ROBINSON & COLE LLP

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts

October 24, 2012

Linda Roberts
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **EM-VER-105-120106 – Hatchetts Hill Road, Old Lyme, Connecticut**
EM-VER-057-120628 – 1111 East Putnam Avenue, Greenwich, Connecticut
EM-VER-057-120601 – 395 Round Hill Road, Greenwich, Connecticut
EM-VER-094-120514 – 605 Willard Avenue, Newington, Connecticut
EM-VER-155-120612 – 14-20 Isham Road, West Hartford, Connecticut
EM-VER-152-120622 – 53 Dayton Road, Waterford, Connecticut
EM-VER-005-120217A – 5 Old Farm Road, Barkhamsted, Connecticut
EM-VER-007-120125 – 1684 Chamberlain Highway, Berlin, Connecticut

Completion of Construction Activity

Dear Ms. Roberts:

The purpose of this letter is to notify the Siting Council that construction activity associated with the above-referenced Cellco Partnership d/b/a Verizon Wireless telecommunications facility modifications has been completed.

If you have any questions or need any additional information regarding this facility please do not hesitate to contact me.

Sincerely,

Kenneth C. Baldwin

Copy to:
Sandy M. Carter

11935925-v1

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

July 9, 2012

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103

RE: **EM-VER-155-120612**- Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 14-20 Isham Road, West Hartford, Connecticut.

Dear Attorney Baldwin:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated June 11, 2012. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

LRoberts

Linda Roberts
Executive Director

LR/CDM/jbw

c: The Honorable Scott Slifka, Mayor, Town of West Hartford
Barry M. Feldman, Town Manager, Town of West Hartford
Mila Limson, Town Planner, Town of West Hartford
M&R Gassner Family II, LLC

ROBINSON & COLE LLP

EM-VER-155-120612

KENNETH C. BALDWIN

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June 11, 2012

Linda Roberts
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Antenna Swap**
14-20 Isham Road, West Hartford, Connecticut

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains wireless telecommunications antennas on an existing 100-foot tower on the roof of a 25-foot tall building at 14-20 Isham Road in West Hartford. Cellco's antennas are mounted 110 feet above ground level of the existing tower. The tower is owned by M&R Gassner Family II, LLC. The Council approved Cellco's shared use of this tower in 2008. Cellco now intends to replace ten (10) of its existing antennas with four (4) model SC-E 6014 Rev 2 cellular antennas; two (2) model SACP 2x5516 PCS antennas; one (1) model BXA-171063-8BF PCS antenna; two (2) SLCP 2x6015 LTE antennas; and one (1) model BXA-70063-6CF LTE antenna, all at the 110-foot level. Cellco also intends to install six (6) coax cable diplexers. Attached behind Tab 1 are the specifications for the replacement antennas and cable diplexers.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Ronald Van Winkle, Town Manager for the Town of West Hartford. A copy of this letter is also being sent to M&R Gassner Family II, LLC, the owner of the property on which the tower is located.

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 tower. Cellco's replacement antennas and diplexers will be located at the 110-foot level.

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

3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative power density table for Cellco's modified facility is included behind Tab 2.

Also attached is a Detailed Structural Analysis confirming that the tower and foundation, with certain structural reinforcements, can support Cellco's proposed facility modifications. (See Tab 3).

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

Sincerely,

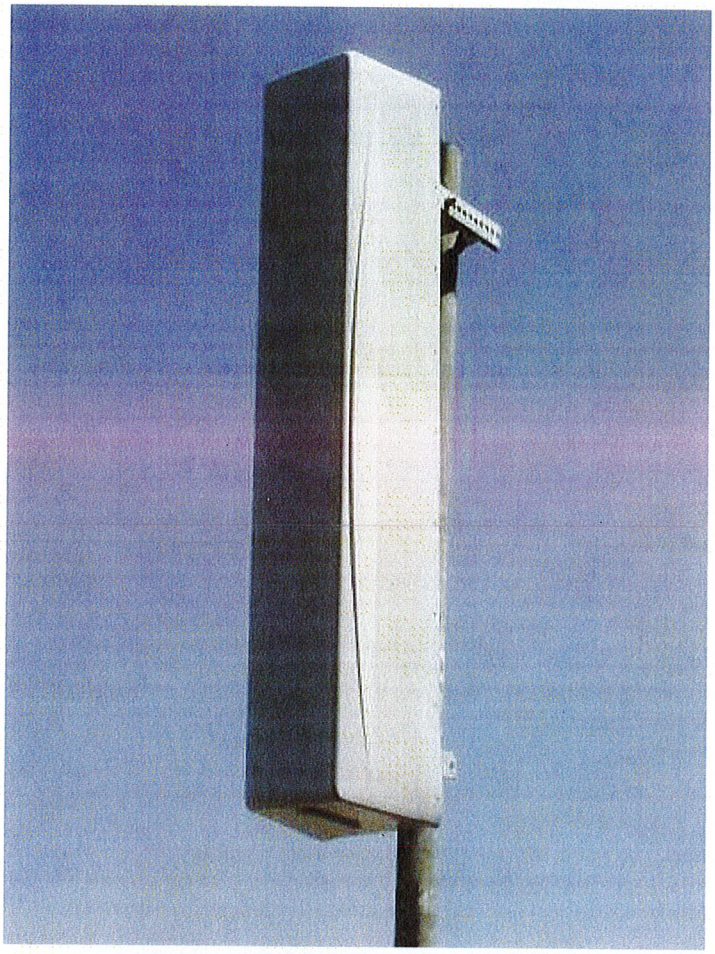
Kenneth C. Baldwin

Enclosures
Copy to:
Ronald Van Winkle, West Hartford Town Manager
M&R Gassner Family II, LLC
Sandy M. Carter

Swedcom

SC-E 6014 *rev2*

Enhanced 800 - 960 MHz log-periodic antenna



Features

- ❑ **Small size**
- ❑ **Aesthetically pleasing**
- ❑ **Suitable for TDMA/CDMA/GSM/3G**
- ❑ **High return loss**
- ❑ **Low intermodulation**
- ❑ **High front-to-back ratio**
- ❑ **Outstanding performance over the entire band (800 - 960 MHz)**
- ❑ **Upper side-lobe suppression**
- ❑ **Rugged design**
- ❑ **Dramatically improved signal to interference performance**

Electrical specifications

Frequency range:	**800-960 MHz**
Impedance:	**50 ohm**
Connector type:	**7/16 Din**
Return loss:	**20 dB**
Polarization:	**Vertical**
Gain:	**14 dBd**
Front-to-back ratio:	**> 30 dB**
Upper side-lobe suppression:	**18 dB**
Intermodulation (2x20W):	**IM5 160 dB**
	IM7/9 170 dB
Power rating:	**500 W**
H-plane (-3 dB point):	**54 - 60°**
V-plane (-3 dB point):	**16 - 18°**
Lightning protection:	**DC grounded**

Mechanical specifications

Overall height:	**43 in**	**[1092 mm]**
Width:	**8.5 in**	**[216 mm]**
Depth:	**8 in**	**[203 mm]**
Weight (excluding brackets):	**15 lbs**	**[6.8 Kg]**
Wind load measured up to:	**150 mph**	**[240 Km/h]**
Wind area (side of antenna):	**2.54 sq. ft.**	**[0.24 sq.m]**
Lateral thrust At 113 mph/ 180Km/h (worst case):	**122 lbs**	**[577 N]**

Materials

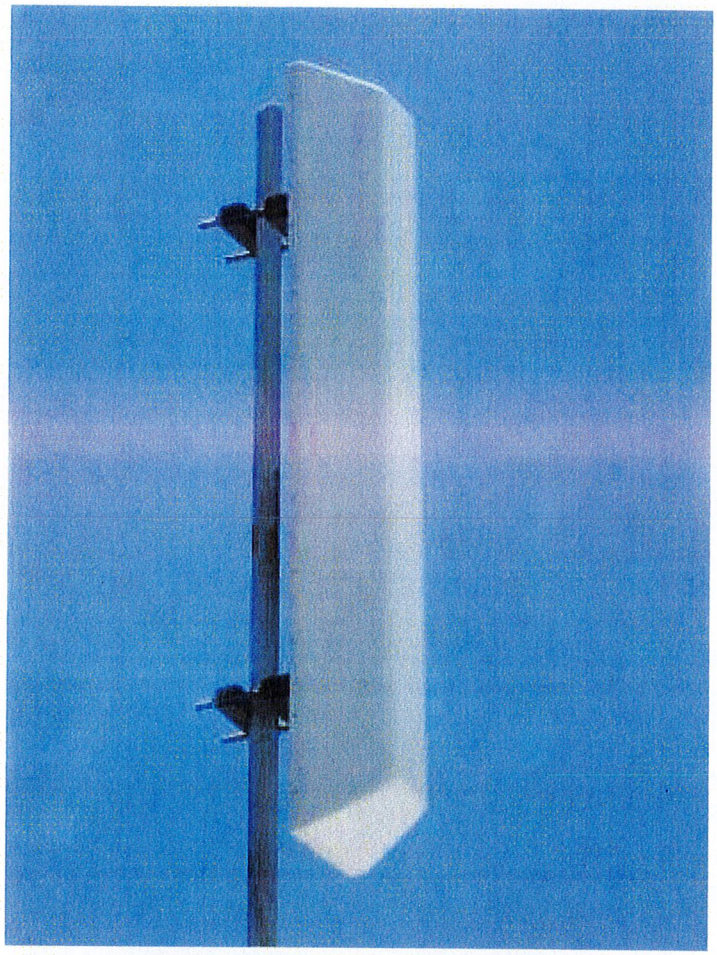
Radiating Elements:	**Aluminum**
Transformer (Power distribution)	**Ceramic PCB**
Chassis:	**Aluminum**
Radome:	**Grey Fiberglass/PVC**
Tilt-bracket:	**Hot dip galvanized steel**
Mounting bolts:	**Stainless steel**

The SC-E 6014 rev2 is made in the U.S.A.

Swedcom

SACP 2x5516

1710 -2170 MHz Dual (2x) CP log-periodic antenna



Features

- Transmit Diversity Gain
- Can be configured to combine space & polarization diversity
- Outstanding performance over the entire band (1710 - 2170 MHz)
- Excellent Axial Ratio
- Optimized for 4G & 3G systems
- Low intermodulation
- Improved Side-to-side rejection
- Fading reduction
- Excellent isolation between ports

Electrical specifications

Frequency range:	**1710-2170 MHz**	
Impedance:	**50 ohm**	
Connector type:	**7/16 Din**	
Return loss:	**18 dB**	
Polarization:	**Circular**	
Gain ea. port [Circular]:	**2x16 dBdC**	
Gain ea. port [Linear]:	**2x13 dBdL**	
Axial Ratio:	**2 dB**	
Isolation between ports (TX band):	**28 dB**	
Front-to-back ratio:	**30 dB**	
Intermodulation (2x20W):	**IM3**	**150 dB**
	IM5	**160 dB**
	IM7/9	**170 dB**
Power rating:	**2x 300 W**	
H-plane (-3 dB point):	**2x 55°**	
V-plane (-3 dB point):	**2x 7°**	
Lightning protection:	**DC grounded**	

Mechanical specifications

Overall height:	**56 in**	**[1422 mm]**
Width:	**9.7 in**	**[246 mm]**
Depth:	**6.5 in**	**[165 mm]**
Weight (excluding brackets):	**16 lbs**	**[7.2 Kg]**
Wind load measured up to:	**150 mph**	**[240 Km/h]**
Wind area (front of antenna):	**3.76 sq. ft.**	**[0.35 sq.m]**
Lateral thrust at 113 mph/ 180 Km/h (worst case):	**192 lbs**	**[855 N]**

Materials

Radiating Elements:	**Silver plated brass**
Transformer (Power distribution)	**Ceramic PCB**
Chassis:	**Aluminum**
Radome:	**Grey Fiberglass/PVC**
Mounting bolts:	**Stainless steel**

The SACP 2x5516 is made in the U.S.A.

BXA-171063-8BF-EDIN-X

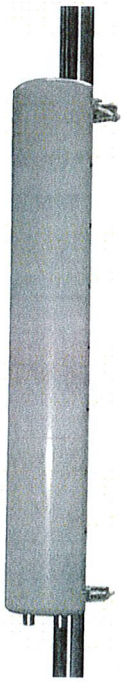
Replace "X" with desired electrical downtilt.

X-Pol | FET Panel | 63° | 17.4 dBi

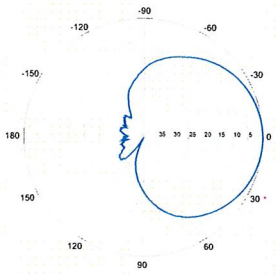
Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	68°	65°	60°
Vertical beamwidth	7°	7°	7°
Gain	14.5 dBd / 16.6 dBi	14.9 dBd / 17.0 dBi	15.3 dBd / 17.4 dBi
Electrical downtilt (X)	0, 2, 4, 8		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back isolation	> 30 dB		
In-band isolation	> 28 dB		
IM3 (20W carrier)	< -150 dBc		
Input power	300 W		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN / Female / Bottom		
Operating temperature	-40° to +60° C / -40° to +140° F		

Mechanical Characteristics		
Dimensions Length x Width x Depth	1232 x 154 x 105 mm	48.5 x 6.1 x 4.1 in
Depth with t-brackets	133 mm	5.2 in
Weight without mounting brackets	4.8 kg	10.5 lbs
Survival wind speed	296 km/hr	184 mph
Wind area	Front: 0.19 m² Side: 0.14 m²	Front: 2.0 ft² Side: 1.5 ft²
Wind load @ 161 km/hr (100 mph)	Front: 281 N Side: 223 N	Front: 63 lbf Side: 50 lbf

Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171063-8BF-EDIN-X-FP		

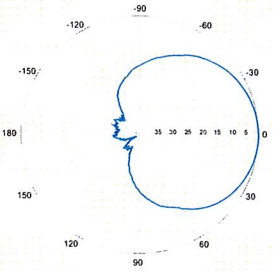


BXA-171063-8BF-EDIN-X



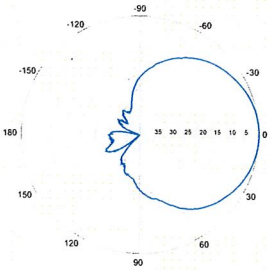
Horizontal | 1710-1880 MHz

BXA-171063-8BF-EDIN-X



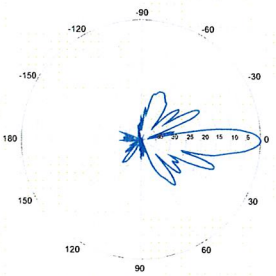
Horizontal | 1850-1990 MHz

BXA-171063-8BF-EDIN-X



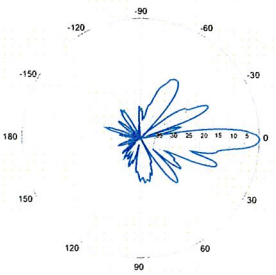
Horizontal | 1920-2170 MHz

BXA-171063-8BF-EDIN-0



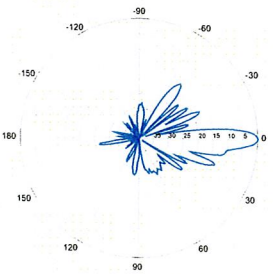
0° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-0



0° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-0



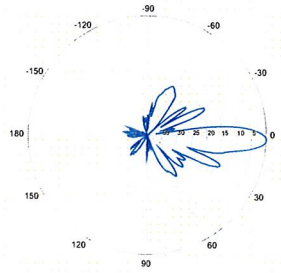
0° | Vertical | 1920-2170 MHz

Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

BXA-171063-8BF-EDIN-X

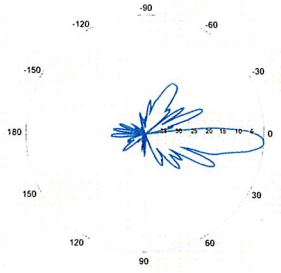
X-Pol | FET Panel | 63° | 17.4 dBi

BXA-171063-8BF-EDIN-2



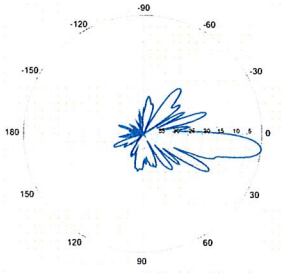
2° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-4



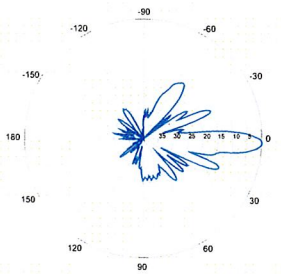
4° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-8



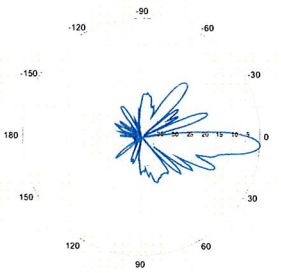
8° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-2



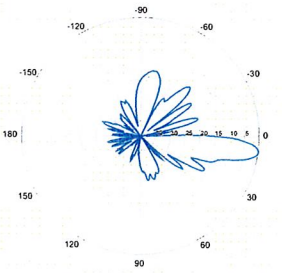
2° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-4



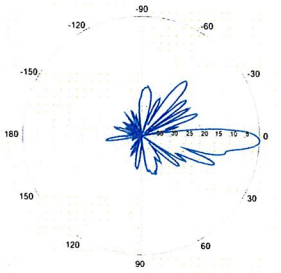
4° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-8



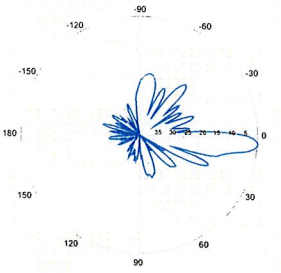
8° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-2



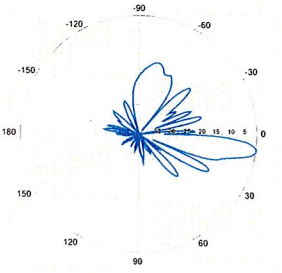
2° | Vertical | 1920-2170 MHz

BXA-171063-8BF-EDIN-4



4° | Vertical | 1920-2170 MHz

BXA-171063-8BF-EDIN-8

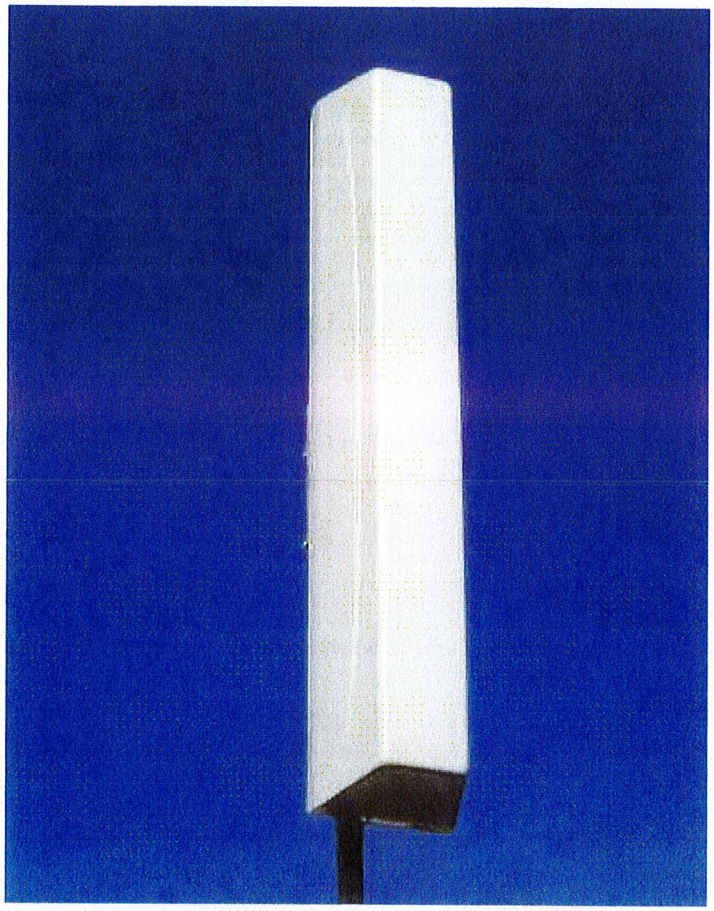


8° | Vertical | 1920-2170 MHz

Swedcom

SLCP 2x6015

Dual (2x) Circularly Polarized log-periodic antenna



Features

- ❑ **Transmit Diversity Gain**
- ❑ **Can be configured to combine space & polarization diversity**
- ❑ **Outstanding performance over the entire band (700 - 800 MHz)**
- ❑ **Excellent Axial Ratio**
- ❑ **Optimized for 4G & 3G systems**
- ❑ **Low intermodulation**
- ❑ **Improved Side-to-side rejection**
- ❑ **Fading reduction**
- ❑ **Excellent isolation between ports**

Electrical specifications

Frequency range:	**700-800 MHz**
Impedance:	**50 ohm**
Connector type:	**7/16 Din**
Return loss:	**18 dB**
Polarization:	**Circular**
Gain ea. port [Circular]:	**2x15 dBdC**
Gain ea. port [Linear]:	**2x12 dBdL**
Axial Ratio:	**2 dB**
Isolation between ports (TX band):	**30 dB**
Front-to-back ratio:	**30 dB**
Intermodulation (2x20W):	**IM3 150 dB**
	IM5 160 dB
	IM7/9 170 dB
Power rating:	**2x 500 W**
H-plane (-3 dB point):	**2x 55°**
V-plane (-3 dB point):	**2x 11°**
Lightning protection:	**DC grounded**

Mechanical specifications

Overall height:	**77 in**	**[1956 mm]**
Width:	**14 in**	**[356 mm]**
Depth:	**11 in**	**[279 mm]**
Weight (excluding brackets):	**30 lbs**	**[13.6 Kg]**
Wind load measured up to:	**150 mph**	**[240 Km/h]**
Wind area (side of antenna):	**7.49 sq. ft.**	**[0.70 sq.m]**
Lateral thrust at 113 mph/ 180 Km/h (worst case):	**382 lbs**	**[1701 N]**

Materials

Radiating Elements:	**Aluminum**
Transformer (Power distribution)	**Ceramic PCB**
Chassis:	**Aluminum**
Radome:	**Grey Fiberglass/PVC**
Mounting bolts:	**Stainless steel**

The SLCP 2x6015 is made in the U.S.A.

Amphenol ANTENNA SOLUTIONS

BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

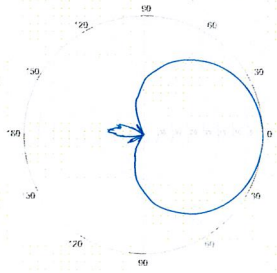
Replace "X" with desired electrical downtilt.

Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.

Electrical Characteristics	696-900 MHz	
Frequency bands	696-806 MHz	806-900 MHz
Polarization	±45°	
Horizontal beamwidth	65°	63°
Vertical beamwidth	13°	11°
Gain	14.0 dBd (16.1 dBi)	14.5 dBd (16.6 dBi)
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 10	
Impedance	50Ω	
VSWR	≤1.35:1	
Upper sidelobe suppression (0°)	-18.3 dB	-18.2 dB
Front-to-back ratio (+/-30°)	-33.4 dB	-36.3 dB
Null fill	5% (-26.02 dB)	
Isolation between ports	< -25 dB	
Input power with EDIN connectors	500 W	
Input power with NE connectors	300 W	
Lightning protection	Direct Ground	
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)	
Mechanical Characteristics		
Dimensions Length x Width x Depth	1804 x 285 x 132 mm	71.0 x 11.2 x 5.2 in
Depth with z-brackets	172 mm	6.8 in
Weight without mounting brackets	7.9 kg	17 lbs
Survival wind speed	> 201 km/hr	> 125 mph
Wind area	Front: 0.51 m² Side: 0.24 m²	Front: 5.5 ft² Side: 2.6 ft²
Wind load @ 161 km/hr (100 mph)	Front: 759 N Side: 391 N	Front: 169 lbf Side: 89 lbf

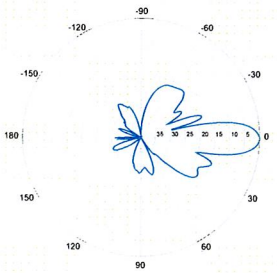
Mounting Options	Part Number	Fits Pipe Diameter	Weight
3-Point Mounting & Downtilt Bracket Kit	36210008	40-115 mm 1.57-4.5 in	6.9 kg 15.2 lbs
Concealment Configurations	For concealment configurations, order BXA-70063-6CF-EDIN-X-FP		

BXA-70063-6CF-EDIN-X



Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0



0° | Vertical | 750 MHz

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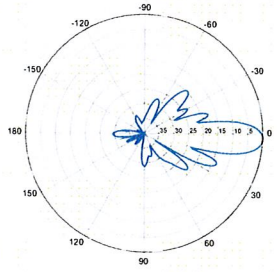
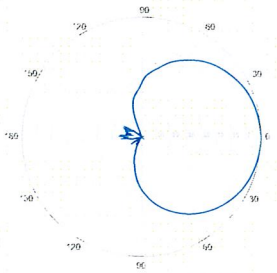
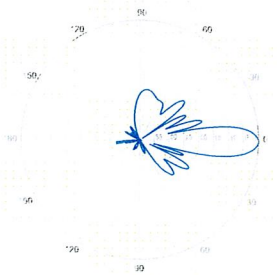


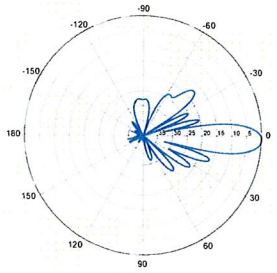
2° | Vertical | 750 MHz



Horizontal | 850 MHz



0° | Vertical | 850 MHz



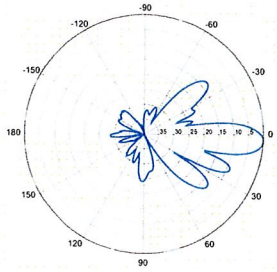
2° | Vertical | 850 MHz

Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

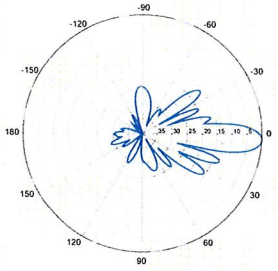
BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

BXA-70063-6CF-EDIN-3

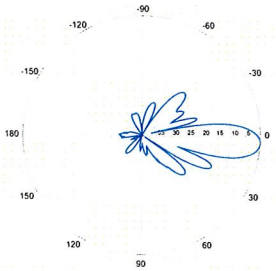


3° | Vertical | 750 MHz

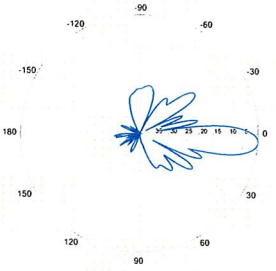


3° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-4

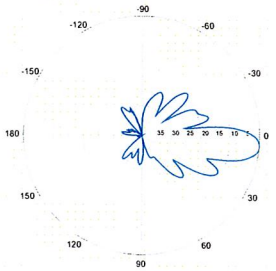


4° | Vertical | 750 MHz

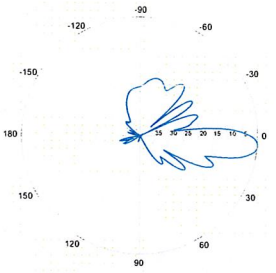


4° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-5

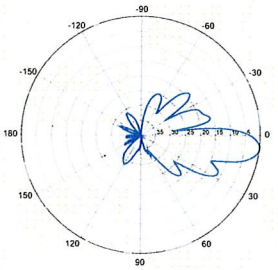


5° | Vertical | 750 MHz

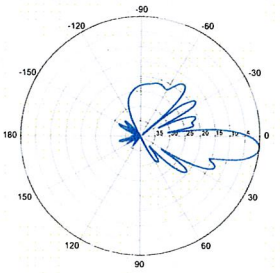


5° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-6



6° | Vertical | 750 MHz



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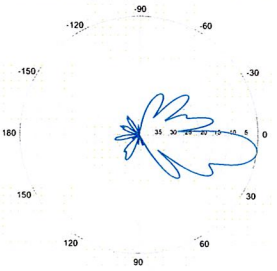
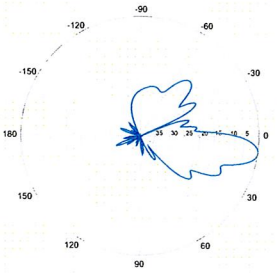
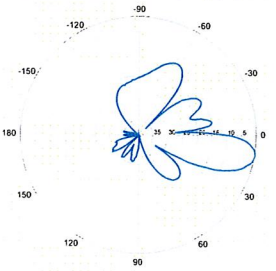


8° | Vertical | 750 MHz

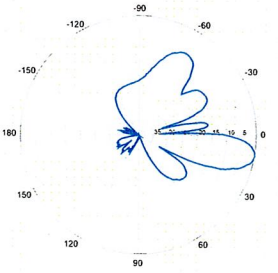


8° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-10



10° | Vertical | 750 MHz



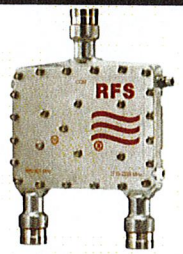
10° | Vertical | 850 MHz

Product Data Sheet **FD9R6004/2C-3L**

ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

Product Description

The ShareLite FD9R6004 Series of diplexers are designed to enable feeder sharing between systems in the 698-960 MHz range and in the 1710-2200 MHz range. The diplexer is equipped with in-line connector placement so it can be installed in the BTS cabinet or at the tower top. This is especially valuable in crowded sites or when the feeders are not easily accessible. Due to its wideband design, the FD9R6004 Series can accommodate many combining solutions between 698-960 MHz and 1710-2200 MHz systems such as LTE 700 MHz, Cellular 800 MHz with PCS, GSM900 with GSM1800, or GSM900 with UMTS. This diplexer features a highly selective filter. It provides a high level of isolation between ports, while keeping the insertion loss on both paths at an extremely low level. The FD9R6004 diplexers are available with various DC pass options, helpful in configurations with or without the Tower Mount Amplifiers installed.



Features/Benefits

- **LTE ready design**
- **Extremely Low Insertion Loss**
- **High level of Rejection between bands – Protection against interferences**
- **Extremely High Power Handling Capability**
- **Integrated DC block/bypass versions available**
- **Very compact & small size design – Easy installation and reduced tower load**
- **In-line long-neck connectors for easy connection & waterproofing**
- **Exceptional reliability & environmental protection (IP 67)**
- **Equipped with 1 * Breathable Vent – Prevent any humidity inside the product**
- **Mounting hardware for Wall and Pole mount provided (P/N SEM2-1A)**
- **Grounding already provided through the mounting bracket**
- **Kit available for easy dual mount**

Technical Specifications

Product Type	Diplexer/Cross Band Coupler
Application	LTE700, GSM900, UMTS, GSM1800, Cellular 800, PCS
Frequency Range 1, MHz	698-960
Frequency Range 2, MHz	1710-2200
Configuration	Sharelite Single diplexer, outdoor, DC pass in the 1710-2170MHz path, with mounting hardware SEM2-1A
Mounting	Wall Mounting: With 4 screws (maximum 6mm diameter); Pole Mounting: With included clamp set 40-110mm (1.57-4.33)
Return Loss All Ports Min/Typ, dB	19/23
Power Handling Continuous, Max, W	1250 at common port; 750 in low frequency path & 500 in high frequency path
Power Handling Peak, Max, W	15000 in low frequency path & 8000 in high frequency path
Impedance, Ohms	50
Insertion Loss, Path 1, dB	0.07 typ.
Insertion Loss, Path 2, dB	0.13 typ.
Rejection Between Bands Min/Typ, dB	58/64@698-960MHz; 57/70@1710-2200MHz
IMP Level at the COM Port, Typ, dBm	-112 @ 2x43
DC Pass in Low Frequency Path	No
DC Pass in High Frequency Path	Yes
Temperature Range, °C (°F)	-40 to +60 (-40 to +140)
Environmental	ETSI 300-019-2-4 Class 4.1E
Ingress Protection	IP 67
Lightning Protection	EN/IEC61000-4-5 Level 4
Connectors	In-line long-neck 7-16-Female
Weight, kg (lb)	1.2 (2.6)
Shipping Weight, kg (lb)	3.2 (7) for 2 * single units in 1 * box, 9.8 (21.6) for 6 * units = 3 * Boxes in 1 * overwrap
Dimensions, H x W x D, mm (in)	147 x 164 x 37 (5.8 x 6.5 x 1.5)
Shipping Dimensions, H x W x D, mm (in)	254 x 406 x 82 (10 x 16 x 3.2) for 2 * Single Units in 1 * box, 280 x 406 x 241 (11 x 16 x 9.5) for 6 * units = 3 * Boxes in 1 * overwrap
Volume, L	0.43
Housing	Aluminum

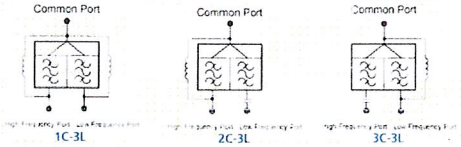
Notes

ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

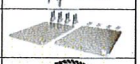
Other Documentation

FD9R6004/2C-3L Installation Instructions: Wideband_Diplexer_Installation_Rev5.pdf

Selection Guide Diplexer 698-960 / 1710-2200MHz					
	Model Number	Full DC Pass	DC Pass High Band	DC Pass Low Band	Mounting Hardware Included
Single	FD9R6004/1C-3L				X
	FD9R6004/2C-3L				X
	FD9R6004/3C-3L				X
Dual	KIT-FD9R6004/1C-DL				X
	KIT-FD9R6004/2C-DL				X
	KIT-FD9R6004/3C-DL				X



The FD9R6004 Series is upgradeable to a Dual Diplexer kit by means of 2 diplexers and mounting hardware kits SEM2-1A and SEM2-3

Mounting Hardware and Ground Cable Ordering Information		
Model Number	**Description**	
SEM2-1A	Mounting Hardware, Pole mount ø40-110mm (Included with the Single and Dual Diplexer) Wall Screws M6 (Not included with the product)	
SEM2-3	Assembly kit for 2 pcs of FD9R6004/xC-3L (Can be ordered separately but included with the Dual Diplexer Kit)	
CA020-2	Ground Cable, 2m, includes lugs (Optional)	
CA030-2	Ground Cable, 2m, includes lugs (Optional)	
SEM6	Mounting Hardware for 6 Diplexers, Tower Base (Optional)	

	General	Power	Density					
Site Name: West Hartford Ctr								
Tower Height: Verizon @ 110Ft.								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*Nextel	12	100	123	0.0285	851	0.5673	5.03%	
*Clearwire	2	153	123	0.0073	2496	1.0000	0.73%	
*Clearwire	1	211	128	0.0046	11 GHz	1.0000	0.46%	
Verizon PCS	**11**	**273**	**110**	**0.0892**	**1970**	**1.0000**	**8.92%**	
Verizon Cellular	**9**	**274**	**110**	**0.0733**	**869**	**0.5793**	**12.65%**	
Verizon AWS	**1**	**655**	**110**	**0.0195**	**2145**	**1.0000**	**1.95%**	
Verizon 700	**1**	**866**	**110**	**0.0257**	**698**	**0.4653**	**5.53%**	
								35.27%
* Source: Siting Council								

DETAILED STRUCTURAL ANALYSIS AND EVALUATION OF AN EXISTING 100' GUYED LATTICE TOWER FOR PROPOSED ANTENNA ARRANGEMENT

Site I.D: West Hartford Center
Address: 14-20 Isham Road
West Hartford, CT 06091

prepared for

verizonwireless

Verizon Wireless
99 East River Drive
East Hartford, Connecticut 06108

prepared by

URS

URS CORPORATION
500 ENTERPRISE DRIVE, SUITE 3B
ROCKY HILL, CT 06067
TEL. 860-529-8882

36922274.00000
VZ5-116

May 3, 2012

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the existing 100-ft roof top mounted guyed lattice tower located at 14-20 Isham Road in West Hartford, Connecticut. The analysis was conducted in accordance with the 2005 Connecticut State Building Code and the TIA/EIA-222-F standard for a wind velocity of 80 mph (fastest mile) and 69 mph (fastest mile) concurrent with 0.5" ice. The antenna loading considered in the analysis consists of all existing and proposed antennas, transmission lines and ancillary items as outlined in the Introduction of this report.

The proposed Verizon antenna installation is as listed below:

Proposed Antenna and Mount	Carrier	Antenna Centerline Elevation
Remove: **(4) Antel LPA-80063/4CF (2 Beta & 2 Gamma)** **(6) Antel LPA-185063/8CF (2 per Sector)** **Install:** **(1) Antel BXA-70063-6CF (1 Alpha)** **(2) SLCP 2x6015 (1 Beta & 1 Gamma)** **(4) SC-E 6014 REV2 (2 Beta & 2 Gamma)** **(1) BXA-171063-8BF (1 Alpha)** **(2) SACP 2x5516 (1 Beta & 1 Gamma)** **(6) Diplexers (2 per Sector)**	**Verizon (Proposed)**	**@ 110' AGL (85' above existing rooftop)**

The results of the analysis indicate that the existing tower structure has the capacity to support the proposed loading conditions. **The tower structure is considered structurally adequate for the proposed antenna loading with the wind load classifications specified above.** Additionally a review of the existing tower mast and guy anchor attachment locations was found to be structurally adequate.

This analysis is based on:

1) The tower structure's theoretical capacity not including any assessment of the condition of the tower.
2) Tower geometry and structural member sizes utilized in the preparation of this report were obtained from the following sources:
    - Manufacturer's original erection drawings for a 100' guyed tower, prepared by FWT, Inc., on behalf of General Tower Company, dated October 03, 1997
    - Design calculations prepared by Paul J. Ford and Company on behalf of FWT/ General Tower Company, prepared on October 14, 1997 and signed and sealed November 10, 1997.
3) Tower anchorage design drawing S-1, prepared by Cianci & Cianci Structural Engineers, dated October 22, 1997.
4) Pervious structural analysis performed by URS Corporation, project number VZ4-026 for Verizon Wireless, signed and sealed May 23, 2008.
5) Previous structural analysis performed by CHA, project number 20592-1045-1203 for Clearwire, signed and sealed April 14, 2010.
6) Site documentation and visual verification of existing appurtenances conducted from grade by URS in April 2012.
7) Antenna inventory as specified in section 2 and 6 of this report.
8) Coax cable orientation as specified in section 6 of this report.

1. EXECUTIVE SUMMARY - *continued*

This report is only valid as per the assumptions and data utilized in this report for antenna inventory, mounts and associated cables. The user of this report shall field verify the antenna and mount configuration used, as well as the physical condition of the tower members and connections. Notify the engineer in writing immediately if any of the information in this report is found to be other than specified.

If you should have any questions, please call.

Sincerely,

URS Corporation AES

Richard A. Sambor, P.E.
Senior Structural Engineer

RAS/kab

cc: ICA, CF/Book – URS

2. INTRODUCTION

The subject tower is located at 14-20 Isham Road in West Hartford, Connecticut. The structure is a 100-ft three face, guyed lattice tower, designed and manufactured by FWT, Inc. in 1997. The inventory is summarized in the table below:

Antenna Type	*Carrier*	*Mount*	*Antenna Centerline Elevation*	*Cable*
(1) 12'x3" Omni antenna (est)	Unknown (existing)	atop 4-Bay Dipole off Boom Gate	143' (118')	(2) 1 5/8" + (1) 7/8" + (2) 1/2" coax cables
(1) 18'x3" Omni antenna (est)	Unknown (reserved)	Boom Gate (same as above)	132' (107')	Included in coax above
(1) 4 Bay Dipole (at base of 12' Omni noted above)	Unknown (existing)	Boom Gate (same as above)	132' (107')	Included in coax above
(1) 4 Bay Dipole	Unknown (reserved)	Boom Gate (same as above)	129' (104')	Included in coax above
(1) 6'x3" Omni antenna (est)	Unknown (reserved)	Boom Gate (same as above)	128' (103')	Included in coax above
(1) 4'x3" Omni antenna (est)	Unknown (reserved)	Boom Gate (same as above)	127' (102')	Included in coax above
(1) Dragonwave 2.5' diameter Dish	Clearwire (existing)	Boom Gate (same as above)	127' (102')	(1) 1/2" coax cable
(12) Allgon ALP 9212 panel antennas	Sprint/Nextel (existing)	(3) Boom Gates	123' (98')	(12) 1 1/4" coax cables
(3) Argus LLPX310R panel antenna	Clearwire (existing)	Boom gate (same as above)	123' (98')	(6) 5/16" cables
(1) Dragonwave 2.5' diameter Dish	Clearwire (existing)	Boom Gate (same as above)	119' (94')	(1) 1/2" coax cable
(2) Antel LPA 80063/4CF (Beta Sector) (2) GPS antennas	Verizon (existing)	(3) Valmont 13' Lightweight T-frames, Valmont P/N 800945	110' (85')	(12) 1 5/8" coax cables (2) 1/2" coax cables
(1) Antel BXA-70063-6CF (Alpha) (2) SLCP 2x6015 (B & C) (4) SC-E 6014 REV2 (2Beta & 2Gamma) (1) BXA-171063-8BF (A) (2) SACP 2x5516 (B & C) (6) Diplexers	**Verizon (proposed)**	**(same as above)**	**110' (85')**	**Included in coax above**
(4) GPS antennas	Unknown (existing)	Stand-off Mounts	35' (10')	(4) 1/2" coax cables

Notes:

I. **Refer to Section 6 Tower Feed Line Plan for all coax locations.**
II. **Equivalent antenna centerline height measured from roof top elevation shown in parenthesis.**
III. **Existing guyed tower approximately 25' above average grade at rooftop level.**

This structural analysis of the communications tower was performed by URS Corporation (URS) for Verizon Wireless. The purpose of this analysis was to investigate the structural integrity of the existing tower with its existing and proposed antenna loads. The analysis was conducted to evaluate stress on the tower and the effect of forces to the foundation of the tower resulting from existing and proposed antenna arrangement.

3. ANALYSIS METHODOLOGY AND LOADING CONDITIONS

The structural analysis was done in accordance with the 2005 Connecticut State Building Code, TIA/EIA-222-F - Structural Standard for Steel Antenna Towers and Antenna Supporting Structures, the Connecticut State Police Requirements, and the American Institute of Steel Construction (AISC) Manual of Steel Construction - Allowable Stress Design (ASD).

The analysis was conducted using TNX Tower 6.0. Two load conditions were evaluated as shown below which were compared to allowable stresses according to AISC and TIA/EIA.

Load Condition 1 = 80 mph (fastest mile) Wind Load (without ice) + Tower Dead Load
Load Condition 2 = 69 mph (fastest mile) Wind Load (with ice) + Ice Load + Tower Dead Load

Please note that wind pressure is a function of velocity squared. Under Load Condition 2, a 25 percent reduction in wind pressure is allowed by code to account for the unlikelihood of the full wind pressure and ice load occurring at the same time. The same results may be achieved by utilizing a lower wind pressure without taking the 25 percent reduction, as shown above.

The TIA/EIA standard permits one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For purposes of this analysis, in computing the load capacity the allowable stresses of the tower members were increased by one-third.

4. FINDINGS AND EVALUATION

Stresses on the structure were evaluated to compare with the allowable stresses in accordance with AISC. The calculated stresses under the proposed loading were **BELOW** the allowable stresses (see table below). Detailed analysis and calculations for the proposed load condition are provided in section 6 of this report. Additionally a review of the existing tower mast and guy anchor attachment locations was found to be structurally adequate.

TABLE 1: Tower Reactions vs Original Design Reactions:
For detailed proposed tower reactions, see drawing no. E-1 in section 6 of this report.

Proposed Tower Reactions vs. Original Design Reactions			
Component (kips)	**Original Design Reactions** (1)	**Proposed Reactions**	**Stress (% capacity)**
Mast Compression (V)	106	83.9	79.2
Mast Shear (H)	1.6	1.4	87.5
Guy Anchor A @ 45ft radius (V)	45.1	31.2	69.2
Guy Anchor A @ 45ft radius (H)	31.7	20.5	64.7
Guy Anchor B @ 39ft radius (V)	51.6	35.9	69.6
Guy Anchor B @ 39ft radius (H)	32.0	20.6	64.4
Guy Anchor C @ 37.5ft radius (V)	47.8	33.9	70.9
Guy Anchor C @ 37.5ft radius (H)	31.6	20.6	65.2

NOTE:
(1) Original design reactions taken from Paul J. Ford calculations dated 11.10.97.

TABLE 2: Proposed Tower Component Stress vs. Capacity Summary

Component / (Section No.)	**Controlling Component/ Elevation**	**Stress (% capacity)**	**Pass/Fail**	**Comments:**
Tower Leg (T2)	Compression/85'-105'	91.9%	**Pass**	
Diagonal (T3)	Compression/65'-85'	60.1%	**Pass**	
Horizontal (T4)	Tension/45'-65'	29.7%	**Pass**	
Top Girt (T4)	Tension/45'-65'	37.5%	**Pass**	
Bottom Girt (T5)	Tension/29'-45'	20.2%	**Pass**	
Guy A (T1)	Tension	63.4%	**Pass**	
Guy B (T1)	Tension	67.7%	**Pass**	
Guy C (T1)	Tension	66.8%	**Pass**	
Top Guy Pull Off (T3)	Tension+Bending/65'-85'	18.1%	**Pass**	
Bolt Checks	Tension/85'	33.7%	**Pass**	

5. CONCLUSIONS AND RECOMMENDATIONS

The results of the analysis indicate that the existing tower structure has the capacity to support the proposed loading conditions. **The tower structure is considered structurally adequate for the proposed antenna loading with the wind load classifications specified above.** Additionally a review of the existing tower mast and guy anchor attachment locations was found to be structurally adequate.

Limitations/Assumptions:

This report is based on the following:

1) Tower inventory as listed in this report.
2) Tower is properly installed and maintained.
3) All members are as specified in the original design documents and are in good condition.
4) All required members are in place.
5) All bolts are in place and are properly tightened.
6) Tower is in plumb condition.
7) All member protective coatings are in good condition.
8) All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
9) Foundations were properly constructed to support original design loads as specified in the original design documents.
10) All coaxial cable is installed as specified in Section 6 of this report

URS is not responsible for any modifications completed prior to or hereafter in which URS is not or was not directly involved. Modifications include but are not limited to:

A. Adding antennas
B. Removing/replacing antennas
C. Adding coaxial cables

URS hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact URS. URS disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

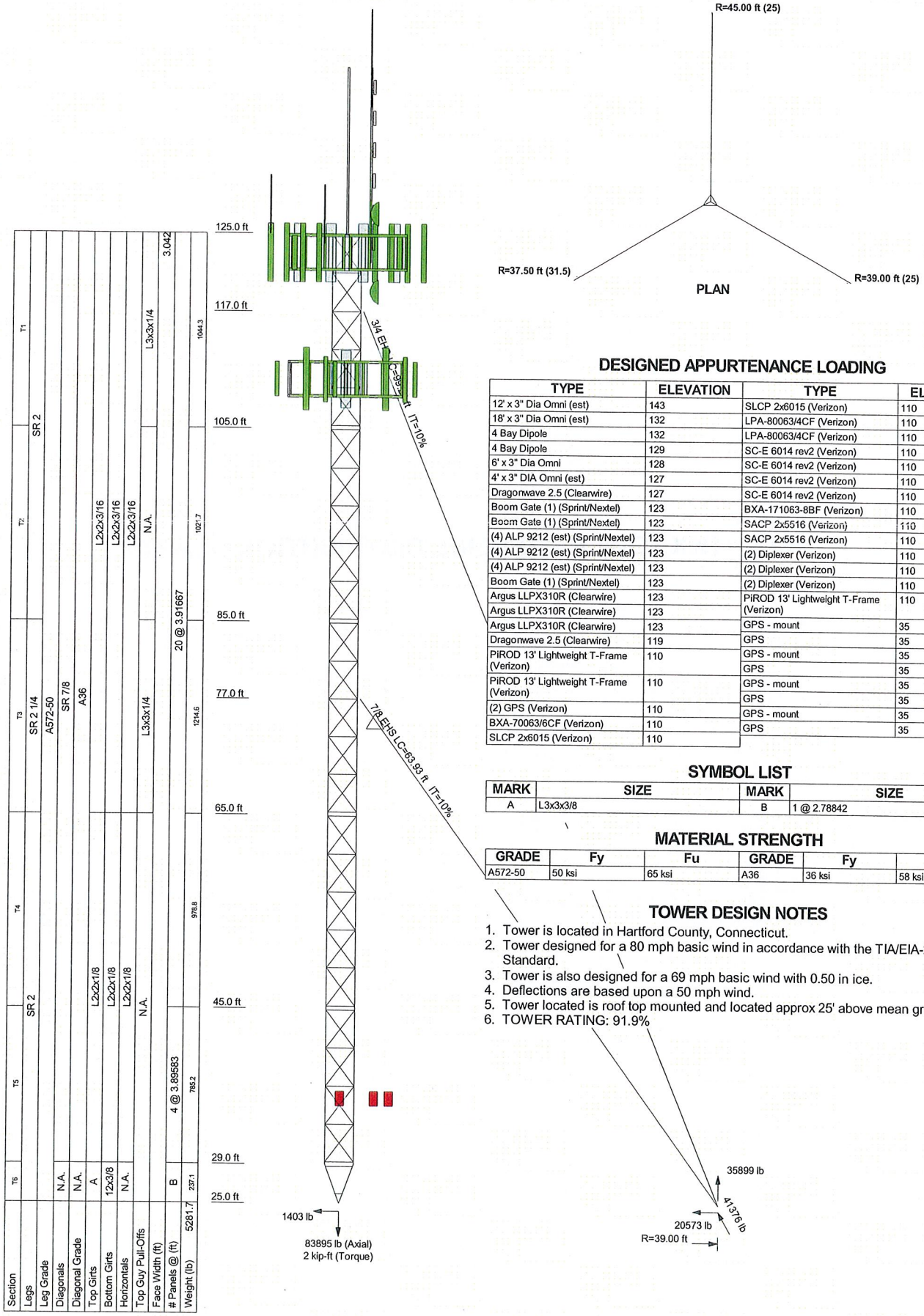
Ongoing and Periodic Inspection and Maintenance:

After the Contractor has successfully completed the installation and the work has been accepted, the owner will be responsible for the ongoing and periodic inspection and maintenance of the tower.

The owner shall refer to TIA/EIA-222-F for recommendations for maintenance and inspection. The frequency of the inspection and maintenance intervals is to be determined by the owner based upon actual site and environmental conditions. It is recommended that a complete and thorough inspection of the entire tower structural system be performed at least yearly and more frequently as conditions warrant. According to TIA/EIA-222-F section 14.1, Note 1; it is recommended that the structure be inspected after severe wind and/or ice storms or other extreme loading conditions.

6. DRAWINGS AND DATA

TNX TOWER INPUT / OUTPUT SUMMARY



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
12' x 3" Dia Omni (est)	143	SLCP 2x6015 (Verizon)	110
18' x 3" Dia Omni (est)	132	LPA-80063/4CF (Verizon)	110
4 Bay Dipole	132	LPA-80063/4CF (Verizon)	110
4 Bay Dipole	129	SC-E 6014 rev2 (Verizon)	110
6' x 3" Dia Omni	128	SC-E 6014 rev2 (Verizon)	110
4' x 3" DIA Omni (est)	127	SC-E 6014 rev2 (Verizon)	110
Dragonwave 2.5 (Clearwire)	127	SC-E 6014 rev2 (Verizon)	110
Boom Gate (1) (Sprint/Nextel)	123	BXA-171063-8BF (Verizon)	110
Boom Gate (1) (Sprint/Nextel)	123	SACP 2x5516 (Verizon)	110
(4) ALP 9212 (est) (Sprint/Nextel)	123	SACP 2x5516 (Verizon)	110
(4) ALP 9212 (est) (Sprint/Nextel)	123	(2) Diplexer (Verizon)	110
(4) ALP 9212 (est) (Sprint/Nextel)	123	(2) Diplexer (Verizon)	110
Boom Gate (1) (Sprint/Nextel)	123	(2) Diplexer (Verizon)	110
Argus LLPX310R (Clearwire)	123	PiROD 13' Lightweight T-Frame (Verizon)	110
Argus LLPX310R (Clearwire)	123		
Argus LLPX310R (Clearwire)	123	GPS - mount	35
Dragonwave 2.5 (Clearwire)	119	GPS	35
PiROD 13' Lightweight T-Frame (Verizon)	110	GPS - mount	35
		GPS	35
PiROD 13' Lightweight T-Frame (Verizon)	110	GPS - mount	35
		GPS	35
(2) GPS (Verizon)	110	GPS - mount	35
BXA-70063/6CF (Verizon)	110	GPS	35
SLCP 2x6015 (Verizon)	110		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L3x3x3/8	B	1 @ 2.78842

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 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. Tower located is roof top mounted and located approx 25' above mean grade level.
6. TOWER RATING: 91.9%

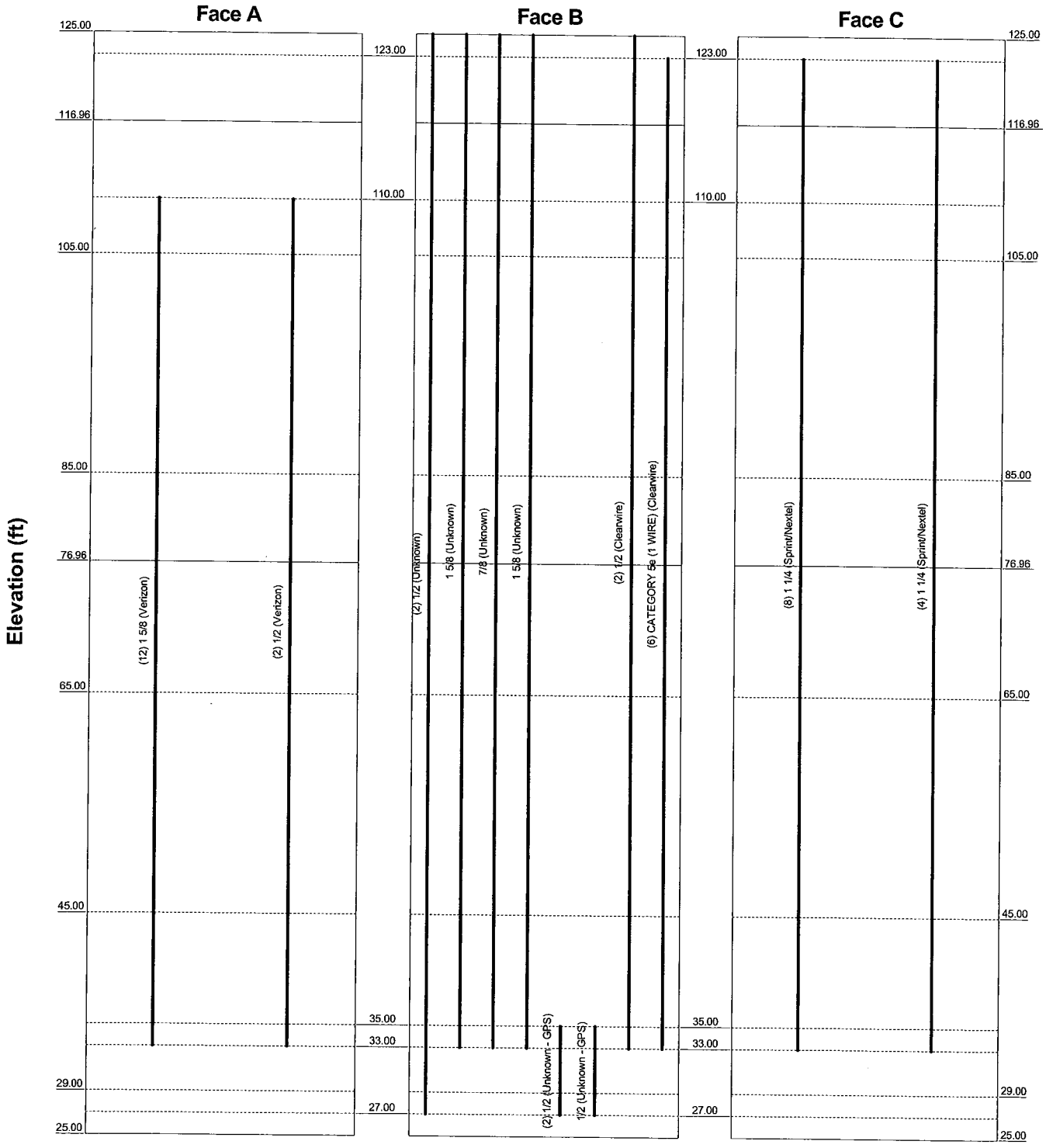
URS Corporation
500 Enterprise Drive, Suite 3B
Rocky Hill, CT 06067
Phone: (860) 529-8882
FAX: (860) 529-3991

Job:	***100' Guyed Tower***		
Project:	***14-20 Isham Road - West Hartford, CT***		
Client: Verizon Wireless	Drawn by: kevin_barker	App'd:	
Code: TIA/EIA-222-F	Date: 05/03/12	Scale: NTS	
Path: P:\08\ERI Files\100_FWT_Guyed_Twr_West_Hartford_CT.eri		Dwg No. E-1	

TNX TOWER FEEDLINE DISTRIBUTION CHART

Feedline Distribution Chart
25' - 125'

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



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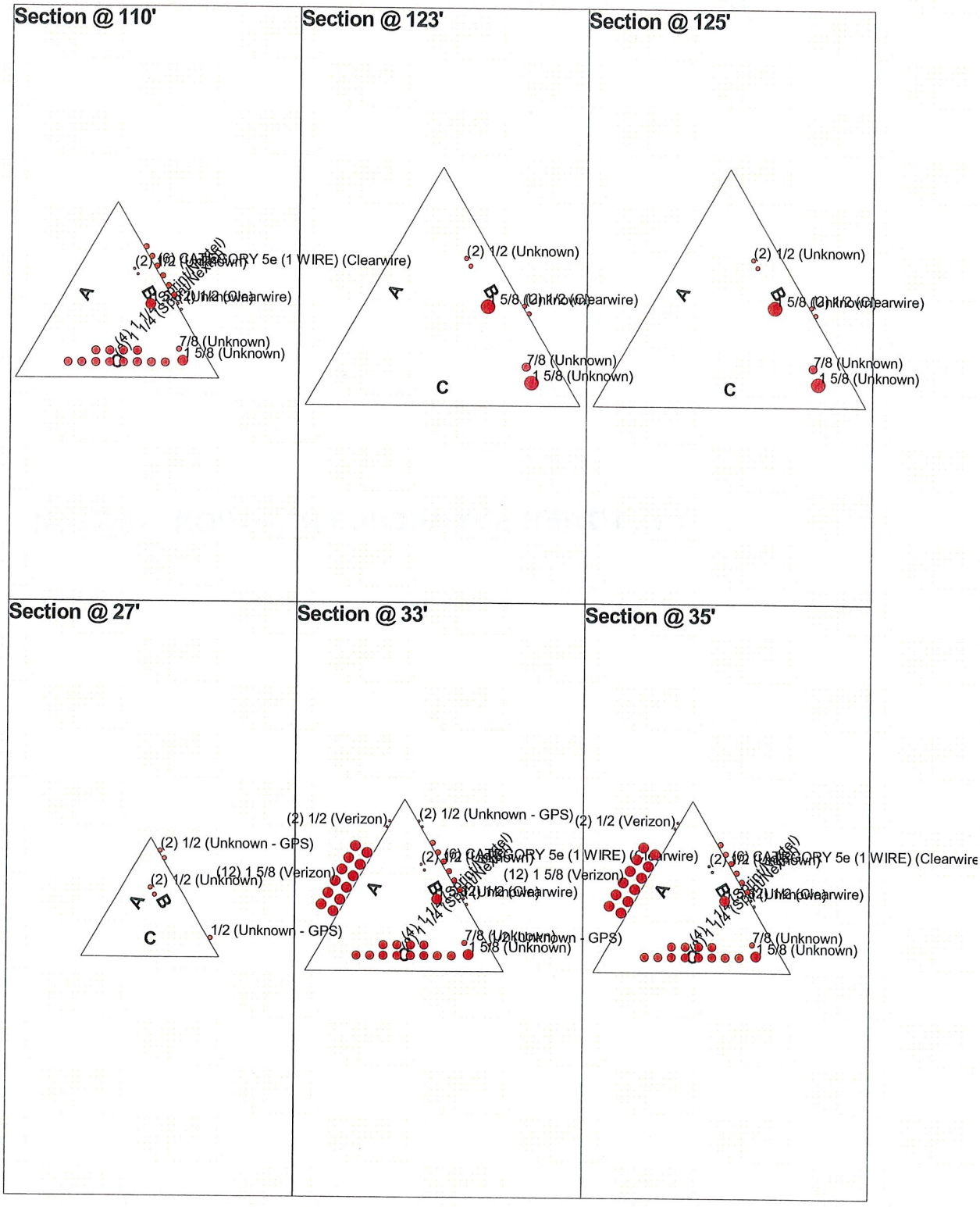
Code: TIA/EIA-222-F	Date: 05/03/12		Scale: NTS
Path: P:\08\ERI Files\100_FWT_Guyed_Twr_West_Harfford_CT.eri			Dwg No. E-7

TNX TOWER FEEDLINE PLAN

Feedline Plan
25' - 125'



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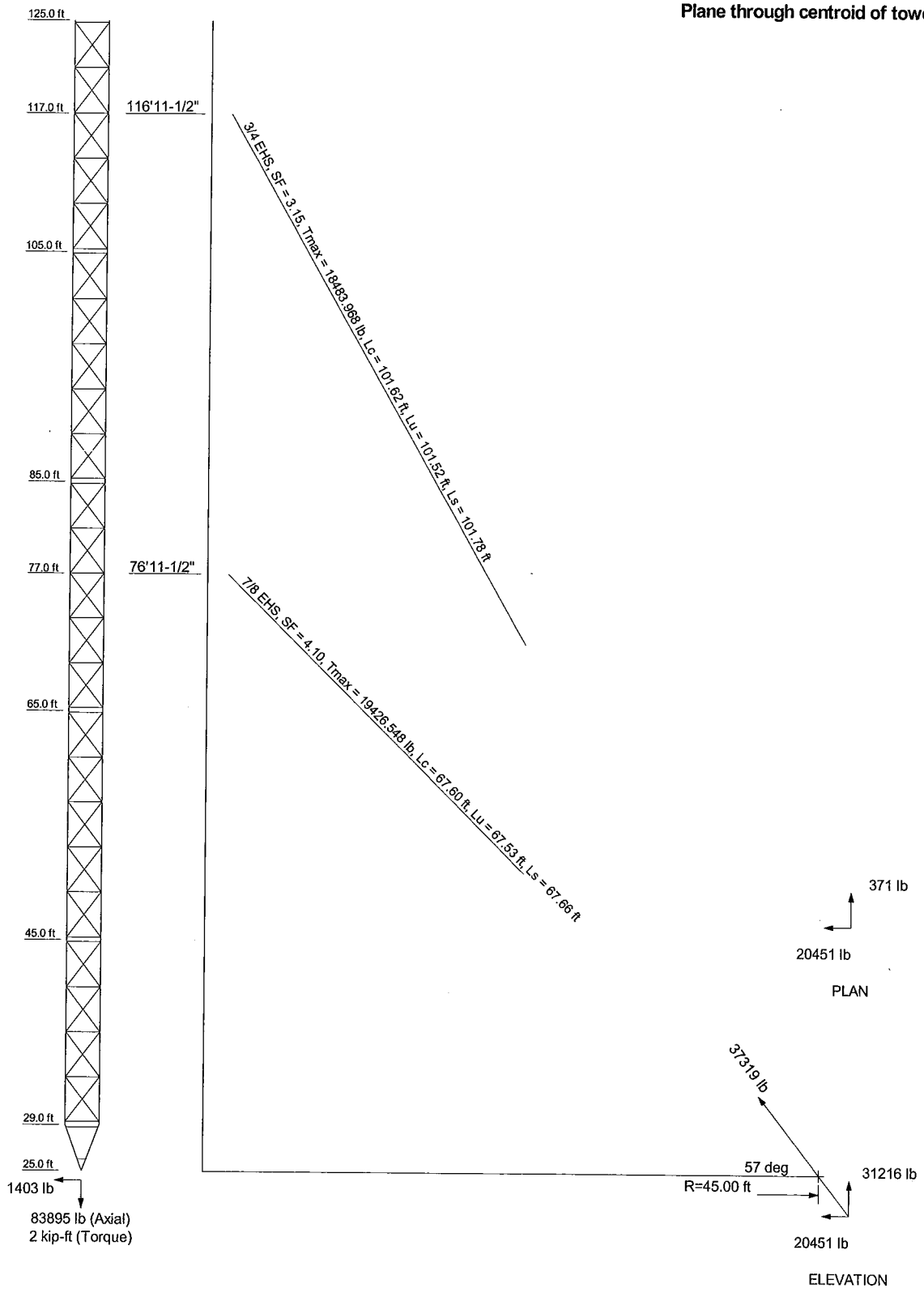
Code: TIA/EIA-222-F	Date: 05/03/12	Scale: NTS	
Path: P:\08\ERI Files\100_FWT_Guyed_Twr_West_Hartford_CT.eri		Dwg No. E-7	

TNX TOWER GUY ANCHOR REACTION DIAGRAM

Guy Tensions and Tower Reactions

TIA/EIA-222-F - 80 mph/69 mph 0.500 in Ice

Maximum Values
Anchor 'A'@45 ft Azimuth 0 deg Elev 25 ft
Plane through centroid of tower



URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job: ***100' Guyed Tower***		
	Project: ***14-20 Isham Road - West Hartford, CT***		
	Client: Verizon Wireless	Drawn by: kevin_barker	App'd:
	Code: TIA/EIA-222-F	Date: 05/03/12	Scale: NTS
	Path: P:\08\ERI Files\100_FWT_Guyed_Twr_West_Hartford_CT.eri		Dwg No. E-6

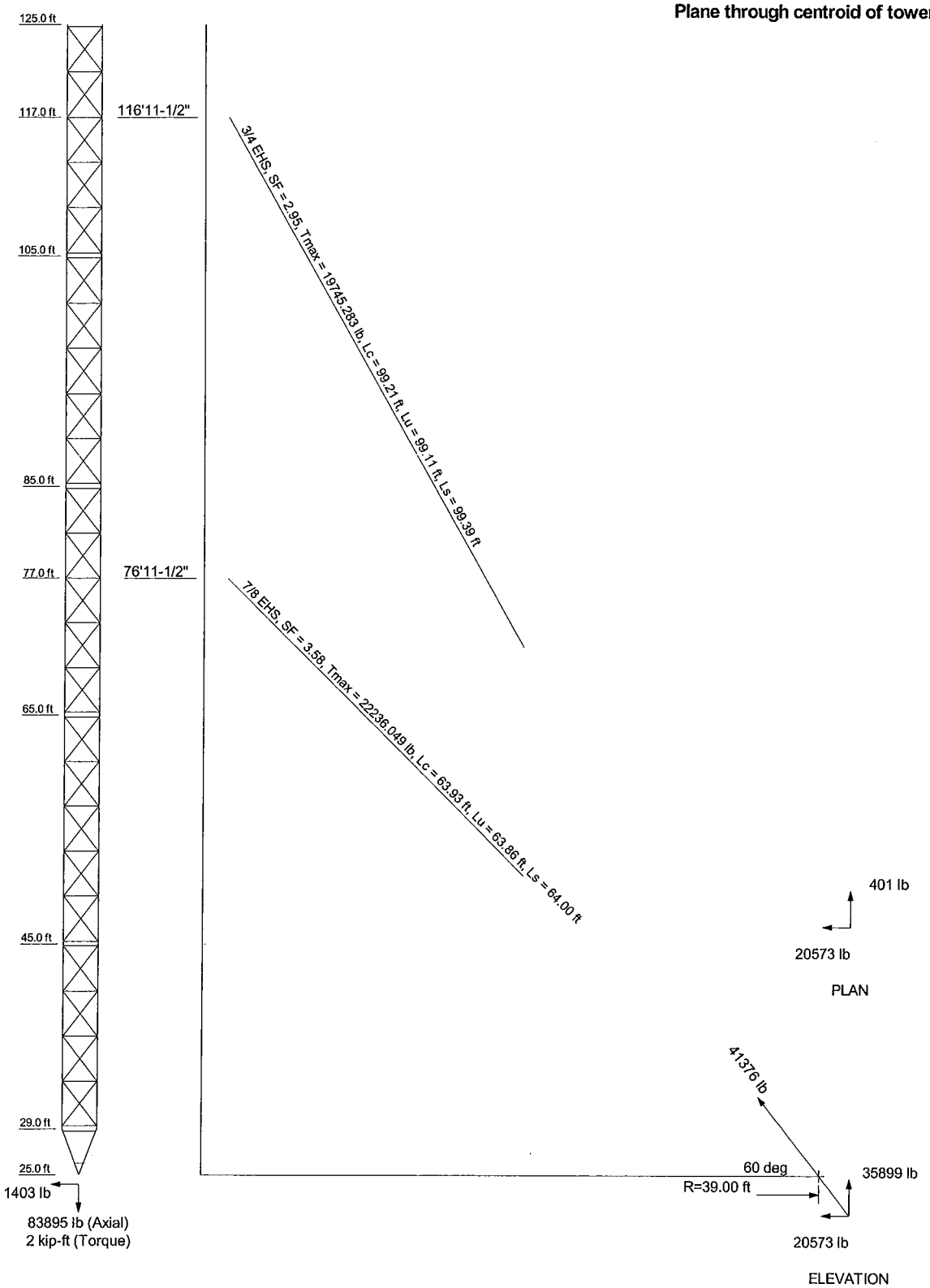
Guy Tensions and Tower Reactions

TIA/EIA-222-F - 80 mph/69 mph 0.500 in Ice

Maximum Values

Anchor 'B'@39 ft Azimuth 120 deg Elev 25 ft

Plane through centroid of tower



URS Corporation	Job: ***100' Guyed Tower***		
500 Enterprise Drive, Suite 3B	Project: ***14-20 Isham Road - West Hartford, CT***		
Rocky Hill, CT 06067	Client: Verizon Wireless	Drawn by: kevin_barker	App'd:
Phone: (860) 529-8882	Code: TIA/EIA-222-F	Date: 05/03/12	Scale: NTS
FAX: (860) 529-3991	Path: P:\06\ERI Files\100_FWT_Guyed_Twr_West_Hartford_CT.eri		Dwg No. E-6

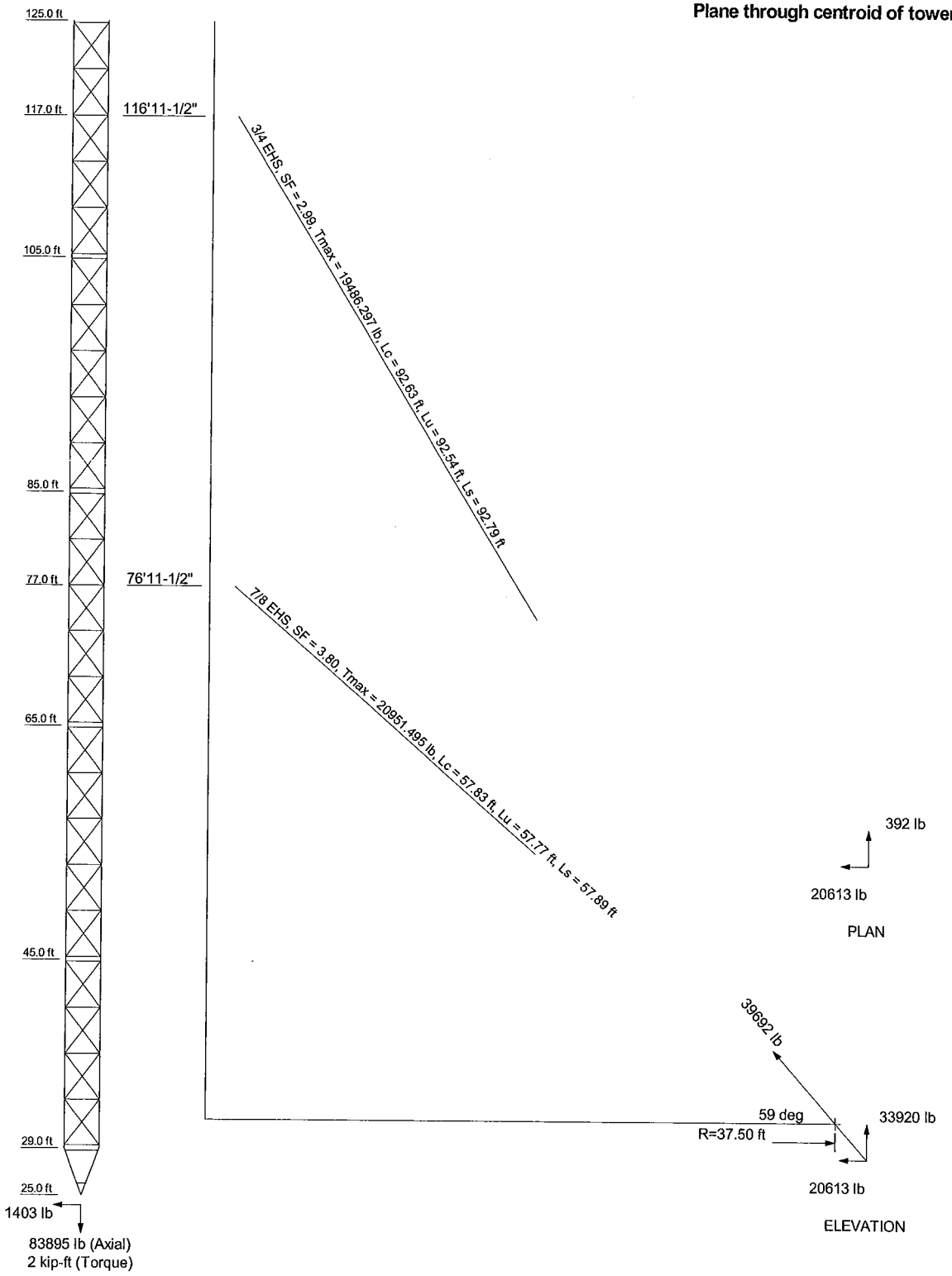
Guy Tensions and Tower Reactions

TIA/EIA-222-F - 80 mph/69 mph 0.500 in Ice

Maximum Values

Anchor 'C'@37.5 ft Azimuth 240 deg Elev 31.5 ft

Plane through centroid of tower



URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job: ***100' Guyed Tower***		
	Project: ***14-20 Isham Road - West Hartford, CT***		
	Client: Verizon Wireless	Drawn by: kevin_barker	App'd:
	Code: TIA/EIA-222-F	Date: 05/03/12	Scale: NTS
	Path: P:\08\ERI Files\100_FWT_Guyed_Twr_West_Hartford_CT.eri		Dwg No. E-6

TNX TOWER DETAILED OUTPUT

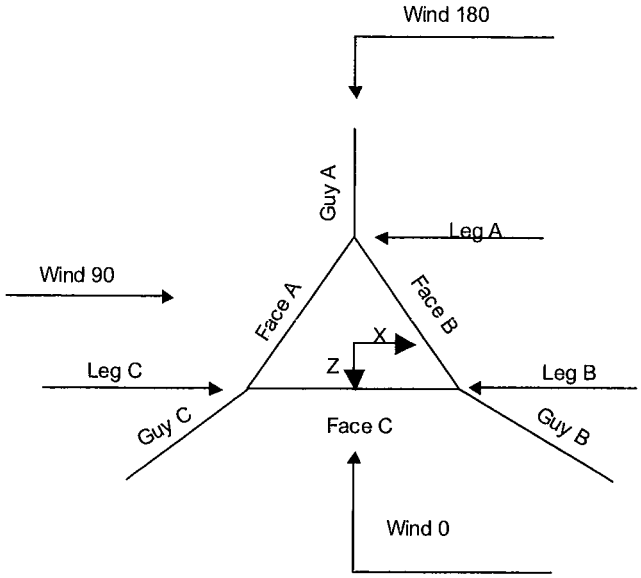
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 125.00 ft above the ground line.
The base of the tower is set at an elevation of 25.00 ft above the ground line.
The face width of the tower is 3.04 ft at the top and tapered 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 0.500 in.
Ice density of 56 pcf.
A wind speed of 69 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
Tower located is roof top mounted and located approx 25' above mean grade level..
Pressures are calculated at each section.
Safety factor used in guy design is 2.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

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



Corner & Starmount Guyed Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	125.00-105.00			3.04	1	20.00
T2	105.00-85.00			3.04	1	20.00
T3	85.00-65.00			3.04	1	20.00
T4	65.00-45.00			3.04	1	20.00
T5	45.00-29.00			3.04	1	16.00
T6	29.00-25.00			3.04	1	4.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	125.00-105.00	3.92	X Brace	No	Yes	2.500	2.500
T2	105.00-85.00	3.92	X Brace	No	Yes	2.500	2.500
T3	85.00-65.00	3.92	X Brace	No	Yes	2.500	2.500
T4	65.00-45.00	3.92	X Brace	No	Yes	2.500	2.500

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T5	45.00-29.00	3.90	X Brace	No	Yes	2.500	2.500
T6	29.00-25.00	2.79	X Brace	No	Yes	2.539	12.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 125.00-105.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T2 105.00-85.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T3 85.00-65.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T4 65.00-45.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T5 45.00-29.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T6 29.00-25.00	Solid Round	2	A572-50 (50 ksi)	Flat Bar		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 125.00-105.00	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T2 105.00-85.00	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T3 85.00-65.00	Single Angle	L2x2x3/16	A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T4 65.00-45.00	Single Angle	L2x2x1/8	A36 (36 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T5 45.00-29.00	Single Angle	L2x2x1/8	A36 (36 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T6 29.00-25.00	Equal Angle	L3x3x3/8	A36 (36 ksi)	Flat Bar	12x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 125.00-105.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T2 105.00-85.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T3 85.00-65.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T4 65.00-45.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T5 45.00-29.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T6 29.00-25.00	1	Equal Angle	L2x2x1/4	A36 (36 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 125.00-105.00	0.00	0.000	A36 (36 ksi)	1	1	1	36.000	36.000
T2 105.00-85.00	0.00	0.000	A36 (36 ksi)	1	1	1	36.000	36.000
T3 85.00-65.00	0.00	0.000	A36 (36 ksi)	1	1	1	36.000	36.000
T4 65.00-45.00	0.00	0.000	A36 (36 ksi)	1	1	1	36.000	36.000
T5 45.00-29.00	0.00	0.000	A36 (36 ksi)	1	1	1	36.000	36.000
T6 29.00-25.00	0.00	0.000	A36 (36 ksi)	1	1	1	36.000	36.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors[1] X Brace Diags X / Y	K Brace Diags X / Y	Single Diags X / Y	Girts X / Y	Horiz. X / Y	Sec. Horiz. X / Y	Inner Brace X / Y
T1 125.00-105.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 105.00-85.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 85.00-65.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 65.00-45.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 45.00-29.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 29.00-25.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		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 125.00-105.00	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 105.00-85.00	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 85.00-65.00	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 65.00-45.00	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T5 45.00-29.00	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T6 29.00-25.00	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
ft	in	in	in	in	in	in	in	in
T1 125.00-105.00	8.000	0.000	0.000	8.000	0.000	0.000	0.000	0.000
T2 105.00-85.00	8.000	0.000	0.000	8.000	0.000	0.000	0.000	0.000
T3 85.00-65.00	8.000	0.000	0.000	8.000	0.000	0.000	0.000	0.000
T4 65.00-45.00	8.000	0.000	0.000	8.000	0.000	0.000	0.000	0.000
T5 45.00-29.00	8.000	0.000	0.000	8.000	0.000	0.000	0.000	0.000
T6 29.00-25.00	8.000	0.000	0.000	8.000	0.000	0.000	0.000	0.000

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.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 125.00-105.00	Flange	0.750 A325N	3	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T2 105.00-85.00	Flange	0.750 A325N	3	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T3 85.00-65.00	Flange	0.750 A325N	3	0.000 A325N	0	0.500 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T4 65.00-45.00	Flange	0.750 A325N	3	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T5 45.00-29.00	Flange	0.750 A325N	3	0.000 A325N	0	0.500 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T6 29.00-25.00	Flange	0.750 A325N	3	0.000 A325N	0	0.500 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
116.958	EHS	A	3/4	5830.000	10%	19000	1.155	101.53	45.00	0.00	25.00	100%
		B	3/4	5830.000	10%	19000	1.155	99.12	39.00	0.00	25.00	100%
		C	3/4	5830.000	10%	19000	1.155	92.55	37.50	0.00	31.50	100%
76.9583	EHS	A	7/8	7970.000	10%	19000	1.581	67.54	45.00	0.00	25.00	100%
		B	7/8	7970.000	10%	19000	1.581	63.87	39.00	0.00	25.00	100%
		C	7/8	7970.000	10%	19000	1.581	57.78	37.50	0.00	31.50	100%

Guy Data *(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
116.958	Corner						
76.9583	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
116.96	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Single Angle	L3x3x1/4
76.96	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Single Angle	L3x3x1/4

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
116.958	117.262	114.487	106.892		1.01 1.7 sec/pulse	0.97 1.7 sec/pulse	0.84 1.6 sec/pulse	
76.9583	106.777	100.977	91.342		0.45 1.2 sec/pulse	0.40 1.1 sec/pulse	0.33 1.0 sec/pulse	

Guy Data (cont'd)

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
116.958	No	No			1	1	1	1
76.9583	No	No			1	1	1	1

Guy Data (cont'd)

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
116.958	0.000 A325N	0	0.000	1	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75
76.9583	0.000 A325N	0	0.000	1	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
116.958	A	70.98	20	15	0.500
	B	70.98	20	15	0.500
	C	74.23	21	15	0.500
76.9583	A	50.98	19	14	0.500
	B	50.98	19	14	0.500
	C	54.23	19	14	0.500

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top Bottom lb	F_x lb	F_y lb	F_z lb	M_x kip-ft	M_y kip-ft	M_z kip-ft
116.958	A	64.81	5936.114	0.000	5382.401	-2503.439	-9.45	0.00	0.00

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top / Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	lb	lb	lb	lb	kip-ft	kip-ft	kip-ft
			5830.000						
	B	67.95	5936.114	1912.488	5510.049	1104.176	4.84	0.00	-8.38
			5830.000						
	C	67.30	5928.614	-1964.632	5477.416	1134.281	4.81	0.00	8.33
			5830.000						
			Sum:	**-52.144**	16369.866	**-264.983**	**0.20**	0.00	**-0.05**
76.9583	A	50.23	8052.071	0.000	6210.817	-5124.607	-10.91	0.00	0.00
			7970.000						
	B	54.37	8052.071	4041.809	6561.572	2333.539	5.76	0.00	-9.98
			7970.000						
	C	51.82	8041.804	-4285.456	6339.067	2474.209	5.57	-0.00	9.64
			7970.000						
			Sum:	**-243.647**	19111.455	**-316.859**	**0.42**	0.00	**-0.34**

Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top / Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	lb	lb	lb	lb	kip-ft	kip-ft	kip-ft
116.958	A	64.81	8057.165	0.000	7308.819	-3391.028	-12.84	0.00	0.00
			7880.899						
	B	67.95	8054.579	2589.720	7478.907	1495.176	6.57	0.00	-11.38
			7878.312						
	C	67.30	8044.060	-2660.597	7434.280	1536.097	6.53	-0.00	11.31
			7880.252						
			Sum:	**-70.877**	22222.006	**-359.756**	**0.26**	0.00	**-0.07**
76.9583	A	50.23	10919.107	0.000	8426.074	-6944.652	-14.80	0.00	0.00
			10793.435						
	B	54.37	10915.867	5475.705	8898.222	3161.400	7.81	0.00	-13.53
			10790.195						
	C	51.82	10903.786	-5807.207	8598.121	3352.793	7.55	-0.00	13.08
			10793.836						
			Sum:	**-331.502**	25922.417	**-430.459**	**0.57**	0.00	**-0.46**

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top / Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	lb	lb	lb	lb	kip-ft	kip-ft	kip-ft
116.958	A	64.81	5936.114	0.000	5382.401	-2503.439	-9.45	0.00	0.00
			5830.000						
	B	67.95	5936.114	1912.488	5510.049	1104.176	4.84	0.00	-8.38
			5830.000						
	C	67.30	5928.614	-1964.632	5477.416	1134.281	4.81	0.00	8.33
			5830.000						

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	lb	lb	lb	lb	kip-ft	kip-ft	kip-ft
			Sum:	**-52.144**	16369.866	**-264.983**	**0.20**	0.00	**-0.05**
76.9583	A	50.23	8052.071 7970.000	0.000	6210.817	-5124.607	-10.91	0.00	0.00
	B	54.37	8052.071 7970.000	4041.809	6561.572	2333.539	5.76	0.00	-9.98
	C	51.82	8041.804 7970.000	-4285.456	6339.067	2474.209	5.57	-0.00	9.64
			Sum:	**-243.647**	19111.455	**-316.859**	**0.42**	0.00	**-0.34**

Guy-Tensioning Information

Guy Elevation		H	V	Temperature At Time Of Tensioning: 0 F Initial Tension	0 F Intercept	20 F Initial Tension	20 F Intercept	40 F Initial Tension	40 F Intercept	60 F Initial Tension	60 F Intercept	80 F Initial Tension	80 F Intercept	100 F Initial Tension	100 F Intercept	120 F Initial Tension	120 F Intercept
ft		ft	ft	lb	ft	lb	ft	lb	ft	lb	ft	lb	ft	lb	ft	lb	ft
116.958	A	43.24	91.96	6279	0.94	6129	0.96	5979	0.99	5830	1.01	5681	1.04	5532	1.07	5382	1.10
	B	37.24	91.96	6180	0.91	6063	0.93	5946	0.95	5830	0.97	5714	0.98	5597	1.01	5481	1.03
	C	35.74	85.46	6200	0.79	6076	0.81	5953	0.82	5830	0.84	5707	0.86	5584	0.88	5461	0.90
76.9583	A	43.24	51.96	9357	0.38	8894	0.40	8432	0.43	7970	0.45	7509	0.48	7049	0.51	6590	0.54
	B	37.24	51.96	9121	0.35	8737	0.37	8353	0.38	7970	0.40	7587	0.42	7204	0.45	6822	0.47
	C	35.74	45.46	9267	0.28	8834	0.30	8402	0.31	7970	0.33	7539	0.35	7108	0.37	6678	0.39

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 1/4 (Sprint/Nextel)	C	Yes	Ar (CfAe)	123.00 - 33.00	-2.000	0	8	8	0.950 1.550	1.550		0.66
1 1/4 (Sprint/Nextel)	C	Yes	Ar (CfAe)	123.00 - 33.00	-4.000	0	4	4	0.950 1.550	1.550		0.66
1/2 (Unknown)	B	Yes	Ar (CfAe)	125.00 - 27.00	-3.000	-0.155	2	2	0.580	0.580		0.25
1 5/8 (Unknown)	B	Yes	Ar (CfAe)	125.00 - 33.00	-3.000	0.34	1	1	1.980	1.980		1.04
7/8 (Unknown)	B	Yes	Ar (CfAe)	125.00 - 33.00	-3.000	0.28	1	1	1.110	1.110		0.54
1 5/8 (Unknown)	B	Yes	Ar (CfAe)	125.00 - 33.00	-3.000	0.02	1	1	1.980	1.980		1.04
1/2 (Unknown - GPS)	B	Yes	Ar (CfAe)	35.00 - 27.00	0.000	-0.35	2	2	0.580	0.580		0.25
1/2 (Unknown - GPS)	B	Yes	Ar (CfAe)	35.00 - 27.00	0.000	0.35	1	1	0.580	0.580		0.25
1 5/8 (Verizon)	A	Yes	Ar (CfAe)	110.00 - 33.00	0.000	0	12	6	0.500	1.980		1.04
1/2 (Verizon)	A	Yes	Ar (CfAe)	110.00 - 33.00	0.000	0.35	2	2	0.580	0.580		0.25

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1/2 (Clearwire)	B	Yes	Ar (CfAe)	125.00 - 33.00	0.000	0.1	2	2	0.580	0.580		0.25
CATEGORY 5e (1 WIRE) (Clearwire)	B	Yes	Ar (CfAe)	123.00 - 33.00	0.000	-0.1	6	6	1.000	1.000		0.21

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	125.00-105.00	A	5.433	0.000	0.000	0.000	64.900
		B	21.317	0.000	0.000	0.000	95.080
		C	27.900	0.000	0.000	0.000	142.560
T2	105.00-85.00	A	21.733	0.000	0.000	0.000	259.600
		B	22.317	0.000	0.000	0.000	97.600
		C	31.000	0.000	0.000	0.000	158.400
T3	85.00-65.00	A	21.733	0.000	0.000	0.000	259.600
		B	22.317	0.000	0.000	0.000	97.600
		C	31.000	0.000	0.000	0.000	158.400
T4	65.00-45.00	A	21.733	0.000	0.000	0.000	259.600
		B	22.317	0.000	0.000	0.000	97.600
		C	31.000	0.000	0.000	0.000	158.400
T5	45.00-29.00	A	13.040	0.000	0.000	0.000	155.760
		B	14.647	0.000	0.000	0.000	65.060
		C	18.600	0.000	0.000	0.000	95.040
T6	29.00-25.00	A	0.000	0.000	0.000	0.000	0.000
		B	0.483	0.000	0.000	0.000	2.500
		C	0.000	0.000	0.000	0.000	0.000

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	125.00-105.00	A	0.500	1.900	5.650	0.000	0.000	158.982
		B		21.717	18.867	0.000	0.000	355.142
		C		7.650	37.500	0.000	0.000	501.808
T2	105.00-85.00	A	0.500	7.600	22.600	0.000	0.000	635.929
		B		22.050	20.533	0.000	0.000	371.996
		C		8.500	41.667	0.000	0.000	557.564
T3	85.00-65.00	A	0.500	7.600	22.600	0.000	0.000	635.929
		B		22.050	20.533	0.000	0.000	371.996
		C		8.500	41.667	0.000	0.000	557.564
T4	65.00-45.00	A	0.500	7.600	22.600	0.000	0.000	635.929
		B		22.050	20.533	0.000	0.000	371.996
		C		8.500	41.667	0.000	0.000	557.564
T5	45.00-29.00	A	0.500	4.560	13.560	0.000	0.000	381.558
		B		15.337	13.287	0.000	0.000	246.353
		C		5.100	25.000	0.000	0.000	334.538
T6	29.00-25.00	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.790	0.387	0.000	0.000	8.898
		C		0.000	0.000	0.000	0.000	0.000

Feed Line Shielding

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
T1	125.00-105.00	A	0.323	1.150	0.294	0.409
		B	1.267	6.183	1.155	2.198
		C	1.658	6.879	1.511	2.446
T2	105.00-85.00	A	1.292	4.601	1.087	1.510
		B	1.326	6.488	1.116	2.129
		C	1.843	7.644	1.550	2.508
T3	85.00-65.00	A	1.292	4.601	1.177	1.636
		B	1.326	6.488	1.209	2.307
		C	1.843	7.644	1.679	2.717
T4	65.00-45.00	A	1.292	4.601	1.087	1.510
		B	1.326	6.488	1.116	2.129
		C	1.843	7.644	1.550	2.508
T5	45.00-29.00	A	0.772	2.772	0.679	0.944
		B	0.868	4.379	0.763	1.491
		C	1.102	4.605	0.969	1.568
T6	29.00-25.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.046	0.093	0.248
		C	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	125.00-105.00	1.244	0.873	1.174	0.727
T2	105.00-85.00	-0.336	-0.171	0.253	0.155
T3	85.00-65.00	-0.325	-0.166	0.248	0.154
T4	65.00-45.00	-0.336	-0.171	0.253	0.155
T5	45.00-29.00	-0.199	-0.290	0.322	0.107
T6	29.00-25.00	0.184	-0.296	0.222	-0.052

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Boom Gate (1)	A	From Leg	2.00		0.00	123.00	No Ice	16.00	16.00	700.000
(Sprint/Nextel)			0.00				1/2" Ice	25.00	25.00	1100.000
			0.00							
Boom Gate (1)	B	From Leg	2.00		0.00	123.00	No Ice	16.00	16.00	700.000
(Sprint/Nextel)			0.00				1/2" Ice	25.00	25.00	1100.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00						
Boom Gate (1)	C	From Leg	2.00	0.00	123.00	No Ice	16.00	16.00	700.000
(Sprint/Nextel)			0.00			1/2" Ice	25.00	25.00	1100.000
			0.00						
(4) ALP 9212 (est)	A	From Leg	4.50	0.00	123.00	No Ice	5.46	5.46	17.200
(Sprint/Nextel)			0.00			1/2" Ice	6.09	6.09	50.000
			0.00						
(4) ALP 9212 (est)	B	From Leg	4.50	0.00	123.00	No Ice	5.46	5.46	17.200
(Sprint/Nextel)			0.00			1/2" Ice	6.09	6.09	50.000
			0.00						
(4) ALP 9212 (est)	C	From Leg	4.50	0.00	123.00	No Ice	5.46	5.46	17.200
(Sprint/Nextel)			0.00			1/2" Ice	6.09	6.09	50.000
			0.00						
PiROD 13' Lightweight	A	From Leg	1.50	0.00	110.00	No Ice	10.60	10.60	255.000
T-Frame			0.00			1/2" Ice	16.80	16.80	359.000
(Verizon)			0.00						
PiROD 13' Lightweight	B	From Leg	1.50	0.00	110.00	No Ice	10.60	10.60	255.000
T-Frame			0.00			1/2" Ice	16.80	16.80	359.000
(Verizon)			0.00						
PiROD 13' Lightweight	C	From Leg	1.50	0.00	110.00	No Ice	10.60	10.60	255.000
T-Frame			0.00			1/2" Ice	16.80	16.80	359.000
(Verizon)			0.00						
18' x 3" Dia Omni (est)	A	From Leg	1.00	0.00	132.00	No Ice	5.40	5.40	50.000
			0.00			1/2" Ice	7.23	7.23	88.892
			0.00						
12' x 3" Dia Omni (est)	B	From Leg	1.00	0.00	143.00	No Ice	3.60	3.60	35.000
			0.00			1/2" Ice	4.83	4.83	61.064
			0.00						
6' x 3" Dia Omni	C	From Leg	4.00	0.00	128.00	No Ice	1.77	1.77	20.000
			6.00			1/2" Ice	2.13	2.13	33.235
			0.00						
4' x 3" DIA Omni (est)	C	From Leg	1.00	0.00	127.00	No Ice	1.00	1.00	15.000
			0.00			1/2" Ice	1.25	1.25	23.959
			0.00						
GPS	B	Stand-Off	4.00	0.00	35.00	No Ice	1.00	1.00	10.000
		Right	0.00			1/2" Ice	1.50	1.50	15.000
			0.00						
GPS - mount	B	Stand-Off	2.00	0.00	35.00	No Ice	1.33	1.33	25.280
		Right	0.00			1/2" Ice	2.04	2.04	33.220
			0.00						
GPS	B	From Leg	4.00	0.00	35.00	No Ice	1.00	1.00	10.000
			0.00			1/2" Ice	1.50	1.50	15.000
			0.00						
GPS - mount	B	From Leg	2.00	0.00	35.00	No Ice	1.33	1.33	25.280
			0.00			1/2" Ice	2.04	2.04	33.220
			0.00						
GPS	A	Stand-Off	4.00	0.00	35.00	No Ice	1.00	1.00	10.000
		Left	0.00			1/2" Ice	1.50	1.50	15.000
			0.00						
GPS - mount	A	Stand-Off	2.00	0.00	35.00	No Ice	1.33	1.33	25.280
		Left	0.00			1/2" Ice	2.04	2.04	33.220
			0.00						
GPS	A	From Leg	4.00	0.00	35.00	No Ice	1.00	1.00	10.000
			0.00			1/2" Ice	1.50	1.50	15.000
			0.00						
GPS - mount	A	From Leg	2.00	0.00	35.00	No Ice	1.33	1.33	25.280
			0.00			1/2" Ice	2.04	2.04	33.220

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
4 Bay Dipole	A	From Leg	0.00 4.00 -4.00 0.00	0.00	129.00	No Ice 1/2" Ice	3.15 5.67	3.15 5.67	0.032 0.042
4 Bay Dipole	B	From Leg	1.00 0.00 0.00	0.00	132.00	No Ice 1/2" Ice	3.16 5.69	3.16 5.69	36.000 46.800
(2) GPS (Verizon)	A	From Leg	3.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice	1.00 1.50	1.00 1.50	10.000 15.000
BXA-70063/6CF (Verizon)	A	From Leg	3.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice	7.73 8.27	3.76 4.19	20.000 60.600
SLCP 2x6015 (Verizon)	B	From Leg	3.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice	10.48 11.07	8.23 8.81	30.000 100.713
SLCP 2x6015 (Verizon)	C	From Leg	3.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice	10.48 11.07	8.23 8.81	30.000 100.713
LPA-80063/4CF (Verizon)	A	From Leg	3.00 6.00 0.00	0.00	110.00	No Ice 1/2" Ice	7.01 7.42	6.08 6.48	20.000 72.634
LPA-80063/4CF (Verizon)	A	From Leg	3.00 -6.00 0.00	0.00	110.00	No Ice 1/2" Ice	7.01 7.42	6.08 6.48	20.000 72.634
SC-E 6014 rev2 (Verizon)	B	From Leg	3.00 6.00 0.00	0.00	110.00	No Ice 1/2" Ice	3.55 3.89	3.34 3.68	15.000 42.157
SC-E 6014 rev2 (Verizon)	B	From Leg	3.00 -6.00 0.00	0.00	110.00	No Ice 1/2" Ice	3.55 3.89	3.34 3.68	15.000 42.157
SC-E 6014 rev2 (Verizon)	C	From Leg	3.00 6.00 0.00	0.00	110.00	No Ice 1/2" Ice	3.55 3.89	3.34 3.68	15.000 42.157
SC-E 6014 rev2 (Verizon)	C	From Leg	3.00 -6.00 0.00	0.00	110.00	No Ice 1/2" Ice	3.55 3.89	3.34 3.68	15.000 42.157
BXA-171063-8BF (Verizon)	A	From Leg	3.00 -4.00 0.00	0.00	110.00	No Ice 1/2" Ice	2.00 2.30	1.50 1.80	20.000 38.777
SACP 2x5516 (Verizon)	B	From Leg	3.00 -4.00 0.00	0.00	110.00	No Ice 1/2" Ice	5.28 5.71	3.67 4.03	16.000 49.816
SACP 2x5516 (Verizon)	C	From Leg	3.00 -4.00 0.00	0.00	110.00	No Ice 1/2" Ice	5.28 5.71	3.67 4.03	16.000 49.816
(2) Diplexer (Verizon)	A	From Leg	3.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice	0.47 0.56	0.12 0.17	5.000 8.014
(2) Diplexer (Verizon)	B	From Leg	3.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice	0.47 0.56	0.12 0.17	5.000 8.014
(2) Diplexer (Verizon)	C	From Leg	3.00 0.00 0.00	0.00	110.00	No Ice 1/2" Ice	0.47 0.56	0.12 0.17	5.000 8.014
Argus LLPX310R (Clearwire)	A	From Leg	4.50 0.00	0.00	123.00	No Ice 1/2" Ice	4.86 5.22	3.46 3.80	27.600 60.630

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00						
Argus LLPX310R	B	From Leg	4.50	0.00	123.00	No Ice	4.86	3.46	27.600
(Clearwire)			0.00			1/2" Ice	5.22	3.80	60.630
			0.00						
Argus LLPX310R	C	From Leg	4.50	0.00	123.00	No Ice	4.86	3.46	27.600
(Clearwire)			0.00			1/2" Ice	5.22	3.80	60.630
			0.00						

Dishes

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
Dragonwave 2.5	B	Paraboloid w/o	From	4.50	Worst		119.00	2.50	No Ice	4.91	40.000
(Clearwire)		Radome	Leg	6.00					1/2" Ice	5.24	66.899
				0.00							
Dragonwave 2.5	B	Paraboloid w/o	From	4.50	Worst		127.00	2.50	No Ice	4.91	40.000
(Clearwire)		Radome	Leg	6.00					1/2" Ice	5.24	66.899
				0.00							

Tower Pressures - No Ice

$G_H = 1.162$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
T1	115.00	1.429	23	64.173	A	2.821	14.712	6.667	38.02	0.000	0.000
125.00-105.00					B	1.960	29.652		21.09	0.000	0.000
					C	1.604	35.844		17.80	0.000	0.000
T2	95.00	1.353	22	64.173	A	1.789	30.044	6.667	20.94	0.000	0.000
105.00-85.00					B	1.760	30.592		20.61	0.000	0.000
					C	1.325	38.759		16.63	0.000	0.000
T3 85.00-65.00	75.00	1.264	21	64.590	A	1.915	30.877	7.500	22.87	0.000	0.000
					B	1.884	31.426		22.52	0.000	0.000
					C	1.413	39.593		18.29	0.000	0.000
T4 65.00-45.00	55.00	1.157	19	64.173	A	1.789	30.044	6.667	20.94	0.000	0.000
					B	1.760	30.592		20.61	0.000	0.000
					C	1.325	38.759		16.63	0.000	0.000
T5 45.00-29.00	37.00	1.033	17	51.339	A	1.717	19.939	5.333	24.63	0.000	0.000
					B	1.633	21.451		23.10	0.000	0.000
					C	1.427	25.170		20.05	0.000	0.000
T6 29.00-25.00	27.00	1	16	6.797	A	1.272	1.456	1.456	53.37	0.000	0.000
					B	1.179	1.940		46.69	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
					C	1.272	1.456		53.37	0.000	0.000

Tower Pressure - With Ice

$G_H = 1.162$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 125.00-105.00	115.00	1.429	18	0.500	65.840	A	8.356	18.477	10.000	37.27	0.000	0.000
						B	19.783	33.261		18.85	0.000	0.000
						C	38.169	18.498		17.65	0.000	0.000
T2 105.00-85.00	95.00	1.353	17	0.500	65.840	A	23.965	20.726	10.000	22.38	0.000	0.000
						B	21.279	33.289		18.33	0.000	0.000
						C	42.034	18.584		16.50	0.000	0.000
T3 85.00-65.00	75.00	1.264	16	0.500	66.257	A	24.057	21.549	10.833	23.75	0.000	0.000
						B	21.319	34.112		19.54	0.000	0.000
						C	42.042	19.407		17.63	0.000	0.000
T4 65.00-45.00	55.00	1.157	14	0.500	65.840	A	23.965	20.726	10.000	22.38	0.000	0.000
						B	21.279	33.289		18.33	0.000	0.000
						C	42.034	18.584		16.50	0.000	0.000
T5 45.00-29.00	37.00	1.033	13	0.500	52.672	A	15.012	15.997	8.000	25.80	0.000	0.000
						B	14.192	25.167		20.33	0.000	0.000
						C	25.828	14.704		19.74	0.000	0.000
T6 29.00-25.00	27.00	1	12	0.500	7.154	A	1.272	2.460	2.184	58.52	0.000	0.000
						B	1.411	3.204		47.33	0.000	0.000
						C	1.272	2.460		58.52	0.000	0.000

Tower Pressure - Service

$G_H = 1.162$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 125.00-105.00	115.00	1.429	9	64.173	A	2.821	14.712	6.667	38.02	0.000	0.000
					B	1.960	29.652		21.09	0.000	0.000
					C	1.604	35.844		17.80	0.000	0.000
T2 105.00-85.00	95.00	1.353	9	64.173	A	1.789	30.044	6.667	20.94	0.000	0.000
					B	1.760	30.592		20.61	0.000	0.000
					C	1.325	38.759		16.63	0.000	0.000
T3 85.00-65.00	75.00	1.264	8	64.590	A	1.915	30.877	7.500	22.87	0.000	0.000
					B	1.884	31.426		22.52	0.000	0.000
					C	1.413	39.593		18.29	0.000	0.000
T4 65.00-45.00	55.00	1.157	7	64.173	A	1.789	30.044	6.667	20.94	0.000	0.000
					B	1.760	30.592		20.61	0.000	0.000
					C	1.325	38.759		16.63	0.000	0.000
T5 45.00-29.00	37.00	1.033	7	51.339	A	1.717	19.939	5.333	24.63	0.000	0.000
					B	1.633	21.451		23.10	0.000	0.000
					C	1.427	25.170		20.05	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T6 29.00-25.00	27.00	1	6	6.797	A	1.272	1.456	1.456	53.37	0.000	0.000
					B	1.179	1.940		46.69	0.000	0.000
					C	1.272	1.456		53.37	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	302.540	1044.251	A	0.273	2.37	0.608	1	1	11.767	1395.234	69.76	C
125.00-105.00			B	0.493	1.91	0.694	1	1	22.531			
			C	0.584	1.815	0.744	1	1	28.259			
T2	515.600	1021.737	A	0.496	1.905	0.695	1	1	22.683	1435.839	71.79	C
105.00-85.00			B	0.504	1.895	0.7	1	1	23.162			
			C	0.625	1.791	0.769	1	1	31.131			
T3	515.600	1214.626	A	0.508	1.89	0.701	1	1	23.574	1381.394	69.07	C
85.00-65.00			B	0.516	1.88	0.706	1	1	24.058			
			C	0.635	1.787	0.776	1	1	32.120			
T4	515.600	978.766	A	0.496	1.905	0.695	1	1	22.683	1228.254	61.41	C
65.00-45.00			B	0.504	1.895	0.7	1	1	23.162			
			C	0.625	1.791	0.769	1	1	31.131			
T5	315.860	785.196	A	0.422	2.022	0.661	1	1	14.892	709.930	44.37	C
45.00-29.00			B	0.45	1.974	0.673	1	1	16.072			
			C	0.518	1.878	0.707	1	1	19.220			
T6	2.500	237.096	A	0.401	2.061	0.652	1	1	2.222	93.004	23.25	B
29.00-25.00			B	0.459	1.959	0.677	1	1	2.493			
			C	0.401	2.061	0.652	1	1	2.222			
Sum Weight:	2167.700	5281.672								6243.655		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	302.540	1044.251	A	0.273	2.37	0.608	0.825	1	11.273	1381.378	69.07	C
125.00-105.00			B	0.493	1.91	0.694	0.825	1	22.188			
			C	0.584	1.815	0.744	0.825	1	27.979			
T2	515.600	1021.737	A	0.496	1.905	0.695	0.825	1	22.370	1425.142	71.26	C
105.00-85.00			B	0.504	1.895	0.7	0.825	1	22.854			
			C	0.625	1.791	0.769	0.825	1	30.899			
T3	515.600	1214.626	A	0.508	1.89	0.701	0.825	1	23.239	1370.758	68.54	C
85.00-65.00			B	0.516	1.88	0.706	0.825	1	23.729			
			C	0.635	1.787	0.776	0.825	1	31.872			
T4	515.600	978.766	A	0.496	1.905	0.695	0.825	1	22.370	1219.104	60.96	C
65.00-45.00			B	0.504	1.895	0.7	0.825	1	22.854			
			C	0.625	1.791	0.769	0.825	1	30.899			
T5	315.860	785.196	A	0.422	2.022	0.661	0.825	1	14.591	700.703	43.79	C
45.00-29.00			B	0.45	1.974	0.673	0.825	1	15.786			
			C	0.518	1.878	0.707	0.825	1	18.970			
T6	2.500	237.096	A	0.401	2.061	0.652	0.825	1	1.999	85.305	21.33	B
29.00-25.00			B	0.459	1.959	0.677	0.825	1	2.287			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
Sum Weight:	2167.700	5281.672	C	0.401	2.061	0.652	0.825	1	1.999	6182.389		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	302.540	1044.251	A	0.273	2.37	0.608	0.8	1	11.203	1379.398	68.97	C
125.00-105.00			B	0.493	1.91	0.694	0.8	1	22.139			
			C	0.584	1.815	0.744	0.8	1	27.938			
T2	515.600	1021.737	A	0.496	1.905	0.695	0.8	1	22.326	1423.613	71.18	C
105.00-85.00			B	0.504	1.895	0.7	0.8	1	22.810			
			C	0.625	1.791	0.769	0.8	1	30.866			
T3	515.600	1214.626	A	0.508	1.89	0.701	0.8	1	23.191	1369.238	68.46	C
85.00-65.00			B	0.516	1.88	0.706	0.8	1	23.682			
			C	0.635	1.787	0.776	0.8	1	31.837			
T4	515.600	978.766	A	0.496	1.905	0.695	0.8	1	22.326	1217.796	60.89	C
65.00-45.00			B	0.504	1.895	0.7	0.8	1	22.810			
			C	0.625	1.791	0.769	0.8	1	30.866			
T5	315.860	785.196	A	0.422	2.022	0.661	0.8	1	14.548	699.385	43.71	C
45.00-29.00			B	0.45	1.974	0.673	0.8	1	15.745			
			C	0.518	1.878	0.707	0.8	1	18.934			
T6	2.500	237.096	A	0.401	2.061	0.652	0.8	1	1.968	84.205	21.05	B
29.00-25.00			B	0.459	1.959	0.677	0.8	1	2.257			
			C	0.401	2.061	0.652	0.8	1	1.968			
Sum Weight:	2167.700	5281.672								6173.636		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	302.540	1044.251	A	0.273	2.37	0.608	0.85	1	11.344	1383.357	69.17	C
125.00-105.00			B	0.493	1.91	0.694	0.85	1	22.237			
			C	0.584	1.815	0.744	0.85	1	28.019			
T2	515.600	1021.737	A	0.496	1.905	0.695	0.85	1	22.415	1426.670	71.33	C
105.00-85.00			B	0.504	1.895	0.7	0.85	1	22.898			
			C	0.625	1.791	0.769	0.85	1	30.932			
T3	515.600	1214.626	A	0.508	1.89	0.701	0.85	1	23.287	1372.277	68.61	C
85.00-65.00			B	0.516	1.88	0.706	0.85	1	23.776			
			C	0.635	1.787	0.776	0.85	1	31.908			
T4	515.600	978.766	A	0.496	1.905	0.695	0.85	1	22.415	1220.411	61.02	C
65.00-45.00			B	0.504	1.895	0.7	0.85	1	22.898			
			C	0.625	1.791	0.769	0.85	1	30.932			
T5	315.860	785.196	A	0.422	2.022	0.661	0.85	1	14.634	702.021	43.88	C
45.00-29.00			B	0.45	1.974	0.673	0.85	1	15.827			
			C	0.518	1.878	0.707	0.85	1	19.005			
T6	2.500	237.096	A	0.401	2.061	0.652	0.85	1	2.031	86.405	21.60	B

Section Elevation ft	Add Weight lb	Self Weight lb	Face e	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
29.00-25.00			B	0.459	1.959	0.677	0.85	1	2.316			
			C	0.401	2.061	0.652	0.85	1	2.031			
Sum Weight:	2167.700	5281.672								6191.141		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face e	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	1015.932	1350.495	A	0.408	2.049	0.655	1	1	20.453	2128.863	106.44	C
125.00-105.00			B	0.806	1.82	0.901	1	1	49.752			
			C	0.861	1.873	0.948	1	1	55.702			
T2	1565.489	1320.883	A	0.679	1.776	0.805	1	1	40.650	2288.961	114.45	C
105.00-85.00			B	0.829	1.84	0.92	1	1	51.917			
			C	0.921	1.955	1	1	1	60.618			
T3	1565.489	1530.033	A	0.688	1.776	0.812	1	1	41.546	2180.659	109.03	C
85.00-65.00			B	0.837	1.848	0.927	1	1	52.940			
			C	0.927	1.966	1	1	1	61.449			
T4	1565.489	1277.913	A	0.679	1.776	0.805	1	1	40.650	1958.037	97.90	C
65.00-45.00			B	0.829	1.84	0.92	1	1	51.917			
			C	0.921	1.955	1	1	1	60.618			
T5	962.449	1027.711	A	0.589	1.811	0.747	1	1	26.958	1024.555	64.03	C
45.00-29.00			B	0.747	1.786	0.855	1	1	35.704			
			C	0.77	1.797	0.872	1	1	38.651			
T6	8.898	292.255	A	0.522	1.873	0.709	1	1	3.016	99.733	24.93	B
29.00-25.00			B	0.645	1.783	0.782	1	1	3.917			
			C	0.522	1.873	0.709	1	1	3.016			
Sum Weight:	6683.746	6799.290								9680.808		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face e	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	1015.932	1350.495	A	0.408	2.049	0.655	0.825	1	18.991	1873.576	93.68	C
125.00-105.00			B	0.806	1.82	0.901	0.825	1	46.290			
			C	0.861	1.873	0.948	0.825	1	49.022			
T2	1565.489	1320.883	A	0.679	1.776	0.805	0.825	1	36.456	2011.198	100.56	C
105.00-85.00			B	0.829	1.84	0.92	0.825	1	48.193			
			C	0.921	1.955	1	0.825	1	53.262			
T3	1565.489	1530.033	A	0.688	1.776	0.812	0.825	1	37.336	1919.567	95.98	C
85.00-65.00			B	0.837	1.848	0.927	0.825	1	49.209			
			C	0.927	1.966	1	0.825	1	54.091			
T4	1565.489	1277.913	A	0.679	1.776	0.805	0.825	1	36.456	1720.431	86.02	C
65.00-45.00			B	0.829	1.84	0.92	0.825	1	48.193			
			C	0.921	1.955	1	0.825	1	53.262			
T5	962.449	1027.711	A	0.589	1.811	0.747	0.825	1	24.331	904.738	56.55	C
45.00-29.00			B	0.747	1.786	0.855	0.825	1	33.220			
			C	0.77	1.797	0.872	0.825	1	34.131			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T6	8.898	292.255	A	0.522	1.873	0.709	0.825	1	2.793	93.446	23.36	B
29.00-25.00			B	0.645	1.783	0.782	0.825	1	3.670			
			C	0.522	1.873	0.709	0.825	1	2.793			
Sum Weight:	6683.746	6799.290								8522.956		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	1015.932	1350.495	A	0.408	2.049	0.655	0.8	1	18.782	1837.106	91.86	C
125.00-105.00			B	0.806	1.82	0.901	0.8	1	45.796			
			C	0.861	1.873	0.948	0.8	1	48.068			
T2	1565.489	1320.883	A	0.679	1.776	0.805	0.8	1	35.856	1971.517	98.58	C
105.00-85.00			B	0.829	1.84	0.92	0.8	1	47.661			
			C	0.921	1.955	1	0.8	1	52.211			
T3	1565.489	1530.033	A	0.688	1.776	0.812	0.8	1	36.735	1882.268	94.11	C
85.00-65.00			B	0.837	1.848	0.927	0.8	1	48.676			
			C	0.927	1.966	1	0.8	1	53.040			
T4	1565.489	1277.913	A	0.679	1.776	0.805	0.8	1	35.856	1686.488	84.32	C
65.00-45.00			B	0.829	1.84	0.92	0.8	1	47.661			
			C	0.921	1.955	1	0.8	1	52.211			
T5	962.449	1027.711	A	0.589	1.811	0.747	0.8	1	23.956	887.622	55.48	C
45.00-29.00			B	0.747	1.786	0.855	0.8	1	32.865			
			C	0.77	1.797	0.872	0.8	1	33.485			
T6	8.898	292.255	A	0.522	1.873	0.709	0.8	1	2.762	92.548	23.14	B
29.00-25.00			B	0.645	1.783	0.782	0.8	1	3.635			
			C	0.522	1.873	0.709	0.8	1	2.762			
Sum Weight:	6683.746	6799.290								8357.548		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	1015.932	1350.495	A	0.408	2.049	0.655	0.85	1	19.200	1910.045	95.50	C
125.00-105.00			B	0.806	1.82	0.901	0.85	1	46.785			
			C	0.861	1.873	0.948	0.85	1	49.977			
T2	1565.489	1320.883	A	0.679	1.776	0.805	0.85	1	37.055	2050.878	102.54	C
105.00-85.00			B	0.829	1.84	0.92	0.85	1	48.725			
			C	0.921	1.955	1	0.85	1	54.313			
T3	1565.489	1530.033	A	0.688	1.776	0.812	0.85	1	37.938	1956.865	97.84	C
85.00-65.00			B	0.837	1.848	0.927	0.85	1	49.742			
			C	0.927	1.966	1	0.85	1	55.142			
T4	1565.489	1277.913	A	0.679	1.776	0.805	0.85	1	37.055	1754.375	87.72	C
65.00-45.00			B	0.829	1.84	0.92	0.85	1	48.725			
			C	0.921	1.955	1	0.85	1	54.313			
T5	962.449	1027.711	A	0.589	1.811	0.747	0.85	1	24.706	921.855	57.62	C
45.00-29.00			B	0.747	1.786	0.855	0.85	1	33.575			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	0.77	1.797	0.872	0.85	1	34.776			
T6	8.898	292.255	A	0.522	1.873	0.709	0.85	1	2.825	94.344	23.59	B
29.00-25.00			B	0.645	1.783	0.782	0.85	1	3.705			
			C	0.522	1.873	0.709	0.85	1	2.825			
Sum Weight:	6683.746	6799.290								8688.363		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	302.540	1044.251	A	0.273	2.37	0.608	1	1	11.767	545.013	27.25	C
125.00-105.00			B	0.493	1.91	0.694	1	1	22.531			
			C	0.584	1.815	0.744	1	1	28.259			
T2	515.600	1021.737	A	0.496	1.905	0.695	1	1	22.683	560.875	28.04	C
105.00-85.00			B	0.504	1.895	0.7	1	1	23.162			
			C	0.625	1.791	0.769	1	1	31.131			
T3	515.600	1214.626	A	0.508	1.89	0.701	1	1	23.574	539.607	26.98	C
85.00-65.00			B	0.516	1.88	0.706	1	1	24.058			
			C	0.635	1.787	0.776	1	1	32.120			
T4	515.600	978.766	A	0.496	1.905	0.695	1	1	22.683	479.787	23.99	C
65.00-45.00			B	0.504	1.895	0.7	1	1	23.162			
			C	0.625	1.791	0.769	1	1	31.131			
T5	315.860	785.196	A	0.422	2.022	0.661	1	1	14.892	277.316	17.33	C
45.00-29.00			B	0.45	1.974	0.673	1	1	16.072			
			C	0.518	1.878	0.707	1	1	19.220			
T6	2.500	237.096	A	0.401	2.061	0.652	1	1	2.222	36.330	9.08	B
29.00-25.00			B	0.459	1.959	0.677	1	1	2.493			
			C	0.401	2.061	0.652	1	1	2.222			
Sum Weight:	2167.700	5281.672								2438.928		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	302.540	1044.251	A	0.273	2.37	0.608	0.825	1	11.273	539.601	26.98	C
125.00-105.00			B	0.493	1.91	0.694	0.825	1	22.188			
			C	0.584	1.815	0.744	0.825	1	27.979			
T2	515.600	1021.737	A	0.496	1.905	0.695	0.825	1	22.370	556.696	27.83	C
105.00-85.00			B	0.504	1.895	0.7	0.825	1	22.854			
			C	0.625	1.791	0.769	0.825	1	30.899			
T3	515.600	1214.626	A	0.508	1.89	0.701	0.825	1	23.239	535.452	26.77	C
85.00-65.00			B	0.516	1.88	0.706	0.825	1	23.729			
			C	0.635	1.787	0.776	0.825	1	31.872			
T4	515.600	978.766	A	0.496	1.905	0.695	0.825	1	22.370	476.212	23.81	C
65.00-45.00			B	0.504	1.895	0.7	0.825	1	22.854			
			C	0.625	1.791	0.769	0.825	1	30.899			
T5	315.860	785.196	A	0.422	2.022	0.661	0.825	1	14.591	273.712	17.11	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
45.00-29.00			B	0.45	1.974	0.673	0.825	1	15.786			
			C	0.518	1.878	0.707	0.825	1	18.970			
T6	2.500	237.096	A	0.401	2.061	0.652	0.825	1	1.999	33.322	8.33	B
29.00-25.00			B	0.459	1.959	0.677	0.825	1	2.287			
			C	0.401	2.061	0.652	0.825	1	1.999			
Sum Weight:	2167.700	5281.672								2414.996		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	302.540	1044.251	A	0.273	2.37	0.608	0.8	1	11.203	538.827	26.94	C
125.00-105.00			B	0.493	1.91	0.694	0.8	1	22.139			
			C	0.584	1.815	0.744	0.8	1	27.938			
T2	515.600	1021.737	A	0.496	1.905	0.695	0.8	1	22.326	556.099	27.80	C
105.00-85.00			B	0.504	1.895	0.7	0.8	1	22.810			
			C	0.625	1.791	0.769	0.8	1	30.866			
T3	515.600	1214.626	A	0.508	1.89	0.701	0.8	1	23.191	534.859	26.74	C
85.00-65.00			B	0.516	1.88	0.706	0.8	1	23.682			
			C	0.635	1.787	0.776	0.8	1	31.837			
T4	515.600	978.766	A	0.496	1.905	0.695	0.8	1	22.326	475.702	23.79	C
65.00-45.00			B	0.504	1.895	0.7	0.8	1	22.810			
			C	0.625	1.791	0.769	0.8	1	30.866			
T5	315.860	785.196	A	0.422	2.022	0.661	0.8	1	14.548	273.197	17.07	C
45.00-29.00			B	0.45	1.974	0.673	0.8	1	15.745			
			C	0.518	1.878	0.707	0.8	1	18.934			
T6	2.500	237.096	A	0.401	2.061	0.652	0.8	1	1.968	32.893	8.22	B
29.00-25.00			B	0.459	1.959	0.677	0.8	1	2.257			
			C	0.401	2.061	0.652	0.8	1	1.968			
Sum Weight:	2167.700	5281.672								2411.577		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	302.540	1044.251	A	0.273	2.37	0.608	0.85	1	11.344	540.374	27.02	C
125.00-105.00			B	0.493	1.91	0.694	0.85	1	22.237			
			C	0.584	1.815	0.744	0.85	1	28.019			
T2	515.600	1021.737	A	0.496	1.905	0.695	0.85	1	22.415	557.293	27.86	C
105.00-85.00			B	0.504	1.895	0.7	0.85	1	22.898			
			C	0.625	1.791	0.769	0.85	1	30.932			
T3	515.600	1214.626	A	0.508	1.89	0.701	0.85	1	23.287	536.046	26.80	C
85.00-65.00			B	0.516	1.88	0.706	0.85	1	23.776			
			C	0.635	1.787	0.776	0.85	1	31.908			
T4	515.600	978.766	A	0.496	1.905	0.695	0.85	1	22.415	476.723	23.84	C
65.00-45.00			B	0.504	1.895	0.7	0.85	1	22.898			
			C	0.625	1.791	0.769	0.85	1	30.932			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T5	315.860	785.196	A	0.422	2.022	0.661	0.85	1	14.634	274.227	17.14	C
45.00-29.00			B	0.45	1.974	0.673	0.85	1	15.827			
			C	0.518	1.878	0.707	0.85	1	19.005			
T6	2.500	237.096	A	0.401	2.061	0.652	0.85	1	2.031	33.752	8.44	B
29.00-25.00			B	0.459	1.959	0.677	0.85	1	2.316			
			C	0.401	2.061	0.652	0.85	1	2.031			
Sum Weight:	2167.700	5281.672								2418.415		

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Torques kip-ft
Leg Weight	3389.251			
Bracing Weight	1892.421			
Total Member Self-Weight	5281.672			
Guy Weight	637.737			
Total Weight	11900.461			
Wind 0 deg - No Ice		0.000	-13532.772	1.30
Wind 30 deg - No Ice		6712.469	-11674.246	2.70
Wind 45 deg - No Ice		9486.675	-9525.793	3.14
Wind 60 deg - No Ice		11611.177	-6731.377	3.38
Wind 90 deg - No Ice		13424.937	0.000	3.15
Wind 120 deg - No Ice		11671.815	6766.386	2.08
Wind 135 deg - No Ice		9486.675	9525.793	1.31
Wind 150 deg - No Ice		6712.469	11674.246	0.45
Wind 180 deg - No Ice		0.000	13462.753	-1.30
Wind 210 deg - No Ice		-6712.469	11674.246	-2.70
Wind 225 deg - No Ice		-9486.675	9525.793	-3.14
Wind 240 deg - No Ice		-11671.815	6766.386	-3.38
Wind 270 deg - No Ice		-13424.937	0.000	-3.15
Wind 300 deg - No Ice		-11611.177	-6731.377	-2.08
Wind 315 deg - No Ice		-9486.675	-9525.793	-1.31
Wind 330 deg - No Ice		-6712.469	-11674.246	-0.45
Member Ice	1517.619			
Guy Ice	382.780			
Total Weight Ice	21035.528			
Wind 0 deg - Ice		0.000	-16669.148	1.37
Wind 30 deg - Ice		7817.282	-13576.424	2.36
Wind 45 deg - Ice		10938.346	-10968.143	2.64
Wind 60 deg - Ice		13253.436	-7672.944	2.74
Wind 90 deg - Ice		15634.564	0.000	2.41
Wind 120 deg - Ice		14399.412	8334.574	1.42
Wind 135 deg - Ice		10938.346	10968.143	0.76
Wind 150 deg - Ice		7817.282	13576.424	0.05
Wind 180 deg - Ice		0.000	15345.889	-1.32
Wind 210 deg - Ice		-7817.282	13576.424	-2.36
Wind 225 deg - Ice		-10938.346	10968.143	-2.64
Wind 240 deg - Ice		-14399.412	8334.574	-2.79
Wind 270 deg - Ice		-15634.564	0.000	-2.41
Wind 300 deg - Ice		-13253.436	-7672.944	-1.42
Wind 315 deg - Ice		-10938.346	-10968.143	-0.76
Wind 330 deg - Ice		-7817.282	-13576.424	-0.05
Total Weight	11900.461			
Wind 0 deg - Service		0.000	-5286.239	0.51

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Torques kip-ft
Wind 30 deg - Service		2622.058	-4560.252	1.05
Wind 45 deg - Service		3705.733	-3721.013	1.23
Wind 60 deg - Service		4535.616	-2629.444	1.32
Wind 90 deg - Service		5244.116	0.000	1.23
Wind 120 deg - Service		4559.303	2643.120	0.81
Wind 135 deg - Service		3705.733	3721.013	0.51
Wind 150 deg - Service		2622.058	4560.252	0.18
Wind 180 deg - Service		0.000	5258.888	-0.51
Wind 210 deg - Service		-2622.058	4560.252	-1.05
Wind 225 deg - Service		-3705.733	3721.013	-1.23
Wind 240 deg - Service		-4559.303	2643.120	-1.32
Wind 270 deg - Service		-5244.116	0.000	-1.23
Wind 300 deg - Service		-4535.616	-2629.444	-0.81
Wind 315 deg - Service		-3705.733	-3721.013	-0.51
Wind 330 deg - Service		-2622.058	-4560.252	-0.18

Load Combinations

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

Comb. No.	Description
35	Dead+Wind 0 deg - Service+Guy
36	Dead+Wind 30 deg - Service+Guy
37	Dead+Wind 45 deg - Service+Guy
38	Dead+Wind 60 deg - Service+Guy
39	Dead+Wind 90 deg - Service+Guy
40	Dead+Wind 120 deg - Service+Guy
41	Dead+Wind 135 deg - Service+Guy
42	Dead+Wind 150 deg - Service+Guy
43	Dead+Wind 180 deg - Service+Guy
44	Dead+Wind 210 deg - Service+Guy
45	Dead+Wind 225 deg - Service+Guy
46	Dead+Wind 240 deg - Service+Guy
47	Dead+Wind 270 deg - Service+Guy
48	Dead+Wind 300 deg - Service+Guy
49	Dead+Wind 315 deg - Service+Guy
50	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	125 - 105	Leg	Max Tension	27	9296.271	-0.05	-0.97
			Max. Compression	19	-24576.536	-0.41	-1.64
			Max. Mx	24	-24359.697	2.65	0.74
			Max. My	19	-24574.396	-0.64	-2.78
			Max. Vy	30	-5251.939	-1.55	0.02
			Max. Vx	19	-5462.402	-0.41	-1.64
		Diagonal	Max Tension	14	3763.680	0.00	0.00
			Max. Compression	30	-4668.642	0.00	0.00
			Max. Mx	30	558.084	-0.00	0.01
			Max. My	22	-3865.214	0.00	0.01
			Max. Vy	30	3.735	-0.00	0.01
			Max. Vx	22	6.443	0.00	0.01
		Horizontal	Max Tension	19	2193.184	0.00	0.00
			Max. Compression	13	-781.076	0.00	0.00
			Max. Mx	18	1969.085	-0.01	0.00
			Max. My	30	166.398	0.00	-0.00
			Max. Vy	18	6.647	0.00	0.00
			Max. Vx	30	0.001	0.00	0.00
		Top Girt	Max Tension	25	602.424	0.00	0.00
			Max. Compression	5	-556.170	0.00	0.00
			Max. Mx	18	338.150	-0.01	0.00
			Max. My	30	-81.265	0.00	-0.00
			Max. Vy	18	6.647	0.00	0.00
			Max. Vx	30	0.001	0.00	0.00
		Bottom Girt	Max Tension	1	0.000	0.00	0.00
			Max. Compression	19	-680.334	0.00	0.00
			Max. Mx	18	-563.056	-0.01	0.00
			Max. My	30	-415.858	0.00	-0.00
			Max. Vy	18	6.647	0.00	0.00
			Max. Vx	30	0.001	0.00	0.00
		Guy A	Bottom Tension	26	18309.511		
			Top Tension	26	18483.968		
			Top Cable Vert	26	16762.278		
			Top Cable Norm	26	7789.934		
			Top Cable Tan	26	4.671		
			Bot Cable Vert	26	-16469.622		
			Bot Cable Norm	26	7998.097		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Bot Cable Tan	26	142.089		
		Guy B	Bottom Tension	33	19570.856		
			Top Tension	33	19745.283		
			Top Cable Vert	33	18326.076		
			Top Cable Norm	33	7350.584		
			Top Cable Tan	33	9.701		
			Bot Cable Vert	33	-18039.365		
			Bot Cable Norm	33	7588.983		
			Bot Cable Tan	33	84.058		
		Guy C	Bottom Tension	21	19324.139		
			Top Tension	21	19486.297		
			Top Cable Vert	21	18000.887		
			Top Cable Norm	21	7462.158		
			Top Cable Tan	21	4.168		
			Bot Cable Vert	21	-17730.327		
			Bot Cable Norm	21	7684.554		
			Bot Cable Tan	21	74.184		
		Top Guy Pull-Off	Max Tension	24	4223.622	0.00	0.00
			Max. Compression	1	0.000	0.00	0.00
			Max. Mx	18	2643.486	-0.01	0.00
			Max. My	30	2825.169	0.00	-0.00
			Max. Vy	18	11.583	0.00	0.00
			Max. Vx	30	0.001	0.00	0.00
T2	105 - 85	Leg	Max Tension	15	26123.259	-1.76	-0.48
			Max. Compression	19	-61848.605	-0.47	-2.40
			Max. Mx	30	-59460.995	-3.85	0.61
			Max. My	19	-61845.452	-0.77	-4.04
			Max. Vy	30	-7454.904	-2.29	0.31
			Max. Vx	19	-7864.239	-0.47	-2.40
		Diagonal	Max Tension	4	3245.190	-0.00	0.00
			Max. Compression	30	-6688.905	0.00	0.00
			Max. Mx	30	244.004	-0.01	0.01
			Max. My	23	-4764.160	0.00	0.02
			Max. Vy	30	5.759	-0.01	0.01
			Max. Vx	23	11.793	0.00	0.02
		Horizontal	Max Tension	33	4056.521	0.00	0.00
			Max. Compression	13	-1492.282	0.00	0.00
			Max. Mx	18	2043.802	-0.01	0.00
			Max. My	30	1783.683	0.00	-0.00
			Max. Vy	18	6.647	0.00	0.00
			Max. Vx	30	0.001	0.00	0.00
		Top Girt	Max Tension	26	3053.704	0.00	0.00
			Max. Compression	1	0.000	0.00	0.00
			Max. Mx	18	2510.434	-0.01	0.00
			Max. My	30	2438.396	0.00	-0.00
			Max. Vy	18	6.647	0.00	0.00
			Max. Vx	30	0.001	0.00	0.00
		Bottom Girt	Max Tension	5	48.237	0.00	0.00
			Max. Compression	23	-737.330	0.00	0.00
			Max. Mx	18	-514.913	-0.01	0.00
			Max. My	30	-352.118	0.00	-0.00
			Max. Vy	18	6.647	0.00	0.00
			Max. Vx	30	0.000	0.00	0.00
T3	85 - 65	Leg	Max Tension	32	37204.849	-0.74	-0.31
			Max. Compression	19	-71155.135	0.78	5.02
			Max. Mx	30	-68678.718	4.65	-1.14
			Max. My	19	-71155.135	0.78	5.02
			Max. Vy	30	-7934.858	-0.73	-0.01
			Max. Vx	19	-8178.056	-0.18	-0.73
		Diagonal	Max Tension	5	3594.782	0.00	0.00
			Max. Compression	30	-6878.289	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	14	-3440.121	0.01	-0.01
			Max. My	23	-2213.630	0.00	0.03
			Max. Vy	30	5.781	-0.01	0.00
			Max. Vx	23	13.117	0.00	0.03
		Horizontal	Max Tension	34	4674.421	0.00	0.00
			Max. Compression	13	-1952.020	0.00	0.00
			Max. Mx	22	4156.725	-0.01	0.00
			Max. My	30	2544.032	0.00	-0.00
			Max. Vy	22	6.647	0.00	0.00
			Max. Vx	30	0.000	0.00	0.00
		Top Girt	Max Tension	34	4477.804	0.00	0.00
			Max. Compression	13	-1297.302	0.00	0.00
			Max. Mx	18	2495.468	-0.01	0.00
			Max. My	30	3462.843	0.00	-0.00
			Max. Vy	18	6.647	0.00	0.00
			Max. Vx	30	0.000	0.00	0.00
		Bottom Girt	Max Tension	1	0.000	0.00	0.00
			Max. Compression	19	-862.045	0.00	0.00
			Max. Mx	22	-689.097	-0.01	0.00
			Max. My	30	-587.709	0.00	-0.00
			Max. Vy	22	6.647	0.00	0.00
			Max. Vx	30	0.000	0.00	0.00
		Guy A	Bottom Tension	26	19301.349		
			Top Tension	26	19426.548		
			Top Cable Vert	26	14982.507		
			Top Cable Norm	26	12365.883		
			Top Cable Tan	26	12.935		
			Bot Cable Vert	26	-14746.437		
			Bot Cable Norm	26	12453.090		
			Bot Cable Tan	26	72.290		
		Guy B	Bottom Tension	34	22111.011		
			Top Tension	34	22236.049		
			Top Cable Vert	34	18105.080		
			Top Cable Norm	34	12909.219		
			Top Cable Tan	34	3.075		
			Bot Cable Vert	34	-17881.920		
			Bot Cable Norm	34	13004.854		
			Bot Cable Tan	34	86.659		
		Guy C	Bottom Tension	23	20842.068		
			Top Tension	23	20951.495		
			Top Cable Vert	23	16504.065		
			Top Cable Norm	23	12906.623		
			Top Cable Tan	23	6.150		
			Bot Cable Vert	23	-16300.850		
			Bot Cable Norm	23	12987.203		
			Bot Cable Tan	23	81.436		
		Top Guy Pull-Off	Max Tension	19	7210.616	0.00	0.00
			Max. Compression	1	0.000	0.00	0.00
			Max. Mx	22	5571.873	-0.01	0.00
			Max. My	30	6821.335	0.00	-0.00
			Max. Vy	22	-11.583	0.00	0.00
			Max. Vx	30	0.001	0.00	0.00
T4	65 - 45	Leg	Max Tension	15	8744.557	0.89	0.70
			Max. Compression	19	-59149.568	0.13	1.89
			Max. Mx	30	-36449.198	2.33	-0.87
			Max. My	19	-38154.172	0.25	2.64
			Max. Vy	24	-5184.397	-1.89	0.98
			Max. Vx	24	-5859.419	-0.71	-2.09
		Diagonal	Max Tension	5	1570.405	0.00	0.00
			Max. Compression	30	-5911.218	0.00	0.00
			Max. Mx	30	-5501.393	-0.01	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	22	-2603.390	0.00	0.01
			Max. Vy	30	5.661	-0.01	0.00
			Max. Vx	22	4.435	0.00	0.01
		Horizontal	Max Tension	19	4135.339	0.00	0.00
			Max. Compression	1	0.000	0.00	0.00
			Max. Mx	24	2793.887	-0.00	0.00
			Max. My	30	3148.047	0.00	-0.00
			Max. Vy	24	5.454	0.00	0.00
			Max. Vx	30	0.000	0.00	0.00
		Top Girt	Max Tension	34	5227.935	0.00	0.00
			Max. Compression	13	-46.736	0.00	0.00
			Max. Mx	22	4597.725	-0.00	0.00
			Max. My	30	4510.548	0.00	-0.00
			Max. Vy	22	5.454	0.00	0.00
			Max. Vx	30	0.000	0.00	0.00
		Bottom Girt	Max Tension	1	0.000	0.00	0.00
			Max. Compression	19	-938.389	0.00	0.00
			Max. Mx	24	-538.236	-0.00	0.00
			Max. My	30	-822.002	0.00	-0.00
			Max. Vy	24	5.454	0.00	0.00
			Max. Vx	30	0.000	0.00	0.00
T5	45 - 29	Leg	Max Tension	1	0.000	0.00	0.00
			Max. Compression	19	-37588.563	-0.05	1.22
			Max. Mx	19	-21875.646	-2.15	-1.23
			Max. My	19	-26963.467	0.10	2.43
			Max. Vy	24	-5203.974	-0.81	0.42
			Max. Vx	24	-5883.862	-0.47	-0.87
		Diagonal	Max Tension	5	739.019	0.00	0.00
			Max. Compression	30	-4768.674	0.00	0.00
			Max. Mx	30	-4480.983	-0.01	-0.00
			Max. My	22	-2506.629	0.00	0.00
			Max. Vy	30	4.406	-0.01	-0.00
			Max. Vx	22	2.305	0.00	0.00
		Horizontal	Max Tension	19	3539.879	0.00	0.00
			Max. Compression	1	0.000	0.00	0.00
			Max. Mx	18	2707.039	-0.00	0.00
			Max. My	30	2863.942	0.00	-0.00
			Max. Vy	18	5.454	0.00	0.00
			Max. Vx	30	0.000	0.00	0.00
		Top Girt	Max Tension	19	4887.261	0.00	0.00
			Max. Compression	1	0.000	0.00	0.00
			Max. Mx	24	3496.921	-0.00	0.00
			Max. My	30	4539.667	0.00	-0.00
			Max. Vy	24	5.454	0.00	0.00
			Max. Vx	30	0.000	0.00	0.00
		Bottom Girt	Max Tension	19	2820.032	0.00	0.00
			Max. Compression	1	0.000	0.00	0.00
			Max. Mx	18	1872.543	-0.00	0.00
			Max. My	30	2710.254	0.00	-0.00
			Max. Vy	18	5.454	0.00	0.00
			Max. Vx	30	0.000	0.00	0.00
T6	29 - 25	Leg	Max Tension	1	0.000	0.00	0.00
			Max. Compression	19	-32028.404	0.08	0.38
			Max. Mx	19	-25123.696	1.81	-0.25
			Max. My	5	-17549.041	-0.08	1.12
			Max. Vy	19	10357.641	-0.79	-0.32
			Max. Vx	5	-1540.917	0.07	-0.56
		Top Girt	Max Tension	19	6681.117	0.30	-0.05
			Max. Compression	1	0.000	0.00	0.00
			Max. Mx	13	4240.487	0.45	-0.03
			Max. My	30	6510.460	0.31	-0.52

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	5	219.149	0.40	0.12
			Max. Vx	21	295.472	0.28	0.33
		Bottom Girt	Max Tension	1	0.000	0.00	0.00
			Max. Compression	19	-210.638	-0.58	-0.02
			Max. Mx	5	-127.116	-1.46	-0.06
			Max. My	5	-127.115	1.39	0.06
			Max. Vy	5	-3785.063	-1.46	-0.05
			Max. Vx	5	-159.185	-1.46	-0.06

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Mast	Max. Vert	19	83895.381	32.443	-1126.507
	Max. H_x	7	61546.638	1133.701	576.392
	Max. H_z	12	60717.848	-1012.670	669.422
	Max. M_x	1	0.00	12.928	-13.986
	Max. M_z	1	0.00	12.928	-13.986
	Max. Torsion	13	2.36	-1151.644	599.097
	Min. Vert	46	46230.380	-159.749	64.209
	Min. H_x	13	62752.175	-1151.644	599.097
	Min. H_z	2	64846.049	14.269	-1403.032
	Min. M_x	1	0.00	12.928	-13.986
	Min. M_z	1	0.00	12.928	-13.986
	Min. Torsion	5	-2.49	610.710	-318.270
Guy C @ 37.5 ft Elev 31.5 ft Azimuth 240 deg	Max. Vert	13	-429.077	-113.395	65.980
	Max. H_x	13	-429.077	-113.395	65.980
	Max. H_z	20	-33903.275	-17733.351	10496.570
	Min. Vert	23	-33919.706	-17967.568	10105.008
	Min. H_x	23	-33919.706	-17967.568	10105.008
	Min. H_z	13	-429.077	-113.395	65.980
Guy B @ 39 ft Elev 25 ft Azimuth 120 deg	Max. Vert	7	-585.581	172.937	100.154
	Max. H_x	31	-35696.639	17824.338	10007.236
	Max. H_z	34	-35899.146	17694.609	10498.468
	Min. Vert	34	-35899.146	17694.609	10498.468
	Min. H_x	7	-585.581	172.937	100.154
	Min. H_z	7	-585.581	172.937	100.154
Guy A @ 45 ft Elev 25 ft Azimuth 0 deg	Max. Vert	2	-378.275	0.187	-125.635
	Max. H_x	30	-27786.436	370.755	-18361.571
	Max. H_z	2	-378.275	0.187	-125.635
	Min. Vert	26	-31216.059	-214.379	-20451.187
	Min. H_x	24	-27880.283	-359.344	-18435.711
	Min. H_z	26	-31216.059	-214.379	-20451.187

Tower Mast Reaction Summary

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 Only	46704.714	-12.928	13.986	0.00	0.00	-0.00
Dead+Wind 0 deg - No Ice+Guy	64846.049	-14.269	1403.032	0.00	0.00	0.94
Dead+Wind 30 deg - No Ice+Guy	58933.244	-311.441	1116.400	0.00	0.00	1.94
Dead+Wind 45 deg - No Ice+Guy	53783.959	-432.678	786.080	0.00	0.00	2.30
Dead+Wind 60 deg - No Ice+Guy	51362.309	-610.710	318.270	0.00	0.00	2.49
Dead+Wind 90 deg - No Ice+Guy	57075.736	-1086.200	-291.022	0.00	0.00	2.23
Dead+Wind 120 deg - No Ice+Guy	61546.638	-1133.701	-576.392	0.00	0.00	1.41
Dead+Wind 135 deg - No Ice+Guy	59841.594	-1012.884	-646.129	0.00	0.00	0.89
Dead+Wind 150 deg - No Ice+Guy	55930.542	-784.810	-647.329	0.00	0.00	0.30
Dead+Wind 180 deg - No Ice+Guy	49109.800	-30.847	-537.724	0.00	0.00	-0.98
Dead+Wind 210 deg - No Ice+Guy	56213.879	768.133	-667.126	0.00	0.00	-1.95
Dead+Wind 225 deg - No Ice+Guy	60717.848	1012.670	-669.422	0.00	0.00	-2.22
Dead+Wind 240 deg - No Ice+Guy	62752.175	1151.644	-599.097	0.00	0.00	-2.36
Dead+Wind 270 deg - No Ice+Guy	58007.505	1126.016	-301.034	0.00	0.00	-2.26
Dead+Wind 300 deg - No Ice+Guy	49967.957	630.292	366.188	0.00	0.00	-1.55
Dead+Wind 315 deg - No Ice+Guy	53663.514	424.962	853.595	0.00	0.00	-0.93
Dead+Wind 330 deg - No Ice+Guy	59543.899	295.985	1161.927	0.00	0.00	-0.28
Dead+Ice+Temp+Guy	58502.060	-15.713	17.674	0.00	0.00	-0.01
Dead+Wind 0 deg+Ice+Temp+Guy	83895.381	-32.443	1126.507	0.00	0.00	0.94
Dead+Wind 30 deg+Ice+Temp+Guy	74911.860	-168.806	937.721	0.00	0.00	1.62
Dead+Wind 45 deg+Ice+Temp+Guy	68671.906	-249.260	651.609	0.00	0.00	1.84
Dead+Wind 60 deg+Ice+Temp+Guy	65669.688	-433.773	222.019	0.00	0.00	1.93
Dead+Wind 90 deg+Ice+Temp+Guy	72835.671	-852.311	-322.323	0.00	0.00	1.59
Dead+Wind 120 deg+Ice+Temp+Guy	80080.643	-879.647	-401.764	0.00	0.00	0.87
Dead+Wind 135 deg+Ice+Temp+Guy	75543.453	-889.127	-460.649	0.00	0.00	0.46
Dead+Wind 150 deg+Ice+Temp+Guy	71538.273	-706.979	-393.507	0.00	0.00	0.00
Dead+Wind 180 deg+Ice+Temp+Guy	62984.599	-37.876	-301.892	0.00	0.00	-0.96
Dead+Wind 210 deg+Ice+Temp+Guy	71853.559	674.670	-419.906	0.00	0.00	-1.62
Dead+Wind 225 deg+Ice+Temp+Guy	76454.427	878.488	-493.705	0.00	0.00	-1.77
Dead+Wind 240 deg+Ice+Temp+Guy	81526.530	890.514	-440.130	0.00	0.00	-1.81
Dead+Wind 270 deg+Ice+Temp+Guy	73937.941	885.475	-336.001	0.00	0.00	-1.62
Dead+Wind 300	64318.837	445.239	274.079	0.00	0.00	-0.99

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
deg+Ice+Temp+Guy Dead+Wind 315	68883.486	226.166	720.042	0.00	0.00	-0.48
deg+Ice+Temp+Guy Dead+Wind 330	75662.756	131.527	991.238	0.00	0.00	0.02
deg+Ice+Temp+Guy Dead+Wind 0 deg - Service+Guy	46843.661	-10.060	171.178	0.00	0.00	0.39
Dead+Wind 30 deg - Service+Guy	47146.304	-117.282	157.504	0.00	0.00	0.81
Dead+Wind 45 deg - Service+Guy	47250.508	-162.535	131.530	0.00	0.00	0.94
Dead+Wind 60 deg - Service+Guy	47309.956	-197.782	95.956	0.00	0.00	1.00
Dead+Wind 90 deg - Service+Guy	47295.459	-224.634	10.039	0.00	0.00	0.91
Dead+Wind 120 deg - Service+Guy	47129.514	-190.545	-69.242	0.00	0.00	0.60
Dead+Wind 135 deg - Service+Guy	47023.705	-163.684	-106.827	0.00	0.00	0.38
Dead+Wind 150 deg - Service+Guy	46913.216	-121.336	-132.536	0.00	0.00	0.13
Dead+Wind 180 deg - Service+Guy	46652.617	-17.621	-155.583	0.00	0.00	-0.39
Dead+Wind 210 deg - Service+Guy	46401.768	87.529	-129.920	0.00	0.00	-0.81
Dead+Wind 225 deg - Service+Guy	46297.859	131.235	-102.920	0.00	0.00	-0.94
Dead+Wind 240 deg - Service+Guy	46230.380	159.749	-64.209	0.00	0.00	-1.00
Dead+Wind 270 deg - Service+Guy	46262.447	198.487	16.189	0.00	0.00	-0.93
Dead+Wind 300 deg - Service+Guy	46411.498	175.036	102.201	0.00	0.00	-0.61
Dead+Wind 315 deg - Service+Guy	46516.584	141.014	137.082	0.00	0.00	-0.39
Dead+Wind 330 deg - Service+Guy	46620.855	96.594	161.570	0.00	0.00	-0.13

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.000	-11900.400	0.000	0.122	11906.285	-0.055	0.049%
2	-0.494	-11901.488	-14249.511	0.562	11901.579	14249.855	0.002%
3	7078.646	-11887.131	-12295.837	-7078.563	11887.224	12296.211	0.002%
4	10006.803	-11878.576	-10034.194	-10006.736	11878.662	10034.500	0.002%
5	12250.481	-11876.470	-7091.568	-12250.511	11876.554	7091.810	0.001%
6	14165.596	-11895.379	0.170	-14165.903	11895.460	-0.091	0.002%
7	12311.436	-11915.568	7127.331	-12311.798	11915.665	-7127.404	0.002%
8	10007.276	-11915.074	10035.129	-10007.579	11915.168	-10035.257	0.002%
9	7079.331	-11908.648	12296.682	-7079.538	11908.730	-12296.819	0.001%
10	0.494	-11899.313	14179.492	-0.445	11899.415	-14179.600	0.001%
11	-7078.646	-11913.670	12295.837	7078.987	11913.757	-12295.930	0.002%
12	-10006.803	-11922.224	10034.194	10007.165	11922.310	-10034.246	0.002%
13	-12311.119	-11924.330	7126.578	12311.508	11924.420	-7126.580	0.002%
14	-14165.596	-11905.422	-0.170	14165.896	11905.497	0.233	0.002%
15	-12250.798	-11885.232	-7092.322	12250.853	11885.321	7092.512	0.001%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
16	-10007.276	-11885.726	-10035.129	10007.294	11885.804	10035.376	0.001%
17	-7079.331	-11892.152	-12296.682	7079.375	11892.246	12297.015	0.002%
18	0.000	-21035.431	0.000	-0.010	21035.565	0.003	0.001%
19	-0.791	-21036.653	-17886.478	0.939	21036.818	17887.173	0.003%
20	8439.054	-21013.029	-14632.174	-8438.962	21013.201	14632.907	0.003%
21	11821.429	-20999.002	-11831.643	-11821.423	20999.114	11832.062	0.002%
22	14338.778	-20995.639	-8284.708	-14338.892	20995.789	8285.053	0.001%
23	16891.891	-21027.105	0.268	-16892.517	21027.257	-0.257	0.002%
24	15485.253	-21060.698	8947.540	-15485.961	21060.876	-8947.761	0.003%
25	11822.178	-21060.007	11833.139	-11822.738	21060.173	-11833.439	0.002%
26	8440.144	-21049.507	14633.527	-8440.554	21049.659	-14633.868	0.002%
27	0.791	-21034.209	16563.219	-0.711	21034.381	-16563.460	0.001%
28	-8439.054	-21057.833	14632.174	8439.704	21057.997	-14632.434	0.003%
29	-11821.429	-21071.860	11831.643	11822.102	21072.014	-11831.836	0.003%
30	-15484.754	-21075.224	8946.338	15485.523	21075.388	-8946.474	0.003%
31	-16891.891	-21043.758	-0.268	16892.508	21043.896	0.267	0.002%
32	-14339.277	-21010.165	-8285.910	14339.450	21010.342	8286.256	0.002%
33	-11822.178	-21010.855	-11833.139	11822.282	21011.002	11833.641	0.002%
34	-8440.144	-21021.355	-14633.527	8440.287	21021.522	14634.173	0.003%
35	-0.193	-11900.825	-5566.215	0.191	11900.939	5566.236	0.001%
36	2765.096	-11895.217	-4803.061	-2765.106	11895.312	4803.086	0.001%
37	3908.907	-11891.875	-3919.607	-3908.923	11891.971	3919.634	0.001%
38	4785.344	-11891.052	-2770.144	-4785.367	11891.148	2770.172	0.001%
39	5533.436	-11898.439	0.066	-5533.469	11898.534	-0.044	0.001%
40	4809.155	-11906.325	2784.114	-4809.183	11906.421	-2784.106	0.001%
41	3909.092	-11906.132	3919.972	-3909.122	11906.246	-3919.974	0.001%
42	2765.364	-11903.622	4803.391	-2765.386	11903.736	-4803.403	0.001%
43	0.193	-11899.975	5538.864	-0.198	11900.089	-5538.882	0.001%
44	-2765.096	-11905.584	4803.061	2765.104	11905.677	-4803.065	0.001%
45	-3908.907	-11908.925	3919.607	3908.920	11909.018	-3919.601	0.001%
46	-4809.031	-11909.748	2783.819	4809.045	11909.841	-2783.805	0.001%
47	-5533.436	-11902.362	-0.066	5533.450	11902.455	0.089	0.001%
48	-4785.468	-11894.475	-2770.438	4785.474	11894.587	2770.466	0.001%
49	-3909.092	-11894.668	-3919.972	3909.094	11894.781	3919.999	0.001%
50	-2765.364	-11897.178	-4803.391	2765.363	11897.315	4803.423	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	17	0.00000001	0.00000000
2	Yes	22	0.00000001	0.00000000
3	Yes	21	0.00000001	0.00000000
4	Yes	20	0.00000001	0.00000000
5	Yes	19	0.00000001	0.00000000
6	Yes	21	0.00000001	0.00000000
7	Yes	21	0.00000001	0.00000000
8	Yes	21	0.00000001	0.00000000
9	Yes	21	0.00000001	0.00000000
10	Yes	18	0.00000001	0.00000000
11	Yes	21	0.00000001	0.00000000
12	Yes	22	0.00000001	0.00000000
13	Yes	22	0.00000001	0.00000000
14	Yes	22	0.00000001	0.00000000
15	Yes	19	0.00000001	0.00000000
16	Yes	21	0.00000001	0.00000000

17	Yes	21	0.00000001	0.00000000
18	Yes	20	0.00000001	0.00000000
19	Yes	22	0.00018692	0.00000000
20	Yes	21	0.00031051	0.00000000
21	Yes	23	0.00029372	0.00000000
22	Yes	20	0.00037055	0.00000000
23	Yes	21	0.00031521	0.00000000
24	Yes	21	0.00021817	0.00000000
25	Yes	21	0.00018281	0.00000000
26	Yes	21	0.00000001	0.00000000
27	Yes	19	0.00000001	0.00000000
28	Yes	21	0.00031358	0.00000000
29	Yes	22	0.00027757	0.00000000
30	Yes	22	0.00026693	0.00000000
31	Yes	22	0.00027422	0.00000000
32	Yes	19	0.00026645	0.00000000
33	Yes	21	0.00000001	0.00000000
34	Yes	21	0.00017038	0.00000000
35	Yes	17	0.00000001	0.00000000
36	Yes	18	0.00000001	0.00000000
37	Yes	18	0.00000001	0.00000000
38	Yes	18	0.00000001	0.00000000
39	Yes	18	0.00000001	0.00000000
40	Yes	18	0.00000001	0.00000000
41	Yes	17	0.00000001	0.00000000
42	Yes	17	0.00000001	0.00000000
43	Yes	17	0.00000001	0.00000000
44	Yes	18	0.00000001	0.00000000
45	Yes	18	0.00000001	0.00000000
46	Yes	18	0.00000001	0.00000000
47	Yes	18	0.00000001	0.00000000
48	Yes	17	0.00000001	0.00000000
49	Yes	17	0.00000001	0.00000000
50	Yes	16	0.00000001	0.00000000

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	125 - 105	2.35	48	0.19	0.55
T2	105 - 85	1.50	49	0.18	0.51
T3	85 - 65	0.75	49	0.14	0.45
T4	65 - 45	0.32	49	0.07	0.41
T5	45 - 29	0.12	49	0.03	0.36
T6	29 - 25	0.02	49	0.03	0.31

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
143.00	12' x 3" Dia Omni (est)	48	2.35	0.19	0.55	319508
132.00	18' x 3" Dia Omni (est)	48	2.35	0.19	0.55	319508
129.00	4 Bay Dipole	48	2.35	0.19	0.55	319508
128.00	6' x 3" Dia Omni	48	2.35	0.19	0.55	319508

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
127.00	Dragonwave 2.5	48	2.35	0.19	0.55	319508
123.00	Boom Gate (1)	48	2.26	0.19	0.55	319508
119.00	Dragonwave 2.5	48	2.09	0.19	0.54	266256
116.96	Guy	48	2.00	0.19	0.53	198657
110.00	PiROD 13' Lightweight T-Frame	49	1.71	0.19	0.52	106502
76.96	Guy	49	0.54	0.11	0.43	13849
35.00	GPS	49	0.05	0.03	0.33	144835

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	125 - 105	11.14	19	0.85	1.34
T2	105 - 85	7.41	19	0.81	1.23
T3	85 - 65	4.08	19	0.62	1.11
T4	65 - 45	1.98	19	0.35	1.00
T5	45 - 29	0.82	19	0.21	0.88
T6	29 - 25	0.15	19	0.18	0.78

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
143.00	12' x 3" Dia Omni (est)	19	11.14	0.85	1.34	64850
132.00	18' x 3" Dia Omni (est)	19	11.14	0.85	1.34	64850
129.00	4 Bay Dipole	19	11.14	0.85	1.34	64850
128.00	6' x 3" Dia Omni	19	11.14	0.85	1.34	64850
127.00	Dragonwave 2.5	19	11.14	0.85	1.34	64850
123.00	Boom Gate (1)	19	10.76	0.85	1.33	64850
119.00	Dragonwave 2.5	19	10.01	0.85	1.31	54042
116.96	Guy	19	9.63	0.85	1.30	40321
110.00	PiROD 13' Lightweight T-Frame	19	8.33	0.83	1.26	21616
76.96	Guy	19	3.08	0.51	1.06	3654
35.00	GPS	19	0.39	0.19	0.82	26300

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	125	Leg	A325N	0.750	3	629.664	19438.100	0.032 ✓	1.333	Bolt Tension
T2	105	Leg	A325N	0.750	3	0.000	19027.400	0.000 ✓	1.333	Bolt Tension
T3	85	Leg	A325N	0.750	3	8708.330	19390.000	0.449 ✓	1.333	Bolt Tension

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
T4	65	Leg	A325N	0.750	3	2914.850	19363.500	0.151 ✓	1.333	Bolt Tension
T5	45	Leg	A325N	0.750	3	0.000	18946.900	0.000 ✓	1.333	Bolt Tension
T6	29	Leg	A325N	0.750	3	0.000	18040.699	0.000 ✓	1.333	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T_a lb	Required S.F.	Actual S.F.
T1	116.96 (A) (258)	3/4 EHS	5830.000	58299.914	18484.000	29150.000	2.000	3.154 ✓
	116.96 (B) (257)	3/4 EHS	5830.000	58299.914	19745.301	29150.000	2.000	2.953 ✓
	116.96 (C) (256)	3/4 EHS	5830.000	58299.914	19486.301	29150.000	2.000	2.992 ✓
T3	76.96 (A) (261)	7/8 EHS	7970.000	79699.844	19426.500	39850.000	2.000	4.103 ✓
	76.96 (B) (260)	7/8 EHS	7970.000	79699.844	22236.000	39850.000	2.000	3.584 ✓
	76.96 (C) (259)	7/8 EHS	7970.000	79699.844	20951.500	39850.000	2.000	3.804 ✓

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	Mast Stability Index	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio P / P_a
T1	125 - 105	2	20.00	3.92	94.0 K=1.00	1.00	16.06	3.142	-24576.500	50468.602	0.487 ✓
T2	105 - 85	2	20.00	3.92	94.0 K=1.00	1.00	16.06	3.142	-61848.602	50468.602	1.225 ✓
T3	85 - 65	2 1/4	20.00	3.92	83.6 K=1.00	1.00	18.29	3.976	-71155.102	72731.203	0.978 ✓
T4	65 - 45	2	20.00	3.92	94.0 K=1.00	1.00	16.06	3.142	-59149.602	50468.602	1.172 ✓
T5	45 - 29	2	16.00	3.90	93.5 K=1.00	1.00	16.18	3.142	-37588.602	50815.898	0.740 ✓
T6	29 - 25	2	4.37	3.05	73.1 K=1.00	1.00	20.36	3.142	-32028.400	63958.699	0.501 ✓

Diagonal 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 $\frac{P}{P_a}$
T1	125 - 105	7/8	4.03	2.01	89.4 K=0.81	14.27	0.601	-4668.640	8582.550	0.544 ✓
T2	105 - 85	7/8	4.03	2.01	89.4 K=0.81	14.27	0.601	-6688.910	8582.550	0.779 ✓
T3	85 - 65	7/8	4.03	2.01	89.4 K=0.81	14.27	0.601	-6878.290	8582.550	0.801 ✓
T4	65 - 45	7/8	4.03	2.01	89.4 K=0.81	14.27	0.601	-5911.220	8582.550	0.689 ✓
T5	45 - 29	7/8	4.01	2.00	89.4 K=0.81	14.28	0.601	-4768.670	8586.570	0.555 ✓

Horizontal 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 $\frac{P}{P_a}$
T1	125 - 105	L2x2x3/16	3.04	2.88	103.8 K=1.19	12.49	0.715	-781.076	8932.320	0.087 ✓
T2	105 - 85	L2x2x3/16	3.04	2.88	103.8 K=1.19	12.49	0.715	-1492.280	8932.320	0.167 ✓
T3	85 - 65	L2x2x3/16	3.04	2.85	103.5 K=1.19	12.53	0.715	-1952.020	8961.680	0.218 ✓

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 $\frac{P}{P_a}$
T1	125 - 105	L2x2x3/16	3.04	2.88	103.8 K=1.19	12.49	0.715	-556.170	8932.320	0.062 ✓
T3	85 - 65	L2x2x3/16	3.04	2.85	103.5 K=1.19	12.53	0.715	-1297.300	8961.680	0.145 ✓
T4	65 - 45	L2x2x1/8	3.04	2.88	103.4 K=1.19	12.34	0.484	-46.736	5976.180	0.008 ✓

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 $\frac{P}{P_a}$
T1	125 - 105	L2x2x3/16	3.04	2.88	103.8	12.49	0.715	-563.056	8932.320	0.063

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 $\frac{P}{P_a}$
T2	105 - 85	L2x2x3/16	3.04	2.88	K=1.19 103.8	12.49	0.715	-737.330	8932.320	0.083 ✓
T3	85 - 65	L2x2x3/16	3.04	2.85	K=1.19 103.5	12.53	0.715	-862.045	8961.680	0.096 ✓
T4	65 - 45	L2x2x1/8	3.04	2.88	K=1.19 103.4	12.34	0.484	-938.389	5976.180	0.157 ✓
T6	29 - 25	12x3/8	0.76	0.59	K=1.19 65.8	16.86	4.500	-210.638	75855.602	0.003 ✓
					K=1.00					

* DL controls

Top Guy Pull-Off 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 $\frac{P}{P_a}$
T1	125 - 105	L3x3x1/4	3.04	2.88	37.1 K=1.00	21.60	1.440	0.000	25334.500	0.000*
T3	85 - 65	L3x3x1/4	3.04	2.85	36.8 K=1.00	21.60	1.440	0.000	25392.000	0.000*

* DL controls

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	125 - 105	L3x3x1/4	-0.01	-0.08	21.60	0.004	-0.01	-0.15	21.60	0.007
T3	85 - 65	L3x3x1/4	-0.01	-0.08	21.60	0.004	-0.01	-0.15	21.60	0.007

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	125 - 105	L3x3x1/4	0.000	0.004	0.007	0.011* ✓	1.000	H1-3 ✓
T3	85 - 65	L3x3x1/4	0.000	0.004	0.007	0.011* ✓	1.000	H1-3 ✓

* DL controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	125 - 105	2	20.00	3.92	94.0	30.00	3.142	9296.270	94247.797	0.099 ✓
T2	105 - 85	2	20.00	3.92	94.0	30.00	3.142	26123.301	94247.797	0.277 ✓
T3	85 - 65	2 1/4	20.00	3.92	83.6	30.00	3.976	37204.801	119282.000	0.312 ✓
T4	65 - 45	2	20.00	3.92	94.0	30.00	3.142	8744.560	94247.797	0.093 ✓

Diagonal Design Data (Tension)

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 $\frac{P}{P_a}$
T1	125 - 105	7/8	4.03	2.01	110.4	21.60	0.601	3763.680	12988.500	0.290 ✓
T2	105 - 85	7/8	4.03	2.01	110.4	21.60	0.601	3245.190	12988.500	0.250 ✓
T3	85 - 65	7/8	4.03	2.01	110.4	21.60	0.601	3594.780	12988.500	0.277 ✓
T4	65 - 45	7/8	4.03	2.01	110.4	21.60	0.601	1570.410	12988.500	0.121 ✓
T5	45 - 29	7/8	4.01	2.00	110.0	21.60	0.601	739.019	12988.500	0.057 ✓

Horizontal Design Data (Tension)

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 $\frac{P}{P_a}$
T1	125 - 105	L2x2x3/16	3.04	2.88	55.9	21.60	0.715	1969.090	15444.000	0.127* ✓
T2	105 - 85	L2x2x3/16	3.04	2.88	55.9	21.60	0.715	4056.520	15444.000	0.263 ✓
T3	85 - 65	L2x2x3/16	3.04	2.85	55.5	21.60	0.715	4674.420	15444.000	0.303 ✓
T4	65 - 45	L2x2x1/8	3.04	2.88	55.1	21.60	0.484	4135.340	10462.500	0.395 ✓
T5	45 - 29	L2x2x1/8	3.04	2.88	55.1	21.60	0.484	2711.770	10462.500	0.259* ✓

* DL controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	125 - 105	L2x2x3/16	3.04	2.88	55.9	21.60	0.715	602.424	15444.000	0.039 ✓
T2	105 - 85	L2x2x3/16	3.04	2.88	55.9	21.60	0.715	2510.430	15444.000	0.163* ✓
T3	85 - 65	L2x2x3/16	3.04	2.85	55.5	21.60	0.715	4477.800	15444.000	0.290 ✓
T4	65 - 45	L2x2x1/8	3.04	2.88	55.1	21.60	0.484	5227.940	10462.500	0.500 ✓
T5	45 - 29	L2x2x1/8	3.04	2.88	55.1	21.60	0.484	4887.260	10462.500	0.467 ✓
T6	29 - 25	L3x3x3/8	2.88	2.71	35.7	21.60	2.110	6681.120	45576.000	0.147 ✓

* DL controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T2	105 - 85	L2x2x3/16	3.04	2.88	55.9	21.60	0.715	48.236	15444.000	0.003 ✓
T5	45 - 29	L2x2x1/8	3.04	2.88	55.1	21.60	0.484	2820.030	10462.500	0.270 ✓

Top Guy Pull-Off Design Data (Tension)

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 $\frac{P}{P_a}$
T1	125 - 105	L3x3x1/4	3.04	2.88	37.1	21.60	1.440	4223.620	31104.000	0.136
T3	85 - 65	L3x3x1/4	3.04	2.85	36.8	21.60	1.440	7210.530	31104.000	0.232

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	125 - 105	L3x3x1/4	-0.01	0.08	23.76	0.003	-0.01	0.15	23.76	0.006
T3	85 - 65	L3x3x1/4	-0.01	0.08	23.76	0.003	-0.01	0.15	23.76	0.006

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	125 - 105	L3x3x1/4	0.136	0.003	0.006	0.145 ✓	1.333	H2-1 ✓
T3	85 - 65	L3x3x1/4	0.232	0.003	0.006	0.241 ✓	1.333	H2-1 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	125 - 105	Leg	2	3	-24576.500	67274.643	36.5	Pass
T2	105 - 85	Leg	2	54	-61848.602	67274.643	91.9	Pass
T3	85 - 65	Leg	2 1/4	105	-71155.102	96950.690	73.4	Pass
T4	65 - 45	Leg	2	156	-59149.602	67274.643	87.9	Pass
T5	45 - 29	Leg	2	207	-37588.602	67737.590	55.5	Pass
T6	29 - 25	Leg	2	249	-32028.400	85256.943	37.6	Pass
T1	125 - 105	Diagonal	7/8	10	-4668.640	11440.538	40.8	Pass
T2	105 - 85	Diagonal	7/8	61	-6688.910	11440.538	58.5	Pass
T3	85 - 65	Diagonal	7/8	134	-6878.290	11440.538	60.1	Pass
T4	65 - 45	Diagonal	7/8	203	-5911.220	11440.538	51.7	Pass
T5	45 - 29	Diagonal	7/8	245	-4768.670	11445.898	41.7	Pass
T1	125 - 105	Horizontal	L2x2x3/16	16	1969.090	15444.000	12.7	Pass
T2	105 - 85	Horizontal	L2x2x3/16	69	4056.520	20586.851	19.7	Pass
T3	85 - 65	Horizontal	L2x2x3/16	120	4674.420	20586.851	22.7	Pass
T4	65 - 45	Horizontal	L2x2x1/8	170	4135.340	13946.512	29.7	Pass
T5	45 - 29	Horizontal	L2x2x1/8	221	2711.770	10462.500	25.9	Pass
T1	125 - 105	Top Girt	L2x2x3/16	5	-556.170	11906.782	4.7	Pass
T2	105 - 85	Top Girt	L2x2x3/16	55	2510.430	15444.000	16.3	Pass
T3	85 - 65	Top Girt	L2x2x3/16	108	4477.800	20586.851	21.8	Pass
T4	65 - 45	Top Girt	L2x2x1/8	159	5227.940	13946.512	37.5	Pass
T5	45 - 29	Top Girt	L2x2x1/8	209	4887.260	13946.512	35.0	Pass
T6	29 - 25	Top Girt	L3x3x3/8	252	6681.120	60752.805	11.0	Pass
T1	125 - 105	Bottom Girt	L2x2x3/16	7	-563.056	8932.320	6.3	Pass
T2	105 - 85	Bottom Girt	L2x2x3/16	60	-737.330	11906.782	6.2	Pass
T3	85 - 65	Bottom Girt	L2x2x3/16	111	-862.045	11945.919	7.2	Pass
T4	65 - 45	Bottom Girt	L2x2x1/8	162	-938.389	7966.248	11.8	Pass
T5	45 - 29	Bottom Girt	L2x2x1/8	212	2820.030	13946.512	20.2	Pass
T6	29 - 25	Bottom Girt	12x3/8	255	-199.362	101115.513	4.4	Pass
T1	125 - 105	Guy A@116.958	3/4	258	18484.000	29150.000	63.4	Pass
T3	85 - 65	Guy A@76.9583	7/8	261	19426.500	39850.000	48.7	Pass
T1	125 - 105	Guy B@116.958	3/4	257	19745.301	29150.000	67.7	Pass
T3	85 - 65	Guy B@76.9583	7/8	260	22236.000	39850.000	55.8	Pass
T1	125 - 105	Guy C@116.958	3/4	256	19486.301	29150.000	66.8	Pass
T3	85 - 65	Guy C@76.9583	7/8	259	20951.500	39850.000	52.6	Pass
T1	125 - 105	Top Guy	L3x3x1/4	36	4223.620	41461.630	10.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P_{allow} lb	% Capacity	Pass Fail
T3	85 - 65	Pull-Off@116.958 Top Guy Pull-Off@76.9583	L3x3x1/4	137	7210.530	41461.630	18.1	Pass
						Summary		
						Leg (T2)	91.9	Pass
						Diagonal (T3)	60.1	Pass
						Horizontal (T4)	29.7	Pass
						Top Girt (T4)	37.5	Pass
						Bottom Girt (T5)	20.2	Pass
						Guy A (T1)	63.4	Pass
						Guy B (T1)	67.7	Pass
						Guy C (T1)	66.8	Pass
						Top Guy Pull-Off (T3)	18.1	Pass
						Bolt Checks	33.7	Pass
						RATING =	**91.9**	**Pass**