 | -550.51 | 3.57 |
| Dead+Wind 150 deg - Service | 22072.81 | 3501.44 | 5960.65 | 515.65 | -297.92 | 4.54 |
| Dead+Wind 180 deg - Service | 22072.80 | 11.46 | 6896.28 | 594.80 | 2.17 | 4.37 |
| Dead+Wind 210 deg - Service | 22072.81 | -3489.68 | 6038.08 | 516.53 | 304.50 | 2.90 |
| Dead+Wind 240 deg - Service | 22072.81 | -6254.87 | 3546.51 | 298.34 | 538.91 | 0.04 |
| Dead+Wind 270 deg - Service | 22072.81 | -7071.09 | -52.95 | -7.52 | 616.90 | -2.77 |
| Dead+Wind 300 deg - Service | 22072.82 | -6078.88 | -3457.99 | -299.96 | 535.80 | -4.28 |
| Dead+Wind 330 deg - Service | 22072.81 | -3508.47 | -5956.57 | -511.73 | 314.93 | -4.54 |

Solution Summary

| Load Comb. | Sum of Applied Forces | | | Sum of Reactions | | | % Error |
|------------|-----------------------|-----------|-----------|------------------|----------|-----------|---------|
| | PX lb | PY lb | PZ lb | PX lb | PY lb | PZ lb | |
| 1 | 0.00 | -22072.81 | 0.00 | -0.40 | 22072.81 | -0.07 | 0.002% |
| 2 | 990.22 | -22072.81 | -18450.90 | -990.22 | 22072.80 | 18449.59 | 0.005% |
| 3 | 9728.52 | -22072.81 | -15481.34 | -9727.70 | 22072.80 | 15480.19 | 0.005% |
| 4 | 16027.24 | -22072.81 | -9087.53 | -16026.57 | 22072.81 | 9087.16 | 0.003% |
| 5 | 18520.20 | -22072.81 | -540.89 | -18518.74 | 22072.80 | 540.77 | 0.005% |
| 6 | 16761.23 | -22072.81 | 8367.90 | -16760.05 | 22072.80 | -8367.26 | 0.005% |
| 7 | 8964.37 | -22072.81 | 15260.55 | -8963.74 | 22072.80 | -15259.24 | 0.005% |
| 8 | 29.28 | -22072.81 | 17655.97 | -29.27 | 22072.81 | -17655.21 | 0.003% |
| 9 | -8934.27 | -22072.81 | 15458.73 | 8933.68 | 22072.80 | -15457.44 | 0.005% |
| 10 | -16013.71 | -22072.81 | 9079.72 | 16012.56 | 22072.80 | -9079.11 | 0.005% |
| 11 | -18103.48 | -22072.81 | -135.64 | 18102.00 | 22072.80 | 135.47 | 0.005% |
| 12 | -15563.05 | -22072.81 | -8853.34 | 15562.36 | 22072.81 | 8852.94 | 0.003% |
| 13 | -8982.53 | -22072.81 | -15250.06 | 8981.65 | 22072.80 | 15248.87 | 0.005% |
| 14 | 0.00 | -62933.47 | -0.00 | -0.32 | 62933.47 | 0.04 | 0.001% |
| 15 | 275.79 | -62933.47 | -10051.89 | -275.81 | 62933.47 | 10051.49 | 0.001% |
| 16 | 5037.71 | -62933.47 | -8375.01 | -5037.52 | 62933.47 | 8374.66 | 0.001% |
| 17 | 8416.55 | -62933.47 | -4847.44 | -8416.21 | 62933.47 | 4847.24 | 0.001% |
| 18 | 9789.61 | -62933.47 | -165.01 | -9789.22 | 62933.47 | 165.01 | 0.001% |
| 19 | 8863.63 | -62933.47 | 4787.11 | -8863.29 | 62933.47 | -4786.90 | 0.001% |
| 20 | 4794.48 | -62933.47 | 8288.91 | -4794.30 | 62933.47 | -8288.55 | 0.001% |
| 21 | -24.44 | -62933.47 | 9512.06 | 24.43 | 62933.47 | -9511.64 | 0.001% |
| 22 | -4841.90 | -62933.47 | 8369.43 | 4841.68 | 62933.47 | -8369.07 | 0.001% |
| 23 | -8711.00 | -62933.47 | 5017.44 | 8710.62 | 62933.47 | -5017.23 | 0.001% |
| 24 | -9686.88 | -62933.47 | -1.78 | 9686.44 | 62933.47 | 1.77 | 0.001% |
| 25 | -8270.44 | -62933.47 | -4734.86 | 8270.06 | 62933.47 | 4734.65 | 0.001% |
| 26 | -4798.95 | -62933.47 | -8286.32 | 4798.72 | 62933.47 | 8285.98 | 0.001% |
| 27 | 386.80 | -22072.81 | -7207.38 | -386.82 | 22072.81 | 7206.84 | 0.002% |
| 28 | 3800.20 | -22072.81 | -6047.40 | -3799.92 | 22072.81 | 6046.93 | 0.002% |
| 29 | 6260.64 | -22072.81 | -3549.82 | -6260.14 | 22072.81 | 3549.54 | 0.002% |
| 30 | 7234.45 | -22072.81 | -211.29 | -7233.89 | 22072.81 | 211.27 | 0.002% |
| 31 | 6547.36 | -22072.81 | 3268.71 | -6546.87 | 22072.81 | -3268.44 | 0.002% |
| 32 | 3501.71 | -22072.81 | 5961.15 | -3501.44 | 22072.81 | -5960.65 | 0.002% |

| | | | | |
|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 27 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

| Load Comb. | Sum of Applied Forces | | | Sum of Reactions | | | % Error |
|------------|-----------------------|-----------|----------|------------------|----------|----------|---------|
| | PX lb | PY lb | PZ lb | PX lb | PY lb | PZ lb | |
| 33 | 11.44 | -22072.81 | 6896.86 | -11.46 | 22072.80 | -6896.28 | 0.003% |
| 34 | -3489.95 | -22072.81 | 6038.57 | 3489.68 | 22072.81 | -6038.08 | 0.002% |
| 35 | -6255.36 | -22072.81 | 3546.77 | 6254.87 | 22072.81 | -3546.51 | 0.002% |
| 36 | -7071.67 | -22072.81 | -52.99 | 7071.09 | 22072.81 | 52.95 | 0.003% |
| 37 | -6079.32 | -22072.81 | -3458.34 | 6078.88 | 22072.82 | 3457.99 | 0.002% |
| 38 | -3508.80 | -22072.81 | -5957.05 | 3508.47 | 22072.81 | 5956.57 | 0.003% |

Non-Linear Convergence Results

| Load Combination | Converged? | Number of Cycles | Displacement Tolerance | Force Tolerance |
|------------------|------------|------------------|------------------------|-----------------|
| 1 | Yes | 6 | 0.00000001 | 0.00014886 |
| 2 | Yes | 13 | 0.00000001 | 0.00012630 |
| 3 | Yes | 13 | 0.00000001 | 0.00014017 |
| 4 | Yes | 14 | 0.00000001 | 0.00007871 |
| 5 | Yes | 13 | 0.00000001 | 0.00013956 |
| 6 | Yes | 13 | 0.00000001 | 0.00012585 |
| 7 | Yes | 13 | 0.00000001 | 0.00013973 |
| 8 | Yes | 14 | 0.00000001 | 0.00007895 |
| 9 | Yes | 13 | 0.00000001 | 0.00014013 |
| 10 | Yes | 13 | 0.00000001 | 0.00012630 |
| 11 | Yes | 13 | 0.00000001 | 0.00014092 |
| 12 | Yes | 14 | 0.00000001 | 0.00007898 |
| 13 | Yes | 13 | 0.00000001 | 0.00014112 |
| 14 | Yes | 11 | 0.00000001 | 0.00013901 |
| 15 | Yes | 15 | 0.00000001 | 0.00008460 |
| 16 | Yes | 15 | 0.00000001 | 0.00008559 |
| 17 | Yes | 15 | 0.00000001 | 0.00008716 |
| 18 | Yes | 15 | 0.00000001 | 0.00008564 |
| 19 | Yes | 15 | 0.00000001 | 0.00008444 |
| 20 | Yes | 15 | 0.00000001 | 0.00008650 |
| 21 | Yes | 15 | 0.00000001 | 0.00008824 |
| 22 | Yes | 15 | 0.00000001 | 0.00008656 |
| 23 | Yes | 15 | 0.00000001 | 0.00008520 |
| 24 | Yes | 15 | 0.00000001 | 0.00008691 |
| 25 | Yes | 15 | 0.00000001 | 0.00008856 |
| 26 | Yes | 15 | 0.00000001 | 0.00008682 |
| 27 | Yes | 13 | 0.00000001 | 0.00013258 |
| 28 | Yes | 13 | 0.00000001 | 0.00013750 |
| 29 | Yes | 13 | 0.00000001 | 0.00014249 |
| 30 | Yes | 13 | 0.00000001 | 0.00013765 |
| 31 | Yes | 13 | 0.00000001 | 0.00013269 |
| 32 | Yes | 13 | 0.00000001 | 0.00013826 |
| 33 | Yes | 13 | 0.00000001 | 0.00014323 |
| 34 | Yes | 13 | 0.00000001 | 0.00013792 |
| 35 | Yes | 13 | 0.00000001 | 0.00013275 |
| 36 | Yes | 13 | 0.00000001 | 0.00013831 |
| 37 | Yes | 13 | 0.00000001 | 0.00014307 |
| 38 | Yes | 13 | 0.00000001 | 0.00013852 |

Maximum Tower Deflections - Service Wind

| | | |
|---|---------------------------|---------------------------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job CT11284A | Page 28 of 35 |
| | Project 1564017 | Date 17:33:12 11/09/15 |
| | Client T-Mobile | Designed by Ahmet Colakoglu |

| Section No. | Elevation ft | Horz. Deflection in | Gov. Load Comb. | Tilt ° | Twist ° |
|-------------|-----------------|------------------------|-----------------|-----------|------------|
| T1 | 150 - 130 | 5.838 | 37 | 0.3574 | 0.0884 |
| T2 | 130 - 110 | 4.310 | 37 | 0.3450 | 0.0825 |
| T3 | 110 - 90 | 2.871 | 37 | 0.2961 | 0.0569 |
| T4 | 90 - 80 | 1.731 | 37 | 0.2139 | 0.0322 |
| T5 | 80 - 60 | 1.316 | 36 | 0.1778 | 0.0244 |
| T6 | 60 - 40 | 0.706 | 31 | 0.1138 | 0.0132 |
| T7 | 40 - 20 | 0.313 | 31 | 0.0726 | 0.0069 |
| T8 | 20 - 0 | 0.080 | 31 | 0.0350 | 0.0030 |

Critical Deflections and Radius of Curvature - Service Wind

| Elevation ft | Appurtenance | Gov. Load Comb. | Deflection in | Tilt ° | Twist ° | Radius of Curvature ft |
|-----------------|-------------------------------|-----------------|------------------|-----------|------------|---------------------------|
| 149.00 | 2" Dia 8'Omni | 37 | 5.761 | 0.3571 | 0.0884 | 358706 |
| 147.00 | APXVSPP18-C-A20 w/ Mount Pipe | 37 | 5.608 | 0.3566 | 0.0883 | 358706 |
| 145.00 | 1900MHz 4X40W RRH | 37 | 5.454 | 0.3560 | 0.0882 | 358706 |
| 136.00 | AIR21 B2A/B4P with pipe | 37 | 4.765 | 0.3513 | 0.0861 | 128109 |
| 121.00 | 15' Omni | 37 | 3.640 | 0.3286 | 0.0726 | 27731 |
| 117.00 | 20' Omni | 37 | 3.352 | 0.3184 | 0.0671 | 21217 |
| 108.00 | 10' Dipole | 37 | 2.741 | 0.2886 | 0.0540 | 14447 |
| 105.00 | 8' Whip | 37 | 2.551 | 0.2768 | 0.0498 | 13538 |
| 102.00 | 8' Omni | 37 | 2.369 | 0.2643 | 0.0458 | 12775 |
| 98.00 | 12' Omni | 37 | 2.140 | 0.2471 | 0.0407 | 11881 |
| 84.00 | 4' Dish | 36 | 1.470 | 0.1918 | 0.0272 | 13247 |
| 78.00 | 4' Dish | 36 | 1.243 | 0.1709 | 0.0231 | 16521 |
| 74.00 | GPS | 36 | 1.106 | 0.1571 | 0.0206 | 17678 |
| 72.00 | 4' Dish | 36 | 1.041 | 0.1503 | 0.0194 | 18243 |
| 67.00 | GPS | 36 | 0.891 | 0.1341 | 0.0166 | 19827 |
| 12.00 | GPS | 31 | 0.036 | 0.0207 | 0.0017 | 41359 |

Maximum Tower Deflections - Design Wind

| Section No. | Elevation ft | Horz. Deflection in | Gov. Load Comb. | Tilt ° | Twist ° |
|-------------|-----------------|------------------------|-----------------|-----------|------------|
| T1 | 150 - 130 | 14.749 | 12 | 0.8998 | 0.2266 |
| T2 | 130 - 110 | 10.902 | 12 | 0.8686 | 0.2113 |
| T3 | 110 - 90 | 7.283 | 6 | 0.7470 | 0.1456 |
| T4 | 90 - 80 | 4.426 | 6 | 0.5409 | 0.0824 |
| T5 | 80 - 60 | 3.377 | 6 | 0.4501 | 0.0626 |
| T6 | 60 - 40 | 1.821 | 6 | 0.2912 | 0.0338 |
| T7 | 40 - 20 | 0.805 | 6 | 0.1867 | 0.0177 |
| T8 | 20 - 0 | 0.206 | 6 | 0.0902 | 0.0076 |

Critical Deflections and Radius of Curvature - Design Wind

| | | | | |
|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 29 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

| Elevation | Appurtenance | Gov. Load Comb. | Deflection in | Tilt ° | Twist ° | Radius of Curvature ft |
|-----------|-------------------------------|-----------------|---------------|--------|---------|------------------------|
| 149.00 | 2" Dia 8'Omni | 12 | 14.556 | 0.8991 | 0.2264 | 151293 |
| 147.00 | APXVSPP18-C-A20 w/ Mount Pipe | 12 | 14.169 | 0.8977 | 0.2262 | 151293 |
| 145.00 | 1900MHz 4X40W RRH | 12 | 13.783 | 0.8961 | 0.2258 | 151293 |
| 136.00 | AIR21 B2A/B4P with pipe | 12 | 12.049 | 0.8842 | 0.2206 | 54033 |
| 121.00 | 15' Omni | 12 | 9.213 | 0.8279 | 0.1860 | 11185 |
| 117.00 | 20' Omni | 12 | 8.487 | 0.8026 | 0.1718 | 8516 |
| 108.00 | 10' Dipole | 6 | 6.957 | 0.7284 | 0.1382 | 5768 |
| 105.00 | 8' Whip | 6 | 6.482 | 0.6987 | 0.1275 | 5400 |
| 102.00 | 8' Omni | 6 | 6.027 | 0.6674 | 0.1172 | 5091 |
| 98.00 | 12' Omni | 6 | 5.453 | 0.6245 | 0.1043 | 4730 |
| 84.00 | 4' Dish | 6 | 3.769 | 0.4852 | 0.0698 | 5256 |
| 78.00 | 4' Dish | 6 | 3.192 | 0.4326 | 0.0591 | 6545 |
| 74.00 | GPS | 6 | 2.843 | 0.3985 | 0.0526 | 7003 |
| 72.00 | 4' Dish | 6 | 2.678 | 0.3818 | 0.0496 | 7227 |
| 67.00 | GPS | 6 | 2.295 | 0.3415 | 0.0424 | 7855 |
| 12.00 | GPS | 6 | 0.092 | 0.0533 | 0.0044 | 16062 |

Bolt Design Data

| Section No. | Elevation ft | Component Type | Bolt Grade | Bolt Size in | Number Of Bolts | Maximum Load per Bolt lb | Allowable Load lb | Ratio Load Allowable | Allowable Ratio | Criteria |
|-------------|--------------|----------------|------------|--------------|-----------------|--------------------------|-------------------|----------------------|-----------------|--------------------|
| T1 | 150 | Leg | A325N | 0.6250 | 5 | 3035.93 | 12885.40 | 0.236 ✓ | 1.333 | Bolt DS |
| T2 | 130 | Leg | A325N | 0.7500 | 5 | 8558.28 | 18555.00 | 0.461 ✓ | 1.333 | Bolt DS |
| T3 | 110 | Leg | A325N | 1.0000 | 6 | 12529.90 | 34538.80 | 0.363 ✓ | 1.333 | Bolt Tension |
| T4 | 90 | Leg | A325N | 1.0000 | 6 | 12225.00 | 34557.30 | 0.354 ✓ | 1.333 | Bolt Tension |
| | | Diagonal | A325N | 1.2500 | 1 | 4795.59 | 11554.70 | 0.415 ✓ | 1.333 | Member Block Shear |
| T5 | 80 | Leg | A325N | 1.0000 | 6 | 14429.50 | 34557.50 | 0.418 ✓ | 1.333 | Bolt Tension |
| | | Diagonal | A325N | 1.2500 | 1 | 4207.18 | 11554.70 | 0.364 ✓ | 1.333 | Member Block Shear |
| T6 | 60 | Leg | A325N | 1.0000 | 6 | 16315.10 | 34557.50 | 0.472 ✓ | 1.333 | Bolt Tension |
| | | Diagonal | A325N | 1.2500 | 1 | 3259.07 | 11554.70 | 0.282 ✓ | 1.333 | Member Block Shear |
| T7 | 40 | Leg | A325N | 1.0000 | 6 | 18067.00 | 34557.50 | 0.523 ✓ | 1.333 | Bolt Tension |
| | | Diagonal | A325N | 1.2500 | 1 | 3101.76 | 11554.70 | 0.268 ✓ | 1.333 | Member Block Shear |
| T8 | 20 | Leg | A687 | 1.0000 | 6 | 19682.30 | 38877.20 | 0.506 ✓ | 1.333 | Bolt Tension |
| | | Diagonal | A325N | 1.2500 | 1 | 4085.11 | 11554.70 | 0.354 ✓ | 1.333 | Member Block Shear |

Compression Checks

Leg Design Data (Compression)

| | | | | |
|---|----------------|----------|--------------------|-------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job | CT11284A | Page | 30 of 35 |
| | Project | 1564017 | Date | 17:33:12 11/09/15 |
| | Client | T-Mobile | Designed by | Ahmet Colakoglu |

| Section No. | Elevation ft | Size | L ft | L _a ft | Kl/r | F _a ksi | A in ² | Actual P lb | Allow. P _a lb | Ratio P P _a |
|-------------|-----------------|----------------|---------|----------------------|----------------|-----------------------|----------------------|----------------|-----------------------------|---------------------------|
| T1 | 150 - 130 | 1 3/4" solid | 20.00 | 2.33 | 64.0 K=1.00 | 22.023 | 2.4053 | -13537.90 | 52971.60 | 0.256 |
| T2 | 130 - 110 | 2" solid | 20.00 | 2.33 | 56.0 K=1.00 | 23.389 | 3.1416 | -40361.50 | 73477.20 | 0.549 |
| T3 | 110 - 90 | 2 1/4" solid | 20.00 | 2.33 | 49.8 K=1.00 | 24.385 | 3.9761 | -75887.60 | 96957.60 | 0.783 |
| T4 | 90 - 80 | Valmont 216415 | 10.02 | 10.02 | 37.5 K=1.00 | 26.178 | 5.3014 | -76439.50 | 138780.00 | 0.551 |
| T5 | 80 - 60 | Valmont 216413 | 20.03 | 10.02 | 37.5 K=1.00 | 26.178 | 5.3014 | -92953.00 | 138780.00 | 0.670 |
| T6 | 60 - 40 | Valmont 195557 | 20.03 | 10.02 | 32.1 K=1.00 | 26.884 | 7.2158 | -107864.00 | 193990.00 | 0.556 |
| T7 | 40 - 20 | Valmont 195557 | 20.03 | 10.02 | 32.1 K=1.00 | 26.884 | 7.2158 | -121603.00 | 193990.00 | 0.627 |
| T8 | 20 - 0 | Valmont 195557 | 20.03 | 10.02 | 32.1 K=1.00 | 26.884 | 7.2158 | -134274.00 | 193990.00 | 0.692 |

Truss-Leg Diagonal Data

| Section No. | Elevation ft | Diagonal Size | L _d ft | Kl/r | F _a ksi | A in ² | Actual V lb | Allow. V _a lb | Stress Ratio |
|-------------|-----------------|---------------|----------------------|-------|-----------------------|----------------------|----------------|-----------------------------|--------------|
| T4 | 90 - 80 | 0.5 | 1.46 | 119.3 | 10.377 | 0.1963 | 690.25 | 2292.15 | 0.301 |
| T5 | 80 - 60 | 0.5 | 1.46 | 119.3 | 10.377 | 0.1963 | 599.72 | 2292.15 | 0.262 |
| T6 | 60 - 40 | 0.5 | 1.45 | 118.3 | 10.520 | 0.1963 | 137.77 | 2323.87 | 0.059 |
| T7 | 40 - 20 | 0.5 | 1.45 | 118.3 | 10.520 | 0.1963 | 438.78 | 2323.87 | 0.189 |
| T8 | 20 - 0 | 0.5 | 1.45 | 118.3 | 10.520 | 0.1963 | 660.42 | 2323.87 | 0.284 |

Diagonal Design Data (Compression)

| Section No. | Elevation ft | Size | L ft | L _a ft | Kl/r | F _a ksi | A in ² | Actual P lb | Allow. P _a lb | Ratio P P _a |
|-------------|-----------------|-----------|---------|----------------------|-----------------|-----------------------|----------------------|----------------|-----------------------------|---------------------------|
| T1 | 150 - 130 | 7/8 | 5.52 | 2.68 | 146.9 K=1.00 | 6.917 | 0.6013 | -2293.82 | 4159.62 | 0.551 |
| T2 | 130 - 110 | 7/8 | 5.52 | 2.67 | 146.3 K=1.00 | 6.977 | 0.6013 | -3376.02 | 4195.55 | 0.805 |
| T3 | 110 - 90 | 1 | 5.52 | 2.66 | 127.5 K=1.00 | 9.192 | 0.7854 | -3899.96 | 7219.53 | 0.540 |
| T4 | 90 - 80 | L3x3x5/16 | 11.42 | 5.19 | 105.8 K=1.00 | 12.236 | 1.7800 | -5296.66 | 21780.90 | 0.243 |

| | | |
|---|---------------------------|---------------------------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job CT11284A | Page 31 of 35 |
| | Project 1564017 | Date 17:33:12 11/09/15 |
| | Client T-Mobile | Designed by Ahmet Colakoglu |

| Section No. | Elevation ft | Size | L ft | L _u ft | KL/r | F _a ksi | A in ² | Actual P lb | Allow. P _a lb | Ratio P P _a |
|-------------|-----------------|-----------|---------|----------------------|-----------------|-----------------------|----------------------|----------------|-----------------------------|---------------------------|
| T5 | 80 - 60 | L3x3x5/16 | 12.50 | 5.84 | 118.9 K=1.00 | 10.441 | 1.7800 | -3893.62 | 18585.00 | 0.210 |
| T6 | 60 - 40 | L3x3x5/16 | 13.80 | 6.54 | 133.1 K=1.00 | 8.423 | 1.7800 | -3344.96 | 14993.50 | 0.223 |
| T7 | 40 - 20 | L3x3x5/16 | 15.24 | 7.29 | 148.5 K=1.00 | 6.769 | 1.7800 | -3430.25 | 12049.60 | 0.285 |
| T8 | 20 - 0 | L3x3x5/16 | 16.80 | 8.09 | 164.8 K=1.00 | 5.496 | 1.7800 | -4600.46 | 9783.69 | 0.470 |

Top Girt Design Data (Compression)

| Section No. | Elevation ft | Size | L ft | L _u ft | KL/r | F _a ksi | A in ² | Actual P lb | Allow. P _a lb | Ratio P P _a |
|-------------|-----------------|------------------------------|---------|----------------------|-----------------|-----------------------|----------------------|----------------|-----------------------------|---------------------------|
| T1 | 150 - 130 | 1 | 5.00 | 4.85 | 233.0 K=1.00 | 2.751 | 0.7854 | -222.80 | 2160.38 | 0.103 |
| T2 | 130 - 110 | KL/R > 200 (C) - 6 1 | 5.00 | 4.83 | 232.0 K=1.00 | 2.774 | 0.7854 | -1279.76 | 2179.04 | 0.587 |
| T3 | 110 - 90 | KL/R > 200 (C) - 66 1 1/4 | 5.00 | 4.81 | 184.8 K=1.00 | 4.373 | 1.2272 | -1536.61 | 5366.08 | 0.286 |

Bottom Girt Design Data (Compression)

| Section No. | Elevation ft | Size | L ft | L _u ft | KL/r | F _a ksi | A in ² | Actual P lb | Allow. P _a lb | Ratio P P _a |
|-------------|-----------------|------------------------------|---------|----------------------|-----------------|-----------------------|----------------------|----------------|-----------------------------|---------------------------|
| T1 | 150 - 130 | 1 | 5.00 | 4.85 | 233.0 K=1.00 | 2.751 | 0.7854 | -1175.59 | 2160.38 | 0.544 |
| T2 | 130 - 110 | KL/R > 200 (C) - 9 1 | 5.00 | 4.83 | 232.0 K=1.00 | 2.774 | 0.7854 | -1642.12 | 2179.04 | 0.754 |
| T3 | 110 - 90 | KL/R > 200 (C) - 69 1 1/4 | 5.00 | 4.81 | 184.8 K=1.00 | 4.373 | 1.2272 | -1442.82 | 5366.08 | 0.269 |

Mid Girt Design Data (Compression)

| Section No. | Elevation ft | Size | L ft | L _u ft | KL/r | F _a ksi | A in ² | Actual P lb | Allow. P _a lb | Ratio P P _a |
|-------------|-----------------|------|---------|----------------------|-----------------|-----------------------|----------------------|----------------|-----------------------------|---------------------------|
| T1 | 150 - 130 | 1 | 5.00 | 4.85 | 233.0 K=1.00 | 2.751 | 0.7854 | -146.52 | 2160.38 | 0.068 |

KL/R > 200 (C) - 12

| | | |
|---|---------------------------|---------------------------------------|
| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job CT11284A | Page 32 of 35 |
| | Project 1564017 | Date 17:33:12 11/09/15 |
| | Client T-Mobile | Designed by Ahmet Colakoglu |

| Section No. | Elevation ft | Size | L ft | L _a ft | KL/r | F _a ksi | A in ² | Actual P lb | Allow. P _a lb | Ratio $\frac{P}{P_a}$ |
|-------------|-----------------|------------------------------|---------|----------------------|-----------------|-----------------------|----------------------|----------------|-----------------------------|--------------------------|
| T2 | 130 - 110 | 1 | 5.00 | 4.83 | 232.0 K=1.00 | 2.774 | 0.7854 | -140.86 | 2179.04 | 0.065 ✓ |
| T3 | 110 - 90 | KL/R > 200 (C) - 70 1 1/4 | 5.00 | 4.81 | 184.8 K=1.00 | 4.373 | 1.2272 | -341.54 | 5366.08 | 0.064 ✓ |

Tension Checks

Leg Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | L _a ft | KL/r | F _a ksi | A in ² | Actual P lb | Allow. P _a lb | Ratio $\frac{P}{P_a}$ |
|-------------|-----------------|----------------|---------|----------------------|------|-----------------------|----------------------|----------------|-----------------------------|--------------------------|
| T1 | 150 - 130 | 1 3/4" solid | 20.00 | 0.67 | 18.3 | 32.500 | 1.2339 | 13660.20 | 40100.60 | 0.341 ✓ |
| T2 | 130 - 110 | 2" solid | 20.00 | 0.67 | 16.0 | 32.500 | 1.5625 | 40506.30 | 50780.20 | 0.798 ✓ |
| T3 | 110 - 90 | 2 1/4" solid | 20.00 | 0.67 | 14.2 | 30.000 | 3.9761 | 75179.10 | 119282.00 | 0.630 ✓ |
| T4 | 90 - 80 | Valmont 216415 | 10.02 | 10.02 | 37.5 | 30.000 | 5.3014 | 73349.70 | 159043.00 | 0.461 ✓ |
| T5 | 80 - 60 | Valmont 216413 | 20.03 | 10.02 | 37.5 | 30.000 | 5.3014 | 86576.90 | 159043.00 | 0.544 ✓ |
| T6 | 60 - 40 | Valmont 195557 | 20.03 | 10.02 | 32.1 | 30.000 | 7.2158 | 97890.70 | 216475.00 | 0.452 ✓ |
| T7 | 40 - 20 | Valmont 195557 | 20.03 | 10.02 | 32.1 | 30.000 | 7.2158 | 108402.00 | 216475.00 | 0.501 ✓ |
| T8 | 20 - 0 | Valmont 195557 | 20.03 | 10.02 | 32.1 | 30.000 | 7.2158 | 118094.00 | 216475.00 | 0.546 ✓ |

Truss-Leg Diagonal Data

| Section No. | Elevation ft | Diagonal Size | L _a ft | KL/r | F _a ksi | A in ² | Actual V lb | Allow. V _a lb | Stress Ratio |
|-------------|-----------------|---------------|----------------------|-------|-----------------------|----------------------|----------------|-----------------------------|--------------|
| T4 | 90 - 80 | 0.5 | 1.46 | 119.3 | 10.377 | 0.1963 | 690.25 | 2292.15 | 0.301 ✓ |
| T5 | 80 - 60 | 0.5 | 1.46 | 119.3 | 10.377 | 0.1963 | 599.72 | 2292.15 | 0.262 ✓ |
| T6 | 60 - 40 | 0.5 | 1.45 | 118.3 | 10.520 | 0.1963 | 137.77 | 2323.87 | 0.059 ✓ |
| T7 | 40 - 20 | 0.5 | 1.45 | 118.3 | 10.520 | 0.1963 | 438.78 | 2323.87 | 0.189 ✓ |
| T8 | 20 - 0 | 0.5 | 1.45 | 118.3 | 10.520 | 0.1963 | 660.42 | 2323.87 | 0.284 ✓ |

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| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job CT11284A | Page 33 of 35 |
| | Project 1564017 | Date 17:33:12 11/09/15 |
| | Client T-Mobile | Designed by Ahmet Colakoglu |

Diagonal Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | L _a ft | Kl/r | F _a ksi | A in ² | Actual P lb | Allow. P _a lb | Ratio $\frac{P}{P_a}$ |
|-------------|-----------------|-----------|---------|----------------------|-------|-----------------------|----------------------|----------------|--------------------------------|--------------------------|
| T1 | 150 - 130 | 7/8 | 5.52 | 2.68 | 146.9 | 30.000 | 0.6013 | 2305.09 | 18039.60 | 0.128 |
| T2 | 130 - 110 | 7/8 | 5.52 | 2.67 | 146.3 | 30.000 | 0.6013 | 3421.34 | 18039.60 | 0.190 |
| T3 | 110 - 90 | 1 | 5.52 | 2.66 | 127.5 | 30.000 | 0.7854 | 3800.74 | 23561.90 | 0.161 |
| T4 | 90 - 80 | L3x3x5/16 | 11.42 | 5.19 | 67.6 | 29.000 | 1.0127 | 4795.59 | 29369.30 | 0.163 |
| T5 | 80 - 60 | L3x3x5/16 | 11.93 | 5.59 | 72.8 | 29.000 | 1.0127 | 4207.18 | 29369.30 | 0.143 |
| T6 | 60 - 40 | L3x3x5/16 | 13.13 | 6.22 | 81.0 | 29.000 | 1.0127 | 3259.07 | 29369.30 | 0.111 |
| T7 | 40 - 20 | L3x3x5/16 | 15.24 | 7.29 | 94.9 | 29.000 | 1.0127 | 3101.76 | 29369.30 | 0.106 |
| T8 | 20 - 0 | L3x3x5/16 | 16.80 | 8.09 | 105.3 | 29.000 | 1.0127 | 4085.11 | 29369.30 | 0.139 |

Top Girt Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | L _a ft | Kl/r | F _a ksi | A in ² | Actual P lb | Allow. P _a lb | Ratio $\frac{P}{P_a}$ |
|-------------|-----------------|-------|---------|----------------------|-------|-----------------------|----------------------|----------------|--------------------------------|--------------------------|
| T1 | 150 - 130 | 1 | 5.00 | 4.85 | 233.0 | 30.000 | 0.7854 | 201.99 | 23561.90 | 0.009 |
| T2 | 130 - 110 | 1 | 5.00 | 4.83 | 232.0 | 30.000 | 0.7854 | 1313.45 | 23561.90 | 0.056 |
| T3 | 110 - 90 | 1 1/4 | 5.00 | 4.81 | 184.8 | 30.000 | 1.2272 | 1623.40 | 36815.50 | 0.044 |

Bottom Girt Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | L _a ft | Kl/r | F _a ksi | A in ² | Actual P lb | Allow. P _a lb | Ratio $\frac{P}{P_a}$ |
|-------------|-----------------|-------|---------|----------------------|-------|-----------------------|----------------------|----------------|--------------------------------|--------------------------|
| T1 | 150 - 130 | 1 | 5.00 | 4.85 | 233.0 | 30.000 | 0.7854 | 1153.28 | 23561.90 | 0.049 |
| T2 | 130 - 110 | 1 | 5.00 | 4.83 | 232.0 | 30.000 | 0.7854 | 1575.41 | 23561.90 | 0.067 |
| T3 | 110 - 90 | 1 1/4 | 5.00 | 4.81 | 184.8 | 30.000 | 1.2272 | 1513.83 | 36815.50 | 0.041 |

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| tnxTower Destek Engineering, LLC 1281 Kennestone Circle, Ste 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX: | Job CT11284A | Page 34 of 35 |
| | Project 1564017 | Date 17:33:12 11/09/15 |
| | Client T-Mobile | Designed by Ahmet Colakoglu |

Mid Girt Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | L _a ft | Kl/r | F _a ksi | A in ² | Actual P lb | Allow. P _a lb | Ratio $\frac{P}{P_a}$ |
|-------------|-----------------|-------|---------|----------------------|-------|-----------------------|----------------------|----------------|-----------------------------|--------------------------|
| T1 | 150 - 130 | 1 | 5.00 | 4.85 | 233.0 | 30.000 | 0.7854 | 158.26 | 23561.90 | 0.007 |
| T2 | 130 - 110 | 1 | 5.00 | 4.83 | 232.0 | 30.000 | 0.7854 | 161.83 | 23561.90 | 0.007 |
| T3 | 110 - 90 | 1 1/4 | 5.00 | 4.81 | 184.8 | 30.000 | 1.2272 | 361.77 | 36815.50 | 0.010 |



Section Capacity Table

| Section No. | Elevation ft | Component Type | Size | Critical Element | P lb | SF*P _{allow} lb | % Capacity | Pass Fail | |
|-------------|-----------------|-------------------|----------------|---------------------|------------|-----------------------------|------------------|--------------|-------------|
| T1 | 150 - 130 | Leg | 1 3/4" solid | 2 | 13660.20 | 53454.10 | 25.6 | Pass | |
| T2 | 130 - 110 | Leg | 2" solid | 62 | 40506.30 | 67690.00 | 59.8 | Pass | |
| T3 | 110 - 90 | Leg | 2 1/4" solid | 122 | -75887.60 | 129244.48 | 58.7 | Pass | |
| T4 | 90 - 80 | Leg | Valmont 216415 | 182 | -76439.50 | 184993.73 | 41.3 | Pass | |
| T5 | 80 - 60 | Leg | Valmont 216413 | 191 | -92953.00 | 184993.73 | 50.2 | Pass | |
| T6 | 60 - 40 | Leg | Valmont 195557 | 206 | -107864.00 | 258588.66 | 41.7 | Pass | |
| T7 | 40 - 20 | Leg | Valmont 195557 | 221 | -121603.00 | 258588.66 | 47.0 | Pass | |
| T8 | 20 - 0 | Leg | Valmont 195557 | 236 | -134274.00 | 258588.66 | 51.9 | Pass | |
| T1 | 150 - 130 | Diagonal | 7/8 | 17 | -2293.82 | 5544.77 | 41.4 | Pass | |
| T2 | 130 - 110 | Diagonal | 7/8 | 77 | -3376.02 | 5592.67 | 60.4 | Pass | |
| T3 | 110 - 90 | Diagonal | 1 | 179 | -3899.96 | 9623.63 | 40.5 | Pass | |
| T4 | 90 - 80 | Diagonal | L3x3x5/16 | 188 | -5296.66 | 29033.94 | 18.2 | Pass | |
| T5 | 80 - 60 | Diagonal | L3x3x5/16 | 197 | -3893.62 | 24773.80 | 15.7 | Pass | |
| T6 | 60 - 40 | Diagonal | L3x3x5/16 | 212 | -3344.96 | 19986.33 | 16.7 | Pass | |
| T7 | 40 - 20 | Diagonal | L3x3x5/16 | 227 | -3430.25 | 16062.12 | 21.4 | Pass | |
| T8 | 20 - 0 | Diagonal | L3x3x5/16 | 242 | -4600.46 | 13041.66 | 35.3 | Pass | |
| T1 | 150 - 130 | Top Girt | 1 | 6 | -222.80 | 2879.79 | 7.7 | Pass | |
| T2 | 130 - 110 | Top Girt | 1 | 66 | -1279.76 | 2904.66 | 44.1 | Pass | |
| T3 | 110 - 90 | Top Girt | 1 1/4 | 126 | -1536.61 | 7152.98 | 21.5 | Pass | |
| T1 | 150 - 130 | Bottom Girt | 1 | 9 | -1175.59 | 2879.79 | 40.8 | Pass | |
| T2 | 130 - 110 | Bottom Girt | 1 | 69 | -1642.12 | 2904.66 | 56.5 | Pass | |
| T3 | 110 - 90 | Bottom Girt | 1 1/4 | 129 | -1442.82 | 7152.98 | 20.2 | Pass | |
| T1 | 150 - 130 | Mid Girt | 1 | 12 | -146.52 | 2879.79 | 5.1 | Pass | |
| T2 | 130 - 110 | Mid Girt | 1 | 70 | -140.86 | 2904.66 | 4.8 | Pass | |
| T3 | 110 - 90 | Mid Girt | 1 1/4 | 132 | -341.54 | 7152.98 | 4.8 | Pass | |
| | | | | | | | Summary | | |
| | | | | | | | Leg (T2) | 59.8 | Pass |
| | | | | | | | Diagonal (T2) | 60.4 | Pass |
| | | | | | | | Top Girt (T2) | 44.1 | Pass |
| | | | | | | | Bottom Girt (T2) | 56.5 | Pass |
| | | | | | | | Mid Girt (T1) | 5.1 | Pass |
| | | | | | | | Bolt Checks | 39.2 | Pass |
| | | | | | | | RATING = | 60.4 | Pass |

| | | |
|---|-------------------------------|---|
| <i>tnxTower</i> <i>Destek Engineering, LLC</i> <i>1281 Kennestone Circle, Ste 100</i> <i>Marietta, GA 30066</i> <i>Phone: (770) 693-0835</i> <i>FAX:</i> | Job CT11284A | Page 35 of 35 |
| | Project 1564017 | Date 17:33:12 11/09/15 |
| | Client T-Mobile | Designed by Ahmet Colakoglu |

Exhibit C

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

T-Mobile Existing Facility

Site ID: CT11284A

**Avon_1
81 Montevideo Road
Avon, CT 06001**

November 16, 2015

EBI Project Number: 6215005695

| Site Compliance Summary | |
|--|------------------|
| Compliance Status: | COMPLIANT |
| Site total MPE% of FCC general public allowable limit: | 3.07 % |

November 16, 2015

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11284A – Avon_1**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **81 Montevideo Road, Avon, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **81 Montevideo Road, Avon, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

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

- 1) 2 GSM / UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel
- 2) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.
- 5) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

- 6) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antennas used in this modeling are the **Ericsson AIR21 B2A/B4P & Ericsson AIR 32 B4A/B12P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR21 B2A/B4P & Ericsson AIR 32 B4A/B12P** have a maximum gain of **15.9 dBd** at their main lobe at 1900 MHz and 2100 MHz. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe at 700 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antenna mounting height centerline of the proposed antennas is **136 feet** above ground level (AGL).
- 9) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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



T-Mobile Site Inventory and Power Data

| | |
|-----------------|--------------------------------|
| Sector: | C |
| Antenna #: | 1 |
| Make / Model: | Ericsson AIR21 B2A/B4P |
| Gain: | 15.9 dBd |
| Height (AGL): | 136 |
| Frequency Bands | 1900 MHz(PCS) / 2100 MHz (AWS) |
| # PCS Channels: | 2 |
| # AWS Channels: | 120 |
| ERP (W): | 4,668.54 |
| Antenna C1 MPE% | 0.99 |
| Antenna #: | 2 |
| Make / Model: | Ericsson AIR21 B2A/B4P |
| Gain: | 15.9 dBd |
| Height (AGL): | 136 |
| Frequency Bands | 1900 MHz(PCS) / 2100 MHz (AWS) |
| Channel Count | 4 |
| Total TX Power: | 120 |
| ERP (W): | 4,668.54 |
| Antenna C2 MPE% | 0.99 |
| Antenna #: | 3 |
| Make / Model: | Commscope LNX-6515DS-VTM |
| Gain: | 14.6 dBd |
| Height (AGL): | 136 |
| Frequency Bands | 700 MHz |
| Channel Count | 1 |
| Total TX Power: | 30 |
| ERP (W): | 865.21 |
| Antenna C3 MPE% | 0.39 |

| Site Composite MPE% | |
|---------------------------|---------------|
| Carrier | MPE% |
| T-Mobile (Per Sector Max) | 2.38 % |
| Sprint | 0.69 % |
| Site Total MPE %: | 3.07 % |

| | |
|--------------------------|--------|
| T-Mobile Sector 3 Total: | 2.38 % |
| Site Total: | 3.07 % |

| T-Mobile _per sector | # Channels | Watts ERP (Per Channel) | Height (feet) | Total Power Density (mW/cm ²) | Frequency (MHz) | Allowable MPE (mW/cm ²) | Calculated % MPE |
|----------------------------------|------------|-------------------------|---------------|---|-----------------|-------------------------------------|------------------|
| T-Mobile 2100 MHz (AWS) LTE | 2 | 2334.27 | 136 | 9.93 | 2100 | 1000 | 0.99 % |
| T-Mobile 1900 MHz (PCS) GSM/UMTS | 2 | 1167.14 | 136 | 4.97 | 1900 | 1000 | 0.50 % |
| T-Mobile 2100 MHz (AWS) UMTS | 2 | 1167.14 | 136 | 4.97 | 2100 | 1000 | 0.50 % |
| T-Mobile 700 MHz LTE | 1 | 865.21 | 136 | 1.84 | 700 | 467 | 0.39 % |
| | | | | | | Total: | 2.38 % |

Summary

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

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

| T-Mobile Sector | Power Density Value (%) |
|------------------------------|-------------------------|
| Sector 3 : | 2.38 % |
| T-Mobile Per Sector Maximum: | 2.38 % |
| | |
| Site Total: | 3.07 % |
| | |
| Site Compliance Status: | COMPLIANT |

The anticipated composite MPE value for this site assuming all carriers present is **3.07%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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



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