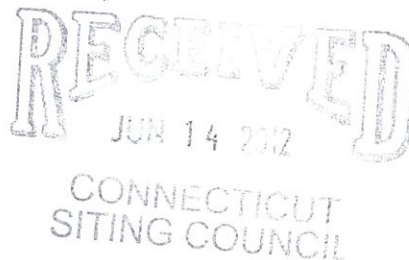


80 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

June 13, 2012



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

Re: **Notice of Exempt Modification – Antenna Swap**
484 Birch Mountain Road, Glastonbury, Connecticut

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) wireless telecommunications antennas at the 165-foot level of the existing 225-foot tower at the above-referenced address. The tower is owned by M&R Gassner Family III LLC. The Council approved Cellco’s shared use of this tower in 1986. Cellco now intends to replace all of its existing antennas with two (2) model LPA-80063-6CF cellular antennas; two (2) model DB846F65ZAXY cellular antennas; two (2) model LPA-80063-4CF cellular antennas; three (3) model BXA-171063-12BF PCS antennas; two (2) model BXA-70063-6CF LTE antennas; and one (1) model BXA-70063-4CF LTE antenna, all at the same 165-foot level. Cellco also intends to install six (6) coax cable diplexers on its antenna mounting structure. Attached behind Tab 1 are the specifications for the replacement antennas and 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 Richard J. Johnson, Town Manager for the Town of Glastonbury. A copy of this letter is also being sent to M&R Gassner Family III 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).

*Law Offices*

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11720598-v1

ROBINSON & COLE_{LLP}

Linda Roberts
June 13, 2012
Page 2

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas will be located at the 165-foot level on the 225-foot tower.

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

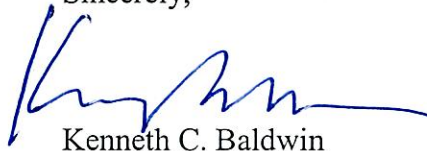
3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

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 power density table for Cellco's modified facility is included behind Tab 2.

Also attached is a Detailed Structural Analysis and Reinforcement report confirming that the tower and foundation, with certain modifications, can support Cellco's proposed 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:

Richard J. Johnson, Glastonbury Town Manager
M&R Gassner Family III LLC
Sandy M. Carter



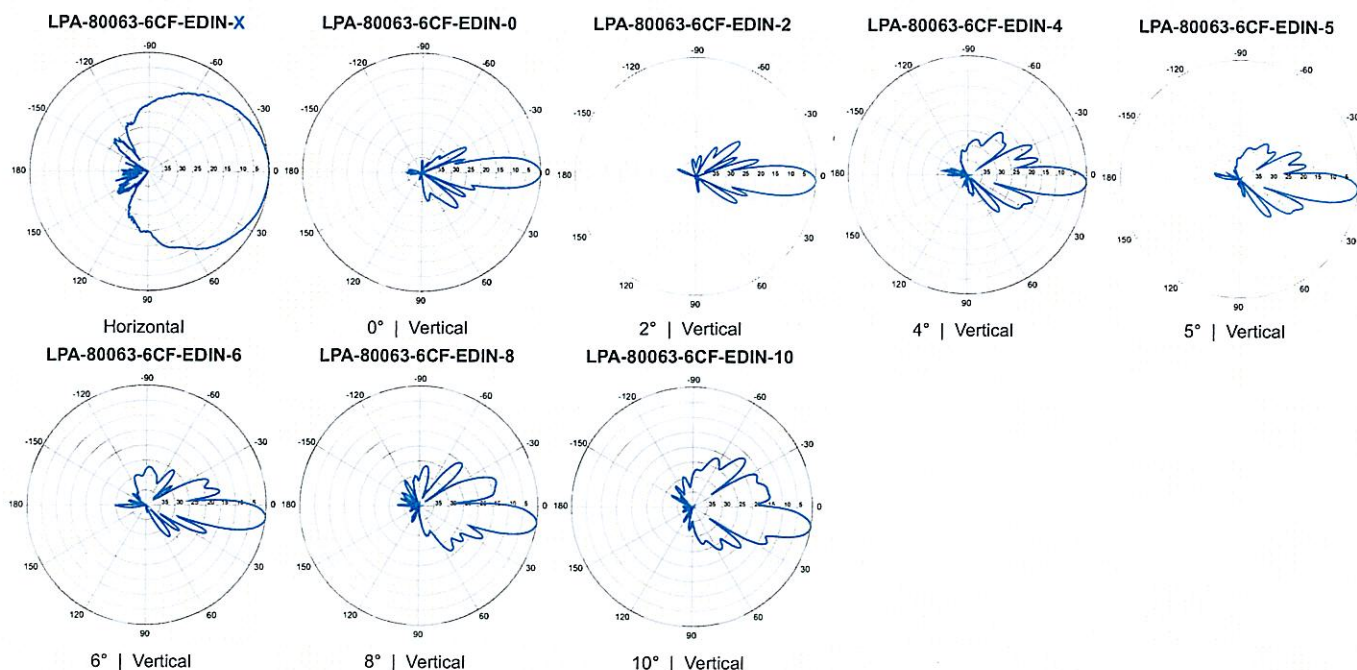
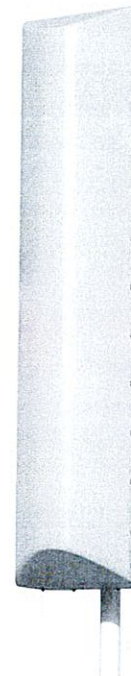
LPA-80063-6CF-EDIN-X

V-Pol | Log Periodic | 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	
Frequency bands	806-960 MHz
Polarization	Vertical
Horizontal beamwidth	63°
Vertical beamwidth	10°
Gain	14.5 dBd (16.6 dBi)
Electrical downtilt (X)	0, 2, 4, 5, 6, 8, 10
Impedance	50Ω
VSWR	≤1.4:1
Null fill	5% (-26.02 dB)
Input power	500 W
Lightning protection	Direct Ground
Connector(s)	1 Port / EDIN or NE / Female / Center (Back)
Mechanical Characteristics	
Dimensions Length x Width x Depth	1805 x 385 x 332 mm71.1 x 15.2 x 13.1 in
Depth of antenna with z-bracket	372 mm14.6 in
Weight without mounting brackets	12.3 kg27 lbs
Survival wind speed	> 201 km/hr> 125 mph
Wind area	Front: 0.70 m ² Side: 0.59 m ² Front: 7.5 ft ² Side: 6.3 ft ²
Wind load @ 161 km/hr (100 mph)	Front: 885 N Side: 757 NFront: 199 lbf Side: 170 lbf
Mounting Options	
Part Number	Fits Pipe DiameterWeight
3-Point Mounting & Downtilt Bracket Kit (0-20°)	2170000050-102 mm 2.0-4.0 in11 kg 25 lbs
Lock-Down Brace	If the lock-down brace is used, the maximum diameter of the mounting pipe is 88.9 mm or 3.5 in.



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.

Product Specifications



DB846F65ZAXY

Directed Dipole™ Antenna, 806–960 MHz, 65° horizontal beamwidth, fixed electrical tilt



- Excellent azimuth roll-off, reducing soft hand-offs and improving capacity
- Deep null filling below the horizon for improved signal intensity
- Rugged, reliable design, light weight for low tower loading
- Air dielectric feed system

CHARACTERISTICS

General Specifications

Antenna Type	Directed Dipole™
Brand	Directed Dipole™
Operating Frequency Band	806 – 960 MHz

Electrical Specifications

Frequency Band, MHz	806–896	870–960
Beamwidth, Horizontal, degrees	65	60
Gain, dBd	14.5	14.8
Gain, dBi	16.6	16.9
Beamwidth, Vertical, degrees	11.0	10.5
Beam Tilt, degrees	0	0
Upper Sidelobe Suppression (USLS), typical, dB	15	15
Front-to-Back Ratio at 180°, dB	40	40
VSWR Return Loss, db	1.33:1 17.0	1.33:1 17.0
Intermodulation Products, 3rd Order, 2 x 20 W, dBc	-150	-150
Input Power per Port, maximum, watts	500	500
Polarization	Vertical	Vertical
Impedance	50 ohm	50 ohm
Lightning Protection	dc Ground	dc Ground

Product Specifications

DB846F65ZAXY



Mechanical Specifications

Color	Light gray
Connector Interface	7-16 DIN Female
Connector Location	Back
Connector Quantity	1
Radome Material	ABS, UV resistant
Wind Loading, maximum	387.0 N @ 100 mph 87.0 lbf @ 100 mph
Wind Speed, maximum	241.4 km/h 150.0 mph

Dimensions

Depth	216.0 mm 8.5 in
Length	1829.0 mm 72.0 in
Width	254.0 mm 10.0 in
Net Weight	9.5 kg 20.9 lb

Regulatory Compliance/Certifications

Agency

RoHS 2002/95/EC
China RoHS SJ/T 11364-2006
ISO 9001:2008

Classification

Compliant by Exemption
Above Maximum Concentration Value (MCV)
Designed, manufactured and/or distributed under this quality management system



INCLUDED PRODUCTS



DB380

Pipe Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Used for wide panel antennas. Includes two clamp sets.

DB382NS

Side Offset Bracket for 4.5 in (114.3 mm) OD round members



DB5083

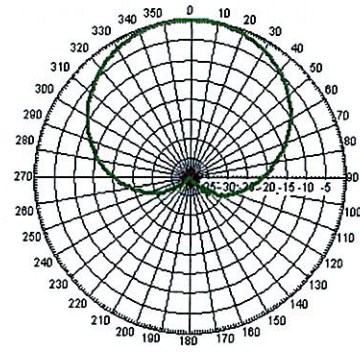
Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Includes a heavy-duty, galvanized steel downtilt mounting bracket assembly and associated hardware. This kit is compatible with the DB380 pipe mount kit for panel antennas that are equipped with two mounting brackets.

Product Specifications

DB846F65ZAXY

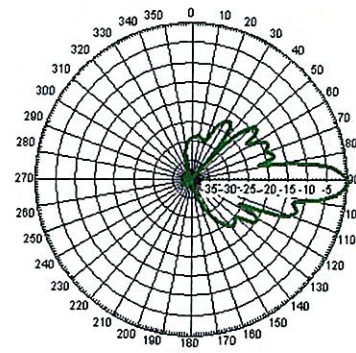


Horizontal Pattern

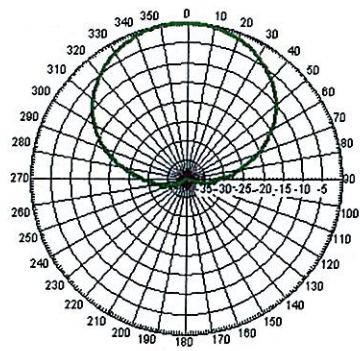


Freq: 850 MHz, Tilt: 0

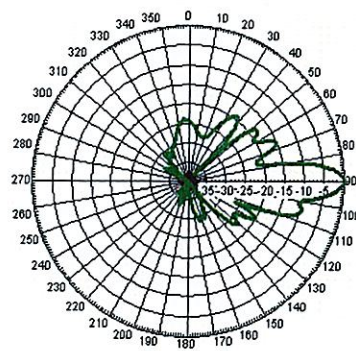
Vertical Pattern



Freq: 850 MHz, Tilt: 0



Freq: 940 MHz, Tilt: 0



Freq: 940 MHz, Tilt: 0

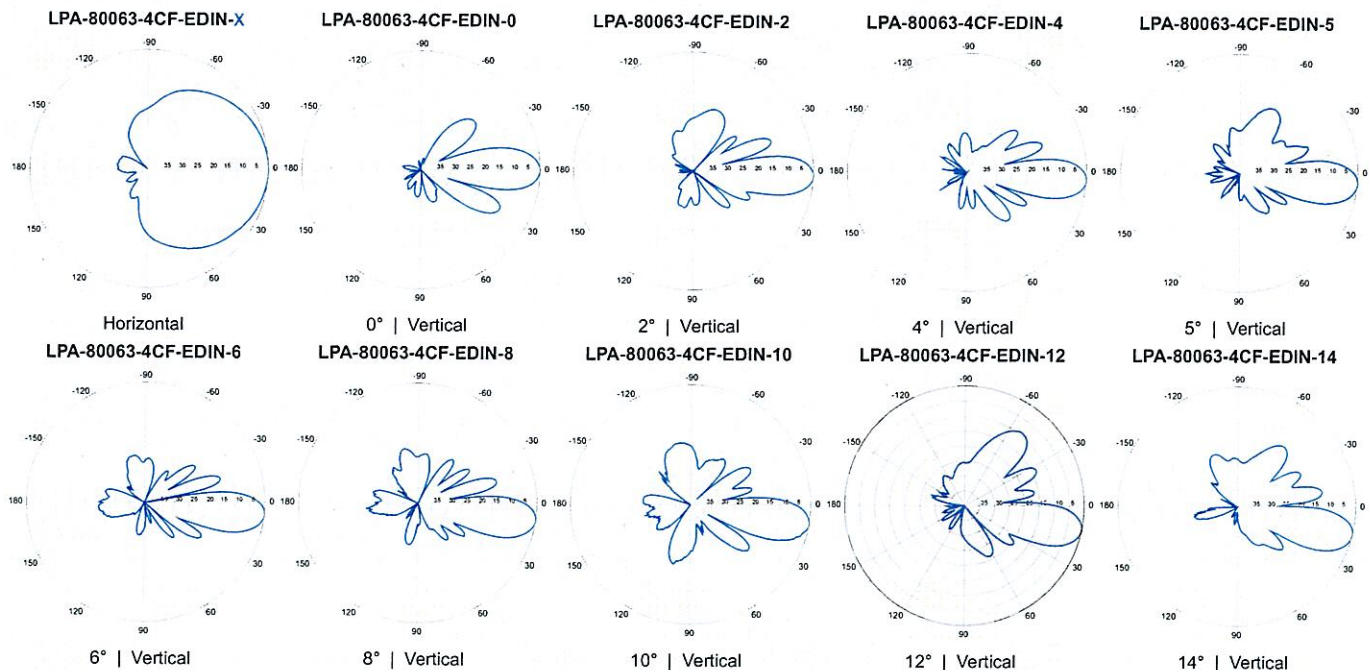
LPA-80063-4CF-EDIN-X

V-Pol | Log Periodic | 63° | 13.0 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	
Frequency bands	806-960 MHz
Polarization	Vertical
Horizontal beamwidth	63°
Vertical beamwidth	15°
Gain	13.0 dBd (15.1 dBi)
Electrical downtilt (X)	0, 2, 4, 5, 6, 8, 10, 12, 14
Impedance	50Ω
VSWR	≤1.4:1
Upper sidelobe suppression (0°)	-15.7 dB
Front-to-back ratio (+/-30°)	-31.7 dB
Null fill	5% (-26.02 dB)
Input power	500 W
Lightning protection	Direct Ground
Connector(s)	1 Port / EDIN or NE / Female / Center (Back)
Mechanical Characteristics	
Dimensions Length x Width x Depth	1205 x 385 x 332 mm47.4 x 15.2 x 13.1 in
Depth of antenna with z-bracket	372 mm14.6 in
Weight without mounting brackets	9.1 kg20 lbs
Survival wind speed	> 201 km/hr> 125 mph
Wind area	Front: 0.46 m² Side: 0.39 m²Front: 5.0 ft² Side: 4.2 ft²
Wind load @ 161 km/hr (100 mph)	Front: 660 N Side: 550 NFront: 149 lbf Side: 124 lbf
Mounting Options	
Part Number	Fits Pipe Diameter
2-Point Mounting & Downtilt Bracket Kit (0-20°)	2169999950-102 mm 2.0-4.0 in
Weight	5.4 kg 12 lbs
Lock-Down Brace	If the lock-down brace is used, the maximum diameter of the mounting pipe is 88.9 mm or 3.5 in.



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BXA-171063-12BF-EDIN-X

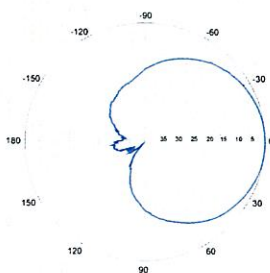
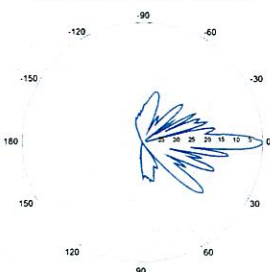
Replace 'X' with desired electrical downtilt.

X-Pol | FET Panel | 63° | 19.0 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	4.5°	4.5°	4.5°
Gain	16.1 dBd / 18.2 dBi	16.5 dBd / 18.6 dBi	16.9 dBd / 19.0 dBi
Electrical downtilt (X)	0, 2, 5		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back ratio	> 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	1820 x 154 x 105 mm 71.7 x 6.1 x 4.1 in		
Depth with z-brackets	133 mm 5.2 in		
Weight without mounting brackets	6.8 kg 15 lbs		
Survival wind speed	> 201 km/hr > 125 mph		
Wind area	Front: 0.28 m² Side: 0.19 m² Front: 3.1 ft² Side: 2.1 ft²		
Wind load @ 161 km/hr (100 mph)	Front: 460 N Side: 304 N Front: 103 lbf Side: 68 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-171063-12BF-EDIN-X-FP		

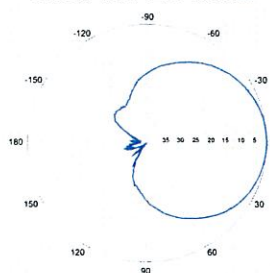
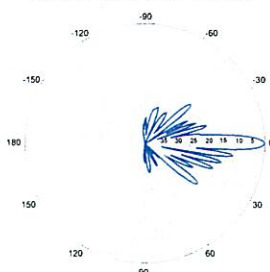


BXA-171063-12BF-EDIN-X

Horizontal | 1710-1880 MHz
BXA-171063-12BF-EDIN-0

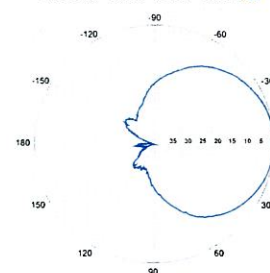
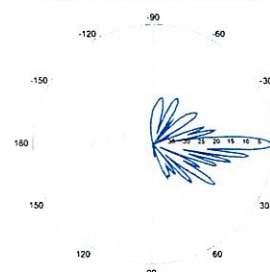
0° | Vertical | 1710-1880 MHz

BXA-171063-12BF-EDIN-X

Horizontal | 1850-1990 MHz
BXA-171063-12BF-EDIN-0

0° | Vertical | 1850-1990 MHz

BXA-171063-12BF-EDIN-X

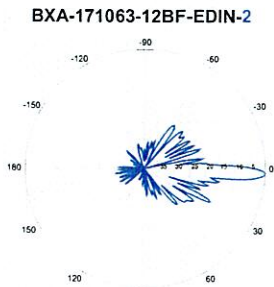
Horizontal | 1920-2170 MHz
BXA-171063-12BF-EDIN-0

0° | Vertical | 1920-2170 MHz

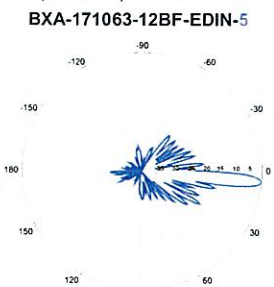
Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product.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

BXA-171063-12BF-EDIN-X

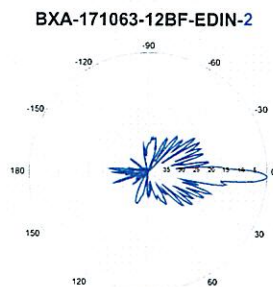
X-Pol | FET Panel | 63° | 19.0 dBi



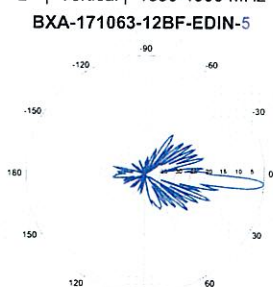
2° | Vertical | 1710-1880 MHz



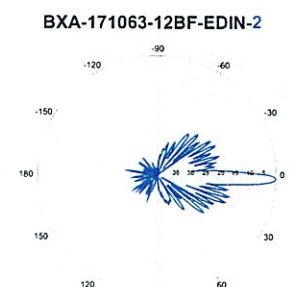
5° | Vertical | 1710-1880 MHz



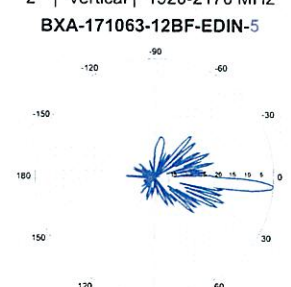
2° | Vertical | 1850-1990 MHz



5° | Vertical | 1850-1990 MHz



2° | Vertical | 1920-2170 MHz



5° | 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-70063-6CF-EDIN-X

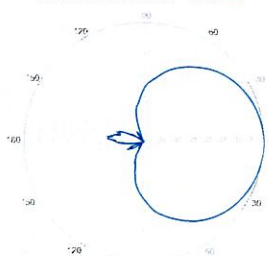
X-Pol | FET Panel | 63° | 14.5 dBd

Replace 'X' with desired electrical downtilt.

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

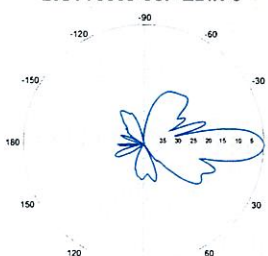
Electrical Characteristics	696-900 MHz			
Frequency bands	696-806 MHz		806-900 MHz	
Polarization	±45°			
Horizontal beamwidth	65°		63°	
Vertical beamwidth	13°		11°	
Gain	14.0 dBd (16.1 dBi)		14.5 dBd (16.6 dBi)	
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 10			
Impedance	50Ω			
VSWR	≤1.35:1			
Upper 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 m ²	Side: 0.24 m ²	Front: 5.5 ft ²	Side: 2.6 ft ²
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



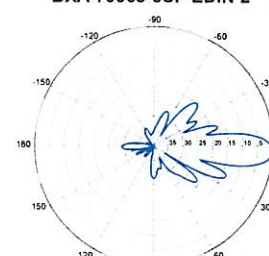
Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0

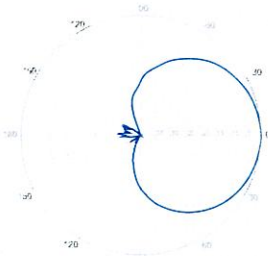


0° | Vertical | 750 MHz

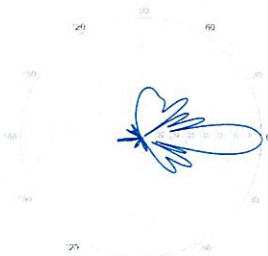
BXA-70063-6CF-EDIN-2



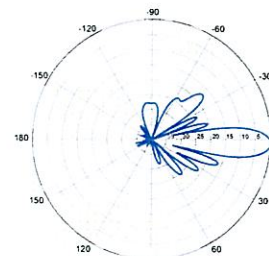
2° | Vertical | 750 MHz



Horizontal | 850 MHz



0° | Vertical | 850 MHz



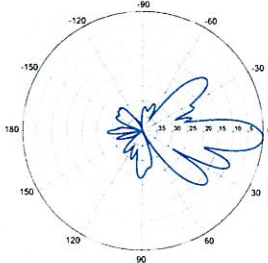
2° | Vertical | 850 MHz

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BXA-70063-6CF-EDIN-X

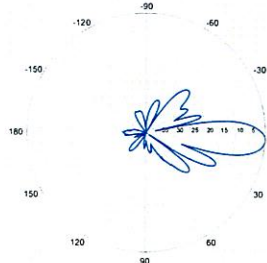
X-Pol | FET Panel | 63° | 14.5 dBd

BXA-70063-6CF-EDIN-3



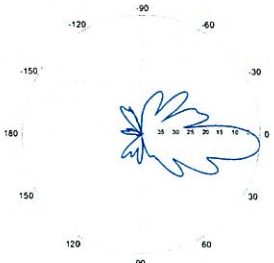
3° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-4

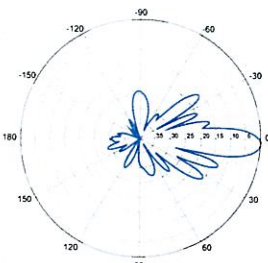


4° | Vertical | 750 MHz

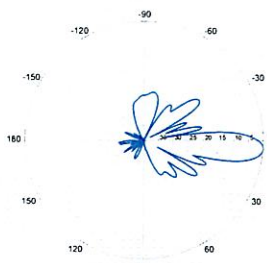
BXA-70063-6CF-EDIN-5



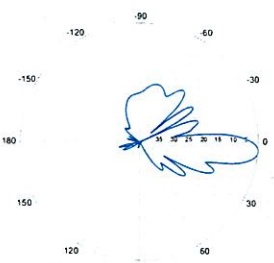
5° | Vertical | 750 MHz



3° | Vertical | 850 MHz

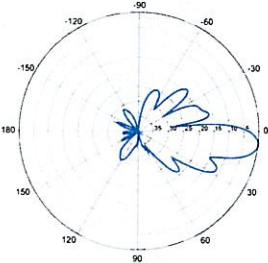


4° | Vertical | 850 MHz



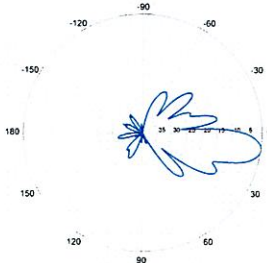
5° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-6



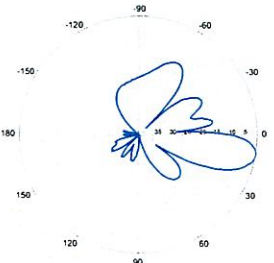
6° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-8

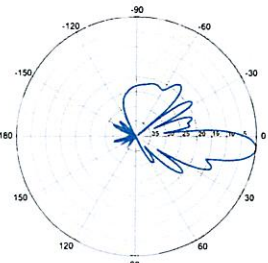


8° | Vertical | 750 MHz

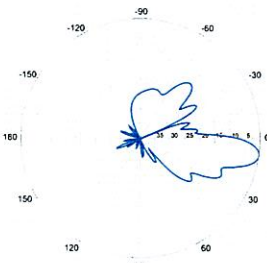
BXA-70063-6CF-EDIN-10



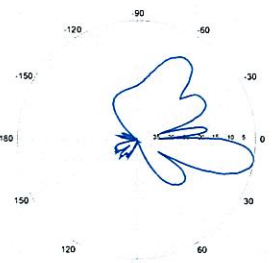
10° | Vertical | 750 MHz



6° | Vertical | 850 MHz



8° | Vertical | 850 MHz



10° | Vertical | 850 MHz

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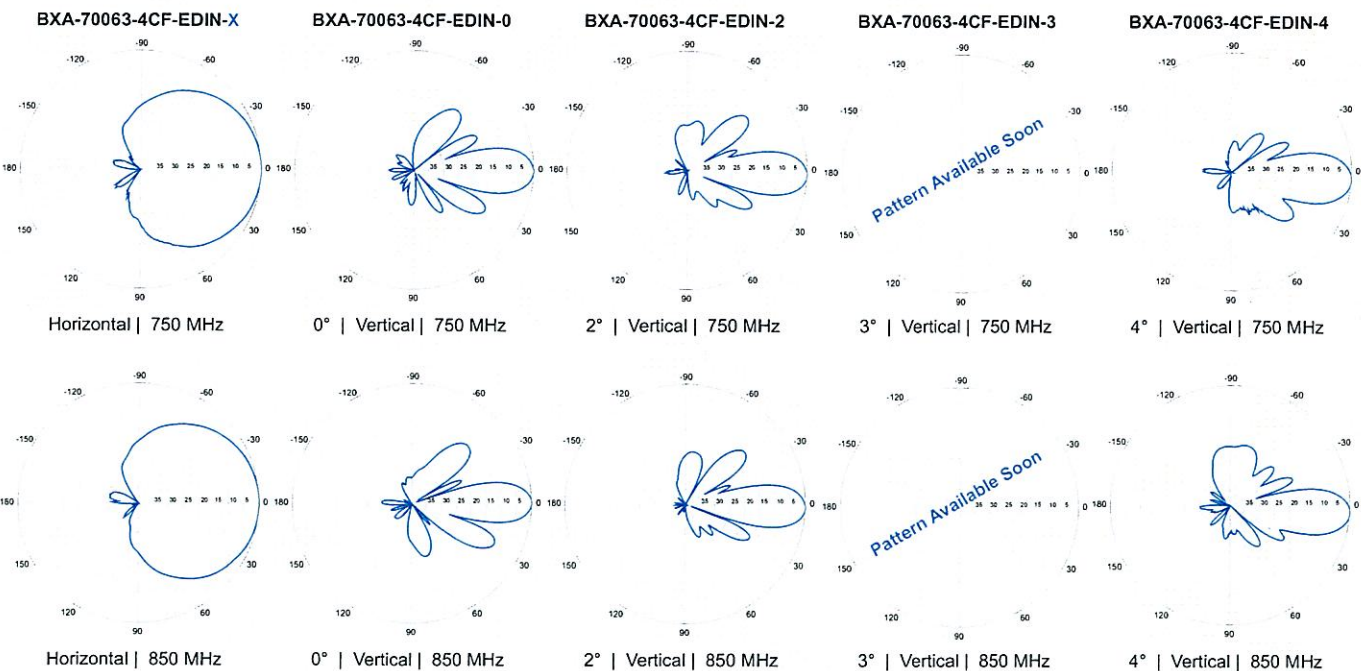
BXA-70063-4CF-EDIN-X

X-Pol | FET Panel | 63° | 13.0 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	17°		15°		
Gain	12.5 dBd (14.6 dBi)		13.0 dBd (15.1 dBi)		
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 9, 10, 12, 14				
Impedance	50Ω				
VSWR	≤1.35:1				
Upper sidelobe suppression (0°)	-16.3 dB		-22.1 dB		
Front-to-back ratio (+/-30°)	-36.1 dB		-34.9 dB		
Null fill	5% (-26.02 dB)				
Isolation between ports	< -30 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	1205 x 285 x 133 mm		47.4 x 11.2 x 5.2 in		
Depth with z-brackets	173 mm		6.8 in		
Weight without mounting brackets	4.5 kg		9.9 lbs		
Survival wind speed	> 201 km/hr		> 125 mph		
Wind area	Front: 0.34 m ²	Side: 0.16 m ²	Front: 3.7 ft ²	Side: 1.7 ft ²	
Wind load @ 161 km/hr (100 mph)	Front: 498 N	Side: 260 N	Front: 111 lbf	Side: 55 lbf	
Mounting Options	Part Number	Fits Pipe Diameter		Weight	
2-Point Mounting & Downtilt Bracket Kit	36210006	40-115 mm	1.57-4.5 in	4.1 kg	9 lbs
Concealment Configurations	For concealment configurations, order BXA-70063-4CF-EDIN-X-FP				

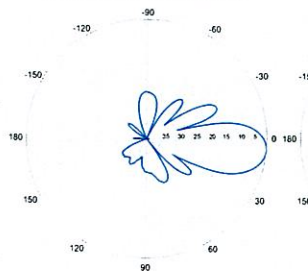


Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product.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

BXA-70063-4CF-EDIN-X

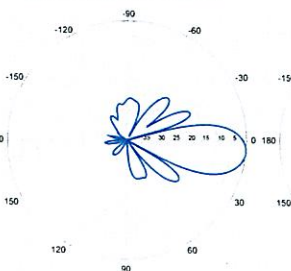
X-Pol | FET Panel | 63° | 13.0 dBd

BXA-70063-4CF-EDIN-5



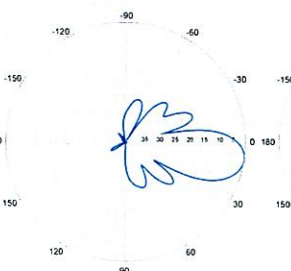
5° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-6



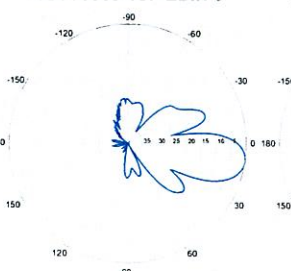
6° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-8



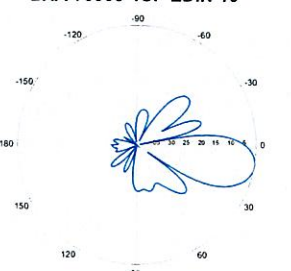
8° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-9

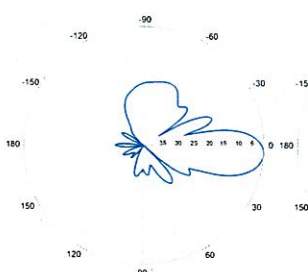


9° | Vertical | 750 MHz

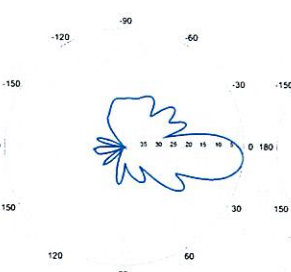
BXA-70063-4CF-EDIN-10



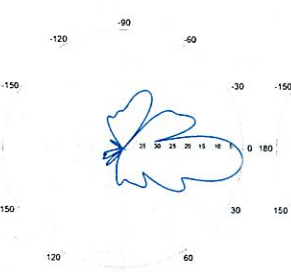
10° | Vertical | 750 MHz



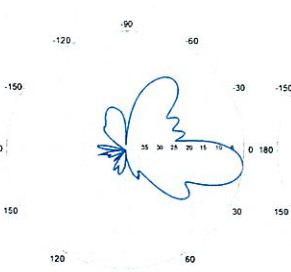
5° | Vertical | 850 MHz



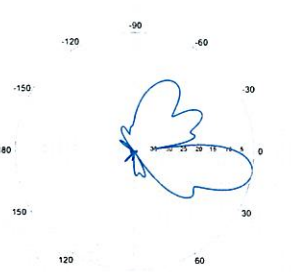
6° | Vertical | 850 MHz



8° | Vertical | 850 MHz

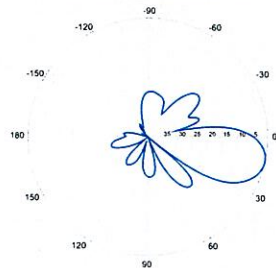


9° | Vertical | 850 MHz

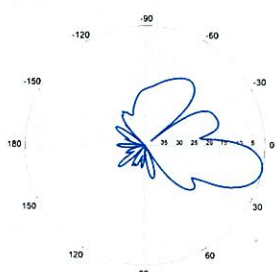


10° | Vertical | 850 MHz

BXA-70063-4CF-EDIN-12

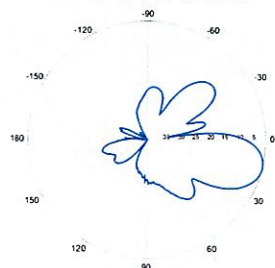


12° | Vertical | 750 MHz

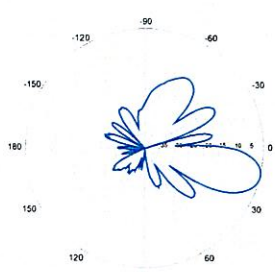


12° | Vertical | 850 MHz

BXA-70063-4CF-EDIN-14



14° | Vertical | 750 MHz



14° | 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.



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

All information contained in the present datasheet is subject to confirmation at time of ordering

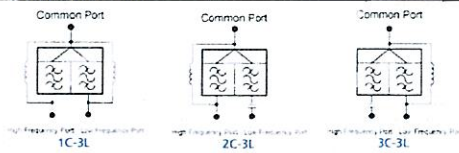


ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

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/C-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: GLASTONBURY, CT
Cumulative Power Density

Operator	Operating Frequency (MHz)	Number of Trans.	ERP Per Trans. (watts)	Total ERP (watts)	Distance to Target (feet)	Calculated Power Density (mW/cm ²)	Maximum Permissible Exposure* (mW/cm ²)	Fraction of MPE (%)
VZW PCS	1970	7	374	2618	165	0.0346	1.0	3.46%
VZW Cellular	869	9	365	3285	165	0.0434	0.5793333333	7.49%
VZW AWS	2145	1	935	935	165	0.0124	1.0	1.24%
VZW 700	698	1	765	765	165	0.0101	0.4653333333	2.17%
Total Percentage of Maximum Permissible Exposure								14.35%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz

mW/cm² = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used.

DETAILED STRUCTURAL ANALYSIS AND REINFORCEMENT OF EXISTING 225' GUYED LATTICE TOWER FOR PROPOSED ANTENNA ARRANGEMENT

Address: 48 Birch Mountain Road
Glastonbury, Connecticut

prepared for



Verizon Wireless
99 East River Drive
East Hartford, Connecticut 06108

prepared by



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

36922266.00000
VZ5-108 (Rev 1)

April 16, 2012

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 - **GUY TENSIONS AND TOWER REACTIONS**
 - **TNX TOWER DETAILED OUTPUT**
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1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the existing 225' guyed lattice tower located at 48 Birch Mountain Road in Glastonbury, Connecticut. The analysis was conducted in accordance with the 2005 Connecticut State Building Code and the TIA/EIA-222-F standard for wind velocity of 80 mph (fastest mile) and 69 mph (fastest mile) concurrent with ½" ice. The antenna loading considered in the analysis consists of all existing and proposed antennas, transmission lines, and ancillary items as outlined in Section 6 of this report. The proposed Verizon Wireless modification is as follows:

Proposed Antenna and Mount	Carrier	Antenna Center Elevation
<u>Remove:</u>		
(6) 844G80VTA-SX_0 antennas (2 per Alpha, Beta, & Gamma sectors)	Verizon (Existing)	@ 165'
(6) 950G85VTE-M_2 antennas (2 per Alpha, Beta, & Gamma sectors)		
<u>Install:</u>		
(2) BXA-70063/6CF antennas (1 per Alpha & Beta sectors)	Verizon (Proposed)	@ 165'
(1) BXA-70063/4CF antenna (1 per Gamma sector)		
(2) LPA-80063/6CF antennas (2 per Alpha sector)		
(2) DB846F65ZAXY antennas (2 per Beta sector)		
(2) LPA-80063/4CF antennas (2 per Gamma sector)		
(6) Diplexers (2 per Alpha, Beta, & Gamma sectors)		
(3) BXA-171063/12BF antennas (1 per Alpha, Beta, & Gamma sectors)		

URS has analyzed this tower for the proposed antenna modifications listed above. The existing tower requires modifications which are summarized in SK-1 located in Section 6. **Once these modifications are performed the tower structure is considered structurally adequate for the wind load classification specified above and all the existing and proposed antenna loading. The tower base foundation was not analyzed due to insufficient information.**

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 taken from Guyed Tower Inventory and Mapping Report prepared by CSB Communications, dated January 19, 2006.
- 3) Previous structural analysis and reinforcements performed by URS for Verizon Wireless, project number VZ1-168 (Revision 4) / 36930993, signed and sealed June 26, 2007.
- 4) Antenna and mount configuration as specified in Section 6 of this report.

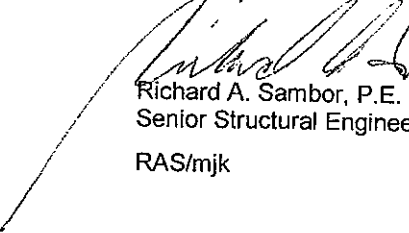
1. **EXECUTIVE SUMMARY – *continued***

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 assumption of the antenna and mount configuration as well as the physical condition of the tower 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


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

RAS/mjk



2. INTRODUCTION

The subject tower is located at 48 Birch Mountain Road in Glastonbury, Connecticut. The structure is a 225' guyed lattice tower.

The tower geometry and structure member sizes were taken from Guyed Tower Inventory and Mapping Report prepared by CSB Communications, dated January 19, 2006.

The inventory is summarized in the table below:

Antenna Type	Carrier	Mount	Antenna Centerline Elevation	Cable
(1) 18' Whip	Unknown (existing)	Leg	234'-9"	(1) 7/8"
(1) 15' Whip	Unknown (existing)	Leg	231'-6"	(1) 1-1/4"
(1) 8' Dipole	Unknown (existing)	Pipe	232'-6"	(1) 1-1/4"
(1) 4' x 11" x 6" panel	Unknown (existing)	Leg	222'-6"	(1) 7/8"
(1) 10' Whip	Unknown (existing)	Torque Arm	222'	(1) 1-1/4"
(1) 12' Whip	Unknown (existing)	Torque Arm	221'	(1) 7/8"
(1) 3'-8" x 3'-8" panel	Unknown (existing)	Leg	218'-4"	(1) 7/8"
(1) 11' Whip (Inverted)	Unknown (existing)	Torque Arm	214'	(1) 1-1/4"
(1) 16' Dipole	Unknown (existing)	20' Face Mount (EL. 209')	217'-8"	(1) 7/8"
(1) 8'-6" Whip			216'-3"	(1) 7/8"
(1) 14' Whip			215'-2"	(1) 1-1/4"
(1) 10' Whip			215'	(1) 1-1/4"
(1) 20' Dipole			211'	(1) 1-5/8"
(1) 8'-6" Dipole (Inverted)			205'-9"	(1) 7/8"
(1) 8' Dipole (Inverted)			205'-3"	(1) 7/8"
(1) 10' Dipole	Unknown (existing)	Torque Arm	209'	(1) 7/8"
(1) 5' x 8" Whip	Unknown (existing)	Leg	199'-8"	(1) 1-5/8"
(1) 18'-4" Dipole	Unknown (existing)	Leg	196'-10"	(1) 7/8"
(1) 16" x 13" corner reflector	Unknown (existing)	Leg	184'-4"	(1) 7/8"
(12) DB844H90E-XY antennas (4 per Alpha, Beta, & Gamma sectors)	Nextel (existing)	(3) Gate Booms	@ 177'-6"	(12) 7/8"
N/A	Verizon (existing)	(3) Gate Booms	@ 165'	(12) 1-5/8"

Antenna Type	Carrier	Mount	Antenna Centerline Elevation	Cable
(2) BXA-70063/6CF antennas (1 per Alpha & Beta sectors) (1) BXA-70063/4CF antenna (1 per Gamma sector) (2) LPA-80063/6CF antennas (2 per Alpha sector) (2) DB846F65ZAXY antennas (2 per Beta sector) (2) LPA-80063/4CF antennas (2 per Gamma sector) (6) Diplexers (2 per Alpha, Beta, & Gamma sectors) (3) BXA-171063/12BF antennas (1 per Alpha, Beta, & Gamma sectors)	Verizon (proposed)	Included in Above	@ 165'	Included in Above
(1) 38" x 2" x 66" Yagi	Unknown (existing)	Torque Arm	156'-3"	(1) 1/2"
(1) 3'-6" Whip	Unknown (existing)	Torque Arm	156'-3"	(1) 1/2"
(1) 15" x 24" Yagi	Unknown (existing)	Torque Arm	155'-7"	(1) 1/2"
(1) 14" x 14" corner reflector	Unknown (existing)	Leg	153'	N/A
(1) 6' Dish	Unknown (existing)	Face Mount	151'	(1) EW63
(1) 14" x 1" x 37" Yagi	Unknown (existing)	Leg	147'-7"	(1) 1/2"
(1) 3'-8" x 3" x 8" panel	Unknown (existing)	Leg	143'-7"	(1) 1/2"
(1) 6' Whip	Unknown (existing)	Side Arm	143'-7"	(1) 7/8"
(1) 10' Dipole	Unknown (existing)	Side Arm	144'-10"	(1) 7/8"
(1) 12' Whip	Unknown (existing)	Side Arm	144'-8"	(1) 7/8"
(1) 5' x 4" panel	Unknown (existing)	Side Arm	126'	(1) 1-5/8"
(1) 6' Dish	Verizon (existing)	Dish Mount	125'	(1) EW63
(1) 44" x 3" x 8" panel	Unknown (existing)	Leg	113'	(1) 7/8"
(1) 4' Dish	Unknown (existing)	Dish Mount	105'-10"	(1) 7/8"
(1) 4' Whip	Unknown (existing)	Included in Dish Mount below	90'-9"	(1) 1/2"
(1) 7'-4" Dish	Unknown (existing)	Dish Mount	88'-6"	(2) EW63
(1) 7'-4" Dish	Unknown (existing)	Dish Mount	87'	(2) EW63 (1) 7/8"
(1) 4' Dish	Unknown (existing)	Leg	79'	(2) EW63

<i>Antenna Type</i>	<i>Carrier</i>	<i>Mount</i>	<i>Antenna Centerline Elevation</i>	<i>Cable</i>
(2) 7" x 19" Yagi	Unknown (existing)	Side Arm	48'-2"	(2) 1/2"
(1) 4'-4" Dish	Unknown (existing)	Side Arm	40'	(1) 3/8"
(1) 4' Dish	Unknown (existing)	Pipe	34'-5"	(1) 3/8"
(1) 4' Dish	Unknown (existing)	Side Arm	29'	(1) 3/8"

Note: Refer to Section 6 Tower Feed Line Plan for coaxial cable locations.

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. This analysis was conducted to evaluate stress on the tower, tension in the guy wires and the effect of forces to the foundation of the tower resulting from existing and proposed antenna arrangements.

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, and the American Institute of Steel Construction (AISC) Manual of Steel Construction—Allowable Stress Design (ASD).

The analysis was conducted using trn 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 a one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For the 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 reinforced tower structure were evaluated to compare with allowable stresses in accordance with AISC. The calculated stresses under the proposed loading were within the allowable stresses. Detailed analysis and calculations for the proposed load condition are provided in section 6 of this report. The guy anchors were found to be structurally adequate and the tower base foundation was not analyzed due to insufficient information.

Tower Reactions:

Component	Value (kips)
Base Shear	2
Base Compression	134
Anchor Uplift	51
Anchor Shear	59

Tower Component vs. Capacity Summary:

COMPONENT (SECTION NO.)	CONTROLLING COMPONENT / ELEVATION	STRESS RATIO (% CAPACITY)	PASS / FAIL
Leg (T10)	ROHN 2.5 EH / 24.75'-44.75'	93.8	Pass
Diagonal (T4)	5/8" A325X Bolts / 144.75'-164.75'	97.9	Pass
Top Girt (T8)	ROHN TS1.5x16 ga / 64.75'-84.75'	69.9	Pass
Bottom Girt (T7)	ROHN TS1.5x16 ga / 84.75'-104.75'	71.9	Pass
Mid Girt (T12)	C14x2x3/16 / 0'-4.75'	0.1	Pass
Guy A @ 152'	1/2 EHS Cable	96.8	Pass
Guy B @ 152'	1/2 EHS Cable	88.7	Pass
Guy C @ 152'	1/2 EHS Cable	89.3	Pass
Top Guy Pull-Off (T6)	4 1/2x3/8 / 104.75'-124.75'	10.5	Pass
Torque Arm Top (T7)	C8x13.75 / 84.75'-104.75'	55.8	Pass
Torque Arm Bottom (T4)	P2.5x.203 / 144.75'-164.75'	58.2	Pass
Bolts (T8)	5/8" A325X Bolts / 144.75'-164.75'	97.9	Pass

Foundation:

Component / Controlling Element	Usage (%)
Guy Anchor / Uplift (%)	42.5
Guy Anchor / Shear (%)	40.5

5. CONCLUSIONS

URS has analyzed this tower for the proposed antenna modifications listed above. The existing tower requires modifications which are summarized in SK-1 located in Section 6. **Once these modifications are performed the tower structure is considered structurally adequate for the wind load classification specified above and all the existing and proposed antenna loading. The tower base foundation was not analyzed due to insufficient information.**

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 per 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

REINFORCEMENT DRAWING SK-1

STRUCTURAL NOTES

REINFORCEMENT NOTES:
TOWER FOUNDATION AND STRUCTURAL MEMBER SIZES WERE OBTAINED FROM GUIN Tower Industry and Mapping Report prepared by BT CSR CONSTRUCTION, DATED JANUARY 19, 2006 AND ARE NOT TO BE USED FOR ANY OTHER PROJECT. THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF ALL REINFORCEMENT. CONTRACTOR SHALL NOT THE START OF WORK WITH SUFFICIENT DESIGN EXPERIENCE AND PERSONNEL TO DETAIL DETAILED FABRICATING MEASUREMENTS OF EXISTING TOWER STEEL MEMBERS TO BE REPLACED.

REINFORCEMENT SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF STEEL TOWER STRUCTURES. ALL REINFORCEMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE PROPOSED AND DESIGN METHODS. SHALL BE STANDARD TO THE INDUSTRY AND IN COMPLIANCE WITH OSHA.

THE EXISTING CORRAL CABLE AND ALL ACCESSORIES SHALL BE RELOCATED AND REINSTALLED BY THE CONTRACTOR. THE EXISTING CORRAL CABLE AND ALL ACCESSORIES SHALL BE RELOCATED AND REINSTALLED BY THE CONTRACTOR. THE EXISTING CORRAL CABLE AND ALL ACCESSORIES SHALL BE RELOCATED AND REINSTALLED BY THE CONTRACTOR.

CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE THE EXISTING TOWER. THE EXISTING COMMUNICATION EQUIPMENT, CABLE, CABLE AND THEIR COMPONENTS IN THE TOWER SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR. THE EXISTING COMMUNICATION EQUIPMENT, CABLE, CABLE AND THEIR COMPONENTS IN THE TOWER SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR.

THE REPLACEMENT OF BRACING BOLTS SHALL BE DONE ONE AT A TIME AND SHALL BE DONE WITH LESS THAN 15 MPH WIND PRESENT. NO MEMBER SHALL BE LEFT DISCONNECTED FOR THE NEXT WORKING DAY.

ALL REINFORCEMENT SHOWN FOR BOLTS APPLY TO ALL SIZES OF THE TOWER.

PROPOSED ANTENNAS AND APPURTENANCES SHALL NOT BE INSTALLED UNTIL ALL REINFORCEMENT WORK HAS BEEN INSPECTED AND IS DEEMED COMPLETE.

TOWER DESIGN CRITERIA:
THE TOWER IS DESIGNED AND REINFORCED IN ACCORDANCE WITH THE 2005 CONNECTICUT STATE BUILDING CODE. THE TOWER IS DESIGNED AND REINFORCED IN ACCORDANCE WITH THE 2005 CONNECTICUT STATE BUILDING CODE.

MATERIAL SPECIFICATIONS FOR REINFORCEMENT OF TOWER:
BOLTS: ASTM A325-X (UNLESS NOTED OTHERWISE)
THE COMBINATION OF ANY MATERIAL THAT HAS SHOWN ON THE CONTRACT DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF PROVIDING SAME.

STRUCTURAL STEEL SHALL CONFORM TO THE CURRENT "AISC SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS", AND THE "AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".

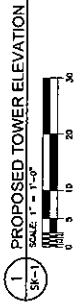
CONNECTIONS SHALL CONFORM TO ALL REQUIREMENTS OF THE "AISC SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS", AND THE "AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".

BOLT HOLES SHALL BE DRILLED OR RIPPED. FLAME CUT HOLES ARE NOT ACCEPTABLE.

ALL JOINTS AND WELDS SHALL BE CONSIDERED TO A FULL TIGHT CONDITION AS DEFINED BY AISC SPECIFICATION. ALL JOINTS AND WELDS SHALL BE CONSIDERED TO A FULL TIGHT CONDITION AS DEFINED BY AISC SPECIFICATION.

CONCORDANCE OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.

REPLACE EXISTING A325X 1/2" DIA. BOLTS AND BRACING MEMBERS WITH A325X 1/2" DIA. BOLTS FOR BRACING MEMBERS (11 BOLTS PER FACE)



URS CORPORATION LLC
500 ENTERPRISE DRIVE
SUITE 200
ROCKY HILL, CONNECTICUT 06067
1-800-529-4802

PROJECT NO: 30822268
DATE: 01-19-12
DRAWN BY: MAP
CHECKED BY: M/K
ISSUED FOR: (01-19-12) INITIAL

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS THE PROPERTY OF URS CORPORATION. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREIN. ANY USE OR DISCLOSURE OF THIS INFORMATION FOR ANY OTHER PROJECT OR SITE WITHOUT THE WRITTEN PERMISSION OF URS CORPORATION IS STRICTLY PROHIBITED.

BIRCH MOUNTAIN
48 BIRCH MOUNTAIN ROAD
GLASTONBURY, CONNECTICUT 06033

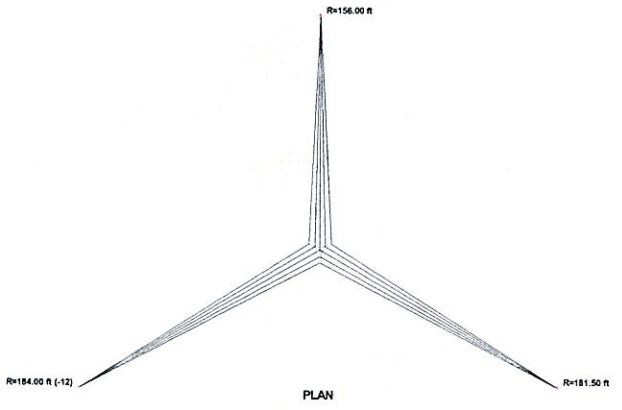
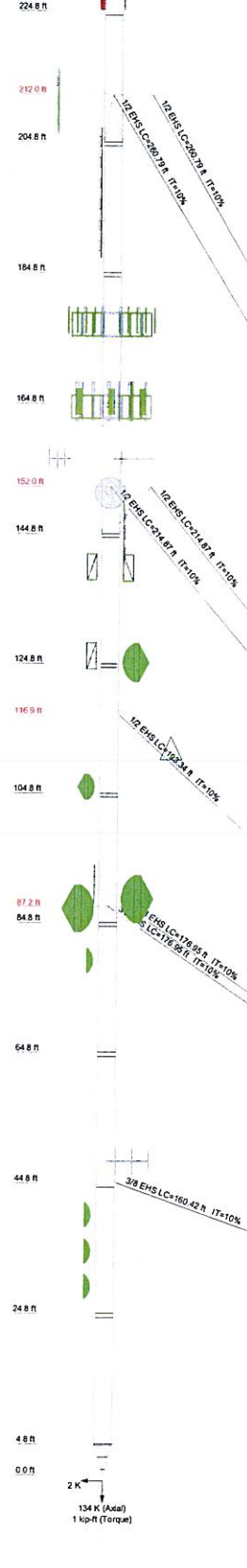
SCALE: AS NOTED

TOWER ELEVATION AND GUY ANCHOR DETAILS

SK-1

TNX TOWER INPUT/OUTPUT SUMMARY

Section	Log	Grade	Diagonal	Top Chords	Mid Chords	Bottom Chords	Top Guy Pull-Offs	Base Width (ft)	# Plates @ (ft)	Weight (K)
T12										
T11										
T10										
T9	ROHN 2.5 EH									
T8										
T7										
T6										
T5	ROHN 2.5 STD									
T4	ROHN 2.5 EH									
T3										
T2										
T1	ROHN 2.5 EH									



DESIGNED APPURTENANCE LOADING			
TYPE	ELEVATION	TYPE	ELEVATION
10' 4 Bay D-Pole	244	Diplexer (Verizon)	165
3"x20" Omni	235	Diplexer (Verizon)	165
3"x20" Omni	235	BXA-171063-128P (Verizon)	165
21x4 5" Pipe Mount	232.5	BXA-171063-128P (Verizon)	165
Bladeless	225	BXA-171063-128P (Verizon)	165
48"x117" Panel	222.5	13'-6" T-Frame Sector Mount (Verizon)	164.17
10' x 3" Dia Omni	222	13'-6" T-Frame Sector Mount (Verizon)	164.17
12' x 3" Dia Omni	221	13'-6" T-Frame Sector Mount (Verizon)	164.17
44"x127" Panel	218.33	Yagi	156.25
16 Dipole	217.67	Yagi	156.25
6'-6" x 3" Dia Omni	216.25	3'-6" x 3" Dia Omni	155.58
14' x 3" Dia Omni	215.17	14' Corner Reflector	153
10' x 3" Dia Omni	215	6 FT DISH	148.5
(2) 10' Side Arm	214	3 Side Mount Standoff	147.58
(2) 10' Side Arm	214	3 Yagi	147.58
(2) 10' Side Arm	214	10 Dipole	144.83
20' 4-Bay Dipole	211	12' x 3" Dia Omni	144.67
11' x 3" Dia Omni	210	6' x 3" Dia Omni	143.67
10 Dipole	209	44"x52" Panel	143.58
8'-6" Dipole	205.75	4' Side Mount Standoff	139.67
8 Dipole	205.25	4' Side Mount Standoff	139.5
5' x 8" Dia Omni	199.67	1' Side Mount Standoff	135
18'-6" D-Pole	196.83	3' Side Mount Standoff	126
16' Corner Reflector	184.33	60"x44" Panel	126
(4) DB844H90E-XY (Needle)	177.5	53"x4" Pipe Mount (Verizon)	125
(4) DB844H90E-XY (Needle)	177.5	6 FT DISH (Verizon)	125
(4) DB844H90E-XY (Needle)	177.5	44"x32" Panel	113
13'-6" T-Frame Sector Mount (Needle)	176.75	4x4" Pipe Mount	105.83
13'-6" T-Frame Sector Mount (Needle)	176.75	4 FT DISH	105.83
13'-6" T-Frame Sector Mount (Needle)	176.75	4 Omni	90.75
BXA-70063-4CF (Verizon)	165	7'-4" HP DISH	88.5
BXA-70063-4CF (Verizon)	165	7'-4" HP DISH	87
BXA-70063-4CF (Verizon)	165	20' Pipe Mount	81
LPA-80063-4CF (Verizon)	165	4 FT DISH	75
LPA-80063-4CF (Verizon)	165	1' Side Mount Standoff	48.17
DB844G65ZAXY (Verizon)	165	(2) Yagi	48.17
DB844G65ZAXY (Verizon)	165	4'-4" DISH	40
LPA-80063-4CF (Verizon)	165	2' Side Mount Standoff	38.17
LPA-80063-4CF (Verizon)	165	1.2M	34.42
Diplexer (Verizon)	165	26"x4" Pipe Mount	33
Diplexer (Verizon)	165	1.2M	29
Diplexer (Verizon)	165	2' Side Mount Standoff	27

SYMBOL LIST			
MARK	SIZE	MARK	SIZE
A	C14x20x16	B	5 @ 0.9375
MATERIAL STRENGTH			
GRADE	Fy	GRADE	Fy
A572-50	50 ksi	A53-B-42	42 ksi
A36	36 ksi		53 ksi

- TOWER DESIGN NOTES**
1. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
 2. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
 3. Deflections are based upon a 50 mph wind.
 4. TOWER RATING: 97.9%

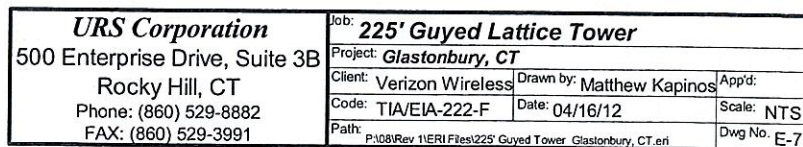
URS Corporation
500 Enterprise Drive, Suite 3B
Rocky Hill, CT
Phone: (860) 529-8882
FAX: (860) 529-3991

225' Guyed Lattice Tower
Project: Glastonbury, CT
Client: Verizon Wireless
Code: TIA/EIA-222-F
Path: P:\09\New 16R\16R222-Guyed Tower-Glastonbury, CT.dwg

Drawn by: Matthew Kapinos
Date: 04/16/12
Scale: NTS
Dwg No: E-1

TNX TOWER FEEDLINE DISTRIBUTION CHART

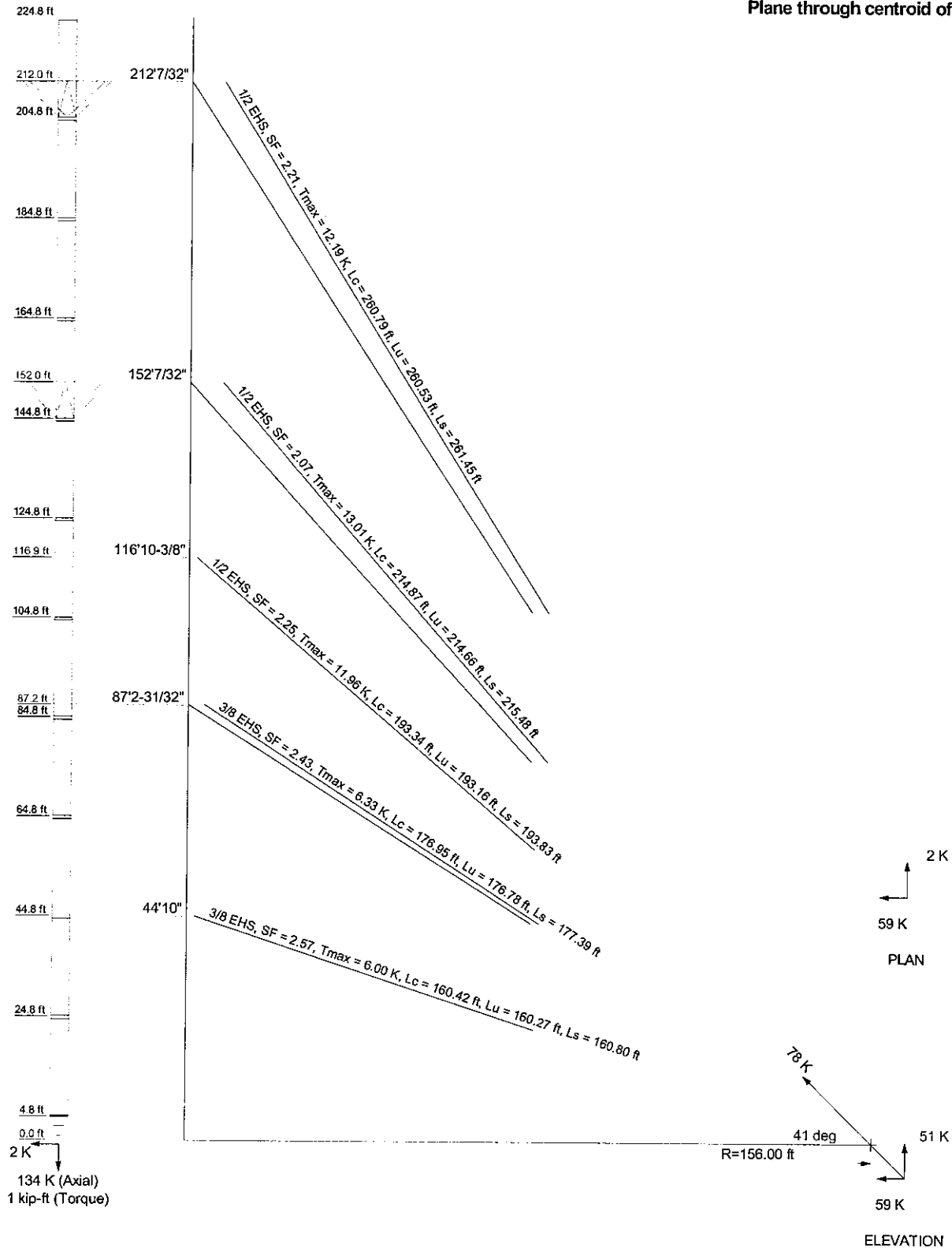
Round Flat App In Face App Out Face Truss Leg



GUY TENSIONS AND TOWER REACTIONS

Guy Tensions and Tower Reactions
TIA/EIA-222-F - 80 mph/69 mph 0.5000 in Ice

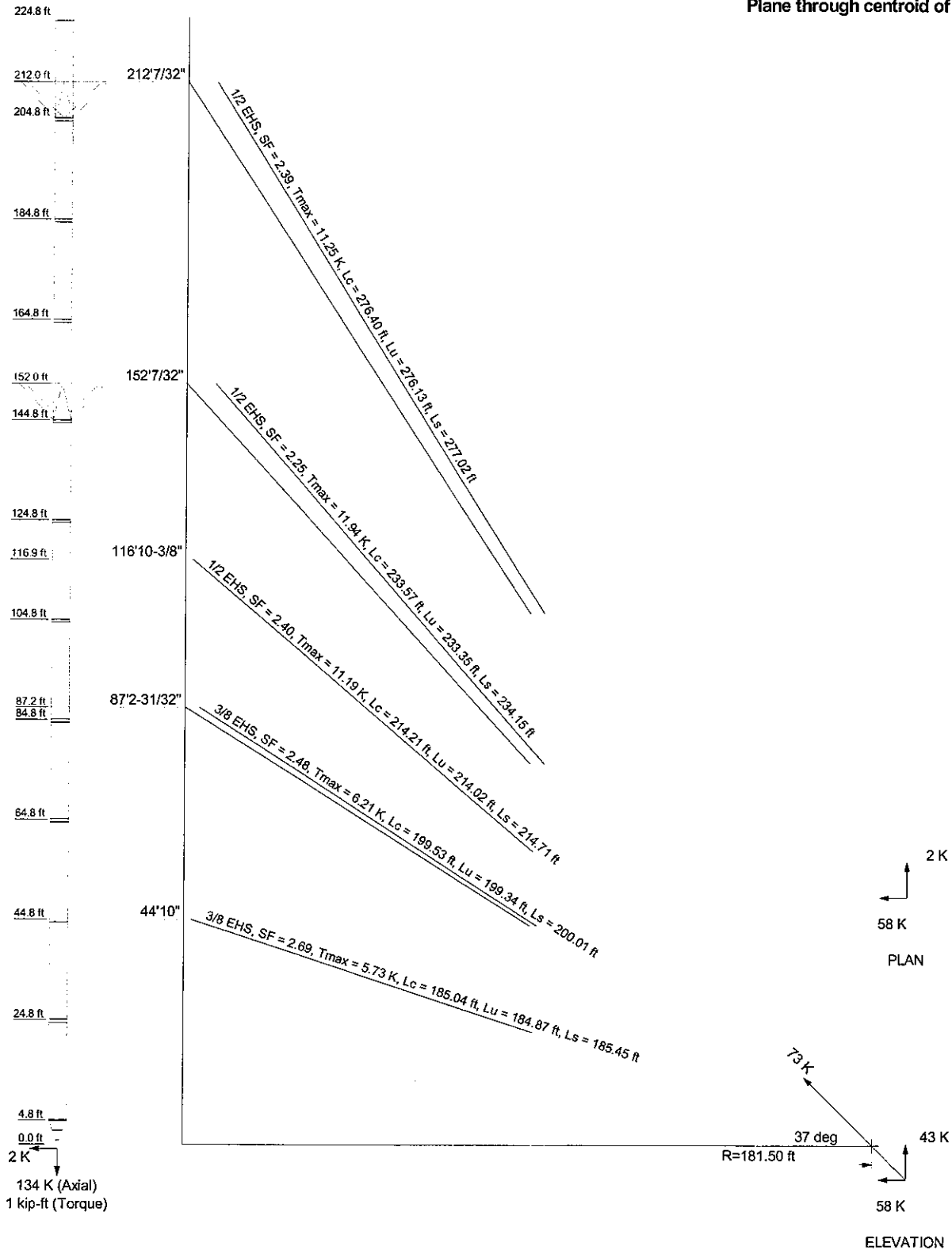
Maximum Values
Anchor 'A'@156 ft Azimuth 0 deg Elev 0 ft
Plane through centroid of tower



URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991		Job: 225' Guyed Lattice Tower Project: <i>Glastonbury, CT</i> Client: Verizon Wireless Code: TIA/EIA-222-F Path: P:\08\Rev 1\ERI Files\225' Guyed Tower Glastonbury, CT.eri	
Drawn by: Matthew Kapinos Date: 04/16/12 Scale: NTS		App'd: Dwg No. E-6	

Guy Tensions and Tower Reactions
TIA/EIA-222-F - 80 mph/69 mph 0.5000 in Ice

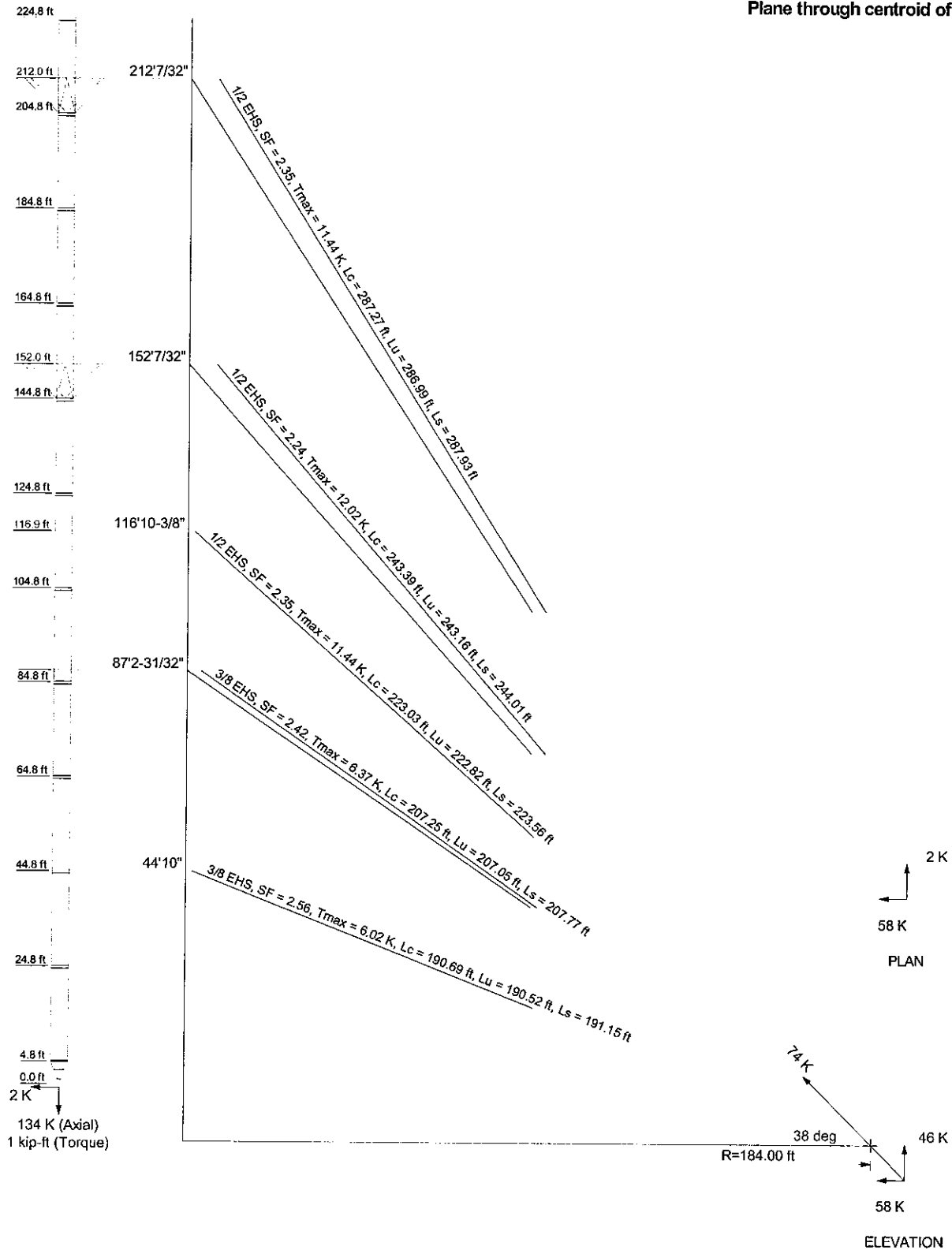
Maximum Values
Anchor 'B' @ 181.5 ft Azimuth 120 deg Elev 0 ft
Plane through centroid of tower



URS Corporation		225' Guyed Lattice Tower	
500 Enterprise Drive, Suite 3B		Project: Glastonbury, CT	
Rocky Hill, CT		Client: Verizon Wireless	Drawn by: Matthew Kapinos
Phone: (860) 529-8882		Code: TIA/EIA-222-F	Date: 04/16/12
FAX: (860) 529-3991		Path: P:\08\Rev 1\ERIF\225' Guyed Tower Glastonbury, CT.dwg	Scale: NTS
			Dwg No. E-6

Guy Tensions and Tower Reactions TIA/EIA-222-F - 80 mph/69 mph 0.5000 in Ice

Maximum Values
Anchor 'C'@184 ft Azimuth 240 deg Elev -12 ft
Plane through centroid of tower



URS Corporation		Job: 225' Guyed Lattice Tower	
500 Enterprise Drive, Suite 3B		Project: Glastonbury, CT	
Rocky Hill, CT		Client: Verizon Wireless	Drawn by: Matthew Kapinos
Phone: (860) 529-8882		Code: TIA/EIA-222-F	Date: 04/16/12
FAX: (860) 529-3991		Path: P:\08\Rev 1\ER\Files\225' Guyed Tower Glastonbury, CT.dwg	Scale: NTS
		Dwg No. E-6	

TNX TOWER DETAILED OUTPUT

tnxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	1 of 65
	Project	Glastonbury, CT	Date	12:27:16 04/16/12
	Client	Verizon Wireless	Designed by	Matthew Kapinos

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 224.75 ft above the ground line.

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

The face width of the tower is 3.42 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:

Basic wind speed of 80 mph.

Nominal ice thickness of 0.5000 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.

Pressures are calculated at each section.

Safety factor used in guy design is 2.

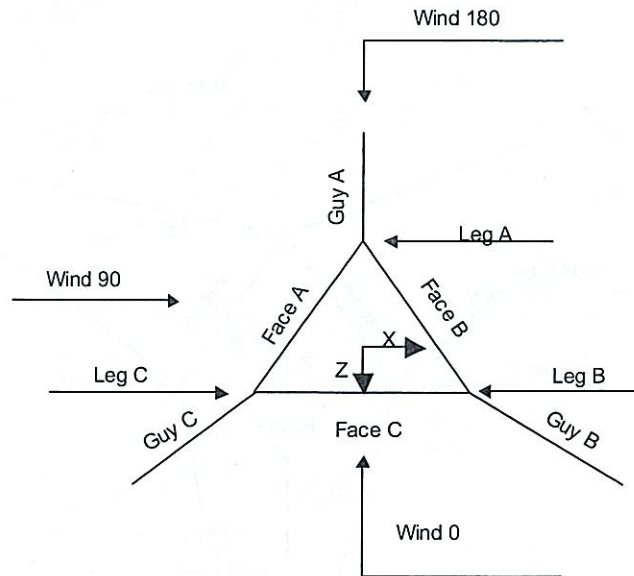
Stress ratio used in tower member design is 1.333.

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

Options

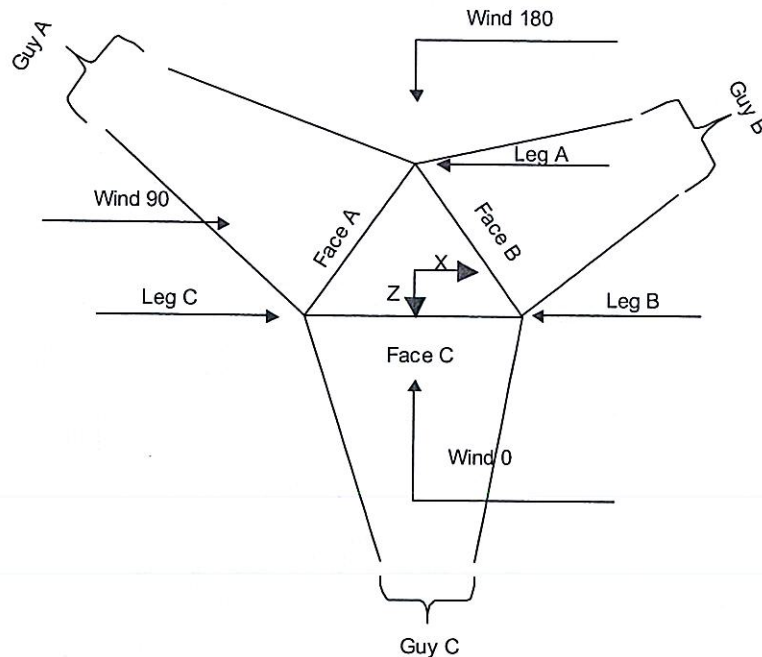
Consider Moments - Legs	Distribute Leg Loads As Uniform	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	√ Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans 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		

tnxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	2 of 65
	Project	Glastonbury, CT	Date	12:27:16 04/16/12
	Client	Verizon Wireless	Designed by	Matthew Kapinos



Corner & Starmount Guyed Tower

tnxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	3 of 65
	Project	Glastonbury, CT	Date	12:27:16 04/16/12
	Client	Verizon Wireless	Designed by	Matthew Kapinos



Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	224.75-204.75			3.42	1	20.00
T2-T3	204.75-164.75			3.42	2	20.00
T4	164.75-144.75			3.42	1	20.00
T5-T6	144.75-104.75			3.42	2	20.00
T7	104.75-84.75			3.42	1	20.00
T8	84.75-64.75			3.42	1	20.00
T9-T11	64.75-4.75			3.42	3	20.00
T12	4.75-0.00			3.42	1	4.75

Tower Section Geometry (cont'd)

tnxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	4 of 65
	Project	Glastonbury, CT	Date	12:27:16 04/16/12
	Client	Verizon Wireless	Designed by	Matthew Kapinos

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	224.75-204.75	2.42	X Brace	No	No	7.3750	0.0000
T2-T3	204.75-164.75	2.42	CX Brace	No	No	7.3750	0.0000
T4	164.75-144.75	2.42	X Brace	No	No	7.3750	0.0000
T5-T6	144.75-104.75	2.42	CX Brace	No	No	7.3750	0.0000
T7	104.75-84.75	2.41	K Brace Left	No	No	7.3750	1.0000
T8	84.75-64.75	2.41	K Brace Left	No	No	7.3750	1.0000
T9-T11	64.75-4.75	2.41	K Brace Left	No	No	7.3750	1.0000
T12	4.75-0.00	0.94	X Brace	No	Yes	1.0000	11.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 224.75-204.75	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2-T3 204.75-164.75	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T4 164.75-144.75	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T5-T6 144.75-104.75	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T7 104.75-84.75	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T8 84.75-64.75	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T9-T11 64.75-4.75	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T12 4.75-0.00	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe		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 224.75-204.75	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2-T3 204.75-164.75	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T4 164.75-144.75	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T5-T6 144.75-104.75	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T7 104.75-84.75	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T8 84.75-64.75	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T9-T11 64.75-4.75	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T12 4.75-0.00	Channel	C14x2x3/16	A36 (36 ksi)	Channel	C14x2x3/16	A36 (36 ksi)

tnxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	5 of 65
	Project	Glastonbury, CT	Date	12:27:16 04/16/12
	Client	Verizon Wireless	Designed by	Matthew Kapinos

Tower Section Geometry (cont'd)

Tower Elevation	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
ft							
T12 4.75-0.00	1	Channel	C14x2x3/16	A36 (36 ksi)	Channel		A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
ft	ft ²	in					in	in
T1	0.00	0.0000	A36	1	1	1	36.0000	36.0000
224.75-204.75			(36 ksi)					
T2-T3	0.00	0.0000	A36	1	1	1	36.0000	36.0000
204.75-164.75			(36 ksi)					
T4	0.00	0.0000	A36	1	1	1	36.0000	36.0000
164.75-144.75			(36 ksi)					
T5-T6	0.00	0.0000	A36	1	1	1	36.0000	36.0000
144.75-104.75			(36 ksi)					
T7	0.00	0.0000	A36	1	1	1	36.0000	36.0000
104.75-84.75			(36 ksi)					
T8 84.75-64.75	0.00	0.0000	A36	1	1	1	36.0000	36.0000
			(36 ksi)					
T9-T11	0.00	0.0000	A36	1	1	1	36.0000	36.0000
64.75-4.75			(36 ksi)					
T12 4.75-0.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000
			(36 ksi)					

Tower Section Geometry (cont'd)

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹						
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
				X Y	X Y	X Y	X Y	X Y	X Y	X Y
T1	Yes	No	1	1	1	1	1	1	1	1
224.75-204.75				1	1	1	1	1	1	1
T2-T3	Yes	No	1	1	1	1	1	1	1	1
204.75-164.75				1	1	1	1	1	1	1
T4	Yes	No	1	1	1	1	1	1	1	1
164.75-144.75				1	1	1	1	1	1	1
T5-T6	Yes	No	1	1	1	1	1	1	1	1
144.75-104.75				1	1	1	1	1	1	1
T7	Yes	No	1	1	1	1	1	1	1	1

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Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹						
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
				X Y	X Y	X Y	X Y	X Y	X Y	X Y
104.75-84.75				1	1	1	1	1	1	1
T8	Yes	No	1	1	1	1	1	1	1	1
84.75-64.75				1	1	1	1	1	1	1
T9-T11	Yes	No	1	1	1	1	1	1	1	1
64.75-4.75				1	1	1	1	1	1	1
T12 4.75-0.00	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

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

Tower Section Geometry (cont'd)

Tower Elevation ft	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	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
224.75-204.75														
T2-T3	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
204.75-164.75														
T4	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
164.75-144.75														
T5-T6	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
144.75-104.75														
T7	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
104.75-84.75														
T8 84.75-64.75	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9-T11	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
64.75-4.75														
T12 4.75-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1	Flange	0.7500	4	0.6250	1	0.6250	1	0.6250	1	0.6250	0	0.6250	0	0.6250	0
224.75-204.75		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T2-T3	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.6250	0	0.6250	0
204.75-164.75		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T4	Flange	0.7500	4	0.6250	1	0.6250	1	0.6250	1	0.6250	0	0.6250	0	0.6250	0
164.75-144.75		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T5-T6	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.6250	0	0.6250	0
144.75-104.75		A325N		A325X		A325N		A325N		A325N		A325N		A325N	

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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.
T7 104.75-84.75	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.6250	0	0.6250	0
T8 84.75-64.75	Flange	A325N	4	A325X	1	A325N	1	A325N	1	A325N	0	A325N	0	A325N	0
		0.7500		0.7500		0.5000		0.5000		0.6250		0.6250		0.6250	
T9-T11 64.75-4.75	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.6250	0	0.6250	0
T12 4.75-0.00	Flange	A325N	4	A325X	0	A325N	0	A325N	0	A325N	0	A325N	0	A325N	0
		0.7500		0.5000		0.6250		0.6250		0.6250		0.6250		0.6250	
		A325N		A325X		A325N		A325N		A325N		A325N		A325N	

Guy Data

Guy Elevation ft	Guy Grade	Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L _u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
116.866	EHS	A 1/2	2.69	10%	21000	0.517	193.18	156.00	0.0000	0.00	100%
		B 1/2	2.69	10%	21000	0.517	214.04	181.50	0.0000	0.00	100%
		C 1/2	2.69	10%	21000	0.517	222.84	184.00	0.0000	-12.00	100%
152.02	EHS	A 1/2	2.69	10%	21000	0.517	214.69	156.00	0.0000	0.00	100%
		B 1/2	2.69	10%	21000	0.517	233.38	181.50	0.0000	0.00	100%
		C 1/2	2.69	10%	21000	0.517	243.19	184.00	0.0000	-12.00	100%
212.02	EHS	A 1/2	2.69	10%	21000	0.517	260.57	156.00	0.0000	0.00	100%
		B 1/2	2.69	10%	21000	0.517	276.17	181.50	0.0000	0.00	100%
		C 1/2	2.69	10%	21000	0.517	287.03	184.00	0.0000	-12.00	100%
44.8333	EHS	A 3/8	1.54	10%	21000	0.273	160.28	156.00	0.0000	0.00	100%
		B 3/8	1.54	10%	21000	0.273	184.88	181.50	0.0000	0.00	100%
		C 3/8	1.54	10%	21000	0.273	190.52	184.00	0.0000	-12.00	100%
87.2461	EHS	A 3/8	1.54	10%	21000	0.273	176.79	156.00	0.0000	0.00	100%
		B 3/8	1.54	10%	21000	0.273	199.35	181.50	0.0000	0.00	100%
		C 3/8	1.54	10%	21000	0.273	207.07	184.00	0.0000	-12.00	100%

Guy Data(cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
116.866	Corner						
152.02	Torque Arm	15.00	45.0000	Bat Ear	A53-B-35 (35 ksi)	Pipe	P2.5x.203
212.02	Torque Arm	15.00	45.0000	Bat Ear	A53-B-35 (35 ksi)	Pipe	P2.5x.203
44.8333	Corner						
87.2461	Torque Arm	7.25	0.0000	Channel	A36 (36 ksi)	Channel	C8x13.75

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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
116.87	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Flat Bar	4 1/2x3/8
152.02	A572-50 (50 ksi)	Solid Round				A36 (36 ksi)	Solid Round	
212.02	A572-50 (50 ksi)	Solid Round				A36 (36 ksi)	Solid Round	
44.83	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Flat Bar	4 1/2x3/8
87.25	A572-50 (50 ksi)	Solid Round				A36 (36 ksi)	Solid Round	

Guy Data (cont'd)

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
116.866	0.10	0.11	0.12		3.55	4.36	4.72	
					3.3 sec/pulse	3.6 sec/pulse	3.8 sec/pulse	
152.02	0.11	0.12	0.13		4.37	5.16	5.60	
					3.6 sec/pulse	3.9 sec/pulse	4.1 sec/pulse	
212.02	0.13	0.14	0.15		6.40	7.19	7.76	
					4.4 sec/pulse	4.6 sec/pulse	4.8 sec/pulse	
44.8333	0.04	0.05	0.05		2.27	3.02	3.20	
					2.6 sec/pulse	3.0 sec/pulse	3.1 sec/pulse	
87.2461	0.05	0.05	0.06		2.75	3.50	3.77	
					2.9 sec/pulse	3.2 sec/pulse	3.4 sec/pulse	

Guy Data (cont'd)

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm		Pull Off		Diagonal	
			K _x	K _y	K _x	K _y	K _x	K _y
116.866	No	No			1	1	1	1
152.02	No	No	0.65	0.65	1	1	1	1
212.02	No	No	0.65	0.65	1	1	1	1
44.8333	No	No			1	1	1	1
87.2461	No	No	1	1	1	1	1	1

Guy Data (cont'd)

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Guy Elevation ft	Torque-Arm				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U
116.866	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
152.02	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	1
212.02	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
44.8333	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
87.2461	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q _z psf	q _z Ice psf	Ice Thickness in
116.866	A	58.43	19	14	0.5000
	B	58.43	19	14	0.5000
	C	52.43	19	14	0.5000
152.02	A	76.01	21	16	0.5000
	B	76.01	21	16	0.5000
	C	70.01	20	15	0.5000
212.02	A	106.01	23	17	0.5000
	B	106.01	23	17	0.5000
	C	100.01	22	17	0.5000
44.8333	A	22.42	16	12	0.5000
	B	22.42	16	12	0.5000
	C	16.42	16	12	0.5000
87.2461	A	43.62	18	13	0.5000
	B	43.62	18	13	0.5000
	C	37.62	17	13	0.5000

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top Bottom K	F _x K	F _y K	F _z K	M _x kip-ft	M _y kip-ft	M _z kip-ft
116.866	A	37.1888	2.75 2.69	0.00	1.69	-2.17	-3.34	0.00	0.00
	B	33.0627	2.75 2.69	1.97	1.54	1.14	1.52	0.00	-2.63
	C	35.2965	2.76 2.69	-1.92	1.63	1.11	1.61	0.00	2.79
152.02			Sum:	0.05	4.86	0.08	-0.21	0.00	0.16
	A	45.0310	2.77 2.69	-0.10	1.99	-1.93	-8.60	14.86	-14.90
	A	45.0310	2.77 2.69	0.10	1.99	-1.93	-8.60	-14.86	14.90
	B	40.6057	2.77 2.69	1.84	1.84	0.96	15.91	15.90	0.00

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Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F _x	F _y	F _z	M _x	M _y	M _z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
212.02	B	40.6057	2.77	1.75	1.84	1.11	-7.95	-15.90	-13.77
			2.69						
	C	42.3679	2.77	-1.70	1.90	1.08	-8.24	15.49	14.28
			2.69						
	C	42.3679	2.77	-1.79	1.90	0.94	16.49	-15.49	0.00
			2.69						
			Sum:	0.09	11.45	0.23	-1.00	0.00	0.51
	A	54.3885	2.80	-0.08	2.30	-1.60	-9.95	12.31	-17.24
			2.69						
	A	54.3885	2.80	0.08	2.30	-1.60	-9.95	-12.31	17.24
44.8333			2.69						
	B	50.0916	2.80	1.56	2.18	0.81	18.85	13.51	0.00
			2.69						
	B	50.0916	2.80	1.49	2.18	0.94	-9.43	-13.51	-16.33
			2.69						
	C	51.2451	2.81	-1.45	2.22	0.92	-9.60	13.20	16.63
			2.69						
	C	51.2451	2.81	-1.52	2.22	0.80	19.20	-13.20	0.00
			2.69						
			Sum:	0.07	13.38	0.29	-0.88	0.00	0.30
87.2461	A	16.2289	1.55	0.00	0.45	-1.48	-0.90	0.00	0.00
			1.54						
	B	14.0217	1.55	1.30	0.40	0.75	0.39	0.00	-0.68
			1.54						
	C	17.3396	1.56	-1.28	0.49	0.74	0.48	0.00	0.83
			1.54						
			Sum:	0.02	1.34	0.00	-0.02	0.00	0.15
	A	29.5410	1.56	-0.03	0.79	-1.35	-1.65	4.96	-2.86
			1.54						
	A	29.5410	1.56	0.03	0.79	-1.35	-1.65	-4.96	2.86
			1.54						
	B	25.9292	1.56	1.22	0.71	0.67	2.95	5.12	0.00
			1.54						
	B	25.9292	1.56	1.19	0.71	0.72	-1.48	-5.12	-2.56
			1.54						
	C	28.6115	1.57	-1.17	0.77	0.71	-1.62	5.00	2.80
			1.54						
	C	28.6115	1.57	-1.19	0.77	0.66	3.23	-5.00	0.00
			1.54						
			Sum:	0.06	4.53	0.06	-0.21	0.00	0.24

Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F _x	F _y	F _z	M _x	M _y	M _z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
116.866	A	37.1888	3.96	0.00	2.46	-3.10	-4.85	0.00	0.00
			3.83						
	B	33.0627	4.00	2.86	2.27	1.65	2.24	0.00	-3.87
			3.87						
	C	35.2965	4.02	-2.79	2.40	1.61	2.37	-0.00	4.11
			3.87						

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Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F _x	F _y	F _z	M _x	M _y	M _z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
152.02	A	45.0310	Sum:	0.07	7.13	0.16	-0.25	0.00	0.23
			3.98	-0.14	2.88	-2.75	-12.46	21.21	-21.58
			3.81						
	B	40.6057	3.98	0.14	2.88	-2.75	-12.46	-21.21	21.58
			3.81						
			4.03	2.65	2.70	1.38	23.36	22.96	0.00
212.02	C	42.3679	3.86						
			4.03	2.52	2.70	1.60	-11.68	-22.96	-20.23
			3.86						
	C	42.3679	4.04	-2.46	2.80	1.56	-12.12	22.38	20.99
			3.86						
			4.04	-2.58	2.80	1.35	24.23	-22.38	0.00
44.8333	A	54.3885	3.86						
			Sum:	0.13	16.75	0.40	-1.13	0.00	0.76
			4.03	-0.11	3.33	-2.27	-14.41	17.54	-24.96
	A	54.3885	3.79						
			4.03	0.11	3.33	-2.27	-14.41	-17.54	24.96
			3.79						
87.2461	B	50.0916	4.08	2.25	3.19	1.17	27.64	19.48	0.00
			3.84						
			4.08	2.14	3.19	1.36	-13.82	-19.48	-23.93
	C	51.2451	3.84						
			4.09	-2.09	3.25	1.33	-14.09	19.03	24.40
			3.84						
87.2461	C	51.2451	4.09	-2.20	3.25	1.15	28.18	-19.03	0.00
			3.84						
			Sum:	0.10	19.54	0.47	-0.91	0.00	0.47
	A	16.2289	2.26	0.00	0.69	-2.16	-1.37	0.00	0.00
			2.23						
			2.31	1.93	0.63	1.11	0.62	0.00	-1.08
87.2461	C	17.3396	2.27						
			2.32	-1.90	0.76	1.10	0.75	0.00	1.30
			2.28						
	A	29.5410	Sum:	0.03	2.08	0.05	0.01	0.00	0.23
			2.29	-0.05	1.18	-1.96	-2.47	7.20	-4.28
			2.22						
87.2461	A	29.5410	2.29	0.05	1.18	-1.96	-2.47	-7.20	4.28
			2.22						
			2.33	1.81	1.09	1.00	4.54	7.58	0.00
	B	25.9292	2.26						
			2.33	1.77	1.09	1.07	-2.27	-7.58	-3.94
			2.26						
87.2461	C	28.6115	2.35	-1.73	1.19	1.05	-2.49	7.42	4.30
			2.27						
			2.35	-1.77	1.19	0.98	4.97	-7.42	0.00
	C	28.6115	2.27						
			Sum:	0.08	6.91	0.17	-0.19	0.00	0.37

Guy-Mast Forces (Excluding Wind) - Service

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Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F _x	F _y	F _z	M _x	M _y	M _z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
116.866	A	37.1888	2.75 2.69	0.00	1.69	-2.17	-3.34	0.00	0.00
	B	33.0627	2.75 2.69	1.97	1.54	1.14	1.52	0.00	-2.63
	C	35.2965	2.76 2.69	-1.92	1.63	1.11	1.61	0.00	2.79
152.02			Sum:	0.05	4.86	0.08	-0.21	0.00	0.16
	A	45.0310	2.77 2.69	-0.10	1.99	-1.93	-8.60	14.86	-14.90
	A	45.0310	2.77 2.69	0.10	1.99	-1.93	-8.60	-14.86	14.90
	B	40.6057	2.77 2.69	1.84	1.84	0.96	15.91	15.90	0.00
	B	40.6057	2.77 2.69	1.75	1.84	1.11	-7.95	-15.90	-13.77
	C	42.3679	2.77 2.69	-1.70	1.90	1.08	-8.24	15.49	14.28
	C	42.3679	2.77 2.69	-1.79	1.90	0.94	16.49	-15.49	0.00
			Sum:	0.09	11.45	0.23	-1.00	0.00	0.51
	A	54.3885	2.80 2.69	-0.08	2.30	-1.60	-9.95	12.31	-17.24
212.02	A	54.3885	2.80 2.69	0.08	2.30	-1.60	-9.95	-12.31	17.24
	B	50.0916	2.80 2.69	1.56	2.18	0.81	18.85	13.51	0.00
	B	50.0916	2.80 2.69	1.49	2.18	0.94	-9.43	-13.51	-16.33
	C	51.2451	2.81 2.69	-1.45	2.22	0.92	-9.60	13.20	16.63
	C	51.2451	2.81 2.69	-1.52	2.22	0.80	19.20	-13.20	0.00
			Sum:	0.07	13.38	0.29	-0.88	0.00	0.30
44.8333	A	16.2289	1.55 1.54	0.00	0.45	-1.48	-0.90	0.00	0.00
	B	14.0217	1.55 1.54	1.30	0.40	0.75	0.39	0.00	-0.68
	C	17.3396	1.56 1.54	-1.28	0.49	0.74	0.48	0.00	0.83
87.2461			Sum:	0.02	1.34	0.00	-0.02	0.00	0.15
	A	29.5410	1.56 1.54	-0.03	0.79	-1.35	-1.65	4.96	-2.86
	A	29.5410	1.56 1.54	0.03	0.79	-1.35	-1.65	-4.96	2.86
	B	25.9292	1.56 1.54	1.22	0.71	0.67	2.95	5.12	0.00
	B	25.9292	1.56 1.54	1.19	0.71	0.72	-1.48	-5.12	-2.56
	C	28.6115	1.57 1.54	-1.17	0.77	0.71	-1.62	5.00	2.80
	C	28.6115	1.57 1.54	-1.19	0.77	0.66	3.23	-5.00	0.00
			Sum:	0.06	4.53	0.06	-0.21	0.00	0.24

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	Client	Verizon Wireless	Designed by	Matthew Kapinos

Guy-Tensioning Information

Temperature At Time Of Tensioning																
Guy Elevation ft	H ft	V ft	0 F		20 F		40 F		60 F		80 F		100 F		120 F	
			Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft
116.866	A	154.03	3.426	2.79	3.178	3.01	2.932	3.26	2.690	3.55	2.453	3.89	2.222	4.29	2.001	4.76
	B	179.53	3.491	3.37	3.219	3.65	2.952	3.97	2.690	4.36	2.436	4.81	2.192	5.34	1.961	5.96
	C	182.03	3.447	3.69	3.190	3.98	2.938	4.32	2.690	4.72	2.449	5.18	2.218	5.71	1.998	6.33
152.02	A	151.86	3.269	3.60	3.074	3.83	2.881	4.08	2.690	4.37	2.502	4.69	2.318	5.06	2.139	5.48
	B	177.33	3.346	4.16	3.124	4.45	2.905	4.79	2.690	5.16	2.480	5.60	2.276	6.09	2.080	6.65
	C	179.83	3.309	4.56	3.100	4.87	2.893	5.21	2.690	5.60	2.491	6.04	2.299	6.54	2.113	7.10
212.02	A	151.86	3.081	5.60	2.950	5.85	2.819	6.11	2.690	6.40	2.562	6.71	2.436	7.06	2.311	7.43
	B	177.33	3.156	6.14	2.999	6.46	2.843	6.81	2.690	7.19	2.539	7.61	2.391	8.07	2.246	8.58
	C	179.83	3.133	6.68	2.983	7.01	2.836	7.37	2.690	7.76	2.547	8.19	2.406	8.66	2.268	9.17
44.8333	A	154.03	2.115	1.65	1.921	1.82	1.729	2.02	1.540	2.27	1.355	2.58	1.177	2.97	1.009	3.46
	B	179.53	2.119	2.20	1.923	2.42	1.729	2.69	1.540	3.02	1.356	3.43	1.181	3.94	1.018	4.56
	C	182.03	2.099	2.35	1.910	2.59	1.723	2.87	1.540	3.20	1.362	3.62	1.193	4.13	1.034	4.76
87.2461	A	153.95	2.011	2.11	1.852	2.29	1.695	2.50	1.540	2.75	1.388	3.05	1.240	3.41	1.097	3.85
	B	179.44	2.036	2.65	1.868	2.89	1.703	3.17	1.540	3.50	1.382	3.90	1.229	4.38	1.084	4.96
	C	181.94	2.011	2.89	1.852	3.14	1.695	3.43	1.540	3.77	1.389	4.18	1.244	4.66	1.105	5.24

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8 (Verizon)	C	Yes	Ar (CfAe)	165.00 - 6.00	0.0000	0	12	4	0.7500	1.9800		1.04
EW63 (Verizon Proposed)	C	Yes	Af (CfAe)	125.00 - 6.00	0.0000	-0.4	1	1	1.5742	1.5742	5.0668	0.51
7/8	B	Yes	Ar (CfAe)	177.00 - 6.00	0.0000	0	12	4	0.7500	1.1100		0.54
1 5/8	A	Yes	Ar (CfAe)	215.00 - 6.00	0.0000	0.45	2	2	0.5000	1.9800		1.04
3/8	B	Yes	Ar (CfAe)	29.00 - 6.00	-1.0000	-0.24	1	1	0.4500	0.4500		0.09
3/8	B	Yes	Ar (CfAe)	35.00 - 6.00	-1.0000	-0.25	1	1	0.4500	0.4500		0.09
3/8	B	Yes	Ar (CfAe)	40.00 - 6.00	-1.0000	-0.26	1	1	0.4500	0.4500		0.09
1/2	A	Yes	Ar (CfAe)	48.00 - 6.00	2.2000	0.45	2	2	0.5000	0.5800		0.25
EW63	B	Yes	Af (CfAe)	79.00 - 6.00	0.0000	0.45	2	2	0.2500	1.5742	5.0668	0.51
7/8	B	Yes	Ar (CfAe)	88.00 - 6.00	1.5000	0.4	1	1	1.1100	1.1100		0.54
EW63	C	Yes	Af (CfAe)	88.00 - 6.00	0.0000	0.45	2	2	0.2500	1.5742	5.0668	0.51
1/2	B	Yes	Ar (CfAe)	91.00 - 6.00	-1.5000	-0.26	1	1	0.5800	0.5800		0.25
7/8	A	Yes	Ar (CfAe)	106.00 - 6.00	0.0000	-0.47	1	1	1.1100	1.1100		0.54
7/8	C	No	Ar (Leg)	113.00 - 6.00	0.0000	0	1	1	1.1100	1.1100		0.54
1 5/8	A	Yes	Ar (CfAe)	126.00 - 6.00	0.0000	-0.41	1	1	1.9800	1.9800		1.04
7/8	C	No	Ar (Leg)	145.00 - 6.00	0.0000	0	3	2	1.1100	1.1100		0.54
1/2	B	Yes	Ar (CfAe)	144.00 - 6.00	-1.5000	-0.28	1	1	0.5800	0.5800		0.25
1/2	B	Yes	Ar (CfAe)	148.00 - 6.00	-1.0000	-0.28	1	1	0.5800	0.5800		0.25
1/2	B	Yes	Ar (CfAe)	157.00 - 6.00	-1.0000	-0.3	3	2	0.5800	0.5800		0.25
EW63	B	Yes	Af (CfAe)	152.00 - 6.00	0.0000	-0.4	1	1	0.2500	1.5742	5.0668	0.51
7/8	C	No	Ar (Leg)	185.00 - 6.00	0.0000	0	1	1	1.1100	1.1100		0.54
1 5/8	C	No	Ar (Leg)	200.00 - 6.00	0.0000	0	1	1	1.9800	1.9800		1.04
7/8	B	Yes	Ar (CfAe)	217.00 - 6.00	1.5000	0.15	2	2	0.7500	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	205.00 - 6.00	0.0000	0.2	4	4	0.7500	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	224.75 - 6.00	-2.0000	-0.25	3	3	0.2500	1.5500		0.66
1 1/4	B	Yes	Ar (CfAe)	224.75 - 6.00	-2.0000	-0.2	3	2	0.2500	1.5500		0.66
1 1/4	B	Yes	Ar (CfAe)	215.00 - 6.00	0.0000	-0.45	3	2	0.2500	1.5500		0.66
7/8	C	Yes	Ar (CfAe)	219.00 - 6.00	-1.5000	-0.35	1	1	1.1100	1.1100		0.54

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	Client	Designed by
	Verizon Wireless	Matthew Kapinos

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
T1	224.75-204.75	A	3.382	0.000	0.000	0.000	0.02
		B	15.723	0.000	0.000	0.000	0.11
T2	204.75-184.75	C	1.318	0.000	0.000	0.000	0.01
		A	9.139	0.000	0.000	0.000	0.04
T3	184.75-164.75	B	26.983	0.000	0.000	0.000	0.18
		C	4.389	0.000	0.000	0.000	0.03
T4	164.75-144.75	A	11.750	0.000	0.000	0.000	0.04
		B	31.516	0.000	0.000	0.000	0.26
T5	144.75-124.75	C	7.165	0.000	0.000	0.000	0.05
		A	11.796	0.000	0.000	0.000	0.04
T6	124.75-104.75	B	35.725	0.951	0.000	0.000	0.32
		C	20.246	0.000	0.000	0.000	0.29
T7	104.75-84.75	A	15.656	0.000	0.000	0.000	0.04
		B	38.214	2.624	0.000	0.000	0.34
T8	84.75-64.75	C	23.900	0.033	0.000	0.000	0.32
		A	19.629	0.000	0.000	0.000	0.06
T9	64.75-44.75	B	38.250	2.624	0.000	0.000	0.34
		C	24.663	2.624	0.000	0.000	0.34
T10	44.75-24.75	A	22.450	0.000	0.000	0.000	0.07
		B	38.853	2.624	0.000	0.000	0.34
T11	24.75-4.75	C	25.750	3.476	0.000	0.000	0.35
		A	22.450	0.000	0.000	0.000	0.07
T12	4.75-0.00	B	41.067	6.362	0.000	0.000	0.37
		C	25.750	7.871	0.000	0.000	0.37
T13		A	22.764	0.000	0.000	0.000	0.07
		B	41.067	7.871	0.000	0.000	0.38
T14		C	25.750	7.871	0.000	0.000	0.37
		A	24.383	0.000	0.000	0.000	0.08
T15		B	42.182	7.871	0.000	0.000	0.38
		C	25.750	7.871	0.000	0.000	0.37
T16		A	22.859	0.000	0.000	0.000	0.08
		B	40.609	7.379	0.000	0.000	0.36
T17		C	24.141	7.379	0.000	0.000	0.34
		A	0.000	0.000	0.000	0.000	0.00
T18		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
T1	224.75-204.75	A	0.500	2.545	2.118	0.000	0.000	0.05
		B		12.143	11.086	0.000	0.000	0.28
		C		2.506	0.000	0.000	0.000	0.02
T2	204.75-184.75	A	0.500	8.798	4.133	0.000	0.000	0.11
		B		19.050	22.933	0.000	0.000	0.49
		C		7.348	0.000	0.000	0.000	0.07
T3	184.75-164.75	A	0.500	13.450	4.133	0.000	0.000	0.11
		B		21.204	28.630	0.000	0.000	0.72
		C		12.062	0.171	0.000	0.000	0.12
T4	164.75-144.75	A	0.500	13.538	4.133	0.000	0.000	0.11
		B		24.608	34.771	0.000	0.000	0.91
		C		17.055	13.650	0.000	0.000	0.79

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
T5	144.75-124.75	A	0.500	20.794	4.133	0.000	0.000	0.11
		B		30.368	37.901	0.000	0.000	0.99
		C		24.000	13.697	0.000	0.000	0.88
T6	124.75-104.75	A	0.500	27.120	4.133	0.000	0.000	0.16
		B		30.467	37.901	0.000	0.000	0.99
		C		25.451	17.385	0.000	0.000	0.93
T7	104.75-84.75	A	0.500	32.483	4.133	0.000	0.000	0.19
		B		31.861	37.901	0.000	0.000	1.00
		C		27.517	18.486	0.000	0.000	0.96
T8	84.75-64.75	A	0.500	32.483	4.133	0.000	0.000	0.19
		B		36.617	42.729	0.000	0.000	1.09
		C		27.517	24.160	0.000	0.000	1.02
T9	64.75-44.75	A	0.500	32.911	4.426	0.000	0.000	0.19
		B		36.617	44.677	0.000	0.000	1.10
		C		27.517	24.160	0.000	0.000	1.02
T10	44.75-24.75	A	0.500	35.117	5.933	0.000	0.000	0.22
		B		40.211	44.677	0.000	0.000	1.12
		C		27.517	24.160	0.000	0.000	1.02
T11	24.75-4.75	A	0.500	32.922	5.563	0.000	0.000	0.21
		B		41.125	41.884	0.000	0.000	1.07
		C		25.797	22.650	0.000	0.000	0.95
T12	4.75-0.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Shielding

Section	Elevation ft	Face	A_R ft ²	A_R Ice ft ²	A_F ft ²	A_F Ice ft ²
T1	224.75-204.75	A	0.000	0.420	0.533	0.735
		B	0.000	2.092	2.478	3.661
		C	0.000	0.226	0.208	0.395
T2	204.75-184.75	A	0.892	2.049	0.000	0.000
		B	3.645	9.453	0.000	0.000
		C	0.250	0.792	0.000	0.000
T3	184.75-164.75	A	0.892	2.049	0.000	0.000
		B	4.258	11.221	0.000	0.000
		C	0.272	0.844	0.000	0.000
T4	164.75-144.75	A	0.000	0.820	1.040	1.434
		B	0.000	5.366	5.781	9.391
		C	0.000	1.993	2.372	3.488
T5	144.75-124.75	A	0.919	2.119	0.000	0.000
		B	5.517	15.497	0.000	0.000
		C	2.038	4.996	0.000	0.000
T6	124.75-104.75	A	1.353	3.276	0.188	0.268
		B	5.522	15.806	0.766	1.292
		C	2.388	6.060	0.331	0.495
T7	104.75-84.75	A	0.866	2.160	0.000	0.000
		B	3.057	8.639	0.000	0.000
		C	1.366	3.392	0.000	0.000
T8	84.75-64.75	A	0.866	2.160	0.000	0.000
		B	3.496	9.864	0.000	0.000
		C	1.690	4.147	0.000	0.000
T9	64.75-44.75	A	0.814	2.134	0.226	0.343
		B	3.301	9.608	0.918	1.545
		C	1.546	3.936	0.430	0.633

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Section	Elevation	Face	A_R	A_R	A_F	A_F
	ft		ft ²	Ice ft ²	ft ²	Ice ft ²
T10	44.75-24.75	A	1.009	2.705	0.000	0.000
		B	3.689	10.565	0.000	0.000
		C	1.690	4.147	0.000	0.000
T11	24.75-4.75	A	0.946	2.536	0.000	0.000
		B	3.537	10.326	0.000	0.000
		C	1.584	3.888	0.000	0.000
T12	4.75-0.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X	CP_Z
	ft	in	in	Ice in	Ice in
T1	224.75-204.75	1.0447	-2.9270	0.4986	-0.6195
T2	204.75-184.75	1.6479	-3.3466	0.7110	-0.4244
T3	184.75-164.75	1.4425	-2.9823	0.3173	-0.1831
T4	164.75-144.75	1.4522	-1.4183	0.3986	0.4470
T5	144.75-124.75	0.8851	-1.5148	-0.2538	0.2883
T6	124.75-104.75	0.5387	-0.9401	-0.5950	0.7281
T7	104.75-84.75	0.2715	-0.8614	-0.7733	0.7326
T8	84.75-64.75	0.4304	-0.1909	-0.4908	1.1449
T9	64.75-44.75	0.5800	-0.1243	-0.3658	1.2015
T10	44.75-24.75	0.5993	-0.4795	-0.2818	0.8409
T11	24.75-4.75	0.6128	-0.5664	-0.2150	0.6178
T12	4.75-0.00	0.0000	0.0000	0.0000	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C_{AA} Front	C_{AA} Side	Weight K
10' 4 Bay Di-Pole	A	From Leg	0.75	0.0000	244.00	No Ice	2.00	0.03
			0.00			1/2" Ice	3.00	0.05
			0.00					
21'x4.5" Pipe Mount	A	From Leg	0.50	0.0000	232.50	No Ice	9.45	0.23
			0.00			1/2" Ice	11.55	0.29
			0.00					
Beacon	C	From Leg	0.50	0.0000	225.00	No Ice	1.20	0.05
			0.00			1/2" Ice	1.36	0.21
			0.00					
3"x20' Omni	B	From Leg	0.50	0.0000	235.00	No Ice	6.00	0.03
			0.00			1/2" Ice	8.00	0.07
			0.00					
3"x20' Omni	C	From Leg	0.50	0.0000	235.00	No Ice	6.00	0.03
			0.00			1/2" Ice	8.00	0.07
			0.00					

tnxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	17 of 65
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	Client	Verizon Wireless	Designed by	Matthew Kapinos

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
48"x11"x6" Panel	C	From Leg	0.50 0.00 0.00	0.0000	222.50	No Ice 1/2" Ice	5.13 5.52	2.87 3.18	0.03 0.06
44"x12"x6" Panel	A	From Leg	0.50 0.00 0.00	0.0000	218.33	No Ice 1/2" Ice	5.13 5.50	2.59 2.90	0.03 0.06
10' x 3" Dia Omni	B	From Face	8.00 0.00 0.00	0.0000	222.00	No Ice 1/2" Ice	3.00 4.03	3.00 4.03	0.03 0.05
12' x 3" Dia Omni	A	From Face	8.00 0.00 0.00	0.0000	221.00	No Ice 1/2" Ice	3.60 4.83	3.60 4.83	0.04 0.06
11' x 3" Dia Omni	B	From Face	8.00 0.00 0.00	0.0000	210.00	No Ice 1/2" Ice	3.30 4.43	3.30 4.43	0.04 0.06
(2) 10' Side Arm	A	From Face	0.50 0.00 0.00	0.0000	214.00	No Ice 1/2" Ice	6.60 8.80	6.60 8.80	0.30 0.55
(2) 10' Side Arm	B	From Face	0.50 0.00 0.00	0.0000	214.00	No Ice 1/2" Ice	6.60 8.80	6.60 8.80	0.30 0.55
(2) 10' Side Arm	C	From Face	0.50 0.00 0.00	0.0000	214.00	No Ice 1/2" Ice	6.60 8.80	6.60 8.80	0.30 0.55
10' Dipole	C	From Face	8.00 0.00 0.00	0.0000	209.00	No Ice 1/2" Ice	4.00 6.00	4.00 6.00	0.05 0.07
10' x 3" Dia Omni	B	From Leg	10.00 0.00 0.00	0.0000	215.00	No Ice 1/2" Ice	3.00 4.03	3.00 4.03	0.03 0.05
8'-6" x 3" Dia Omni	B	From Leg	10.00 0.00 0.00	0.0000	216.25	No Ice 1/2" Ice	2.55 3.43	2.55 3.43	0.03 0.04
20' 4-Bay Dipole	C	From Leg	10.00 0.00 0.00	0.0000	211.00	No Ice 1/2" Ice	4.00 6.00	4.00 6.00	0.06 0.10
8'-6" Dipole	A	From Leg	10.00 0.00 0.00	0.0000	205.75	No Ice 1/2" Ice	4.00 6.00	4.00 6.00	0.05 0.07
8' Dipole	A	From Leg	10.00 0.00 0.00	0.0000	205.25	No Ice 1/2" Ice	4.00 6.00	4.00 6.00	0.05 0.07
16' Dipole	A	From Leg	10.00 0.00 0.00	0.0000	217.67	No Ice 1/2" Ice	4.00 6.00	4.00 6.00	0.06 0.10
14' x 3" Dia Omni	C	From Leg	10.00 0.00 0.00	0.0000	215.17	No Ice 1/2" Ice	4.20 5.63	4.20 5.63	0.04 0.07
5' x 8" Dia Omni	B	From Leg	1.00 0.00 0.00	0.0000	199.67	No Ice 1/2" Ice	2.70 3.05	2.70 3.05	0.05 0.08
18'-6" Di-Pole	C	From Leg	0.50 0.00 0.00	0.0000	196.83	No Ice 1/2" Ice	4.00 6.00	4.00 6.00	0.06 0.10
16" Corner Reflector	C	From Leg	0.50 0.00 0.00	0.0000	184.33	No Ice 1/2" Ice	2.88 3.31	2.88 3.31	0.03 0.04

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	Client	Verizon Wireless	Designed by	Matthew Kapinos

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
13'-6" T-Frame Sector Mount (Nextel)	A	From Leg	3.25 0.00 0.00	0.0000	176.75	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
13'-6" T-Frame Sector Mount (Nextel)	B	From Leg	3.25 0.00 0.00	0.0000	176.75	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
13'-6" T-Frame Sector Mount (Nextel)	C	From Leg	3.25 0.00 0.00	0.0000	176.75	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
(4) DB844H90E-XY (Nextel)	A	From Leg	4.50 0.00 0.00	0.0000	177.50	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.01 0.04
(4) DB844H90E-XY (Nextel)	B	From Leg	4.50 0.00 0.00	0.0000	177.50	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.01 0.04
(4) DB844H90E-XY (Nextel)	C	From Leg	4.50 0.00 0.00	0.0000	177.50	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	0.01 0.04
13'-6" T-Frame Sector Mount (Verizon)	A	From Leg	3.25 0.00 0.00	0.0000	164.17	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
13'-6" T-Frame Sector Mount (Verizon)	B	From Leg	3.25 0.00 0.00	0.0000	164.17	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
13'-6" T-Frame Sector Mount (Verizon)	C	From Leg	3.25 0.00 0.00	0.0000	164.17	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
Yagi	C	From Face	8.00 0.00 0.00	0.0000	156.25	No Ice 1/2" Ice	2.23 3.15	2.23 3.15	0.01 0.02
Yagi	A	From Face	8.00 0.00 0.00	0.0000	156.25	No Ice 1/2" Ice	2.23 3.15	2.23 3.15	0.01 0.02
3'-6" x 3" Dia Omni	A	From Face	8.00 0.00 0.00	0.0000	155.58	No Ice 1/2" Ice	0.84 1.06	0.84 1.06	0.02 0.03
14" Corner Reflector	A	From Leg	0.50 0.00 0.00	0.0000	153.00	No Ice 1/2" Ice	2.88 3.31	2.88 3.31	0.03 0.04
3' Side Mount Standoff	A	From Leg	2.00 0.00 0.00	0.0000	149.50	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	0.05 0.09
3' Yagi	C	From Leg	1.50 0.00 0.00	0.0000	147.58	No Ice 1/2" Ice	2.08 3.79	2.08 3.79	0.03 0.05
44"x8"x3" Panel	C	From Leg	0.50 0.00 0.00	0.0000	143.58	No Ice 1/2" Ice	5.13 5.50	2.59 2.90	0.03 0.06
4' Side Mount Standoff	C	From Leg	2.00 0.00 0.00	0.0000	139.67	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	0.05 0.09
6' x 3" Dia Omni	C	From Leg	4.00 0.00 0.00	0.0000	143.67	No Ice 1/2" Ice	1.77 2.13	1.77 2.13	0.02 0.03
4' Side Mount Standoff	B	From Leg	2.00 0.00 0.00	0.0000	139.50	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	0.05 0.09

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	Client	Designed by
	Verizon Wireless	Matthew Kapinos

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
12' x 3" Dia Omni	B	From Leg	4.00 0.00 0.00	0.0000	144.67	No Ice 1/2" Ice	3.60 4.83	3.60 4.83	0.04 0.06
1' Side Mount Standoff	B	From Leg	1.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice	0.75 0.95	0.75 0.95	0.03 0.04
10' Dipole	B	From Leg	1.00 0.00 0.00	0.0000	144.83	No Ice 1/2" Ice	4.00 6.00	4.00 6.00	0.05 0.07
3' Side Mount Standoff	C	From Leg	2.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice	2.72 4.91	2.72 4.91	0.05 0.09
60"x4"x4" Panel	C	From Leg	3.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice	2.78 3.15	2.78 3.15	0.10 0.12
44"x3"x8" Panel	C	From Leg	0.50 0.00 0.00	0.0000	113.00	No Ice 1/2" Ice	1.52 1.79	3.42 3.76	0.50 0.52
4"x4" Pipe Mount	C	From Leg	0.50 0.00 0.00	0.0000	105.83	No Ice 1/2" Ice	1.32 1.58	1.32 1.58	0.04 0.06
4' Omni	C	From Leg	1.00 0.00 0.00	0.0000	90.75	No Ice 1/2" Ice	1.74 2.60	1.74 2.60	0.04 0.05
20' Pipe Mount	B	From Leg	1.00 0.00 0.00	0.0000	81.00	No Ice 1/2" Ice	9.00 11.00	9.00 11.00	0.22 0.29
(2) Yagi	A	From Leg	1.50 0.00 0.00	0.0000	48.17	No Ice 1/2" Ice	1.00 1.50	1.00 1.50	0.01 0.02
1' Side Mount Standoff	A	From Leg	0.50 0.00 0.00	0.0000	48.17	No Ice 1/2" Ice	0.75 0.95	0.75 0.95	0.03 0.04
2' Side Mount Standoff	C	From Leg	1.00 0.00 0.00	0.0000	38.17	No Ice 1/2" Ice	1.30 1.57	1.30 1.57	0.03 0.05
2'6"x4" Pipe Mount	C	From Leg	0.50 0.00 0.00	0.0000	33.00	No Ice 1/2" Ice	0.75 0.95	0.75 0.95	0.03 0.04
2' Side Mount Standoff	C	From Leg	1.00 0.00 0.00	0.0000	27.00	No Ice 1/2" Ice	1.30 1.57	1.30 1.57	0.03 0.05
5'3"x4" Pipe Mount (Verizon)	C	From Leg	0.50 0.00 0.00	0.0000	125.00	No Ice 1/2" Ice	1.88 2.21	1.88 2.21	0.06 0.07
BXA-70063-6CF (Verizon)	A	From Face	3.00 0.00 0.00	0.0000	165.00	No Ice 1/2" Ice	7.73 8.27	4.16 4.60	0.02 0.06
BXA-70063-6CF (Verizon)	B	From Face	3.00 0.00 0.00	0.0000	165.00	No Ice 1/2" Ice	7.73 8.27	4.16 4.60	0.02 0.06
BXA-70063-4CF (Verizon)	C	From Face	3.00 0.00 0.00	0.0000	165.00	No Ice 1/2" Ice	5.16 5.55	2.52 2.82	0.01 0.04
LPA-80063-6CF (Verizon)	A	From Face	3.00 6.00 0.00	0.0000	165.00	No Ice 1/2" Ice	10.51 11.07	9.06 9.61	0.03 0.10

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
LPA-80063-6CF (Verizon)	A	From Face	3.00 -6.00 0.00	0.0000	165.00	No Ice 1/2" Ice	10.51 11.07	9.06 9.61	0.03 0.10
DB846F65ZAXY (Verizon)	B	From Face	3.00 6.00 0.00	0.0000	165.00	No Ice 1/2" Ice	7.03 7.54	6.16 6.62	0.02 0.07
DB844G65ZAXY (Verizon)	B	From Face	3.00 -6.00 0.00	0.0000	165.00	No Ice 1/2" Ice	4.67 5.05	3.73 4.10	0.02 0.05
LPA-80063-4CF (Verizon)	C	From Face	3.00 6.00 0.00	0.0000	165.00	No Ice 1/2" Ice	7.00 7.41	6.04 6.43	0.02 0.07
LPA-80063-4CF (Verizon)	C	From Face	3.00 -6.00 0.00	0.0000	165.00	No Ice 1/2" Ice	7.00 7.41	6.04 6.43	0.02 0.07
Diplexer (Verizon)	A	From Face	3.00 6.00 0.00	0.0000	165.00	No Ice 1/2" Ice	0.47 0.56	0.12 0.17	0.01 0.01
Diplexer (Verizon)	A	From Face	3.00 -6.00 0.00	0.0000	165.00	No Ice 1/2" Ice	0.47 0.56	0.12 0.17	0.01 0.01
Diplexer (Verizon)	B	From Face	3.00 6.00 0.00	0.0000	165.00	No Ice 1/2" Ice	0.47 0.56	0.12 0.17	0.01 0.01
Diplexer (Verizon)	B	From Face	3.00 -6.00 0.00	0.0000	165.00	No Ice 1/2" Ice	0.47 0.56	0.12 0.17	0.01 0.01
Diplexer (Verizon)	C	From Face	3.00 6.00 0.00	0.0000	165.00	No Ice 1/2" Ice	0.47 0.56	0.12 0.17	0.01 0.01
Diplexer (Verizon)	C	From Face	3.00 -6.00 0.00	0.0000	165.00	No Ice 1/2" Ice	0.47 0.56	0.12 0.17	0.01 0.01
BXA-171063-12BF (Verizon)	A	From Face	3.00 -4.00 0.00	0.0000	165.00	No Ice 1/2" Ice	4.73 5.18	3.57 4.01	0.02 0.04
BXA-171063-12BF (Verizon)	B	From Face	3.00 -4.00 0.00	0.0000	165.00	No Ice 1/2" Ice	4.73 5.18	3.57 4.01	0.02 0.04
BXA-171063-12BF (Verizon)	C	From Face	3.00 -4.00 0.00	0.0000	165.00	No Ice 1/2" Ice	4.73 5.18	3.57 4.01	0.02 0.04

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 K
4 FT DISH	C	Paraboloid w/o	From	1.00	0.0000		79.00	4.00	No Ice 12.56	0.17

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Description	Face or Leg	Dish Type	Offset Type	Offsets: Horiz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K
		Radome	Leg	0.00				1/2" Ice	13.09	0.24
7'-4" HP DISH	C	Paraboloid w/Radome	From Leg	1.00	0.0000		87.00	7.33	No Ice	42.32
				0.00				1/2" Ice	43.28	0.38
7'-4" HP DISH	B	Paraboloid w/Radome	From Leg	1.00	0.0000		88.50	7.33	No Ice	42.32
				0.00				1/2" Ice	43.28	0.38
4 FT DISH	C	Paraboloid w/Radome	From Leg	1.00	0.0000		105.83	4.00	No Ice	12.56
				0.00				1/2" Ice	13.09	0.24
6 FT DISH	A	Paraboloid w/Radome	From Leg	3.00	0.0000		151.00	6.00	No Ice	28.27
				0.00				1/2" Ice	29.05	0.29
4'-4" DISH	C	Paraboloid w/o Radome	From Leg	1.00	0.0000		40.00	4.00	No Ice	14.79
				0.00				1/2" Ice	15.00	0.24
1.2M	C	Paraboloid w/o Radome	From Leg	1.00	0.0000		34.42	4.00	No Ice	12.17
				0.00				1/2" Ice	13.09	0.23
1.2M	C	Paraboloid w/o Radome	From Leg	1.00	0.0000		29.00	4.00	No Ice	12.17
				0.00				1/2" Ice	13.09	0.23
6 FT DISH (Verizon)	B	Paraboloid w/Radome	From Leg	1.00	0.0000		125.00	6.00	No Ice	28.27
				0.00				1/2" Ice	29.05	0.29

Tower Pressures - No Ice

$$G_H = 1.106$$

Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e ft ²	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _d A _A In Face ft ²	C _d A _A Out Face ft ²
T1 224.75-204.75	214.75	1.708	28	73.126	A	9.482	12.966	9.583	42.69	0.000	0.000
					B	7.537	25.307		29.18	0.000	0.000
					C	9.807	10.901		46.28	0.000	0.000
T2 204.75-184.75	194.75	1.661	27	73.126	A	0.000	26.415	9.583	36.28	0.000	0.000
					B	0.000	41.506		23.09	0.000	0.000
					C	0.000	22.307		42.96	0.000	0.000
T3 184.75-164.75	174.75	1.61	26	73.126	A	0.000	29.026	9.583	33.02	0.000	0.000
					B	0.000	45.426		21.10	0.000	0.000
					C	0.000	25.060		38.24	0.000	0.000
T4 164.75-144.75	154.75	1.555	25	73.126	A	8.975	21.380	9.583	31.57	0.000	0.000
					B	5.186	45.308		18.98	0.000	0.000
					C	7.643	29.830		25.57	0.000	0.000
T5 144.75-124.75	134.75	1.495	24	73.126	A	0.000	32.904	9.583	29.12	0.000	0.000
					B	2.624	50.864		17.92	0.000	0.000
					C	0.033	40.030		23.92	0.000	0.000
T6 124.75-104.75	114.75	1.428	23	73.126	A	1.004	36.443	9.583	25.59	0.000	0.000
					B	3.049	50.896		17.77	0.000	0.000
					C	3.484	40.443		21.82	0.000	0.000
T7 104.75-84.75	94.75	1.352	22	73.126	A	0.000	35.851	9.583	26.73	0.000	0.000
					B	2.624	50.063		18.19	0.000	0.000

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Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	ft ²		ft ²	ft ²	ft ²			
T8 84.75-64.75	74.75	1.263	21	73.126	C	3.476	38.651		22.75	0.000	0.000
					A	0.000	35.851	9.583	26.73	0.000	0.000
					B	6.362	51.838		16.47	0.000	0.000
					C	7.871	38.328		20.74	0.000	0.000
T9 64.75-44.75	54.75	1.156	19	73.126	A	0.965	35.820	9.583	26.05	0.000	0.000
					B	8.145	51.635		16.03	0.000	0.000
					C	8.633	38.074		20.52	0.000	0.000
T10 44.75-24.75	34.75	1.015	17	73.126	A	0.000	37.642	9.583	25.46	0.000	0.000
					B	7.871	52.760		15.81	0.000	0.000
					C	7.871	38.328		20.74	0.000	0.000
T11 24.75-4.75	14.75	1	16	73.126	A	0.000	36.181	9.583	26.49	0.000	0.000
					B	7.379	51.339		16.32	0.000	0.000
					C	7.379	36.824		21.68	0.000	0.000
T12 4.75-0.00	2.38	1	16	9.324	A	6.190	2.465	2.465	28.48	0.000	0.000
					B	6.190	2.465		28.48	0.000	0.000
					C	6.190	2.465		28.48	0.000	0.000

Tower Pressure - With Ice

$$G_H = 1.106$$

Section Elevation	z	K _Z	q _z	t _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	in	ft ²		ft ²	ft ²	ft ²			
T1 224.75-204.75	214.75	1.708	21	0.5000	74.792	A	11.398	20.765	12.917	40.16	0.000	0.000
						B	17.440	28.690		28.00	0.000	0.000
						C	9.620	20.920		42.29	0.000	0.000
T2 204.75-184.75	194.75	1.661	20	0.5000	74.792	A	4.133	33.973	12.917	33.90	0.000	0.000
						B	22.933	36.821		21.62	0.000	0.000
						C	0.000	33.780		38.24	0.000	0.000
T3 184.75-164.75	174.75	1.61	20	0.5000	74.792	A	4.133	38.625	12.917	30.21	0.000	0.000
						B	28.630	37.207		19.62	0.000	0.000
						C	0.171	38.442		33.45	0.000	0.000
T4 164.75-144.75	154.75	1.555	19	0.5000	74.792	A	12.714	31.358	12.917	29.31	0.000	0.000
						B	35.396	37.881		17.63	0.000	0.000
						C	20.177	33.701		23.97	0.000	0.000
T5 144.75-124.75	134.75	1.495	18	0.5000	74.792	A	4.133	45.899	12.917	25.82	0.000	0.000
						B	37.901	42.095		16.15	0.000	0.000
						C	13.697	46.228		21.55	0.000	0.000
T6 124.75-104.75	114.75	1.428	18	0.5000	74.792	A	5.057	51.333	12.917	22.91	0.000	0.000
						B	37.801	42.149		16.16	0.000	0.000
						C	18.081	46.880		19.88	0.000	0.000
T7 104.75-84.75	94.75	1.352	17	0.5000	74.792	A	4.133	51.046	12.917	23.41	0.000	0.000
						B	37.901	43.945		15.78	0.000	0.000
						C	18.486	44.847		20.39	0.000	0.000
T8 84.75-64.75	74.75	1.263	16	0.5000	74.792	A	4.133	51.046	12.917	23.41	0.000	0.000
						B	42.729	47.475		14.32	0.000	0.000
						C	24.160	44.093		18.92	0.000	0.000
T9 64.75-44.75	54.75	1.156	14	0.5000	74.792	A	5.274	51.103	12.917	22.91	0.000	0.000
						B	44.323	47.334		14.09	0.000	0.000
						C	24.718	43.907		18.82	0.000	0.000
T10 44.75-24.75	34.75	1.015	12	0.5000	74.792	A	5.933	53.135	12.917	21.87	0.000	0.000
						B	44.677	50.369		13.59	0.000	0.000
						C	24.160	44.093		18.92	0.000	0.000
T11 24.75-4.75	14.75	1	12	0.5000	74.792	A	5.563	51.109	12.917	22.79	0.000	0.000

tnxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	23 of 65
	Project	Glastonbury, CT	Date	12:27:16 04/16/12
	Client	Verizon Wireless	Designed by	Matthew Kapinos

Section Elevation	z	K _Z	q _z	t _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	in	ft ²		ft ²	ft ²	ft ²			
T12 4.75-0.00	2.38	1	12	0.5000	9.745	B C A B C	41.884 22.650 6.190 6.190 6.190	51.522 42.632 3.764 3.764 3.764	3.322	13.83 19.79 33.37 33.37 33.37	0.000 0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000 0.000

Tower Pressure - Service

$$G_H = 1.106$$

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	ft ²		ft ²	ft ²	ft ²			
T1 224.75-204.75	214.75	1.708	11	73.126	A B C	9.482 7.537 9.807	12.966 25.307 10.901	9.583	42.69 29.18 46.28	0.000 0.000 0.000	0.000 0.000 0.000
T2 204.75-184.75	194.75	1.661	11	73.126	A B C	0.000 0.000 0.000	26.415 41.506 22.307	9.583	36.28 23.09 42.96	0.000 0.000 0.000	0.000 0.000 0.000
T3 184.75-164.75	174.75	1.61	10	73.126	A B C	0.000 0.000 0.000	29.026 45.426 25.060	9.583	33.02 21.10 38.24	0.000 0.000 0.000	0.000 0.000 0.000
T4 164.75-144.75	154.75	1.555	10	73.126	A B C	8.975 5.186 7.643	21.380 45.308 29.830	9.583	31.57 18.98 25.57	0.000 0.000 0.000	0.000 0.000 0.000
T5 144.75-124.75	134.75	1.495	10	73.126	A B C	0.000 2.624 0.033	32.904 50.864 40.030	9.583	29.12 17.92 23.92	0.000 0.000 0.000	0.000 0.000 0.000
T6 124.75-104.75	114.75	1.428	9	73.126	A B C	1.004 3.049 3.484	36.443 50.896 40.443	9.583	25.59 17.77 21.82	0.000 0.000 0.000	0.000 0.000 0.000
T7 104.75-84.75	94.75	1.352	9	73.126	A B C	0.000 2.624 3.476	35.851 50.063 38.651	9.583	26.73 18.19 22.75	0.000 0.000 0.000	0.000 0.000 0.000
T8 84.75-64.75	74.75	1.263	8	73.126	A B C	0.000 6.362 7.871	35.851 51.838 38.328	9.583	26.73 16.47 20.74	0.000 0.000 0.000	0.000 0.000 0.000
T9 64.75-44.75	54.75	1.156	7	73.126	A B C	0.965 8.145 8.633	35.820 51.635 38.074	9.583	26.05 16.03 20.52	0.000 0.000 0.000	0.000 0.000 0.000
T10 44.75-24.75	34.75	1.015	6	73.126	A B C	0.000 7.871 7.871	37.642 52.760 38.328	9.583	25.46 15.81 20.74	0.000 0.000 0.000	0.000 0.000 0.000
T11 24.75-4.75	14.75	1	6	73.126	A B C	0.000 7.379 7.379	36.181 51.339 36.824	9.583	26.49 16.32 21.68	0.000 0.000 0.000	0.000 0.000 0.000
T12 4.75-0.00	2.38	1	6	9.324	A B C	6.190 6.190 6.190	2.465 2.465 2.465	2.465	28.48 28.48 28.48	0.000 0.000 0.000	0.000 0.000 0.000

Tower Forces - No Ice - Wind Normal To Face

inxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	24 of 65
	Project	Glastonbury, CT	Date	12:27:16 04/16/12
	Client	Verizon Wireless	Designed by	Matthew Kapinos

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1	0.14	0.93	A	0.307	2.278	0.618	1	1	17.496	1.50	75.07	B
224.75-204.75		TA 0.65	B	0.449	1.975	0.673	1	1	24.565			
			C	0.283	2.342	0.611	1	1	16.467			
T2	0.24	0.55	A	0.361	2.146	0.637	1	1	16.815	1.68	83.82	B
204.75-184.75			B	0.568	1.828	0.734	1	1	30.478			
			C	0.305	2.283	0.617	1	1	13.774			
T3	0.34	0.55	A	0.397	2.07	0.65	1	1	18.877	1.82	91.09	B
184.75-164.75			B	0.621	1.792	0.767	1	1	34.833			
			C	0.343	2.189	0.63	1	1	15.786			
T4	0.65	0.93	A	0.415	2.035	0.658	1	1	23.040	2.10	105.17	B
164.75-144.75		TA 0.65	B	0.691	1.776	0.813	1	1	42.028			
			C	0.512	1.884	0.704	1	1	28.641			
T5	0.71	0.55	A	0.45	1.974	0.673	1	1	22.153	2.20	109.77	B
144.75-124.75			B	0.731	1.781	0.843	1	1	45.495			
			C	0.548	1.846	0.723	1	1	28.978			
T6	0.74	0.60	A	0.512	1.885	0.704	1	1	26.650	2.13	106.54	B
124.75-104.75			B	0.738	1.783	0.848	1	1	46.185			
			C	0.601	1.804	0.754	1	1	33.979			
T7	0.77	0.57	A	0.49	1.913	0.693	1	1	24.830	1.94	96.76	B
104.75-84.75		TA 0.30	B	0.72	1.779	0.835	1	1	44.413			
			C	0.576	1.821	0.739	1	1	32.050			
T8	0.81	0.57	A	0.49	1.913	0.693	1	1	24.830	2.19	109.28	B
84.75-64.75			B	0.796	1.813	0.893	1	1	52.656			
			C	0.632	1.788	0.774	1	1	37.520			
T9	0.82	0.62	A	0.503	1.896	0.699	1	1	26.006	2.11	105.74	B
64.75-44.75			B	0.817	1.83	0.911	1	1	55.176			
			C	0.639	1.785	0.778	1	1	38.256			
T10	0.83	0.57	A	0.515	1.882	0.705	1	1	26.543	1.91	95.53	B
44.75-24.75			B	0.829	1.84	0.921	1	1	56.442			
			C	0.632	1.788	0.774	1	1	37.520			
T11	0.78	0.57	A	0.495	1.907	0.695	1	1	25.140	1.76	88.19	B
24.75-4.75			B	0.803	1.818	0.899	1	1	53.525			
			C	0.604	1.801	0.756	1	1	35.231			
T12 4.75-0.00	0.00	0.32	A	0.928	1.967	1	1	1	8.654	0.31	64.94	C
			B	0.928	1.967	1	1	1	8.654			
			C	0.928	1.967	1	1	1	8.654			
Sum Weight:	6.83	8.90								21.65		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1	0.14	0.93	A	0.307	2.278	0.618	0.8	1	15.599	1.41	70.47	B
224.75-204.75		TA 0.65	B	0.449	1.975	0.673	0.8	1	23.058			
			C	0.283	2.342	0.611	0.8	1	14.506			
T2	0.24	0.55	A	0.361	2.146	0.637	0.8	1	16.815	1.68	83.82	B
204.75-184.75			B	0.568	1.828	0.734	0.8	1	30.478			
			C	0.305	2.283	0.617	0.8	1	13.774			
T3	0.34	0.55	A	0.397	2.07	0.65	0.8	1	18.877	1.82	91.09	B
184.75-164.75			B	0.621	1.792	0.767	0.8	1	34.833			
			C	0.343	2.189	0.63	0.8	1	15.786			
T4	0.65	0.93	A	0.415	2.035	0.658	0.8	1	21.245	2.05	102.57	B
164.75-144.75		TA 0.65	B	0.691	1.776	0.813	0.8	1	40.991			

tnxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	25 of 65
	Project	Glastonbury, CT	Date	12:27:16 04/16/12
	Client	Verizon Wireless	Designed by	Matthew Kapinos

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T5	0.71	0.55	C	0.512	1.884	0.704	0.8	1	27.112			
144.75-124.75			A	0.45	1.974	0.673	0.8	1	22.153	2.17	108.50	B
			B	0.731	1.781	0.843	0.8	1	44.971			
			C	0.548	1.846	0.723	0.8	1	28.971			
T6	0.74	0.60	A	0.512	1.885	0.704	0.8	1	26.450	2.10	105.14	B
124.75-104.75			B	0.738	1.783	0.848	0.8	1	45.575			
			C	0.601	1.804	0.754	0.8	1	33.282			
T7	0.77	0.57	A	0.49	1.913	0.693	0.8	1	24.830	1.91	95.62	B
104.75-84.75		TA 0.30	B	0.72	1.779	0.835	0.8	1	43.888			
			C	0.576	1.821	0.739	0.8	1	31.355			
T8	0.81	0.57	A	0.49	1.913	0.693	0.8	1	24.830	2.13	106.63	B
84.75-64.75			B	0.796	1.813	0.893	0.8	1	51.384			
			C	0.632	1.788	0.774	0.8	1	35.945			
T9	0.82	0.62	A	0.503	1.896	0.699	0.8	1	25.813	2.05	102.62	B
64.75-44.75			B	0.817	1.83	0.911	0.8	1	53.547			
			C	0.639	1.785	0.778	0.8	1	36.530			
T10	0.83	0.57	A	0.515	1.882	0.705	0.8	1	26.543	1.86	92.87	B
44.75-24.75			B	0.829	1.84	0.921	0.8	1	54.868			
			C	0.632	1.788	0.774	0.8	1	35.945			
T11	0.78	0.57	A	0.495	1.907	0.695	0.8	1	25.140	1.72	85.76	B
24.75-4.75			B	0.803	1.818	0.899	0.8	1	52.049			
			C	0.604	1.801	0.756	0.8	1	33.755			
T12 4.75-0.00	0.00	0.32	A	0.928	1.967	1	0.8	1	7.416	0.26	55.65	C
			B	0.928	1.967	1	0.8	1	7.416			
			C	0.928	1.967	1	0.8	1	7.416			
Sum Weight:	6.83	8.90								21.17		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1	0.14	0.93	A	0.307	2.278	0.618	0.85	1	16.073	1.43	71.62	B
224.75-204.75		TA 0.65	B	0.449	1.975	0.673	0.85	1	23.435			
			C	0.283	2.342	0.611	0.85	1	14.996			
T2	0.24	0.55	A	0.361	2.146	0.637	0.85	1	16.815	1.68	83.82	B
204.75-184.75			B	0.568	1.828	0.734	0.85	1	30.478			
			C	0.305	2.283	0.617	0.85	1	13.774			
T3	0.34	0.55	A	0.397	2.07	0.65	0.85	1	18.877	1.82	91.09	B
184.75-164.75			B	0.621	1.792	0.767	0.85	1	34.833			
			C	0.343	2.189	0.63	0.85	1	15.786			
T4	0.65	0.93	A	0.415	2.035	0.658	0.85	1	21.694	2.06	103.22	B
164.75-144.75		TA 0.65	B	0.691	1.776	0.813	0.85	1	41.251			
			C	0.512	1.884	0.704	0.85	1	27.494			
T5	0.71	0.55	A	0.45	1.974	0.673	0.85	1	22.153	2.18	108.82	B
144.75-124.75			B	0.731	1.781	0.843	0.85	1	45.102			
			C	0.548	1.846	0.723	0.85	1	28.973			
T6	0.74	0.60	A	0.512	1.885	0.704	0.85	1	26.500	2.11	105.49	B
124.75-104.75			B	0.738	1.783	0.848	0.85	1	45.728			
			C	0.601	1.804	0.754	0.85	1	33.457			
T7	0.77	0.57	A	0.49	1.913	0.693	0.85	1	24.830	1.92	95.90	B
104.75-84.75		TA 0.30	B	0.72	1.779	0.835	0.85	1	44.019			
			C	0.576	1.821	0.739	0.85	1	31.529			
T8	0.81	0.57	A	0.49	1.913	0.693	0.85	1	24.830	2.15	107.29	B
84.75-64.75			B	0.796	1.813	0.893	0.85	1	51.702			

tnxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	26 of 65
	Project	Glastonbury, CT	Date	12:27:16 04/16/12
	Client	Verizon Wireless	Designed by	Matthew Kapinos

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T9	0.82	0.62	C	0.632	1.788	0.774	0.85	1	36.339			
64.75-44.75			A	0.503	1.896	0.699	0.85	1	25.861	2.07	103.40	B
			B	0.817	1.83	0.911	0.85	1	53.954			
			C	0.639	1.785	0.778	0.85	1	36.961			
T10	0.83	0.57	A	0.515	1.882	0.705	0.85	1	26.543	1.87	93.53	B
44.75-24.75			B	0.829	1.84	0.921	0.85	1	55.261			
			C	0.632	1.788	0.774	0.85	1	36.339			
T11	0.78	0.57	A	0.495	1.907	0.695	0.85	1	25.140	1.73	86.37	B
24.75-4.75			B	0.803	1.818	0.899	0.85	1	52.418			
			C	0.604	1.801	0.756	0.85	1	34.124			
T12 4.75-0.00	0.00	0.32	A	0.928	1.967	1	0.85	1	7.726	0.28	57.97	C
			B	0.928	1.967	1	0.85	1	7.726			
			C	0.928	1.967	1	0.85	1	7.726			
Sum Weight:	6.83	8.90								21.29		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1	0.36	1.44	A	0.43	2.008	0.664	1	1	25.193	1.64	82.02	B
224.75-204.75		TA 0.88	B	0.617	1.795	0.764	1	1	39.359			
			C	0.408	2.048	0.655	1	1	23.323			
T2	0.66	0.94	A	0.509	1.888	0.702	1	1	27.995	2.29	114.60	B
204.75-184.75			B	0.799	1.815	0.896	1	1	55.908			
			C	0.452	1.971	0.674	1	1	22.769			
T3	0.94	0.94	A	0.572	1.824	0.737	1	1	32.588	2.68	134.06	B
184.75-164.75			B	0.88	1.897	0.965	1	1	64.541			
			C	0.516	1.88	0.706	1	1	27.308			
T4	1.81	1.44	A	0.589	1.811	0.747	1	1	36.141	3.16*	158.17	B
164.75-144.75		TA 0.88	B	0.98	2.059	1	1	1	73.277			
			C	0.72	1.779	0.835	1	1	48.305			
T5	1.98	0.94	A	0.669	1.777	0.798	1	1	40.771	3.04*	152.04	B
144.75-124.75			B	1	2.1	1	1	1	79.997			
			C	0.801	1.817	0.897	1	1	55.182			
T6	2.08	1.02	A	0.754	1.789	0.86	1	1	49.198	2.90*	145.22	B
124.75-104.75			B	1	2.1	1	1	1	79.950			
			C	0.869	1.883	0.955	1	1	62.838			
T7	2.15	0.84	A	0.738	1.783	0.848	1	1	47.400	2.75*	137.49	B
104.75-84.75		TA 0.42	B	1	2.1	1	1	1	81.847			
			C	0.847	1.858	0.936	1	1	60.449			
T8	2.29	0.84	A	0.738	1.783	0.848	1	1	47.400	2.57*	128.48	B
84.75-64.75			B	1	2.1	1	1	1	90.204			
			C	0.913	1.942	0.995	1	1	68.020			
T9	2.31	0.90	A	0.754	1.789	0.86	1	1	49.211	2.35*	117.55	B
64.75-44.75			B	1	2.1	1	1	1	91.657			
			C	0.918	1.95	0.999	1	1	68.597			
T10	2.36	0.84	A	0.79	1.809	0.888	1	1	53.122	2.06*	103.23	B
44.75-24.75			B	1	2.1	1	1	1	95.046			
			C	0.913	1.942	0.995	1	1	68.020			
T11	2.23	0.84	A	0.758	1.791	0.863	1	1	49.660	2.03*	101.71	B
24.75-4.75			B	1	2.1	1	1	1	93.406			
			C	0.873	1.888	0.959	1	1	63.515			
T12 4.75-0.00	0.00	0.49	A	1	2.1	1	1	1	9.954	0.27*	55.80	C
			B	1	2.1	1	1	1	9.954			

tnxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	27 of 65
	Project	Glastonbury, CT	Date	12:27:16 04/16/12
	Client	Verizon Wireless	Designed by	Matthew Kapinos

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
Sum Weight:	19.19	13.63	C	1	2.1 *2A _g limit	1	1	1	9.954	27.76		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1 224.75-204.75	0.36	1.44 TA 0.88	A	0.43	2.008	0.664	0.8	1	22.913	1.49	74.75	B
			B	0.617	1.795	0.764	0.8	1	35.871			
			C	0.408	2.048	0.655	0.8	1	21.399			
T2 204.75-184.75	0.66	0.94	A	0.509	1.888	0.702	0.8	1	27.169	2.10	105.20	B
			B	0.799	1.815	0.896	0.8	1	51.321			
			C	0.452	1.971	0.674	0.8	1	22.769			
T3 184.75-164.75	0.94	0.94	A	0.572	1.824	0.737	0.8	1	31.761	2.44	122.17	B
			B	0.88	1.897	0.965	0.8	1	58.815			
			C	0.516	1.88	0.706	0.8	1	27.274			
T4 164.75-144.75	1.81	1.44 TA 0.88	A	0.589	1.811	0.747	0.8	1	33.598	2.88	144.12	B
			B	0.98	2.059	1	0.8	1	66.198			
			C	0.72	1.779	0.835	0.8	1	44.269			
T5 144.75-124.75	1.98	0.94	A	0.669	1.777	0.798	0.8	1	39.944	3.04*	152.04	B
			B	1	2.1	1	0.8	1	72.416			
			C	0.801	1.817	0.897	0.8	1	52.442			
T6 124.75-104.75	2.08	1.02	A	0.754	1.789	0.86	0.8	1	48.187	2.90*	145.22	B
			B	1	2.1	1	0.8	1	72.390			
			C	0.869	1.883	0.955	0.8	1	59.222			
T7 104.75-84.75	2.15	0.84 TA 0.42	A	0.738	1.783	0.848	0.8	1	46.573	2.75*	137.49	B
			B	1	2.1	1	0.8	1	74.266			
			C	0.847	1.858	0.936	0.8	1	56.752			
T8 84.75-64.75	2.29	0.84	A	0.738	1.783	0.848	0.8	1	46.573	2.57*	128.48	B
			B	1	2.1	1	0.8	1	81.658			
			C	0.913	1.942	0.995	0.8	1	63.188			
T9 64.75-44.75	2.31	0.90	A	0.754	1.789	0.86	0.8	1	48.156	2.35*	117.55	B
			B	1	2.1	1	0.8	1	82.792			
			C	0.918	1.95	0.999	0.8	1	63.653			
T10 44.75-24.75	2.36	0.84	A	0.79	1.809	0.888	0.8	1	51.936	2.06*	103.23	B
			B	1	2.1	1	0.8	1	86.111			
			C	0.913	1.942	0.995	0.8	1	63.188			
T11 24.75-4.75	2.23	0.84	A	0.758	1.791	0.863	0.8	1	48.547	2.03*	101.71	B
			B	1	2.1	1	0.8	1	85.030			
			C	0.873	1.888	0.959	0.8	1	58.985			
T12 4.75-0.00	0.00	0.49	A	1	2.1	1	0.8	1	8.716	0.25	52.40	C
			B	1	2.1	1	0.8	1	8.716			
			C	1	2.1	1	0.8	1	8.716			
Sum Weight:	19.19	13.63			2A _g limit					26.89		

Tower Forces - With Ice - Wind 90 To Face

tnxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	28 of 65
	Project	Glastonbury, CT	Date	12:27:16 04/16/12
	Client	Verizon Wireless	Designed by	Matthew Kapinos

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
T1 224.75-204.75	0.36	1.44 TA 0.88	A	0.43	2.008	0.664	0.85	1	23.483	1.53	76.57	B
			B	0.617	1.795	0.764	0.85	1	36.743			
			C	0.408	2.048	0.655	0.85	1	21.880			
T2 204.75-184.75	0.66	0.94	A	0.509	1.888	0.702	0.85	1	27.375	2.15	107.55	B
			B	0.799	1.815	0.896	0.85	1	52.468			
			C	0.452	1.971	0.674	0.85	1	22.769			
T3 184.75-164.75	0.94	0.94	A	0.572	1.824	0.737	0.85	1	31.968	2.50	125.14	B
			B	0.88	1.897	0.965	0.85	1	60.247			
			C	0.516	1.88	0.706	0.85	1	27.282			
T4 164.75-144.75	1.81	1.44 TA 0.88	A	0.589	1.811	0.747	0.85	1	34.234	2.96	147.97	B
			B	0.98	2.059	1	0.85	1	67.967			
			C	0.72	1.779	0.835	0.85	1	45.278			
T5 144.75-124.75	1.98	0.94	A	0.669	1.777	0.798	0.85	1	40.151	3.04*	152.04	B
			B	1	2.1	1	0.85	1	74.311			
			C	0.801	1.817	0.897	0.85	1	53.127			
T6 124.75-104.75	2.08	1.02	A	0.754	1.789	0.86	0.85	1	48.440	2.90*	145.22	B
			B	1	2.1	1	0.85	1	74.280			
			C	0.869	1.883	0.955	0.85	1	60.126			
T7 104.75-84.75	2.15	0.84 TA 0.42	A	0.738	1.783	0.848	0.85	1	46.780	2.75*	137.49	B
			B	1	2.1	1	0.85	1	76.162			
			C	0.847	1.858	0.936	0.85	1	57.676			
T8 84.75-64.75	2.29	0.84	A	0.738	1.783	0.848	0.85	1	46.780	2.57*	128.48	B
			B	1	2.1	1	0.85	1	83.794			
			C	0.913	1.942	0.995	0.85	1	64.396			
T9 64.75-44.75	2.31	0.90	A	0.754	1.789	0.86	0.85	1	48.420	2.35*	117.55	B
			B	1	2.1	1	0.85	1	85.009			
			C	0.918	1.95	0.999	0.85	1	64.889			
T10 44.75-24.75	2.36	0.84	A	0.79	1.809	0.888	0.85	1	52.232	2.06*	103.23	B
			B	1	2.1	1	0.85	1	88.344			
			C	0.913	1.942	0.995	0.85	1	64.396			
T11 24.75-4.75	2.23	0.84	A	0.758	1.791	0.863	0.85	1	48.826	2.03*	101.71	B
			B	1	2.1	1	0.85	1	87.124			
			C	0.873	1.888	0.959	0.85	1	60.117			
T12 4.75-0.00	0.00	0.49	A	1	2.1	1	0.85	1	9.025	0.26	54.26	C
			B	1	2.1	1	0.85	1	9.025			
			C	1	2.1	1	0.85	1	9.025			
Sum Weight:	19.19	13.63			2A _g limit					27.12		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
T1 224.75-204.75	0.14	0.93 TA 0.65	A	0.307	2.278	0.618	1	1	17.496	0.59	29.33	B
			B	0.449	1.975	0.673	1	1	24.565			
			C	0.283	2.342	0.611	1	1	16.467			
T2 204.75-184.75	0.24	0.55	A	0.361	2.146	0.637	1	1	16.815	0.65	32.74	B
			B	0.568	1.828	0.734	1	1	30.478			
			C	0.305	2.283	0.617	1	1	13.774			
T3 184.75-164.75	0.34	0.55	A	0.397	2.07	0.65	1	1	18.877	0.71	35.58	B
			B	0.621	1.792	0.767	1	1	34.833			
			C	0.343	2.189	0.63	1	1	15.786			
T4 164.75-144.75	0.65	0.93 TA 0.65	A	0.415	2.035	0.658	1	1	23.040	0.82	41.08	B
			B	0.691	1.776	0.813	1	1	42.028			

tnxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	29 of 65
	Project	Glastonbury, CT	Date	12:27:16 04/16/12
	Client	Verizon Wireless	Designed by	Matthew Kapinos

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T5	0.71	0.55	C	0.512	1.884	0.704	1	1	28.641			
144.75-124.75			A	0.45	1.974	0.673	1	1	22.153	0.86	42.88	B
			B	0.731	1.781	0.843	1	1	45.495			
			C	0.548	1.846	0.723	1	1	28.978			
T6	0.74	0.60	A	0.512	1.885	0.704	1	1	26.650	0.83	41.62	B
124.75-104.75			B	0.738	1.783	0.848	1	1	46.185			
			C	0.601	1.804	0.754	1	1	33.979			
T7	0.77	0.57	A	0.49	1.913	0.693	1	1	24.830	0.76	37.80	B
104.75-84.75		TA 0.30	B	0.72	1.779	0.835	1	1	44.413			
			C	0.576	1.821	0.739	1	1	32.050			
T8	0.81	0.57	A	0.49	1.913	0.693	1	1	24.830	0.85	42.69	B
84.75-64.75			B	0.796	1.813	0.893	1	1	52.656			
			C	0.632	1.788	0.774	1	1	37.520			
T9	0.82	0.62	A	0.503	1.896	0.699	1	1	26.006	0.83	41.30	B
64.75-44.75			B	0.817	1.83	0.911	1	1	55.176			
			C	0.639	1.785	0.778	1	1	38.256			
T10	0.83	0.57	A	0.515	1.882	0.705	1	1	26.543	0.75	37.32	B
44.75-24.75			B	0.829	1.84	0.921	1	1	56.442			
			C	0.632	1.788	0.774	1	1	37.520			
T11	0.78	0.57	A	0.495	1.907	0.695	1	1	25.140	0.69	34.45	B
24.75-4.75			B	0.803	1.818	0.899	1	1	53.525			
			C	0.604	1.801	0.756	1	1	35.231			
T12 4.75-0.00	0.00	0.32	A	0.928	1.967	1	1	1	8.654	0.12	25.37	C
			B	0.928	1.967	1	1	1	8.654			
			C	0.928	1.967	1	1	1	8.654			
Sum Weight:	6.83	8.90								8.46		

Tower Forces - Service - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1	0.14	0.93	A	0.307	2.278	0.618	0.8	1	15.599	0.55	27.53	B
224.75-204.75		TA 0.65	B	0.449	1.975	0.673	0.8	1	23.058			
			C	0.283	2.342	0.611	0.8	1	14.506			
T2	0.24	0.55	A	0.361	2.146	0.637	0.8	1	16.815	0.65	32.74	B
204.75-184.75			B	0.568	1.828	0.734	0.8	1	30.478			
			C	0.305	2.283	0.617	0.8	1	13.774			
T3	0.34	0.55	A	0.397	2.07	0.65	0.8	1	18.877	0.71	35.58	B
184.75-164.75			B	0.621	1.792	0.767	0.8	1	34.833			
			C	0.343	2.189	0.63	0.8	1	15.786			
T4	0.65	0.93	A	0.415	2.035	0.658	0.8	1	21.245	0.80	40.07	B
164.75-144.75		TA 0.65	B	0.691	1.776	0.813	0.8	1	40.991			
			C	0.512	1.884	0.704	0.8	1	27.112			
T5	0.71	0.55	A	0.45	1.974	0.673	0.8	1	22.153	0.85	42.38	B
144.75-124.75			B	0.731	1.781	0.843	0.8	1	44.971			
			C	0.548	1.846	0.723	0.8	1	28.971			
T6	0.74	0.60	A	0.512	1.885	0.704	0.8	1	26.450	0.82	41.07	B
124.75-104.75			B	0.738	1.783	0.848	0.8	1	45.575			
			C	0.601	1.804	0.754	0.8	1	33.282			
T7	0.77	0.57	A	0.49	1.913	0.693	0.8	1	24.830	0.75	37.35	B
104.75-84.75		TA 0.30	B	0.72	1.779	0.835	0.8	1	43.888			
			C	0.576	1.821	0.739	0.8	1	31.355			
T8	0.81	0.57	A	0.49	1.913	0.693	0.8	1	24.830	0.83	41.65	B
84.75-64.75			B	0.796	1.813	0.893	0.8	1	51.384			

inxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	30 of 65
	Project	Glastonbury, CT	Date	12:27:16 04/16/12
	Client	Verizon Wireless	Designed by	Matthew Kapinos

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T9	0.82	0.62	C	0.632	1.788	0.774	0.8	1	35.945			
64.75-44.75			A	0.503	1.896	0.699	0.8	1	25.813	0.80	40.08	B
			B	0.817	1.83	0.911	0.8	1	53.547			
T10	0.83	0.57	C	0.639	1.785	0.778	0.8	1	36.530			
44.75-24.75			A	0.515	1.882	0.705	0.8	1	26.543	0.73	36.28	B
			B	0.829	1.84	0.921	0.8	1	54.868			
T11	0.78	0.57	C	0.632	1.788	0.774	0.8	1	35.945			
24.75-4.75			A	0.495	1.907	0.695	0.8	1	25.140	0.67	33.50	B
			B	0.803	1.818	0.899	0.8	1	52.049			
T12 4.75-0.00	0.00	0.32	C	0.604	1.801	0.756	0.8	1	33.755			
			A	0.928	1.967	1	0.8	1	7.416	0.10	21.74	C
			B	0.928	1.967	1	0.8	1	7.416			
Sum Weight:	6.83	8.90	C	0.928	1.967	1	0.8	1	7.416	8.27		

Tower Forces - Service - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
T1	0.14	0.93	A	0.307	2.278	0.618	0.85	1	16.073	0.56	27.98	B
224.75-204.75		TA 0.65	B	0.449	1.975	0.673	0.85	1	23.435			
			C	0.283	2.342	0.611	0.85	1	14.996			
T2	0.24	0.55	A	0.361	2.146	0.637	0.85	1	16.815	0.65	32.74	B
204.75-184.75			B	0.568	1.828	0.734	0.85	1	30.478			
			C	0.305	2.283	0.617	0.85	1	13.774			
T3	0.34	0.55	A	0.397	2.07	0.65	0.85	1	18.877	0.71	35.58	B
184.75-164.75			B	0.621	1.792	0.767	0.85	1	34.833			
			C	0.343	2.189	0.63	0.85	1	15.786			
T4	0.65	0.93	A	0.415	2.035	0.658	0.85	1	21.694	0.81	40.32	B
164.75-144.75		TA 0.65	B	0.691	1.776	0.813	0.85	1	41.251			
			C	0.512	1.884	0.704	0.85	1	27.494			
T5	0.71	0.55	A	0.45	1.974	0.673	0.85	1	22.153	0.85	42.51	B
144.75-124.75			B	0.731	1.781	0.843	0.85	1	45.102			
			C	0.548	1.846	0.723	0.85	1	28.973			
T6	0.74	0.60	A	0.512	1.885	0.704	0.85	1	26.500	0.82	41.21	B
124.75-104.75			B	0.738	1.783	0.848	0.85	1	45.728			
			C	0.601	1.804	0.754	0.85	1	33.457			
T7	0.77	0.57	A	0.49	1.913	0.693	0.85	1	24.830	0.75	37.46	B
104.75-84.75		TA 0.30	B	0.72	1.779	0.835	0.85	1	44.019			
			C	0.576	1.821	0.739	0.85	1	31.529			
T8	0.81	0.57	A	0.49	1.913	0.693	0.85	1	24.830	0.84	41.91	B
84.75-64.75			B	0.796	1.813	0.893	0.85	1	51.702			
			C	0.632	1.788	0.774	0.85	1	36.339			
T9	0.82	0.62	A	0.503	1.896	0.699	0.85	1	25.861	0.81	40.39	B
64.75-44.75			B	0.817	1.83	0.911	0.85	1	53.954			
			C	0.639	1.785	0.778	0.85	1	36.961			
T10	0.83	0.57	A	0.515	1.882	0.705	0.85	1	26.543	0.73	36.54	B
44.75-24.75			B	0.829	1.84	0.921	0.85	1	55.261			
			C	0.632	1.788	0.774	0.85	1	36.339			
T11	0.78	0.57	A	0.495	1.907	0.695	0.85	1	25.140	0.67	33.74	B
24.75-4.75			B	0.803	1.818	0.899	0.85	1	52.418			
			C	0.604	1.801	0.756	0.85	1	34.124			
T12 4.75-0.00	0.00	0.32	A	0.928	1.967	1	0.85	1	7.726	0.11	22.65	C
			B	0.928	1.967	1	0.85	1	7.726			

tnxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	31 of 65
	Project	Glastonbury, CT	Date	12:27:16 04/16/12
	Client	Verizon Wireless	Designed by	Matthew Kapinos

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
Sum Weight:	6.83	8.90	C	0.928	1.967	1	0.85	1	7.726	8.31		

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces	Sum of Forces X	Sum of Forces Z	Sum of Torques
	K	K	K	kip-ft
Leg Weight	4.73			
Bracing Weight	4.17			
Total Member Self-Weight	8.90			
Guy Weight	2.36			
Total Weight	27.16			
Wind 0 deg - No Ice		1.31	-37.88	-0.59
Wind 30 deg - No Ice		19.35	-32.29	-0.04
Wind 60 deg - No Ice		32.49	-18.81	-1.43
Wind 90 deg - No Ice		37.80	-0.73	-2.85
Wind 120 deg - No Ice		33.53	17.73	-1.80
Wind 150 deg - No Ice		18.41	31.54	0.62
Wind 180 deg - No Ice		-0.21	36.31	1.89
Wind 210 deg - No Ice		-18.78	31.90	2.56
Wind 240 deg - No Ice		-32.92	18.89	2.40
Wind 270 deg - No Ice		-37.44	0.17	1.30
Wind 300 deg - No Ice		-31.92	-18.23	-0.46
Wind 330 deg - No Ice		-18.27	-31.93	-1.59
Member Ice	4.73			
Guy Ice	3.15			
Total Weight Ice	52.86			
Wind 0 deg - Ice		1.03	-42.62	-2.47
Wind 30 deg - Ice		21.46	-36.20	-0.56
Wind 60 deg - Ice		36.25	-20.97	-0.02
Wind 90 deg - Ice		42.20	-0.58	0.22
Wind 120 deg - Ice		37.48	20.36	1.73
Wind 150 deg - Ice		20.72	35.61	3.46
Wind 180 deg - Ice		-0.17	40.91	3.51
Wind 210 deg - Ice		-21.00	35.90	2.53
Wind 240 deg - Ice		-37.00	21.27	0.74
Wind 270 deg - Ice		-41.92	0.13	-1.45
Wind 300 deg - Ice		-35.80	-20.51	-3.48
Wind 330 deg - Ice		-20.60	-35.92	-4.20
Total Weight	27.16			
Wind 0 deg - Service		0.51	-14.80	-0.23
Wind 30 deg - Service		7.56	-12.61	-0.02
Wind 60 deg - Service		12.69	-7.35	-0.56
Wind 90 deg - Service		14.76	-0.29	-1.11
Wind 120 deg - Service		13.10	6.93	-0.70
Wind 150 deg - Service		7.19	12.32	0.24
Wind 180 deg - Service		-0.08	14.18	0.74
Wind 210 deg - Service		-7.33	12.46	1.00
Wind 240 deg - Service		-12.86	7.38	0.94
Wind 270 deg - Service		-14.63	0.06	0.51
Wind 300 deg - Service		-12.47	-7.12	-0.18
Wind 330 deg - Service		-7.13	-12.47	-0.62

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	224.75 - 204.75	Leg	Max Tension	4	9.59	-0.12	0.02
			Max. Compression	15	-14.96	-0.04	-0.86
			Max. Mx	18	-4.16	-1.56	-0.54
			Max. My	26	-3.08	0.34	1.64
			Max. Vy	18	1.15	-1.56	-0.54
			Max. Vx	26	1.26	0.34	1.64
		Diagonal	Max Tension	20	5.68	0.00	0.00

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T2	204.75 - 184.75	Top Girt	Max. Compression	23	-4.28	-0.03	-0.01
			Max. Mx	21	4.92	0.10	-0.00
			Max. My	18	-0.95	0.04	0.03
			Max. Vy	21	-0.05	0.10	-0.00
			Max. Vx	18	-0.02	0.04	0.03
			Max Tension	6	0.07	0.00	0.00
			Max. Compression	21	-0.23	0.00	0.00
			Max. Mx	14	-0.05	-0.01	0.00
			Max. My	23	-0.16	0.00	-0.00
			Max. Vy	14	-0.01	0.00	0.00
		Bottom Girt	Max. Vx	23	-0.00	0.00	0.00
			Max Tension	12	0.88	0.00	0.00
			Max. Compression	15	-4.12	0.00	0.00
			Max. Mx	14	-0.87	-0.01	0.00
			Max. Vy	14	-0.01	0.00	0.00
		Guy A	Bottom Tension	21	11.95		
			Top Tension	21	12.19		
			Top Cable Vert	21	10.07		
			Top Cable Norm	21	6.87		
			Top Cable Tan	21	0.01		
			Bot Cable Vert	21	-9.49		
			Bot Cable Norm	21	7.27		
			Bot Cable Tan	21	0.02		
		Guy B	Bottom Tension	25	11.02		
			Top Tension	25	11.25		
			Top Cable Vert	25	8.82		
			Top Cable Norm	25	6.99		
			Top Cable Tan	25	0.01		
			Bot Cable Vert	25	-8.21		
			Bot Cable Norm	25	7.35		
			Bot Cable Tan	25	0.02		
		Guy C	Bottom Tension	16	11.19		
			Top Tension	16	11.44		
			Top Cable Vert	16	9.10		
			Top Cable Norm	16	6.93		
			Top Cable Tan	16	0.12		
			Bot Cable Vert	16	-8.48		
			Bot Cable Norm	16	7.29		
			Bot Cable Tan	16	0.19		
		Torque Arm Top	Max Tension	21	12.45	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	26	2.83	0.06	0.00
			Max. My	24	2.50	0.00	0.00
			Max. Vy	26	0.03	0.00	0.00
		Torque Arm Bottom	Max. Vx	24	-0.00	0.00	0.00
			Max Tension	13	2.49	0.00	0.00
			Max. Compression	22	-17.88	0.00	0.00
			Max. Mx	17	-0.86	0.08	0.00
			Max. My	17	-16.11	0.00	0.00
		Leg	Max. Vy	17	-0.03	0.00	0.00
			Max. Vx	17	0.00	0.00	0.00
			Max Tension	19	16.01	0.12	0.07
		Diagonal	Max. Compression	21	-40.93	0.00	-0.00
			Max. Mx	24	1.86	0.60	-0.13
			Max. My	15	3.40	0.01	0.68
			Max. Vy	24	1.56	0.60	-0.13
			Max. Vx	15	1.68	0.01	0.68
			Max Tension	24	1.39	0.00	0.00
			Max. Compression	24	-1.69	0.00	0.00
			Max. Mx	22	-0.25	0.00	0.00

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T3	184.75 - 164.75	Top Girt	Max. My	23	-0.32	0.00	-0.00
			Max. Vy	22	-0.00	0.00	0.00
			Max. Vx	23	0.00	0.00	0.00
			Max Tension	12	0.28	0.00	0.00
			Max. Compression	15	-0.62	0.00	0.00
			Max. Mx	14	-0.06	0.00	0.00
		Bottom Girt	Max. Vy	14	-0.00	0.00	0.00
			Max Tension	15	0.43	0.00	0.00
			Max. Compression	12	-0.15	0.00	0.00
			Max. Mx	14	0.10	0.00	0.00
			Max. My	20	0.12	0.00	-0.00
			Max. Vy	14	-0.00	0.00	0.00
		Leg	Max. Vx	20	0.00	0.00	0.00
			Max Tension	19	16.21	0.12	0.01
			Max. Compression	21	-41.22	-0.01	0.17
			Max. Mx	18	-25.39	0.72	-0.20
			Max. My	21	-25.95	-0.02	0.84
			Max. Vy	11	-0.51	-0.36	0.06
		Diagonal	Max. Vx	8	0.52	-0.09	0.43
			Max Tension	22	2.25	0.00	0.00
			Max. Compression	22	-2.58	0.00	0.00
			Max. Mx	22	2.25	0.00	0.00
			Max. My	19	-0.24	0.00	-0.00
			Max. Vy	22	-0.00	0.00	0.00
		Top Girt	Max. Vx	19	0.00	0.00	0.00
			Max Tension	19	0.39	0.00	0.00
			Max. Compression	21	-0.10	0.00	0.00
			Max. Mx	14	0.08	0.00	0.00
			Max. My	20	0.16	0.00	-0.00
			Max. Vy	14	-0.00	0.00	0.00
		Bottom Girt	Max. Vx	20	0.00	0.00	0.00
			Max Tension	21	0.37	0.00	0.00
			Max. Compression	23	-0.09	0.00	0.00
			Max. Mx	17	0.34	0.00	0.00
			Max. My	20	0.08	0.00	-0.00
			Max. Vy	17	-0.00	0.00	0.00
T4	164.75 - 144.75	Leg	Max. Vx	20	0.00	0.00	0.00
			Max Tension	4	13.19	-0.18	0.14
			Max. Compression	23	-44.22	-0.96	0.37
			Max. Mx	18	-20.01	-2.35	-0.56
			Max. My	16	-20.50	-0.64	2.20
			Max. Vy	18	2.83	-0.94	-0.26
		Diagonal	Max. Vx	15	-3.21	-0.03	1.08
			Max Tension	20	7.98	-0.12	-0.02
			Max. Compression	23	-5.84	0.00	0.00
			Max. Mx	21	6.87	0.14	0.00
			Max. My	22	-2.44	-0.05	-0.05
			Max. Vy	21	-0.07	0.14	0.00
		Top Girt	Max. Vx	22	-0.03	0.00	0.00
			Max Tension	19	1.20	0.00	0.00
			Max. Compression	8	-0.78	0.00	0.00
			Max. Mx	17	-0.70	-0.01	0.00
			Max. My	20	0.22	0.00	0.00
			Max. Vy	17	-0.01	0.00	0.00
		Bottom Girt	Max. Vx	20	0.00	0.00	0.00
			Max Tension	25	2.12	0.00	0.00
			Max. Compression	19	-4.42	0.00	0.00
			Max. Mx	14	-0.65	-0.01	0.00
			Max. My	20	-1.44	0.00	0.00

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T5	144.75 - 124.75	Guy A	Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
			Bottom Tension	21	12.84		
			Top Tension	21	13.01		
			Top Cable Vert	21	9.33		
			Top Cable Norm	21	9.07		
			Top Cable Tan	21	0.01		
			Bot Cable Vert	21	-8.89		
			Bot Cable Norm	21	9.27		
			Bot Cable Tan	21	0.01		
		Guy B	Bottom Tension	25	11.77		
			Top Tension	25	11.94		
			Top Cable Vert	25	7.92		
			Top Cable Norm	25	8.93		
			Top Cable Tan	25	0.01		
			Bot Cable Vert	25	-7.46		
			Bot Cable Norm	25	9.10		
			Bot Cable Tan	25	0.00		
		Guy C	Bottom Tension	17	11.83		
			Top Tension	17	12.02		
			Top Cable Vert	17	8.25		
			Top Cable Norm	17	8.74		
			Top Cable Tan	17	0.01		
			Bot Cable Vert	17	-7.77		
			Bot Cable Norm	17	8.93		
			Bot Cable Tan	17	0.01		
		Torque Arm Top	Max Tension	21	15.68	0.00	0.00
			Max. Compression	13	-1.66	0.00	0.00
			Max. Mx	14	3.99	0.06	0.00
			Max. My	19	-0.87	0.00	0.00
			Max. Vy	14	0.03	0.00	0.00
		Torque Arm Bottom	Max. Vx	19	-0.00	0.00	0.00
			Max Tension	24	4.55	0.00	0.00
			Max. Compression	22	-17.95	0.00	0.00
			Max. Mx	22	-8.80	0.08	0.00
			Max. My	19	4.36	0.00	-0.00
			Max. Vy	22	0.03	0.00	0.00
			Max. Vx	19	-0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
		Diagonal	Max. Compression	23	-36.91	-0.26	0.19
			Max. Mx	25	-25.34	0.49	0.10
			Max. My	21	-17.11	0.05	0.52
			Max. Vy	25	0.97	0.49	0.10
			Max. Vx	19	-0.87	0.19	-0.35
			Max Tension	20	1.44	0.00	0.00
			Max. Compression	20	-2.01	0.00	0.00
			Max. Mx	22	0.58	0.00	0.00
			Max. My	19	-0.49	0.00	-0.00
			Max. Vy	22	-0.00	0.00	0.00
		Top Girt	Max. Vx	19	0.00	0.00	0.00
			Max Tension	25	0.43	0.00	0.00
			Max. Compression	15	-0.30	0.00	0.00
			Max. Mx	14	0.02	0.00	0.00
			Max. My	20	-0.03	0.00	-0.00
		Bottom Girt	Max. Vy	14	-0.00	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
			Max Tension	21	0.60	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.22	0.00	0.00
			Max. My	20	0.34	0.00	-0.00

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T6	124.75 - 104.75	Leg	Max. Vy	14	-0.00	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
		Diagonal	Max. Compression	23	-48.42	-0.13	0.07
			Max. Mx	23	-38.83	0.53	-0.36
			Max. My	15	-37.64	0.01	0.63
			Max. Vy	23	-1.28	0.53	-0.36
			Max. Vx	15	-1.54	0.01	0.63
			Max Tension	20	2.21	0.00	0.00
			Max. Compression	20	-2.43	0.00	0.00
			Max. Mx	20	1.68	0.00	0.00
			Max. My	19	-0.44	0.00	-0.00
			Max. Vy	20	-0.00	0.00	0.00
		Top Girt	Max. Vx	19	0.00	0.00	0.00
			Max Tension	19	0.56	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
		Bottom Girt	Max. Mx	14	0.21	0.00	0.00
			Max. My	20	0.29	0.00	-0.00
			Max. Vy	14	-0.00	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
			Max Tension	24	0.42	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.23	0.00	0.00
			Max. My	20	0.37	0.00	-0.00
			Max. Vy	14	-0.00	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
		Guy A	Bottom Tension	21	11.83		
			Top Tension	21	11.96		
			Top Cable Vert	21	7.34		
			Top Cable Norm	21	9.44		
			Top Cable Tan	21	0.00		
			Bot Cable Vert	21	-6.99		
			Bot Cable Norm	21	9.54		
			Bot Cable Tan	21	0.00		
		Guy B	Bottom Tension	25	11.06		
			Top Tension	25	11.19		
			Top Cable Vert	25	6.24		
			Top Cable Norm	25	9.29		
			Top Cable Tan	25	0.01		
			Bot Cable Vert	25	-5.87		
			Bot Cable Norm	25	9.38		
			Bot Cable Tan	25	0.01		
		Guy C	Bottom Tension	17	11.30		
			Top Tension	17	11.44		
			Top Cable Vert	17	6.74		
			Top Cable Norm	17	9.24		
			Top Cable Tan	17	0.00		
			Bot Cable Vert	17	-6.35		
			Bot Cable Norm	17	9.34		
			Bot Cable Tan	17	0.00		
		Top Guy Pull-Off	Max Tension	19	4.98	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	2.13	0.01	0.00
			Max. My	20	3.46	0.00	-0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
T7	104.75 - 84.75	Leg	Max. Compression	23	-48.34	0.12	-0.00
			Max. Mx	20	-32.17	-4.15	-1.45
			Max. My	16	-29.96	0.69	4.51

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T8	84.75 - 64.75	Diagonal	Max. Vy	19	-3.40	-1.50	-0.64
			Max. Vx	15	3.55	0.29	1.51
			Max Tension	23	3.00	0.00	0.00
			Max. Compression	17	-3.42	0.00	0.00
			Max. Mx	19	-0.18	0.00	0.00
			Max. My	19	-0.75	0.00	-0.00
		Top Girt	Max. Vy	19	-0.00	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
			Max Tension	25	0.45	0.00	0.00
			Max. Compression	4	-0.28	0.00	0.00
			Max. Mx	14	0.07	0.00	0.00
			Max. My	20	0.14	0.00	-0.00
		Bottom Girt	Max. Vy	14	-0.00	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
			Max Tension	19	3.06	0.00	0.00
			Max. Compression	18	-3.03	0.00	0.00
			Max. Mx	18	-3.03	0.00	0.00
			Max. My	20	-1.80	0.00	-0.00
		Guy A	Max. Vy	18	-0.00	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
			Bottom Tension	21	6.26		
			Top Tension	21	6.33		
			Top Cable Vert	21	3.20		
			Top Cable Norm	21	5.46		
		Guy B	Top Cable Tan	21	0.00		
			Bot Cable Vert	21	-2.98		
			Bot Cable Norm	21	5.50		
			Bot Cable Tan	21	0.00		
			Bottom Tension	25	6.14		
			Top Tension	25	6.21		
		Guy C	Top Cable Vert	25	2.80		
			Top Cable Norm	25	5.54		
			Top Cable Tan	25	0.00		
			Bot Cable Vert	25	-2.57		
			Bot Cable Norm	25	5.57		
			Bot Cable Tan	25	0.00		
		Torque Arm Top	Bottom Tension	17	6.29		
			Top Tension	17	6.37		
			Top Cable Vert	17	3.14		
			Top Cable Norm	17	5.54		
			Top Cable Tan	17	0.00		
			Bot Cable Vert	17	-2.90		
		Leg	Bot Cable Norm	17	5.58		
			Bot Cable Tan	17	0.00		
			Max Tension	18	6.08	-1.44	-0.00
			Max. Compression	18	-2.84	0.00	0.00
			Max. Mx	21	-1.64	-11.60	-0.00
			Max. My	20	-2.49	-10.89	0.00
		Diagonal	Max. Vy	21	3.23	-11.60	-0.00
			Max. Vx	20	0.00	-10.89	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	17	-54.63	-0.04	-0.17
			Max. Mx	15	-35.68	-1.72	-0.33
			Max. My	23	-36.28	0.53	1.60
		Diagonal	Max. Vy	19	-3.43	-1.21	-0.54
			Max. Vx	15	3.57	0.25	1.21
			Max Tension	22	4.39	0.00	0.00
			Max. Compression	24	-4.87	0.00	0.00
			Max. Mx	18	-1.23	0.00	0.00
			Max. My	20	-1.62	0.00	-0.00
			Max. Vy	18	-0.00	0.00	0.00

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	Client	Verizon Wireless	Designed by	Matthew Kapinos

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T9	64.75 - 44.75	Top Girt	Max. Vx	20	0.00	0.00	0.00
			Max Tension	25	2.98	0.00	0.00
			Max. Compression	19	-2.93	0.00	0.00
			Max. Mx	18	2.56	0.00	0.00
			Max. My	20	2.38	0.00	-0.00
			Max. Vy	18	-0.00	0.00	0.00
		Bottom Girt	Max. Vx	20	0.00	0.00	0.00
			Max Tension	22	0.55	0.00	0.00
			Max. Compression	15	-0.33	0.00	0.00
			Max. Mx	14	0.06	0.00	0.00
			Max. My	26	0.39	0.00	-0.00
			Max. Vy	14	-0.00	0.00	0.00
		Leg	Max. Vx	26	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	17	-56.61	0.01	-0.07
			Max. Mx	18	-28.89	-0.57	-0.01
			Max. My	22	-30.86	0.27	-0.54
			Max. Vy	18	-0.98	-0.40	-0.07
		Diagonal	Max. Vx	21	-1.02	0.17	-0.34
			Max Tension	22	1.09	0.00	0.00
			Max. Compression	15	-1.14	0.00	0.00
			Max. Mx	18	0.80	0.00	0.00
			Max. My	25	-0.16	0.00	0.00
			Max. Vy	18	-0.00	0.00	0.00
		Top Girt	Max. Vx	25	0.00	0.00	0.00
			Max Tension	15	0.41	0.00	0.00
			Max. Compression	22	-0.29	0.00	0.00
			Max. Mx	14	0.08	0.00	0.00
			Max. My	26	-0.14	0.00	-0.00
			Max. Vy	14	-0.00	0.00	0.00
		Guy A	Max. Vx	26	0.00	0.00	0.00
			Bottom Tension	21	5.96		
			Top Tension	21	6.00		
			Top Cable Vert	21	1.74		
			Top Cable Norm	21	5.74		
			Top Cable Tan	21	0.00		
		Guy B	Bot Cable Vert	21	-1.59		
			Bot Cable Norm	21	5.75		
			Bot Cable Tan	21	0.00		
			Bottom Tension	25	5.70		
			Top Tension	25	5.73		
			Top Cable Vert	25	1.47		
		Guy C	Top Cable Norm	25	5.54		
			Top Cable Tan	25	0.00		
			Bot Cable Vert	25	-1.30		
			Bot Cable Norm	25	5.55		
			Bot Cable Tan	25	0.00		
			Bottom Tension	17	5.98		
		Top Guy Pull-Off	Top Tension	17	6.02		
			Top Cable Vert	17	1.88		
			Top Cable Norm	17	5.72		
			Top Cable Tan	17	0.00		
			Bot Cable Vert	17	-1.69		
			Bot Cable Norm	17	5.73		
			Bot Cable Tan	17	0.00		
			Max Tension	22	3.10	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	23	3.00	0.01	0.00
			Max. My	26	1.30	0.00	-0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T10	44.75 - 24.75	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	17	-62.69	-0.01	-0.02
			Max. Mx	18	-28.90	-0.49	0.01
			Max. My	22	-31.59	0.23	-0.47
			Max. Vy	18	-0.99	-0.31	-0.10
			Max. Vx	21	-1.02	0.15	-0.26
		Diagonal	Max Tension	22	2.14	0.00	0.00
			Max. Compression	16	-2.17	0.00	0.00
			Max. Mx	18	0.75	0.00	0.00
			Max. My	25	-0.65	0.00	0.00
			Max. Vy	18	-0.00	0.00	0.00
			Max. Vx	25	0.00	0.00	0.00
		Top Girt	Max Tension	16	0.96	0.00	0.00
			Max. Compression	22	-0.82	0.00	0.00
			Max. Mx	23	-0.01	0.00	0.00
			Max. My	26	-0.50	0.00	-0.00
			Max. Vy	23	-0.00	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
		Bottom Girt	Max Tension	25	0.49	0.00	0.00
			Max. Compression	6	-0.34	0.00	0.00
			Max. Mx	14	0.09	0.00	0.00
			Max. My	26	0.12	0.00	-0.00
			Max. Vy	14	-0.00	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
T11	24.75 - 4.75	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	17	-61.63	-0.12	-0.20
			Max. Mx	18	-48.32	-0.49	0.07
			Max. My	21	-47.32	0.12	-0.42
			Max. Vy	18	3.36	-0.49	0.07
			Max. Vx	21	3.04	0.12	-0.42
		Diagonal	Max Tension	24	2.70	0.00	0.00
			Max. Compression	24	-2.79	0.00	0.00
			Max. Mx	18	2.54	0.00	0.00
			Max. My	19	-0.05	0.00	-0.00
			Max. Vy	18	-0.00	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Top Girt	Max Tension	17	0.60	0.00	0.00
			Max. Compression	2	-0.33	0.00	0.00
			Max. Mx	14	0.06	0.00	0.00
			Max. My	25	-0.32	0.00	0.00
			Max. Vy	14	-0.00	0.00	0.00
			Max. Vx	25	-0.00	0.00	0.00
		Bottom Girt	Max Tension	19	0.92	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	0.58	0.00	0.00
			Max. My	25	0.88	0.00	0.00
			Max. Vy	14	-0.00	0.00	0.00
			Max. Vx	25	-0.00	0.00	0.00
T12	4.75 - 0	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	19	-52.23	-0.16	0.31
			Max. Mx	23	-35.38	-1.64	-0.03
			Max. My	25	-40.45	-0.57	-0.62
			Max. Vy	23	16.64	-1.28	-0.11
			Max. Vx	25	1.12	-0.57	-0.62
		Top Girt	Max Tension	19	10.56	-1.30	-0.09
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	25	10.09	-1.63	-0.13
			Max. My	20	9.54	-1.50	-0.13
			Max. Vy	25	0.42	-1.63	-0.13
			Max. Vx	20	-0.08	-1.50	-0.13
		Bottom Girt	Max Tension	1	0.00	0.00	0.00

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	18	-0.94	-0.97	-0.03
			Max. Mx	25	-0.89	-1.49	-0.07
			Max. My	26	-0.85	-1.35	-0.07
			Max. Vy	25	2.98	-1.49	-0.07
			Max. Vx	25	0.22	-1.49	-0.07
		Mid Girt	Max Tension	19	0.05	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	21	0.05	0.01	0.00
			Max. My	26	0.05	0.00	0.00
			Max. Vy	21	0.02	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	19	134.47	-1.56	-0.53
	Max. H _x	11	86.07	2.09	0.14
	Max. H _z	2	89.71	-0.37	2.21
	Max. M _x	1	0.00	-0.02	0.03
	Max. M _z	1	0.00	-0.02	0.03
	Max. Torsion	25	1.34	1.78	1.09
	Min. Vert	1	60.41	-0.02	0.03
	Min. H _x	5	87.51	-2.22	0.37
	Min. H _z	8	80.70	0.03	-2.07
	Min. M _x	1	0.00	-0.02	0.03
	Min. M _z	1	0.00	-0.02	0.03
	Min. Torsion	20	-1.14	-0.62	-1.46
	Max. Vert	10	-1.01	-0.79	0.46
Guy C @ 184 ft Elev -12 ft Azimuth 240 deg	Max. H _x	10	-1.01	-0.79	0.46
	Max. H _z	16	-44.96	-48.58	29.24
	Min. Vert	17	-46.05	-50.51	29.13
	Min. H _x	17	-46.05	-50.51	29.13
	Min. H _z	10	-1.01	-0.79	0.46
	Max. Vert	6	-0.85	0.76	0.44
Guy B @ 181.5 ft Elev 0 ft Azimuth 120 deg	Max. H _x	25	-43.31	50.60	29.17
	Max. H _z	25	-43.31	50.60	29.17
	Min. Vert	25	-43.31	50.60	29.17
	Min. H _x	6	-0.85	0.76	0.44
	Min. H _z	6	-0.85	0.76	0.44
	Max. Vert	2	-1.17	-0.00	-0.84
Guy A @ 156 ft Elev 0 ft Azimuth 0 deg	Max. H _x	24	-27.58	2.25	-31.33
	Max. H _z	2	-1.17	-0.00	-0.84
	Min. Vert	21	-51.08	0.02	-59.06
	Min. H _x	18	-26.94	-2.26	-30.52
	Min. H _z	21	-51.08	0.02	-59.06

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Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	60.41	0.02	-0.03	0.00	0.00	0.00
Dead+Wind 0 deg - No Ice+Guy	89.71	0.37	-2.21	0.00	0.00	-0.04
Dead+Wind 30 deg - No Ice+Guy	84.79	1.43	-1.80	0.00	0.00	0.46
Dead+Wind 60 deg - No Ice+Guy	76.85	2.15	-1.26	0.00	0.00	0.30
Dead+Wind 90 deg - No Ice+Guy	87.51	2.22	-0.37	0.00	0.00	-0.00
Dead+Wind 120 deg - No Ice+Guy	93.89	2.02	0.69	0.00	0.00	0.24
Dead+Wind 150 deg - No Ice+Guy	88.91	0.83	1.62	0.00	0.00	0.72
Dead+Wind 180 deg - No Ice+Guy	80.70	-0.03	2.07	0.00	0.00	0.73
Dead+Wind 210 deg - No Ice+Guy	88.58	-0.93	1.75	0.00	0.00	0.45
Dead+Wind 240 deg - No Ice+Guy	92.30	-1.85	0.99	0.00	0.00	-0.18
Dead+Wind 270 deg - No Ice+Guy	86.07	-2.09	-0.14	0.00	0.00	-0.79
Dead+Wind 300 deg - No Ice+Guy	75.94	-1.91	-1.09	0.00	0.00	-1.02
Dead+Wind 330 deg - No Ice+Guy	83.67	-1.07	-1.66	0.00	0.00	-0.81
Dead+Ice+Temp+Guy	93.43	0.02	-0.06	0.00	0.00	0.00
Dead+Wind 0 deg+Ice+Temp+Guy	129.70	0.26	-1.78	0.00	0.00	-0.33
Dead+Wind 30 deg+Ice+Temp+Guy	125.76	1.31	-1.51	0.00	0.00	0.42
Dead+Wind 60 deg+Ice+Temp+Guy	121.44	1.92	-1.20	0.00	0.00	0.49
Dead+Wind 90 deg+Ice+Temp+Guy	128.92	1.86	-0.45	0.00	0.00	0.39
Dead+Wind 120 deg+Ice+Temp+Guy	134.47	1.56	0.53	0.00	0.00	0.75
Dead+Wind 150 deg+Ice+Temp+Guy	131.04	0.62	1.46	0.00	0.00	1.14
Dead+Wind 180 deg+Ice+Temp+Guy	126.63	-0.02	1.88	0.00	0.00	0.86
Dead+Wind 210 deg+Ice+Temp+Guy	130.69	-0.70	1.54	0.00	0.00	0.29
Dead+Wind 240 deg+Ice+Temp+Guy	132.66	-1.49	0.76	0.00	0.00	-0.41
Dead+Wind 270 deg+Ice+Temp+Guy	127.38	-1.81	-0.29	0.00	0.00	-1.01
Dead+Wind 300 deg+Ice+Temp+Guy	120.37	-1.78	-1.09	0.00	0.00	-1.34
Dead+Wind 330 deg+Ice+Temp+Guy	124.58	-1.07	-1.44	0.00	0.00	-1.21
Dead+Wind 0 deg - Service+Guy	60.59	0.17	-1.02	0.00	0.00	-0.01
Dead+Wind 30 deg - Service+Guy	61.08	0.60	-0.83	0.00	0.00	0.17
Dead+Wind 60 deg - Service+Guy	61.71	0.89	-0.52	0.00	0.00	0.10
Dead+Wind 90 deg - Service+Guy	61.93	1.01	-0.12	0.00	0.00	-0.02

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Load Combination	Vertical K	Shear _x K	Shear _y K	Overturning Moment, M _x kip-ft	Overturning Moment, M _y kip-ft	Torque kip-ft
Dead+Wind 120 deg - Service+Guy	62.19	0.95	0.33	0.00	0.00	0.08
Dead+Wind 150 deg - Service+Guy	62.86	0.45	0.71	0.00	0.00	0.27
Dead+Wind 180 deg - Service+Guy	63.31	-0.00	0.84	0.00	0.00	0.28
Dead+Wind 210 deg - Service+Guy	62.85	-0.45	0.75	0.00	0.00	0.18
Dead+Wind 240 deg - Service+Guy	62.09	-0.85	0.45	0.00	0.00	-0.07
Dead+Wind 270 deg - Service+Guy	61.95	-0.92	-0.03	0.00	0.00	-0.30
Dead+Wind 300 deg - Service+Guy	61.78	-0.77	-0.46	0.00	0.00	-0.37
Dead+Wind 330 deg - Service+Guy	61.12	-0.42	-0.77	0.00	0.00	-0.30

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-27.16	0.00	0.00	27.16	-0.00	0.010%
2	1.32	-27.42	-41.49	-1.32	27.42	41.49	0.004%
3	21.10	-27.21	-35.41	-21.10	27.21	35.41	0.003%
4	35.46	-26.98	-20.61	-35.46	26.98	20.62	0.003%
5	41.18	-27.19	-0.74	-41.18	27.19	0.74	0.004%
6	36.49	-27.40	19.52	-36.49	27.40	-19.52	0.003%
7	20.14	-27.15	34.64	-20.13	27.15	-34.64	0.005%
8	-0.22	-26.91	39.93	0.22	26.91	-39.93	0.004%
9	-20.52	-27.12	35.03	20.52	27.12	-35.02	0.003%
10	-35.88	-27.35	20.70	35.88	27.35	-20.70	0.004%
11	-40.82	-27.13	0.17	40.82	27.13	-0.17	0.005%
12	-34.88	-26.93	-20.02	34.88	26.93	20.02	0.002%
13	-19.99	-27.18	-35.04	19.99	27.18	35.03	0.003%
14	0.00	-52.86	0.00	0.00	52.86	0.00	0.002%
15	1.06	-53.47	-51.07	-1.06	53.47	51.07	0.002%
16	25.54	-52.97	-43.50	-25.54	52.97	43.50	0.002%
17	43.18	-52.42	-25.19	-43.18	52.42	25.19	0.003%
18	50.10	-52.93	-0.59	-50.10	52.93	0.59	0.003%
19	44.39	-53.42	24.54	-44.39	53.42	-24.54	0.004%
20	24.75	-52.82	42.86	-24.75	52.82	-42.86	0.002%
21	-0.20	-52.24	49.37	0.20	52.24	-49.36	0.004%
22	-25.08	-52.75	43.20	25.08	52.75	-43.20	0.002%
23	-43.93	-53.29	25.50	43.92	53.29	-25.50	0.002%
24	-49.82	-52.79	0.14	49.82	52.79	-0.14	0.003%
25	-42.71	-52.29	-24.69	42.70	52.29	24.69	0.002%
26	-24.64	-52.89	-43.17	24.64	52.89	43.16	0.002%
27	0.52	-27.26	-16.21	-0.52	27.26	16.21	0.004%
28	8.24	-27.18	-13.83	-8.24	27.18	13.83	0.005%
29	13.85	-27.09	-8.05	-13.85	27.09	8.05	0.008%
30	16.09	-27.18	-0.29	-16.08	27.18	0.29	0.004%
31	14.25	-27.26	7.63	-14.25	27.26	-7.63	0.004%
32	7.87	-27.16	13.53	-7.86	27.16	-13.53	0.004%
33	-0.09	-27.06	15.60	0.09	27.06	-15.59	0.007%
34	-8.02	-27.15	13.68	8.01	27.15	-13.68	0.004%
35	-14.02	-27.23	8.08	14.01	27.23	-8.08	0.008%
36	-15.95	-27.15	0.07	15.95	27.15	-0.07	0.004%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
37	-13.62	-27.07	-7.82	13.62	27.07	7.82	0.006%
38	-7.81	-27.17	-13.69	7.81	27.17	13.68	0.005%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	10	0.00000001	0.00009449
2	Yes	21	0.00006249	0.00006634
3	Yes	21	0.00005681	0.00005393
4	Yes	18	0.00008404	0.00003818
5	Yes	21	0.00007517	0.00007354
6	Yes	22	0.00005123	0.00005559
7	Yes	21	0.00009139	0.00008641
8	Yes	13	0.00000001	0.00005887
9	Yes	21	0.00006131	0.00006056
10	Yes	21	0.00006685	0.00007310
11	Yes	20	0.00009789	0.00009483
12	Yes	18	0.00000001	0.00002904
13	Yes	21	0.00005910	0.00005405
14	Yes	11	0.00000001	0.00004017
15	Yes	22	0.00006016	0.00005608
16	Yes	22	0.00006251	0.00004978
17	Yes	19	0.00008099	0.00003847
18	Yes	22	0.00007469	0.00006329
19	Yes	22	0.00009001	0.00008544
20	Yes	23	0.00005859	0.00004748
21	Yes	13	0.00006822	0.00006159
22	Yes	22	0.00006580	0.00005534
23	Yes	22	0.00006208	0.00006039
24	Yes	21	0.00009306	0.00007754
25	Yes	19	0.00006236	0.00003044
26	Yes	22	0.00006743	0.00005102
27	Yes	12	0.00000001	0.00004392
28	Yes	12	0.00000001	0.00005923
29	Yes	11	0.00000001	0.00008585
30	Yes	13	0.00000001	0.00005696
31	Yes	13	0.00000001	0.00004264
32	Yes	13	0.00000001	0.00005715
33	Yes	11	0.00000001	0.00009666
34	Yes	13	0.00000001	0.00005054
35	Yes	12	0.00000001	0.00007427
36	Yes	13	0.00000001	0.00004759
37	Yes	11	0.00000001	0.00006496
38	Yes	12	0.00000001	0.00005967

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	224.75 - 204.75	3.908	33	0.0705	0.0676

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T2	204.75 - 184.75	4.001	33	0.0868	0.0578
T3	184.75 - 164.75	3.942	33	0.0714	0.0466
T4	164.75 - 144.75	3.393	33	0.1674	0.0296
T5	144.75 - 124.75	2.708	33	0.1309	0.0210
T6	124.75 - 104.75	2.319	31	0.1166	0.0501
T7	104.75 - 84.75	2.071	31	0.0636	0.0804
T8	84.75 - 64.75	1.950	31	0.0358	0.1161
T9	64.75 - 44.75	1.875	31	0.0525	0.1330
T10	44.75 - 24.75	1.554	31	0.1009	0.1433
T11	24.75 - 4.75	1.028	31	0.1605	0.1245
T12	4.75 - 0	0.207	31	0.2036	0.0614

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
244.00	10' 4 Bay Di-Pole	33	3.908	0.0705	0.0676	368748
235.00	3"x20' Omni	33	3.908	0.0705	0.0676	368748
232.50	21'x4.5" Pipe Mount	33	3.908	0.0705	0.0676	368748
225.00	Beacon	33	3.908	0.0705	0.0676	368748
222.50	48"x11"x6" Panel	33	3.919	0.0766	0.0665	368748
222.00	10' x 3" Dia Omni	33	3.922	0.0779	0.0662	368748
221.00	12' x 3" Dia Omni	33	3.927	0.0805	0.0657	368748
218.33	44"x12"x6" Panel	33	3.940	0.0869	0.0644	287186
217.67	16' Dipole	33	3.943	0.0882	0.0641	260414
216.25	8'-6" x 3" Dia Omni	33	3.950	0.0909	0.0634	216910
215.17	14' x 3" Dia Omni	33	3.955	0.0926	0.0628	192457
215.00	10' x 3" Dia Omni	33	3.956	0.0928	0.0628	189101
214.00	(2) 10' Side Arm	33	3.961	0.0940	0.0623	171510
212.02	Guy	33	3.970	0.0955	0.0613	144829
211.00	20' 4-Bay Dipole	33	3.975	0.0957	0.0608	134090
210.00	11' x 3" Dia Omni	33	3.979	0.0955	0.0603	124999
209.00	10' Dipole	33	3.983	0.0949	0.0598	116824
205.75	8'-6" Dipole	33	3.997	0.0895	0.0583	77180
205.25	8' Dipole	33	3.999	0.0882	0.0580	69678
199.67	5' x 8" Dia Omni	33	4.016	0.0655	0.0554	22137
196.83	18'-6" Di-Pole	33	4.020	0.0508	0.0540	15537
184.33	16" Corner Reflector	33	3.935	0.0733	0.0462	7390
177.50	(4) DB844H90E-XY	33	3.791	0.1110	0.0405	9726
176.75	13'-6" T-Frame Sector Mount	33	3.772	0.1154	0.0398	10165
165.00	BXA-70063-6CF	33	3.402	0.1670	0.0298	32505
164.17	13'-6" T-Frame Sector Mount	33	3.373	0.1682	0.0292	36924
156.25	Yagi	33	3.096	0.1617	0.0246	87390
155.58	3'-6" x 3" Dia Omni	33	3.072	0.1601	0.0243	72679
153.00	14" Corner Reflector	33	2.983	0.1532	0.0232	44095
152.02	Guy	33	2.949	0.1503	0.0229	38361
151.00	6 FT DISH	33	2.914	0.1473	0.0225	33792
149.50	3' Side Mount Standoff	33	2.863	0.1429	0.0221	28754
147.58	3' Yagi	33	2.800	0.1375	0.0216	24314
144.83	10' Dipole	33	2.711	0.1311	0.0210	21018
144.67	12' x 3" Dia Omni	33	2.706	0.1308	0.0210	20923
143.67	6' x 3" Dia Omni	33	2.674	0.1290	0.0208	20537
143.58	44"x8"x3" Panel	33	2.672	0.1288	0.0208	20517
139.67	4' Side Mount Standoff	31	2.576	0.1244	0.0204	21111
139.50	4' Side Mount Standoff	31	2.573	0.1243	0.0204	21168
135.00	1' Side Mount Standoff	31	2.488	0.1224	0.0279	22806

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Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
126.00	3' Side Mount Standoff	31	2.338	0.1181	0.0475	26863
125.00	6 FT DISH	31	2.323	0.1170	0.0496	27292
116.87	Guy	31	2.208	0.0995	0.0639	29072
113.00	44"x3"x8" Panel	31	2.160	0.0881	0.0694	27576
105.83	4 FT DISH	31	2.082	0.0666	0.0785	25325
90.75	4' Omni	31	1.972	0.0388	0.1066	25853
88.50	7'-4" HP DISH	31	1.962	0.0372	0.1104	26066
87.25	Guy	31	1.958	0.0366	0.1125	26472
87.00	7'-4" HP DISH	31	1.957	0.0365	0.1128	26608
81.00	20' Pipe Mount	31	1.941	0.0359	0.1207	52069
79.00	4 FT DISH	31	1.937	0.0365	0.1227	107819
48.17	(2) Yagi	31	1.624	0.0911	0.1426	29816
44.83	Guy	31	1.556	0.1006	0.1433	34431
40.00	4'-4" DISH	31	1.451	0.1153	0.1428	24920
38.17	2' Side Mount Standoff	31	1.409	0.1209	0.1421	21564
34.42	1.2M	31	1.316	0.1326	0.1395	16900
33.00	2'6"x4" Pipe Mount	31	1.279	0.1369	0.1381	15621
29.00	1.2M	31	1.165	0.1488	0.1328	12879
27.00	2' Side Mount Standoff	31	1.102	0.1545	0.1292	12003

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
T1	224.75 - 204.75	21.880	19	0.1543	0.1891
T2	204.75 - 184.75	21.493	19	0.1130	0.1660
T3	184.75 - 164.75	20.639	19	0.4083	0.1288
T4	164.75 - 144.75	18.286	19	0.6962	0.1226
T5	144.75 - 124.75	15.476	19	0.6005	0.1203
T6	124.75 - 104.75	13.007	19	0.5671	0.2613
T7	104.75 - 84.75	10.975	19	0.4118	0.3523
T8	84.75 - 64.75	9.467	19	0.3264	0.4314
T9	64.75 - 44.75	8.291	19	0.3730	0.5033
T10	44.75 - 24.75	6.471	19	0.5058	0.5116
T11	24.75 - 4.75	4.066	19	0.6757	0.4333
T12	4.75 - 0	0.811	19	0.8015	0.2275

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
244.00	10' 4 Bay Di-Pole	19	21.880	0.1543	0.1891	86407
235.00	3"x20' Omni	19	21.880	0.1543	0.1891	86407
232.50	21'x4.5" Pipe Mount	19	21.880	0.1543	0.1891	86407
225.00	Beacon	19	21.880	0.1543	0.1891	86407
222.50	48"x11"x6" Panel	19	21.839	0.1405	0.1869	86407
222.00	10' x 3" Dia Omni	19	21.830	0.1375	0.1863	86407
221.00	12' x 3" Dia Omni	19	21.812	0.1316	0.1853	86407
218.33	44"x12"x6" Panel	19	21.763	0.1172	0.1826	67295
217.67	16' Dipole	19	21.751	0.1141	0.1819	61022

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<i>Elevation</i>	<i>Appurtenance</i>	<i>Gov. Load Comb.</i>	<i>Deflection in</i>	<i>Tilt °</i>	<i>Twist °</i>	<i>Radius of Curvature ft</i>
216.25	8'-6" x 3" Dia Omni	19	21.725	0.1083	0.1803	50828
215.17	14' x 3" Dia Omni	19	21.705	0.1044	0.1791	45098
215.00	10' x 3" Dia Omni	19	21.701	0.1038	0.1789	44311
214.00	(2) 10' Side Arm	19	21.682	0.1008	0.1778	40189
212.02	Guy	19	21.644	0.0967	0.1755	33937
211.00	20' 4-Bay Dipole	19	21.624	0.0959	0.1743	31421
210.00	11' x 3" Dia Omni	19	21.604	0.0960	0.1731	29291
209.00	10' Dipole	19	21.583	0.0970	0.1718	27397
205.75	8'-6" Dipole	19	21.515	0.1074	0.1674	19638
205.25	8' Dipole	19	21.504	0.1101	0.1667	18175
199.67	5' x 8" Dia Omni	19	21.370	0.1594	0.1581	7037
196.83	18'-6" Di-Pole	19	21.285	0.1964	0.1532	5055
184.33	16" Corner Reflector	19	20.605	0.4165	0.1279	2426
177.50	(4) DB844H90E-XY	19	19.935	0.5457	0.1124	3283
176.75	13'-6" T-Frame Sector Mount	19	19.850	0.5589	0.1137	3449
165.00	BXA-70063-6CF	19	18.321	0.6953	0.1227	13205
164.17	13'-6" T-Frame Sector Mount	19	18.204	0.6980	0.1223	15432
156.25	Yagi	19	17.081	0.6787	0.1154	23439
155.58	3'-6" x 3" Dia Omni	19	16.986	0.6744	0.1148	20778
153.00	14" Corner Reflector	19	16.620	0.6563	0.1131	14457
152.02	Guy	19	16.482	0.6490	0.1128	12917
151.00	6 FT DISH	19	16.338	0.6413	0.1128	11591
149.50	3' Side Mount Standoff	19	16.128	0.6301	0.1132	10070
147.58	3' Yagi	19	15.862	0.6167	0.1150	8683
144.83	10' Dipole	19	15.487	0.6009	0.1201	7670
144.67	12' x 3" Dia Omni	19	15.466	0.6001	0.1205	7644
143.67	6' x 3" Dia Omni	19	15.332	0.5959	0.1234	7562
143.58	44"x8"x3" Panel	19	15.320	0.5956	0.1237	7560
139.67	4' Side Mount Standoff	19	14.807	0.5858	0.1431	7942
139.50	4' Side Mount Standoff	19	14.785	0.5856	0.1442	7964
135.00	1' Side Mount Standoff	19	14.218	0.5825	0.1781	8538
126.00	3' Side Mount Standoff	19	13.149	0.5716	0.2521	9749
125.00	6 FT DISH	19	13.036	0.5681	0.2595	9868
116.87	Guy	19	12.151	0.5154	0.3076	9496
113.00	44"x3"x8" Panel	19	11.756	0.4829	0.3243	8977
105.83	4 FT DISH	19	11.072	0.4205	0.3490	8164
90.75	4' Omni	19	9.858	0.3372	0.4011	7189
88.50	7'-4" HP DISH	19	9.705	0.3316	0.4128	7024
87.25	Guy	19	9.623	0.3293	0.4191	6992
87.00	7'-4" HP DISH	19	9.607	0.3290	0.4203	7000
81.00	20' Pipe Mount	19	9.249	0.3262	0.4488	11447
79.00	4 FT DISH	19	9.138	0.3280	0.4574	18336
48.17	(2) Yagi	19	6.825	0.4784	0.5149	8539
44.83	Guy	19	6.480	0.5051	0.5117	9708
40.00	4'-4" DISH	19	5.962	0.5464	0.5037	7490
38.17	2' Side Mount Standoff	19	5.759	0.5625	0.4993	6624
34.42	1.2M	19	5.326	0.5956	0.4874	5354
33.00	2'6"x4" Pipe Mount	19	5.155	0.6081	0.4818	4991
29.00	1.2M	19	4.649	0.6421	0.4618	4194
27.00	2' Side Mount Standoff	19	4.381	0.6583	0.4494	3934

Bolt Design Data

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Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load Allowable	Allowable Ratio	Criteria
T1	224.75	Leg	A325N	0.7500	4	0.63	19.44	0.032 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.6250	1	5.68	6.12	0.929 ✓	1.333	Member Bearing
		Top Girt	A325N	0.6250	1	0.23	6.44	0.036 ✓	1.333	Bolt Shear
		Bottom Girt	A325N	0.6250	1	4.12	6.44	0.639 ✓	1.333	Bolt Shear
T2	204.75	Leg	A325N	0.7500	4	1.33	19.42	0.068 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.5000	1	1.39	3.20	0.435 ✓	1.333	Member Bearing
		Top Girt	A325N	0.5000	1	0.62	4.12	0.151 ✓	1.333	Bolt Shear
		Bottom Girt	A325N	0.5000	1	0.43	3.20	0.135 ✓	1.333	Member Bearing
T3	184.75	Leg	A325N	0.7500	4	4.04	19.44	0.208 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.5000	1	2.25	3.20	0.704 ✓	1.333	Member Bearing
		Top Girt	A325N	0.5000	1	0.39	3.20	0.122 ✓	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	0.37	3.20	0.115 ✓	1.333	Member Bearing
T4	164.75	Leg	A325N	0.7500	4	0.00	19.36	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.6250	1	7.98	6.12	1.305 ✓	1.333	Member Bearing
		Top Girt	A325N	0.6250	1	1.20	6.12	0.197 ✓	1.333	Member Bearing
		Bottom Girt	A325N	0.6250	1	4.42	6.44	0.686 ✓	1.333	Bolt Shear
T5	144.75	Leg	A325N	0.7500	4	0.00	19.43	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.5000	1	2.01	4.38	0.458 ✓	1.333	Member Bearing
		Top Girt	A325N	0.5000	1	0.43	3.20	0.134 ✓	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	0.60	3.20	0.188 ✓	1.333	Member Bearing
T6	124.75	Leg	A325N	0.7500	4	0.00	19.42	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.5000	1	2.21	3.20	0.691 ✓	1.333	Member Bearing
		Top Girt	A325N	0.5000	1	0.56	3.20	0.175 ✓	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	0.42	3.20	0.132 ✓	1.333	Member Bearing
T7	104.75	Leg	A325N	0.7500	4	0.00	19.44	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.5000	1	3.00	3.20	0.938 ✓	1.333	Member Bearing
		Top Girt	A325N	0.5000	1	0.45	3.20	0.141 ✓	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	3.06	3.20	0.959 ✓	1.333	Member Bearing
T8	84.75	Leg	A325N	0.7500	4	0.00	19.34	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.7500	1	4.39	4.57	0.961 ✓	1.333	Member Bearing
		Top Girt	A325N	0.5000	1	2.98	3.20	0.932 ✓	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	0.55	3.20	0.171 ✓	1.333	Member Bearing
T9	64.75	Leg	A325N	0.7500	4	0.00	19.44	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.5000	1	1.09	3.20	0.341 ✓	1.333	Member Bearing
		Top Girt	A325N	0.5000	1	0.41	3.20	0.128 ✓	1.333	Member Bearing
T10	44.75	Leg	A325N	0.7500	4	0.00	19.43	0.000 ✓	1.333	Bolt Tension
		Diagonal	A325X	0.5000	1	2.14	3.20	0.669 ✓	1.333	Member Bearing
		Top Girt	A325N	0.5000	1	0.96	3.20	0.300 ✓	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	0.49	3.20	0.154 ✓	1.333	Member Bearing
T11	24.75	Leg	A325N	0.7500	4	0.00	19.44	0.000 ✓	1.333	Bolt Tension

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Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load Allowable	Allowable Ratio	Criteria
T12	4.75	Diagonal	A325X	0.5000	1	2.70	3.20	0.843 ✓	1.333	Member Bearing
		Top Girt	A325N	0.5000	1	0.60	3.20	0.187 ✓	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	0.92	3.20	0.289 ✓	1.333	Member Bearing
		Leg	A325N	0.7500	4	0.00	17.38	0.000 ✓	1.333	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T K	Allowable T _a K	Required S.F.	Actual S.F.
T1	212.02 (A) (556)	1/2 EHS	2.69	26.90	12.11	13.45	2.000	2.222 ✓
	212.02 (A) (557)	1/2 EHS	2.69	26.90	12.19	13.45	2.000	2.207 ✓
	212.02 (B) (550)	1/2 EHS	2.69	26.90	11.18	13.45	2.000	2.405 ✓
	212.02 (B) (551)	1/2 EHS	2.69	26.90	11.25	13.45	2.000	2.390 ✓
	212.02 (C) (544)	1/2 EHS	2.69	26.90	11.44	13.45	2.000	2.352 ✓
	212.02 (C) (545)	1/2 EHS	2.69	26.90	11.29	13.45	2.000	2.384 ✓
T4	152.02 (A) (538)	1/2 EHS	2.69	26.90	12.87	13.45	2.000	2.090 ✓
	152.02 (A) (539)	1/2 EHS	2.69	26.90	13.01	13.45	2.000	2.067 ✓
	152.02 (B) (532)	1/2 EHS	2.69	26.90	11.94	13.45	2.000	2.254 ✓
	152.02 (B) (533)	1/2 EHS	2.69	26.90	11.76	13.45	2.000	2.288 ✓
	152.02 (C) (526)	1/2 EHS	2.69	26.90	11.97	13.45	2.000	2.247 ✓
	152.02 (C) (527)	1/2 EHS	2.69	26.90	12.02	13.45	2.000	2.239 ✓
T6	116.87 (A) (525)	1/2 EHS	2.69	26.90	11.96	13.45	2.000	2.249 ✓
	116.87 (B) (524)	1/2 EHS	2.69	26.90	11.19	13.45	2.000	2.404 ✓
	116.87 (C) (520)	1/2 EHS	2.69	26.90	11.44	13.45	2.000	2.351 ✓
T7	87.25 (A) (573)	3/8 EHS	1.54	15.40	6.19	7.70	2.000	2.488 ✓
	87.25 (A) (574)	3/8 EHS	1.54	15.40	6.33	7.70	2.000	2.433 ✓
	87.25 (B) (569)	3/8 EHS	1.54	15.40	6.21	7.70	2.000	2.482 ✓
	87.25 (B) (570)	3/8 EHS	1.54	15.40	5.83	7.70	2.000	2.642 ✓
	87.25 (C) (565)	3/8 EHS	1.54	15.40	6.11	7.70	2.000	2.519 ✓
T9	87.25 (C) (566)	3/8 EHS	1.54	15.40	6.37	7.70	2.000	2.418 ✓
	44.83 (A) (564)	3/8 EHS	1.54	15.40	6.00	7.70	2.000	2.567 ✓

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Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T K	Allowable T _a K	Required S.F.	Actual S.F.
	44.83 (B) (563)	3/8 EHS	1.54	15.40	5.73	7.70	2.000	2.686 ✓
	44.83 (C) (562)	3/8 EHS	1.54	15.40	6.02	7.70	2.000	2.557 ✓

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 K	Allow. P _a K	Ratio P P _a
T1	224.75 - 204.75	ROHN 2.5 EH	20.00	2.42	31.5 K=1.00	1.00	26.969	2.2535	-14.96	60.78	0.246 ✓
T2	204.75 - 184.75	ROHN 2.5 STD	20.00	2.42	30.7 K=1.00	0.98	26.633	1.7040	-40.93	45.38	0.902 ✓
T3	184.75 - 164.75	ROHN 2.5 STD	20.00	2.42	30.7 K=1.00	0.98	26.640	1.7040	-41.22	45.40	0.908 ✓
T4	164.75 - 144.75	ROHN 2.5 EH	20.00	2.42	31.5 K=1.00	0.98	26.460	2.2535	-44.22	59.63	0.742 ✓
T5	144.75 - 124.75	ROHN 2.5 STD	20.00	2.42	30.7 K=1.00	1.00	27.067	1.7040	-36.91	46.12	0.800 ✓
T6	124.75 - 104.75	ROHN 2.5 STD	20.00	2.42	30.7 K=1.00	1.00	27.067	1.7040	-48.42	46.12	1.050 ✓
T7	104.75 - 84.75	ROHN 2.5 EH	20.00	2.41	62.7 K=2.00	1.00	22.257	2.2535	-48.34	50.16	0.964 ✓
T8	84.75 - 64.75	ROHN 2.5 EH	20.00	2.41	62.7 K=2.00	1.00	22.257	2.2535	-54.63	50.16	1.089 ✓
T9	64.75 - 44.75	ROHN 2.5 EH	20.00	2.41	62.7 K=2.00	1.00	22.257	2.2535	-56.61	50.16	1.129 ✓
T10	44.75 - 24.75	ROHN 2.5 EH	20.00	2.41	62.7 K=2.00	1.00	22.257	2.2535	-62.69	50.16	1.250 ✓
T11	24.75 - 4.75	ROHN 2.5 EH	20.00	2.41	62.7 K=2.00	1.00	22.257	2.2535	-61.63	50.16	1.229 ✓
T12	4.75 - 0	ROHN 2.5 EH	5.14	2.03	26.4 K=1.00	0.98	27.063	2.2535	-52.23	60.99	0.856 ✓

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	224.75 - 204.75	L1 3/4x1 3/4x3/16	4.19	1.81	77.5 K=1.22	15.633	0.6211	-4.28	9.71	0.440 ✓
T2	204.75 - 184.75	ROHN TS1.5x16 ga	4.19	3.90	91.6	15.296	0.2627	-1.69	4.02	0.421 ✓

tnxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	50 of 65
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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T3	184.75 - 164.75	ROHN TS1.5x16 ga	4.19	3.90	K=1.00 91.6	15.296	0.2627	-2.58	4.02	0.641 ✓
T4	164.75 - 144.75	L1 3/4x1 3/4x3/16	4.19	1.81	K=1.00 77.5	15.633	0.6211	-5.84	9.71	0.601 ✓
T5	144.75 - 124.75	ROHN TS1.5x16 ga	4.19	3.90	K=1.22 91.6	15.296	0.2627	-2.01	4.02	0.500 ✓
T6	124.75 - 104.75	ROHN TS1.5x16 ga	4.19	3.90	K=1.00 91.6	15.296	0.2627	-2.43	4.02	0.605 ✓
T7	104.75 - 84.75	ROHN TS1.5x16 ga	4.18	3.89	K=1.00 91.5	15.317	0.2627	-3.42	4.02	0.850 ✓
T8	84.75 - 64.75	ROHN TS1.5x16 ga	4.18	3.89	K=1.00 91.5	15.317	0.2627	-4.87	4.02	1.210 ✓
T9	64.75 - 44.75	ROHN TS1.5x16 ga	4.18	3.89	K=1.00 91.5	15.317	0.2627	-1.14	4.02	0.283 ✓
T10	44.75 - 24.75	ROHN TS1.5x16 ga	4.18	3.89	K=1.00 91.5	15.317	0.2627	-2.17	4.02	0.540 ✓
T11	24.75 - 4.75	ROHN TS1.5x16 ga	4.18	3.89	K=1.00 91.5	15.317	0.2627	-2.79	4.02	0.692 ✓

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	224.75 - 204.75	L1 3/4x1 3/4x3/16	3.42	2.91	110.8 K=1.09	11.568	0.6211	-0.23	7.18	0.032 ✓
T2	204.75 - 184.75	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.822	0.2627	-0.62	4.68	0.133 ✓
T3	184.75 - 164.75	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.822	0.2627	-0.10	4.68	0.021 ✓
T4	164.75 - 144.75	L1 3/4x1 3/4x3/16	3.42	2.91	110.8 K=1.09	11.568	0.6211	-0.78	7.18	0.109 ✓
T5	144.75 - 124.75	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.822	0.2627	-0.30	4.68	0.065 ✓
T7	104.75 - 84.75	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.822	0.2627	-0.28	4.68	0.061 ✓
T8	84.75 - 64.75	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.822	0.2627	-2.93	4.68	0.627 ✓
T9	64.75 - 44.75	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.822	0.2627	-0.29	4.68	0.061 ✓
T10	44.75 - 24.75	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.822	0.2627	-0.82	4.68	0.174 ✓
T11	24.75 - 4.75	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.822	0.2627	-0.33	4.68	0.071 ✓

Bottom Girt Design Data (Compression)

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	224.75 - 204.75	L1 3/4x1 3/4x3/16	3.42	2.91	110.8 K=1.09	11.568	0.6211	-4.12	7.18	0.573
T2	204.75 - 184.75	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.822	0.2627	-0.15	4.68	0.031
T3	184.75 - 164.75	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.822	0.2627	-0.09	4.68	0.020
T4	164.75 - 144.75	L1 3/4x1 3/4x3/16	3.42	2.91	110.8 K=1.09	11.568	0.6211	-4.42	7.18	0.615
T7	104.75 - 84.75	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.822	0.2627	-3.03	4.68	0.647
T8	84.75 - 64.75	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.822	0.2627	-0.33	4.68	0.070
T10	44.75 - 24.75	ROHN TS1.5x16 ga	3.42	3.18	74.7 K=1.00	17.822	0.2627	-0.34	4.68	0.072
T12	4.75 - 0	C14x2x3/16	0.66	0.42	17.2 K=1.00	20.767	3.3047	-0.94	68.63	0.014

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 K	Allow. P _a K	Ratio P P _a
T6	124.75 - 104.75	4 1/2x3/8	3.42	3.18	352.2 K=1.00	21.600	1.6875	0.00	2.03	0.000*
T9	64.75 - 44.75	4 1/2x3/8	3.42	3.18	352.2 K=1.00	21.600	1.6875	0.00	2.03	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 f _{bx} F _{bx}	Actual M _y kip-ft	Actual f _{by} ksi	Allow. F _{by} ksi	Ratio f _{by} F _{by}
T6	124.75 - 104.75	4 1/2x3/8	0.01	-0.110	27.000	0.004	0.00	-0.000	27.000	0.000
T9	64.75 - 44.75	4 1/2x3/8	0.01	-0.110	27.000	0.004	0.00	0.000	27.000	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio P P _a	Ratio f _{bx} F _{bx}	Ratio f _{by} F _{by}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T6	124.75 -	4 1/2x3/8	0.000	0.004	0.000	0.004* ✓	1.000	H1-3 ✓

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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
T9	104.75 64.75 - 44.75	4 1/2x3/8	0.000	0.004	0.000	0.004 ✓	1.000	H1-3 ✓

* DL controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio $\frac{P}{P_a}$
T1	224.75 - 204.75 (546)	P2.5x.203	7.86	7.74	98.1 K=0.65	21.000	1.7040	0.00	28.42	0.000*
T1	224.75 - 204.75 (547)	P2.5x.203	7.86	7.74	98.1 K=0.65	21.000	1.7040	0.00	28.42	0.000*
T1	224.75 - 204.75 (552)	P2.5x.203	7.86	7.74	98.1 K=0.65	21.000	1.7040	0.00	28.42	0.000*
T1	224.75 - 204.75 (553)	P2.5x.203	7.86	7.74	98.1 K=0.65	21.000	1.7040	0.00	28.42	0.000*
T1	224.75 - 204.75 (558)	P2.5x.203	7.86	7.74	98.1 K=0.65	21.000	1.7040	0.00	28.42	0.000*
T1	224.75 - 204.75 (559)	P2.5x.203	7.86	7.74	98.1 K=0.65	21.000	1.7040	0.00	28.42	0.000*
T4	164.75 - 144.75 (528)	P2.5x.203	7.86	7.74	63.7 K=0.65	16.677	1.7040	-1.52	28.42	0.054
T4	164.75 - 144.75 (529)	P2.5x.203	7.86	7.74	63.7 K=0.65	16.677	1.7040	-1.18	28.42	0.042
T4	164.75 - 144.75 (534)	P2.5x.203	7.86	7.74	63.7 K=0.65	16.677	1.7040	-1.31	28.42	0.046
T4	164.75 - 144.75 (535)	P2.5x.203	7.86	7.74	63.7 K=0.65	16.677	1.7040	-1.15	28.42	0.041
T4	164.75 - 144.75 (540)	P2.5x.203	7.86	7.74	63.7 K=0.65	16.677	1.7040	-1.66	28.42	0.059
T4	164.75 - 144.75 (541)	P2.5x.203	7.86	7.74	63.7 K=0.65	16.677	1.7040	-1.16	28.42	0.041
T7	104.75 - 84.75 (567)	C8x13.75	3.63	3.51	98.3 K=1.00	13.193	4.0400	-1.64	53.30	0.031
T7	104.75 - 84.75 (568)	C8x13.75	3.63	3.51	98.3 K=1.00	13.193	4.0400	-1.65	53.30	0.031
T7	104.75 - 84.75 (571)	C8x13.75	3.63	3.51	98.3 K=1.00	13.193	4.0400	-2.82	53.30	0.053
T7	104.75 - 84.75 (572)	C8x13.75	3.63	3.51	98.3 K=1.00	13.193	4.0400	-2.84	53.30	0.053
T7	104.75 - 84.75 (575)	C8x13.75	3.63	3.51	98.3 K=1.00	13.193	4.0400	-1.42	53.30	0.027
T7	104.75 - 84.75 (576)	C8x13.75	3.63	3.51	98.3 K=1.00	13.193	4.0400	-1.49	53.30	0.028

* DL controls

Torque-Arm Top Bending Design Data

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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	224.75 - 204.75 (546)	P2.5x.203	0.06	-0.685	23.100	0.030	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (547)	P2.5x.203	0.06	-0.685	23.100	0.030	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (552)	P2.5x.203	0.06	-0.685	23.100	0.030	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (553)	P2.5x.203	0.06	-0.685	23.100	0.030	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (558)	P2.5x.203	0.06	-0.685	23.100	0.030	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (559)	P2.5x.203	0.06	-0.685	23.100	0.030	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (528)	P2.5x.203	0.04	-0.505	23.100	0.022	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (529)	P2.5x.203	0.04	-0.505	23.100	0.022	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (534)	P2.5x.203	0.04	-0.505	23.100	0.022	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (535)	P2.5x.203	0.04	-0.505	23.100	0.022	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (540)	P2.5x.203	0.04	-0.505	23.100	0.022	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (541)	P2.5x.203	0.04	-0.505	23.100	0.022	0.00	0.000	23.100	0.000
T7	104.75 - 84.75 (567)	C8x13.75	-11.60	-15.410	21.600	0.713	-0.00	-0.000	21.600	0.000
T7	104.75 - 84.75 (568)	C8x13.75	-11.53	-15.324	21.600	0.709	0.00	-0.000	21.600	0.000
T7	104.75 - 84.75 (571)	C8x13.75	-10.15	-13.482	21.600	0.624	0.00	-0.000	21.600	0.000
T7	104.75 - 84.75 (572)	C8x13.75	-10.98	-14.597	21.600	0.676	0.00	-0.000	21.600	0.000
T7	104.75 - 84.75 (575)	C8x13.75	-9.79	-13.014	21.600	0.602	-0.00	-0.000	21.600	0.000
T7	104.75 - 84.75 (576)	C8x13.75	-11.55	-15.349	21.600	0.711	0.00	-0.000	21.600	0.000

Torque-Arm Top 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	224.75 - 204.75 (546)	P2.5x.203	0.000	0.030	0.000	0.030 ✓	1.000	H1-3 ✓
T1	224.75 - 204.75 (547)	P2.5x.203	0.000	0.030	0.000	0.030 ✓	1.000	H1-3 ✓
T1	224.75 - 204.75 (552)	P2.5x.203	0.000	0.030	0.000	0.030 ✓	1.000	H1-3 ✓
T1	224.75 - 204.75 (553)	P2.5x.203	0.000	0.030	0.000	0.030 ✓	1.000	H1-3 ✓
T1	224.75 - 204.75 (558)	P2.5x.203	0.000	0.030	0.000	0.030 ✓	1.000	H1-3 ✓
T1	224.75 - 204.75 (559)	P2.5x.203	0.000	0.030	0.000	0.030 ✓	1.000	H1-3 ✓
T4	164.75 - 144.75 (528)	P2.5x.203	0.054	0.022	0.000	0.075 ✓	1.333	H1-3 ✓

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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
T4	164.75 - 144.75 (529)	P2.5x.203	0.042	0.022	0.000	0.064	1.333	H1-3 ✓
T4	164.75 - 144.75 (534)	P2.5x.203	0.046	0.022	0.000	0.068	1.333	H1-3 ✓
T4	164.75 - 144.75 (535)	P2.5x.203	0.041	0.022	0.000	0.062	1.333	H1-3 ✓
T4	164.75 - 144.75 (540)	P2.5x.203	0.059	0.022	0.000	0.080	1.333	H1-3 ✓
T4	164.75 - 144.75 (541)	P2.5x.203	0.041	0.022	0.000	0.063	1.333	H1-3 ✓
T7	104.75 - 84.75 (567)	C8x13.75	0.031	0.713	0.000	0.744	1.333	H1-3 ✓
T7	104.75 - 84.75 (568)	C8x13.75	0.031	0.709	0.000	0.741	1.333	H1-3 ✓
T7	104.75 - 84.75 (571)	C8x13.75	0.053	0.624	0.000	0.677	1.333	H1-3 ✓
T7	104.75 - 84.75 (572)	C8x13.75	0.053	0.676	0.000	0.729	1.333	H1-3 ✓
T7	104.75 - 84.75 (575)	C8x13.75	0.027	0.602	0.000	0.629	1.333	H1-3 ✓
T7	104.75 - 84.75 (576)	C8x13.75	0.028	0.711	0.000	0.739	1.333	H1-3 ✓

* DL controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in ²	Actual P K	Allow. $\frac{P_a}{K}$	Ratio $\frac{P}{P_a}$
T1	224.75 - 204.75 (548)	P2.5x.203	10.71	10.54	86.8 K=0.65	14.312	1.7040	-17.03	24.39	0.698
T1	224.75 - 204.75 (549)	P2.5x.203	10.71	10.54	86.8 K=0.65	14.312	1.7040	-17.85	24.39	0.732
T1	224.75 - 204.75 (554)	P2.5x.203	10.71	10.54	86.8 K=0.65	14.312	1.7040	-16.43	24.39	0.674
T1	224.75 - 204.75 (555)	P2.5x.203	10.71	10.54	86.8 K=0.65	14.312	1.7040	-16.22	24.39	0.665
T1	224.75 - 204.75 (560)	P2.5x.203	10.71	10.54	86.8 K=0.65	14.312	1.7040	-16.69	24.39	0.684
T1	224.75 - 204.75 (561)	P2.5x.203	10.71	10.54	86.8 K=0.65	14.312	1.7040	-17.70	24.39	0.726
T4	164.75 - 144.75 (530)	P2.5x.203	10.71	10.54	86.8 K=0.65	14.312	1.7040	-16.67	24.39	0.684
T4	164.75 - 144.75 (531)	P2.5x.203	10.71	10.54	86.8 K=0.65	14.312	1.7040	-17.92	24.39	0.735
T4	164.75 - 144.75 (536)	P2.5x.203	10.71	10.54	86.8 K=0.65	14.312	1.7040	-17.25	24.39	0.707
T4	164.75 - 144.75 (537)	P2.5x.203	10.71	10.54	86.8 K=0.65	14.312	1.7040	-16.96	24.39	0.696
T4	164.75 - 144.75 (542)	P2.5x.203	10.71	10.54	86.8 K=0.65	14.312	1.7040	-16.28	24.39	0.668
T4	164.75 - 144.75	P2.5x.203	10.71	10.54	86.8	14.312	1.7040	-17.83	24.39	0.731

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Section No.	Elevation	Size	L	L _u	Kl/r	F _a	A	Actual P	Allow. P _a	Ratio P
	ft		ft	ft		ksi	in ²	K	K	$\frac{P}{P_a}$
	(543)				K=0.65					

Torque-Arm Bottom Bending Design Data

Section No.	Elevation	Size	Actual M _x	Actual f _{bx}	Allow. F _{bx}	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M _y	Actual f _{by}	Allow. F _{by}	Ratio $\frac{f_{by}}{F_{by}}$
	ft		kip-ft	ksi	ksi		kip-ft	ksi	ksi	
T1	224.75 - 204.75 (548)	P2.5x.203	0.08	-0.934	23.100	0.040	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (549)	P2.5x.203	0.08	-0.934	23.100	0.040	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (554)	P2.5x.203	0.08	-0.934	23.100	0.040	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (555)	P2.5x.203	0.08	-0.934	23.100	0.040	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (560)	P2.5x.203	0.08	-0.934	23.100	0.040	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (561)	P2.5x.203	0.08	-0.933	23.100	0.040	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (530)	P2.5x.203	0.08	-0.936	23.100	0.041	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (531)	P2.5x.203	0.08	-0.936	23.100	0.041	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (536)	P2.5x.203	0.08	-0.936	23.100	0.041	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (537)	P2.5x.203	0.08	-0.936	23.100	0.041	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (542)	P2.5x.203	0.08	-0.936	23.100	0.041	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (543)	P2.5x.203	0.08	-0.936	23.100	0.041	0.00	0.000	23.100	0.000

Torque-Arm Bottom Interaction Design Data

Section No.	Elevation	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
	ft							
T1	224.75 - 204.75 (548)	P2.5x.203	0.698	0.040	0.000	0.739	1.333	H1-3 ✓
T1	224.75 - 204.75 (549)	P2.5x.203	0.732	0.040	0.000	0.772	1.333	H1-3 ✓
T1	224.75 - 204.75 (554)	P2.5x.203	0.674	0.040	0.000	0.714	1.333	H1-3 ✓
T1	224.75 - 204.75 (555)	P2.5x.203	0.665	0.040	0.000	0.706	1.333	H1-3 ✓
T1	224.75 - 204.75 (560)	P2.5x.203	0.684	0.040	0.000	0.725	1.333	H1-3 ✓
T1	224.75 - 204.75 (561)	P2.5x.203	0.726	0.040	0.000	0.766	1.333	H1-3 ✓
T4	164.75 - 144.75 (530)	P2.5x.203	0.684	0.041	0.000	0.724	1.333	H1-3 ✓

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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
T4	164.75 - 144.75 (531)	P2.5x.203	0.735	0.041	0.000	✓ 0.776	1.333	H1-3 ✓
T4	164.75 - 144.75 (536)	P2.5x.203	0.707	0.041	0.000	✓ 0.748	1.333	H1-3 ✓
T4	164.75 - 144.75 (537)	P2.5x.203	0.696	0.041	0.000	✓ 0.736	1.333	H1-3 ✓
T4	164.75 - 144.75 (542)	P2.5x.203	0.668	0.041	0.000	✓ 0.708	1.333	H1-3 ✓
T4	164.75 - 144.75 (543)	P2.5x.203	0.731	0.041	0.000	✓ 0.772	1.333	H1-3 ✓

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio $\frac{P}{P_a}$
T1	224.75 - 204.75	ROHN 2.5 EH	20.00	2.42	31.5	30.000	2.2535	9.59	67.61	0.142 ✓
T2	204.75 - 184.75	ROHN 2.5 STD	20.00	2.42	30.7	30.000	1.7040	16.01	51.12	0.313 ✓
T3	184.75 - 164.75	ROHN 2.5 STD	20.00	2.42	30.7	30.000	1.7040	16.21	51.12	0.317 ✓
T4	164.75 - 144.75	ROHN 2.5 EH	20.00	2.42	31.5	30.000	2.2535	13.19	67.61	0.195 ✓

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio $\frac{P}{P_a}$
T1	224.75 - 204.75	L1 3/4x1 3/4x3/16	4.19	1.81	43.5	29.000	0.3604	5.68	10.45	0.544 ✓
T2	204.75 - 184.75	ROHN TS1.5x16 ga	4.19	3.90	91.6	25.200	0.2627	1.39	6.62	0.210 ✓
T3	184.75 - 164.75	ROHN TS1.5x16 ga	4.19	3.90	91.6	25.200	0.2627	2.25	6.62	0.340 ✓
T4	164.75 - 144.75	L1 3/4x1 3/4x3/16	4.19	1.81	43.5	29.000	0.3604	7.98	10.45	0.764 ✓
T5	144.75 - 124.75	ROHN TS1.5x16 ga	4.19	3.90	91.6	25.200	0.2627	1.44	6.62	0.217 ✓
T6	124.75 - 104.75	ROHN TS1.5x16 ga	4.19	3.90	91.6	25.200	0.2627	2.21	6.62	0.334 ✓

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T7	104.75 - 84.75	ROHN TS1.5x16 ga	4.18	3.89	91.5	25.200	0.2627	3.00	6.62	0.453
T8	84.75 - 64.75	ROHN TS1.5x16 ga	4.18	3.89	91.5	25.200	0.2627	4.39	6.62	0.663
T9	64.75 - 44.75	ROHN TS1.5x16 ga	4.18	3.89	91.5	25.200	0.2627	1.09	6.62	0.165
T10	44.75 - 24.75	ROHN TS1.5x16 ga	4.18	3.89	91.5	25.200	0.2627	2.14	6.62	0.323
T11	24.75 - 4.75	ROHN TS1.5x16 ga	4.18	3.89	91.5	25.200	0.2627	2.70	6.62	0.407

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	224.75 - 204.75	L1 3/4x1 3/4x3/16	3.42	2.91	71.0	29.000	0.3604	0.07	10.45	0.007
T2	204.75 - 184.75	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	0.28	6.62	0.043
T3	184.75 - 164.75	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	0.39	6.62	0.059
T4	164.75 - 144.75	L1 3/4x1 3/4x3/16	3.42	2.91	71.0	29.000	0.3604	1.20	10.45	0.115
T5	144.75 - 124.75	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	0.43	6.62	0.065
T6	124.75 - 104.75	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	0.56	6.62	0.085
T7	104.75 - 84.75	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	0.45	6.62	0.068
T8	84.75 - 64.75	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	2.98	6.62	0.450
T9	64.75 - 44.75	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	0.41	6.62	0.062
T10	44.75 - 24.75	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	0.96	6.62	0.145
T11	24.75 - 4.75	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	0.60	6.62	0.090
T12	4.75 - 0	C14x2x3/16	3.36	3.12	100.0	21.600	3.3047	10.56	71.38	0.148

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	224.75 - 204.75	L1 3/4x1 3/4x3/16	3.42	2.91	71.0	29.000	0.3604	0.88	10.45	0.084

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio $\frac{P}{P_a}$
T2	204.75 - 184.75	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	0.43	6.62	0.065 ✓
T3	184.75 - 164.75	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	0.37	6.62	0.056 ✓
T4	164.75 - 144.75	L1 3/4x1 3/4x3/16	3.42	2.91	71.0	29.000	0.3604	2.12	10.45	0.203 ✓
T5	144.75 - 124.75	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	0.60	6.62	0.091 ✓
T6	124.75 - 104.75	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	0.42	6.62	0.064 ✓
T7	104.75 - 84.75	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	3.06	6.62	0.463 ✓
T8	84.75 - 64.75	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	0.55	6.62	0.083 ✓
T10	44.75 - 24.75	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	0.49	6.62	0.075 ✓
T11	24.75 - 4.75	ROHN TS1.5x16 ga	3.42	3.18	74.7	25.200	0.2627	0.92	6.62	0.140 ✓

Mid Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio $\frac{P}{P_a}$
T12	4.75 - 0	C14x2x3/16	2.01	1.77	56.7	21.600	3.3047	0.04	71.38	0.001* ✓

* DL controls

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 K	Allow. P _a K	Ratio $\frac{P}{P_a}$
T6	124.75 - 104.75	4 1/2x3/8	3.42	3.18	352.2	21.600	1.6875	4.98	36.45	0.137
T9	64.75 - 44.75	4 1/2x3/8	3.42	3.18	352.2	21.600	1.6875	3.10	36.45	0.085

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 $\frac{f_{by}}{F_{by}}$
T6	124.75 -	4 1/2x3/8	0.01	0.110	27.000	0.004	0.00	0.000	27.000	0.000

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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 $\frac{f_{by}}{F_{by}}$
T9	104.75 64.75 - 44.75	4 1/2x3/8	0.01	0.110	27.000	0.004	-0.00	0.000	27.000	0.000

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
T6	124.75 - 104.75	4 1/2x3/8	0.137	0.004	0.000	0.141	1.333	H2-1 ✓
T9	64.75 - 44.75	4 1/2x3/8	0.085	0.004	0.000	0.089	1.333	H2-1 ✓

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in ²	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	224.75 - 204.75 (546)	P2.5x.203	7.86	7.74	98.1	21.000	1.7040	12.45	35.79	0.348
T1	224.75 - 204.75 (547)	P2.5x.203	7.86	7.74	98.1	21.000	1.7040	12.44	35.79	0.347
T1	224.75 - 204.75 (552)	P2.5x.203	7.86	7.74	98.1	21.000	1.7040	11.99	35.79	0.335
T1	224.75 - 204.75 (553)	P2.5x.203	7.86	7.74	98.1	21.000	1.7040	12.18	35.79	0.340
T1	224.75 - 204.75 (558)	P2.5x.203	7.86	7.74	98.1	21.000	1.7040	12.21	35.79	0.341
T1	224.75 - 204.75 (559)	P2.5x.203	7.86	7.74	98.1	21.000	1.7040	12.45	35.79	0.348
T4	164.75 - 144.75 (528)	P2.5x.203	7.86	7.74	98.1	21.000	1.7040	15.68	35.79	0.438
T4	164.75 - 144.75 (529)	P2.5x.203	7.86	7.74	98.1	21.000	1.7040	15.17	35.79	0.424
T4	164.75 - 144.75 (534)	P2.5x.203	7.86	7.74	98.1	21.000	1.7040	14.52	35.79	0.406
T4	164.75 - 144.75 (535)	P2.5x.203	7.86	7.74	98.1	21.000	1.7040	14.78	35.79	0.413
T4	164.75 - 144.75 (540)	P2.5x.203	7.86	7.74	98.1	21.000	1.7040	15.29	35.79	0.427
T4	164.75 - 144.75 (541)	P2.5x.203	7.86	7.74	98.1	21.000	1.7040	15.06	35.79	0.421
T7	104.75 - 84.75 (567)	C8x13.75	3.63	3.51	68.4	21.600	4.0400	0.03	87.26	0.000
T7	104.75 - 84.75 (568)	C8x13.75	3.63	3.51	68.4	21.600	4.0400	0.12	87.26	0.001
T7	104.75 - 84.75 (571)	C8x13.75	3.63	3.51	68.4	21.600	4.0400	2.35	87.26	0.027
T7	104.75 - 84.75 (572)	C8x13.75	3.63	3.51	68.4	21.600	4.0400	2.06	87.26	0.024
T7	104.75 - 84.75 (575)	C8x13.75	3.63	3.51	68.4	21.600	4.0400	0.35	87.26	0.004

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio $\frac{P}{P_a}$
T7	104.75 - 84.75 (576)	C8x13.75	3.63	3.51	68.4	21.600	4.0400	0.15	87.26	0.002

Torque-Arm Top 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	224.75 - 204.75 (546)	P2.5x.203	0.06	0.685	23.100	0.030	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (547)	P2.5x.203	0.06	0.685	23.100	0.030	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (552)	P2.5x.203	0.06	0.685	23.100	0.030	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (553)	P2.5x.203	0.06	0.685	23.100	0.030	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (558)	P2.5x.203	0.06	0.685	23.100	0.030	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (559)	P2.5x.203	0.06	0.685	23.100	0.030	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (528)	P2.5x.203	0.06	0.685	23.100	0.030	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (529)	P2.5x.203	0.06	0.685	23.100	0.030	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (534)	P2.5x.203	0.06	0.685	23.100	0.030	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (535)	P2.5x.203	0.06	0.685	23.100	0.030	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (540)	P2.5x.203	0.06	0.685	23.100	0.030	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (541)	P2.5x.203	0.06	0.685	23.100	0.030	0.00	0.000	23.100	0.000
T7	104.75 - 84.75 (567)	C8x13.75	-10.89	14.467	21.600	0.670	-0.00	0.000	27.000	0.000
T7	104.75 - 84.75 (568)	C8x13.75	-11.38	15.123	21.600	0.700	-0.00	0.000	27.000	0.000
T7	104.75 - 84.75 (571)	C8x13.75	-8.23	10.931	21.600	0.506	0.00	0.000	27.000	0.000
T7	104.75 - 84.75 (572)	C8x13.75	-9.07	12.060	21.600	0.558	0.00	0.000	27.000	0.000
T7	104.75 - 84.75 (575)	C8x13.75	-9.74	12.944	21.600	0.599	0.00	0.000	27.000	0.000
T7	104.75 - 84.75 (576)	C8x13.75	-11.18	14.851	21.600	0.688	0.00	0.000	27.000	0.000

Torque-Arm Top 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	224.75 - 204.75 (546)	P2.5x.203	0.348	0.030	0.000	0.378 ✓	1.333	H2-1 ✓

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	Client	Verizon Wireless	Designed by	Matthew Kapinos

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	224.75 - 204.75 (547)	P2.5x.203	0.347	0.030	0.000	0.377	1.333	H2-1 ✓
T1	224.75 - 204.75 (552)	P2.5x.203	0.335	0.030	0.000	0.365	1.333	H2-1 ✓
T1	224.75 - 204.75 (553)	P2.5x.203	0.340	0.030	0.000	0.370	1.333	H2-1 ✓
T1	224.75 - 204.75 (558)	P2.5x.203	0.341	0.030	0.000	0.371	1.333	H2-1 ✓
T1	224.75 - 204.75 (559)	P2.5x.203	0.348	0.030	0.000	0.378	1.333	H2-1 ✓
T4	164.75 - 144.75 (528)	P2.5x.203	0.438	0.030	0.000	0.468	1.333	H2-1 ✓
T4	164.75 - 144.75 (529)	P2.5x.203	0.424	0.030	0.000	0.454	1.333	H2-1 ✓
T4	164.75 - 144.75 (534)	P2.5x.203	0.406	0.030	0.000	0.436	1.333	H2-1 ✓
T4	164.75 - 144.75 (535)	P2.5x.203	0.413	0.030	0.000	0.443	1.333	H2-1 ✓
T4	164.75 - 144.75 (540)	P2.5x.203	0.427	0.030	0.000	0.457	1.333	H2-1 ✓
T4	164.75 - 144.75 (541)	P2.5x.203	0.421	0.030	0.000	0.450	1.333	H2-1 ✓
T7	104.75 - 84.75 (567)	C8x13.75	0.000	0.670	0.000	0.670	1.333	H2-1 ✓
T7	104.75 - 84.75 (568)	C8x13.75	0.001	0.700	0.000	0.702	1.333	H2-1 ✓
T7	104.75 - 84.75 (571)	C8x13.75	0.027	0.506	0.000	0.533	1.333	H2-1 ✓
T7	104.75 - 84.75 (572)	C8x13.75	0.024	0.558	0.000	0.582	1.333	H2-1 ✓
T7	104.75 - 84.75 (575)	C8x13.75	0.004	0.599	0.000	0.603	1.333	H2-1 ✓
T7	104.75 - 84.75 (576)	C8x13.75	0.002	0.688	0.000	0.689	1.333	H2-1 ✓

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio $\frac{P}{P_a}$
T1	224.75 - 204.75 (548)	P2.5x.203	10.71	10.54	133.6	21.000	1.7040	1.97	35.79	0.055
T1	224.75 - 204.75 (549)	P2.5x.203	10.71	10.54	133.6	21.000	1.7040	2.31	35.79	0.065
T1	224.75 - 204.75 (554)	P2.5x.203	10.71	10.54	133.6	21.000	1.7040	2.19	35.79	0.061
T1	224.75 - 204.75 (555)	P2.5x.203	10.71	10.54	133.6	21.000	1.7040	2.16	35.79	0.060
T1	224.75 - 204.75 (560)	P2.5x.203	10.71	10.54	133.6	21.000	1.7040	2.10	35.79	0.059
T1	224.75 - 204.75	P2.5x.203	10.71	10.54	133.6	21.000	1.7040	2.47	35.79	0.069

tnxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	62 of 65
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	Client	Verizon Wireless	Designed by	Matthew Kapinos

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T4	(561) 164.75 - 144.75	P2.5x.203	10.71	10.54	133.6	21.000	1.7040	3.53	35.79	0.099
T4	(530) 164.75 - 144.75	P2.5x.203	10.71	10.54	133.6	21.000	1.7040	3.80	35.79	0.106
T4	(531) 164.75 - 144.75	P2.5x.203	10.71	10.54	133.6	21.000	1.7040	4.52	35.79	0.126
T4	(536) 164.75 - 144.75	P2.5x.203	10.71	10.54	133.6	21.000	1.7040	4.38	35.79	0.122
T4	(537) 164.75 - 144.75	P2.5x.203	10.71	10.54	133.6	21.000	1.7040	3.73	35.79	0.104
T4	(542) 164.75 - 144.75	P2.5x.203	10.71	10.54	133.6	21.000	1.7040	4.06	35.79	0.114
T4	(543)									

Torque-Arm Bottom 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	224.75 - 204.75 (548)	P2.5x.203	0.06	0.689	23.100	0.030	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (549)	P2.5x.203	0.06	0.689	23.100	0.030	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (554)	P2.5x.203	0.06	0.689	23.100	0.030	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (555)	P2.5x.203	0.06	0.689	23.100	0.030	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (560)	P2.5x.203	0.06	0.689	23.100	0.030	0.00	0.000	23.100	0.000
T1	224.75 - 204.75 (561)	P2.5x.203	0.06	0.689	23.100	0.030	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (530)	P2.5x.203	0.08	0.933	23.100	0.040	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (531)	P2.5x.203	0.08	0.936	23.100	0.041	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (536)	P2.5x.203	0.08	0.934	23.100	0.040	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (537)	P2.5x.203	0.08	0.934	23.100	0.040	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (542)	P2.5x.203	0.08	0.932	23.100	0.040	0.00	0.000	23.100	0.000
T4	164.75 - 144.75 (543)	P2.5x.203	0.08	0.936	23.100	0.041	0.00	0.000	23.100	0.000

Torque-Arm Bottom Interaction Design Data

Section No.	Elevation ft	Size	Ratio P P _a	Ratio f _{bx} F _{bx}	Ratio f _{by} F _{by}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	224.75 - 204.75 (548)	P2.5x.203	0.055	0.030	0.000	0.085 ✓	1.333	H2-1 ✓
T1	224.75 -	P2.5x.203	0.065	0.030	0.000	0.094	1.333	H2-1 ✓

tnxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	64 of 65
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	Client	Verizon Wireless	Designed by	Matthew Kapinos

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
T10	44.75 - 24.75	Diagonal	ROHN TS1.5x16 ga	474	-2.17	5.36	25.6 (b) 40.5	Pass
T11	24.75 - 4.75	Diagonal	ROHN TS1.5x16 ga	484	-2.79	5.36	50.2 (b) 51.9	Pass
T1	224.75 - 204.75	Top Girt	L1 3/4x1 3/4x3/16	4	-0.23	9.58	63.2 (b) 2.4	Pass
T2	204.75 - 184.75	Top Girt	ROHN TS1.5x16 ga	61	-0.62	6.24	2.7 (b) 10.0	Pass
T3	184.75 - 164.75	Top Girt	ROHN TS1.5x16 ga	120	0.39	8.83	11.4 (b) 4.4	Pass
T4	164.75 - 144.75	Top Girt	L1 3/4x1 3/4x3/16	177	1.20	13.93	9.2 (b) 8.6	Pass
T5	144.75 - 124.75	Top Girt	ROHN TS1.5x16 ga	234	0.43	8.83	14.8 (b) 4.9	Pass
T6	124.75 - 104.75	Top Girt	ROHN TS1.5x16 ga	291	0.56	8.83	10.1 (b) 6.4	Pass
T7	104.75 - 84.75	Top Girt	ROHN TS1.5x16 ga	346	0.45	8.83	13.2 (b) 5.1	Pass
T8	84.75 - 64.75	Top Girt	ROHN TS1.5x16 ga	379	-2.93	6.24	10.5 (b) 47.0	Pass
T9	64.75 - 44.75	Top Girt	ROHN TS1.5x16 ga	414	0.41	8.83	69.9 (b) 4.6	Pass
T10	44.75 - 24.75	Top Girt	ROHN TS1.5x16 ga	447	-0.82	6.24	9.6 (b) 13.1	Pass
T11	24.75 - 4.75	Top Girt	ROHN TS1.5x16 ga	478	0.60	8.83	22.5 (b) 6.8	Pass
T12	4.75 - 0	Top Girt	C14x2x3/16	513	10.56	95.15	14.0 (b) 11.1	Pass
T1	224.75 - 204.75	Bottom Girt	L1 3/4x1 3/4x3/16	7	-4.12	9.58	43.0	Pass
T2	204.75 - 184.75	Bottom Girt	ROHN TS1.5x16 ga	64	0.43	8.83	47.9 (b) 4.9	Pass
T3	184.75 - 164.75	Bottom Girt	ROHN TS1.5x16 ga	121	0.37	8.83	10.1 (b) 4.2	Pass
T4	164.75 - 144.75	Bottom Girt	L1 3/4x1 3/4x3/16	180	-4.42	9.58	8.7 (b) 46.2	Pass
T5	144.75 - 124.75	Bottom Girt	ROHN TS1.5x16 ga	235	0.60	8.83	51.5 (b) 6.8	Pass
T6	124.75 - 104.75	Bottom Girt	ROHN TS1.5x16 ga	292	0.42	8.83	14.1 (b) 4.8	Pass
T7	104.75 - 84.75	Bottom Girt	ROHN TS1.5x16 ga	351	-3.03	6.24	9.9 (b) 48.5	Pass
T8	84.75 - 64.75	Bottom Girt	ROHN TS1.5x16 ga	384	0.55	8.83	71.9 (b) 6.2	Pass
T10	44.75 - 24.75	Bottom Girt	ROHN TS1.5x16 ga	448	0.49	8.83	12.8 (b) 5.6	Pass
T11	24.75 - 4.75	Bottom Girt	ROHN TS1.5x16 ga	483	0.92	8.83	11.6 (b) 10.5	Pass
T12	4.75 - 0	Bottom Girt	C14x2x3/16	514	-0.94	91.48	21.7 (b) 20.7	Pass
T12	4.75 - 0	Mid Girt	C14x2x3/16	519	0.04	71.38	0.1	Pass
T1	224.75 - 204.75	Guy A@212.02	1/2	557	12.19	13.45	90.6	Pass
T4	164.75 - 144.75	Guy A@152.02	1/2	539	13.01	13.45	96.8	Pass
T6	124.75 - 104.75	Guy A@116.866	1/2	525	11.96	13.45	88.9	Pass
T7	104.75 - 84.75	Guy A@87.2461	3/8	574	6.33	7.70	82.2	Pass
T9	64.75 - 44.75	Guy A@44.8333	3/8	564	6.00	7.70	77.9	Pass
T1	224.75 - 204.75	Guy B@212.02	1/2	551	11.25	13.45	83.7	Pass
T4	164.75 - 144.75	Guy B@152.02	1/2	532	11.94	13.45	88.7	Pass
T6	124.75 - 104.75	Guy B@116.866	1/2	524	11.19	13.45	83.2	Pass
T7	104.75 - 84.75	Guy B@87.2461	3/8	569	6.21	7.70	80.6	Pass
T9	64.75 - 44.75	Guy B@44.8333	3/8	563	5.73	7.70	74.5	Pass
T1	224.75 - 204.75	Guy C@212.02	1/2	544	11.44	13.45	85.0	Pass

tnxTower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: (860) 529-8882 FAX: (860) 529-3991	Job	225' Guyed Lattice Tower	Page	65 of 65
	Project	Glastonbury, CT	Date	12:27:16 04/16/12
	Client	Verizon Wireless	Designed by	Matthew Kapinos

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
T4	164.75 - 144.75	Guy C@152.02	1/2	527	12.02	13.45	89.3	Pass
T6	124.75 - 104.75	Guy C@116.866	1/2	520	11.44	13.45	85.1	Pass
T7	104.75 - 84.75	Guy C@87.2461	3/8	566	6.37	7.70	82.7	Pass
T9	64.75 - 44.75	Guy C@44.8333	3/8	562	6.02	7.70	78.2	Pass
T6	124.75 - 104.75	Top Guy	4 1/2x3/8	523	4.98	48.59	10.5	Pass
		Pull-Off@116.866						
T9	64.75 - 44.75	Top Guy	4 1/2x3/8	416	3.10	48.59	6.7	Pass
		Pull-Off@44.8333						
T1	224.75 - 204.75	Torque Arm	P2.5x.203	546	12.45	47.70	28.3	Pass
		Top@212.02						
T4	164.75 - 144.75	Torque Arm	P2.5x.203	528	15.68	47.70	35.1	Pass
		Top@152.02						
T7	104.75 - 84.75	Torque Arm	C8x13.75	567	-1.64	71.05	55.8	Pass
		Top@87.2461						
T1	224.75 - 204.75	Torque Arm	P2.5x.203	549	-17.85	32.51	57.9	Pass
		Bottom@212.02						
T4	164.75 - 144.75	Torque Arm	P2.5x.203	531	-17.92	32.51	58.2	Pass
		Bottom@152.02						
						Summary		
						Leg (T10)	93.8	Pass
						Diagonal (T4)	97.9	Pass
						Top Girt (T8)	69.9	Pass
						Bottom Girt (T7)	71.9	Pass
						Mid Girt (T12)	0.1	Pass
						Guy A (T4)	96.8	Pass
						Guy B (T4)	88.7	Pass
						Guy C (T4)	89.3	Pass
						Top Guy	10.5	Pass
						Pull-Off (T6)		
						Torque Arm		
						Top (T7)	55.8	Pass
						Torque Arm		
						Bottom (T4)	58.2	Pass
						Bolt Checks	97.9	Pass
						RATING =	97.9	Pass

GUY ANCHOR ANALYSIS

Job : WHUS Guyed Tower - Storrs, CT
 Description: Anchor Block Evaluation - UCONN
 Typical Anchor Block

Project No.: VZ5-108 (Rev 1)
 Computed by: MJK
 Checked by:

Page 1 of 2
 Sheet 1 of 2
 Date 4/16/12
 Date

CHECK UPLIFT RESISTANCE

RESULTS FROM COMPUTER ANALYSIS:

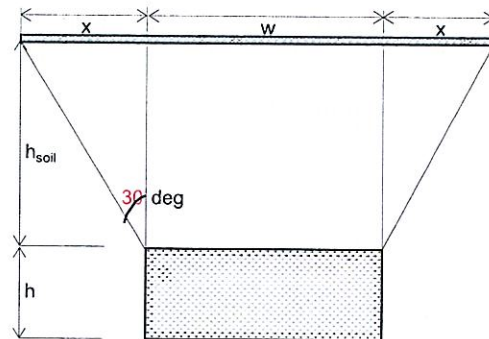
Uplift = 51 kips
 Sliding = 59 kips

CONCRETE PARAMETERS:

$\gamma_{conc} = 150$ pcf
 $w = 10$ ft
 $h = 8$ ft
 $d = 10$ ft

Vol. = 800 ft³

Wc = 120.00 kips



Foundation Section

SOIL PARAMETERS:

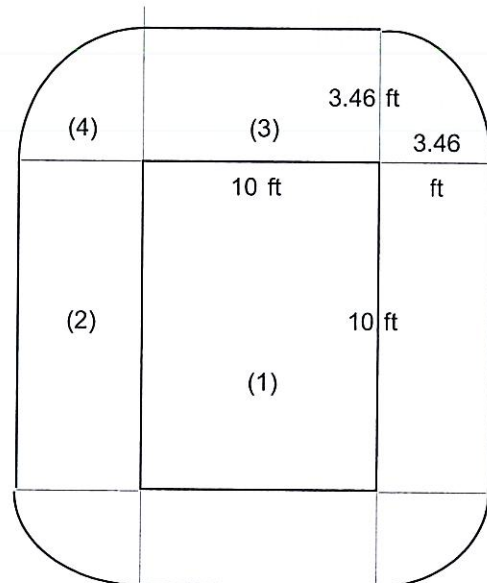
$\gamma_{soil} = 110$ pcf
 $h_{soil} = 6$ ft
 $x = 3.46$ ft

Soil Weight (Wr):

(1) = 66.00 kips
 (2) = 22.86 kips
 (3) = 22.86 kips
 (4) = 8.29 kips

*(5) Anchor Reinf. = 0 kips

Total = 120.02 kips



Foundation Plan View

FORCE
 ←

CHECK UPLIFT (PER EIA/TIA-222-F STANDARD):

$$Wr / 2.0 + Wc / 1.25 > \text{UPLIFT}$$

$$156.01 > 51 \quad \text{OK}$$

$$(Wr + Wc) / 1.5 > \text{UPLIFT}$$

$$160.01 > 51 \quad \text{OK}$$

CHECK UPLIFT (PER 2005 CT BLDG CODE 3108.4):

$$(Wr + Wc) / 2.0 > \text{UPLIFT}$$

$$120.01 > 51 \quad \text{OK}$$

→ GUY ANCHORS AGAINST UPLIFT ARE ADEQUATE

Job : WHUS Guyed Tower - Storrs, CT
 Description: Anchor Block Evaluation - UCONN
 Typical Anchor Block

Project No.: VZ5-108 (Rev 1)
 Computed by: MJK
 Checked by:

Page of
 Sheet 2 of 2
 Date 4/16/12
 Date

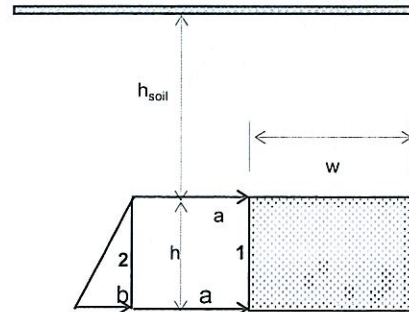
CHECK SLIDING RESISTANCE

SOIL PARAMETERS

$\gamma_{soil} = 110$ pcf
 $h_{soil} = 6$ ft
 $h = 8$ ft
 $\phi = 30$ degrees

ANCHOR PARAMETERS

$w = 10.0$ ft
 $h = 8.0$ ft
 $d = 10.0$ ft



Foundation Elevation View

$K_a = 0.33$

$K_p = 3.00$

$\Delta = 2.67$

HORIZONTAL FORCES

1 = 140.80 k
 2 = 56.32 k
 RESIST TO SLIDING = 197.12 k

SOIL & CONCRETE WEIGHT = $W_r + W_c = 240.02$ k
 UPLIFT REACTIONS = -51 k
 SUM = 189.02 k

COEF. OF FRICTION, (0.5) = 94.51 k
 RESIST TO SLIDING = 197.12 k
 SUM = 291.63 k

SF AGAINST SLIDING

$SF = 4.94 > 2.0$ OK

→ GUY ANCHORS AGAINST SLIDING ARE ADEQUATE