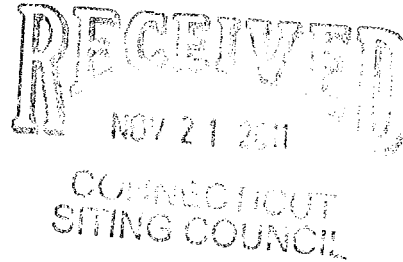


280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

November 18, 2011



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

Re: **Notice of Exempt Modification – Antenna Swap
123 Campville Hill Road, Harwinton, Connecticut**

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains wireless telecommunications antennas at the 156-foot level on the existing 177-foot tower at the above-referenced address. The tower is owned by Crown Castle. The Council approved Cellco’s use of the existing tower in 2004. Cellco now intends to modify its installation by replacing six (6) of its existing antennas with two (2) model BXA-171085-8BF PCS antennas; one (1) model BXA-171063-8BF PCS antenna; and three (3) BXA-70060-6CF LTE antennas, all at the same 156-foot level on the tower. Cellco also intends to install six (6) coax cable diplexers on its antenna platform. Attached behind Tab 1 are the specifications for the proposed replacement antennas and cable diplexers.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Frank Chiamonte, First Selectman of the Town of Harwinton. A copy of this letter is also being sent to Harwinton Rod & Gun Club, Inc., the owner of the property on which the tower is located.

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

1. The proposed modifications will not result in any increase in the overall height of the existing tower. Cellco’s antennas will be located at the same 156-foot level on the existing 177-foot tower.



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Linda Roberts
November 18, 2011
Page 2

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

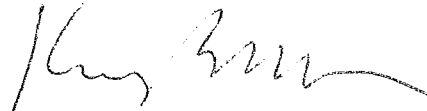
3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

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

Also attached is a Structural Analysis Report confirming that the tower and foundation can support Cellco's proposed antennas modification. (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:

Frank Chiaramonte, Harwinton First Selectman
Harwinton Rod & Gun Club, Inc.
Sandy M. Carter

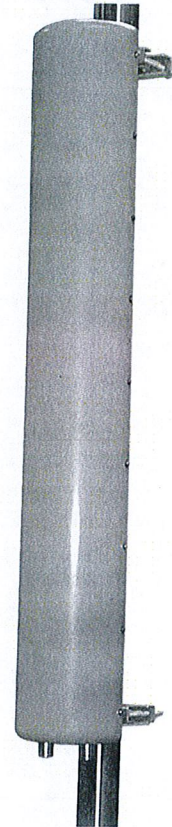


BXA-171085-8BF-EDIN-X

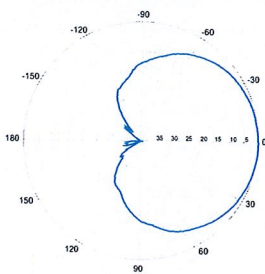
Replace "X" with desired electrical downtilt.

X-Pol | FET Panel | 85° | 16.4 dBi

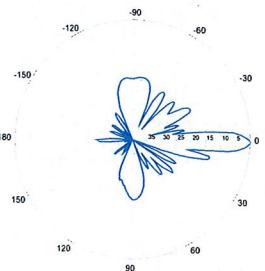
Electrical Characteristics	1710-2170 MHz				
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz		
Polarization	±45°	±45°	±45°		
Horizontal beamwidth	88°	85°	80°		
Vertical beamwidth	7°	7°	7°		
Gain	13.5 dBd / 15.6 dBi	13.9 dBd / 16.0 dBi	14.3 dBd / 16.4 dBi		
Electrical downtilt (X)	0, 2, 4				
Impedance	50Ω				
VSWR	≤1.5:1				
First upper sidelobe	< -17 dB				
Front-to-back isolation	> 30 dB				
In-band isolation	> 28 dB				
IM3 (20W carrier)	< -150 dBc				
Input power	300 W				
Lightning protection	Direct Ground				
Connector(s)	2 Ports / EDIN / Female / Bottom				
Operating temperature	-40° to +60° C / -40° to +140° F				
Mechanical Characteristics					
Dimensions Length x Width x Depth	1232 x 154 x 105 mm		48.5 x 6.1 x 4.1 in		
Depth with t-brackets	133 mm		5.2 in		
Weight without mounting brackets	4.8 kg		10.5 lbs		
Survival wind speed	296 km/hr		184 mph		
Wind area	Front: 0.19 m ² Side: 0.14 m ²	Front: 2.0 ft ² Side: 1.5 ft ²			
Wind load @ 161 km/hr (100 mph)	Front: 281 N Side: 223 N	Front: 63 lbf Side: 50 lbf			
Mounting Options	Part Number	Fits Pipe Diameter		Weight	
2-Point Mounting Bracket Kit	26799997	50-102 mm	2.0-4.0 in	2.3 kg	5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm	2.0-4.0 in	3.6 kg	8 lbs
Concealment Configurations	For concealment configurations, order BXA-171085-8BF-EDIN-X-FP				



BXA-171085-8BF-EDIN-X

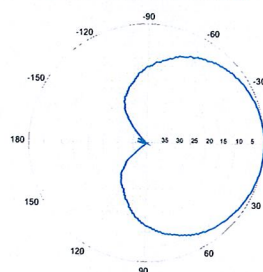


Horizontal | 1710-1880 MHz
BXA-171085-8BF-EDIN-0

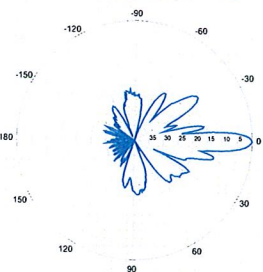


0° | Vertical | 1710-1880 MHz

BXA-171085-8BF-EDIN-X

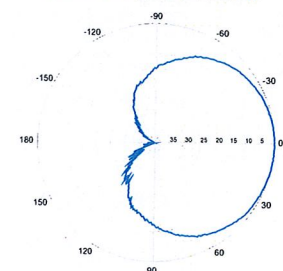


Horizontal | 1850-1990 MHz
BXA-171085-8BF-EDIN-0

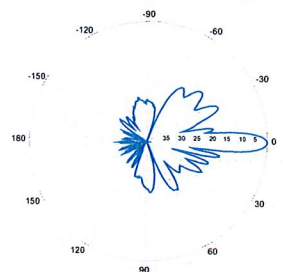


0° | Vertical | 1850-1990 MHz

BXA-171085-8BF-EDIN-X



Horizontal | 1920-2170 MHz
BXA-171085-8BF-EDIN-0



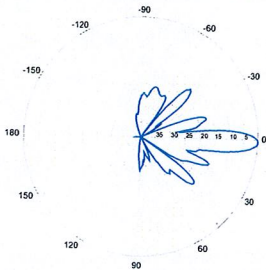
0° | Vertical | 1920-2170 MHz

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

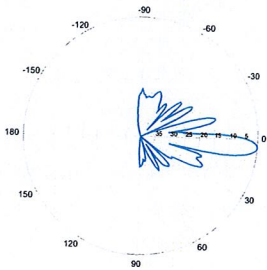
BXA-171085-8BF-EDIN-X

X-Pol | FET Panel | 85° | 16.4 dBi

BXA-171085-8BF-EDIN-2

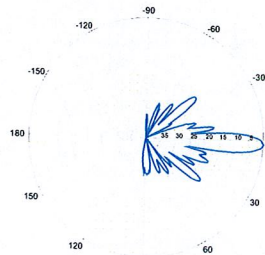


2° | Vertical | 1710-1880 MHz
BXA-171085-8BF-EDIN-4

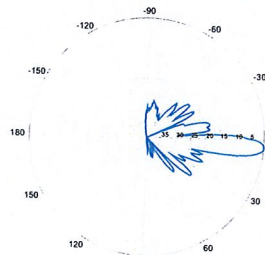


4° | Vertical | 1710-1880 MHz

BXA-171085-8BF-EDIN-2

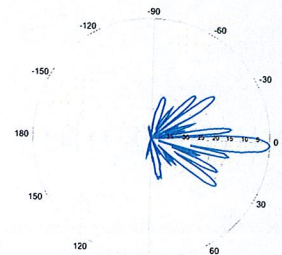


2° | Vertical | 1850-1990 MHz
BXA-171085-8BF-EDIN-4

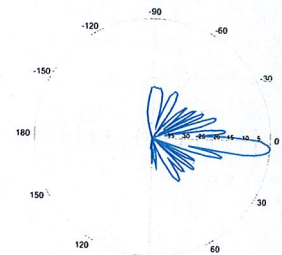


4° | Vertical | 1850-1990 MHz

BXA-171085-8BF-EDIN-2



2° | Vertical | 1920-2170 MHz
BXA-171085-8BF-EDIN-4



4° | Vertical | 1920-2170 MHz

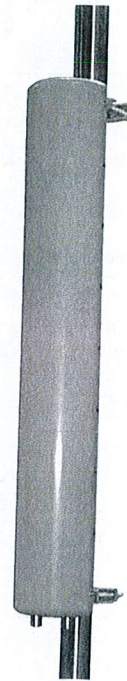
Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product.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

BXA-171063-8BF-EDIN-X

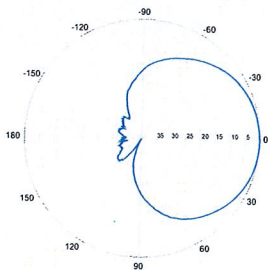
Replace "X" with desired electrical downtilt.

X-Pol | FET Panel | 63° | 17.4 dBi

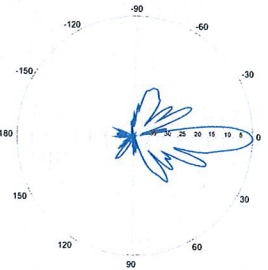
Electrical Characteristics	1710-2170 MHz		
	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	68°	65°	60°
Vertical beamwidth	7°	7°	7°
Gain	14.5 dBd / 16.6 dBi	14.9 dBd / 17.0 dBi	15.3 dBd / 17.4 dBi
Electrical downtilt (X)	0, 2, 4, 8		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back isolation	> 30 dB		
In-band isolation	> 28 dB		
IM3 (20W carrier)	< -150 dBc		
Input power	300 W		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN / Female / Bottom		
Operating temperature	-40° to +60° C / -40° to +140° F		
Mechanical Characteristics			
Dimensions Length x Width x Depth	1232 x 154 x 105 mm		48.5 x 6.1 x 4.1 in
Depth with t-brackets	133 mm		5.2 in
Weight without mounting brackets	4.8 kg		10.5 lbs
Survival wind speed	296 km/hr		184 mph
Wind area	Front: 0.19 m ² Side: 0.14 m ²	Front: 2.0 ft ² Side: 1.5 ft ²	
Wind load @ 161 km/hr (100 mph)	Front: 281 N Side: 223 N	Front: 63 lbf Side: 50 lbf	
Mounting Options			
	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171063-8BF-EDIN-X-FP		



BXA-171063-8BF-EDIN-X

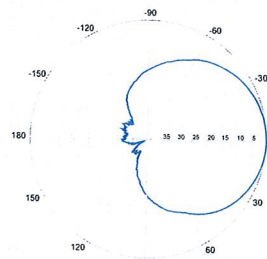


Horizontal | 1710-1880 MHz
BXA-171063-8BF-EDIN-0

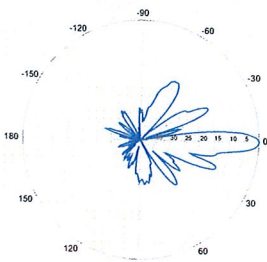


0° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-X

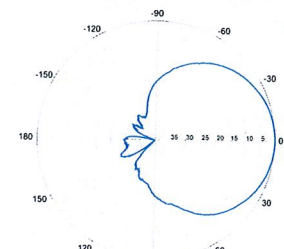


Horizontal | 1850-1990 MHz
BXA-171063-8BF-EDIN-0

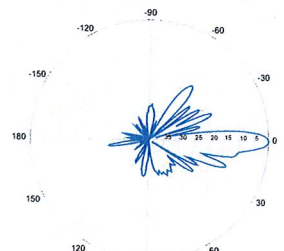


0° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-X



Horizontal | 1920-2170 MHz
BXA-171063-8BF-EDIN-0



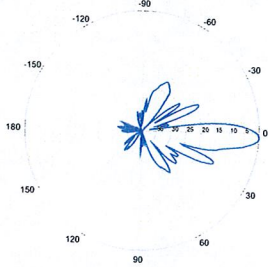
0° | Vertical | 1920-2170 MHz

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

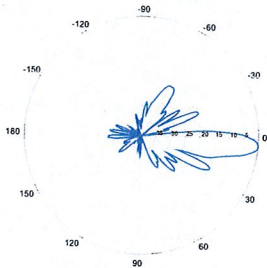
BXA-171063-8BF-EDIN-X

X-Pol | FET Panel | 63° | 17.4 dBi

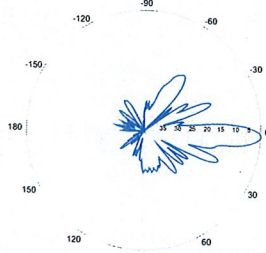
BXA-171063-8BF-EDIN-2



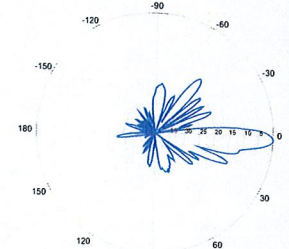
2° | Vertical | 1710-1880 MHz
BXA-171063-8BF-EDIN-4



BXA-171063-8BF-EDIN-2

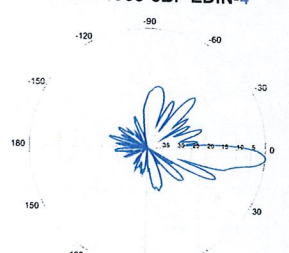
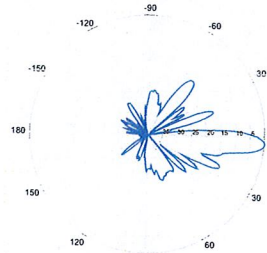


BXA-171063-8BF-EDIN-2

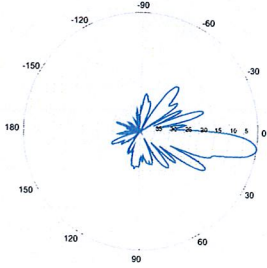


2° | Vertical | 1920-2170 MHz
BXA-171063-8BF-EDIN-4

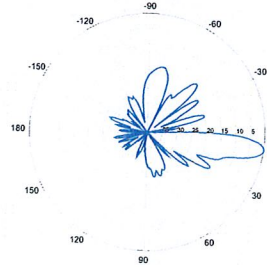
2° | Vertical | 1850-1990 MHz
BXA-171063-8BF-EDIN-4



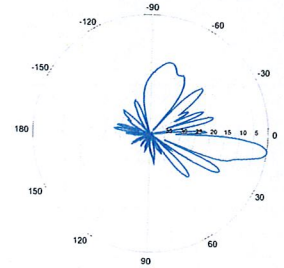
4° | Vertical | 1710-1880 MHz
BXA-171063-8BF-EDIN-8



4° | Vertical | 1850-1990 MHz
BXA-171063-8BF-EDIN-8



4° | Vertical | 1920-2170 MHz
BXA-171063-8BF-EDIN-8



8° | Vertical | 1710-1880 MHz

8° | Vertical | 1850-1990 MHz

8° | 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

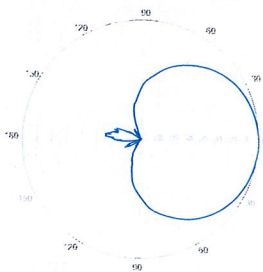
Replace "X" with desired electrical downtilt

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



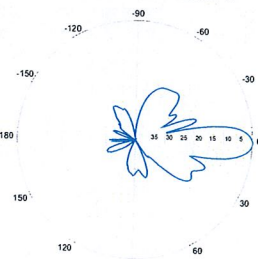
Electrical Characteristics	696-900 MHz		
	696-806 MHz	806-900 MHz	
Frequency bands	696-806 MHz	806-900 MHz	
Polarization	±45°		
Horizontal beamwidth	65°	63°	
Vertical beamwidth	13°	11°	
Gain	14.0 dBd (16.1 dBi)	14.5 dBd (16.6 dBi)	
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 10		
Impedance	50Ω		
VSWR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



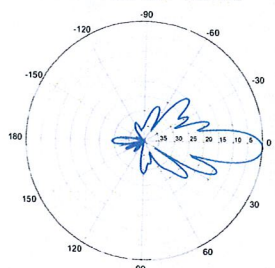
Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0

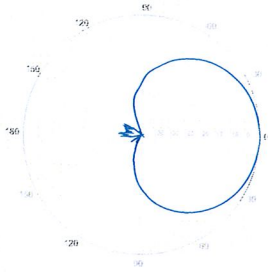


0° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-2



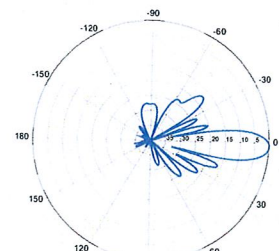
2° | Vertical | 750 MHz



Horizontal | 850 MHz



0° | Vertical | 850 MHz



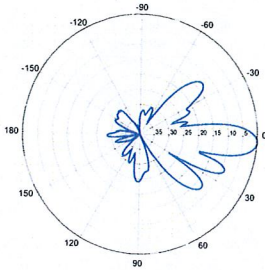
2° | Vertical | 850 MHz

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

BXA-70063-6CF-EDIN-X

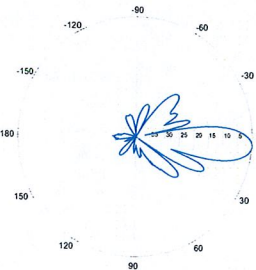
X-Pol | FET Panel | 63° | 14.5 dBd

BXA-70063-6CF-EDIN-3



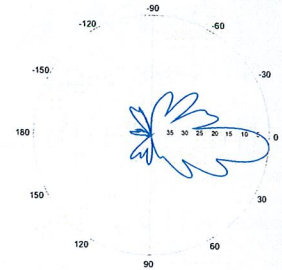
3° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-4

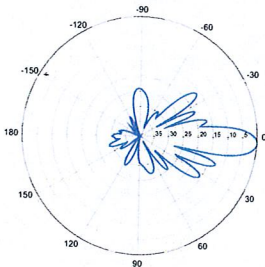


4° | Vertical | 750 MHz

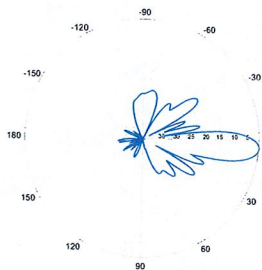
BXA-70063-6CF-EDIN-5



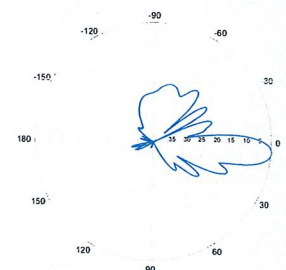
5° | Vertical | 750 MHz



3° | Vertical | 850 MHz

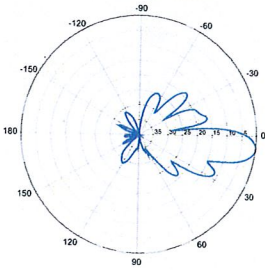


4° | Vertical | 850 MHz



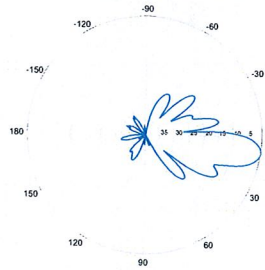
5° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-6



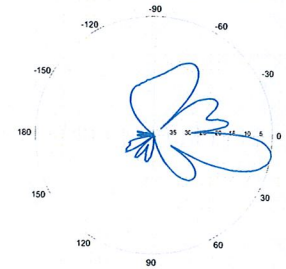
6° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-8

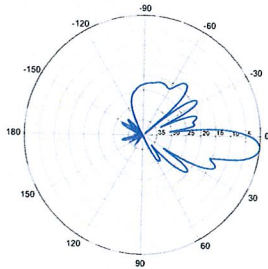


8° | Vertical | 750 MHz

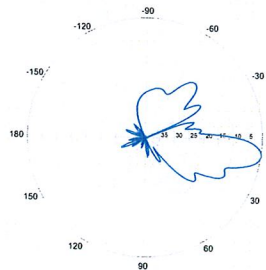
BXA-70063-6CF-EDIN-10



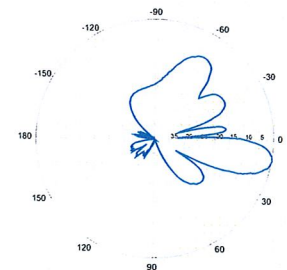
10° | Vertical | 750 MHz



6° | Vertical | 850 MHz



8° | Vertical | 850 MHz



10° | Vertical | 850 MHz

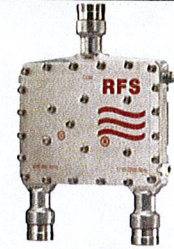
Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. 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
Frequency Range 1, MHz	698-960
Frequency Range 2, MHz	1710-2200
Application	LTE700, GSM900, UMTS, GSM1800, Cellular 800, PCS
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; 60/70@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

RFS The Clear Choice®

FD9R6004/2C-3L

Rev: --

Print Date: 12.10.2011

Please visit us on the internet at <http://www.rfsworld.com/>

Radio Frequency Systems

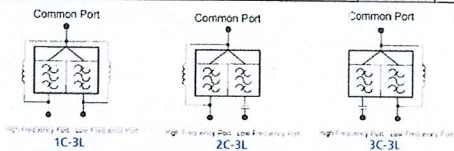


ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

Other Documentation

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

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

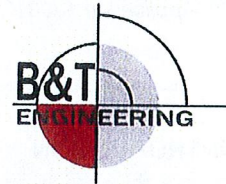


The FD9R6004 Series is upgradeable to a Dual Diplexer kit by means of 2 diplexers and mounting hardware kits SEM2-1A and SEM2-3

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

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

General		Power	Density					
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total
*Sprint	4	500	177	0.0230	1962.5	1.0000	2.30%	
*VoiceStream	4	250	167	0.0129	1930	1.0000	1.29%	
*Pocket	3	631	117	0.0497	2130	1.0000	4.97%	
*AT&T	3	427	156	0.0189	1930	1.0000	1.89%	
*Nextel	12	100	137	0.0230	851	0.5673	4.05%	
*Cingular	6	296	122	0.0429	880	0.5867	7.31%	
*Cingular	3	427	122	0.0309	1930	1.0000	3.09%	
Verizon PCS	7	241	156	0.0249	1970	1.0000	2.49%	
Verizon Cellular	9	251	156	0.0334	869	0.5793	5.76%	
Verizon AWS	1	670	156	0.0099	2145	1.0000	0.99%	
Verizon 700	2	824	156	0.0243	698	0.4653	5.23%	
								39.39%
* Source: Siting Council								



October 05, 2011

Mr. Jason Rouse
Crown Castle USA Inc.
3530 Toringdon Way Suite 300
Charlotte, NC 28277
(704) 405-6605

B&T Engineering, Inc.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
ctuttle@btengineering.com

Subject: Structural Analysis Report

Carrier Designation: Verizon Wireless Co-Locate
Carrier Site Number: N/A
Carrier Site Name: Harwinton West

Crown Castle Designation: Crown Castle BU Number: 876376
Crown Castle Site Name: Scoville Hill / Harwinton Rod
Crown Castle JDE Job Number: 166413
Crown Castle Work Order Number: 436937

Engineering Firm Designation: B&T Engineering, Inc. Project Number: 83609

Site Data: 123 Campville Hill Rd., Harwinton, CT Litchfield County
Latitude 41° 44' 12.12", Longitude -73° 5' 50.86"
177 Foot - Monopole Tower

Dear Mr. Rouse,

B&T Engineering, Inc. is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 431440, in accordance with application 130812, revision 1.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC1: Existing + Reserved + Proposed Equipment

Sufficient Capacity

Note: See Table 1 and Table 2 for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and 2003 IBC; 2003 IRC (State Building Code, 2005 CT supplement) based upon a wind speed of 80 mph fastest mile.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at B&T Engineering, Inc. appreciate the opportunity of providing our continuing professional services to you and Crown Castle USA Inc. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Shardul Kadam, E.I.T
Project Engineer

Chad E. Tuttle, P.E.
President

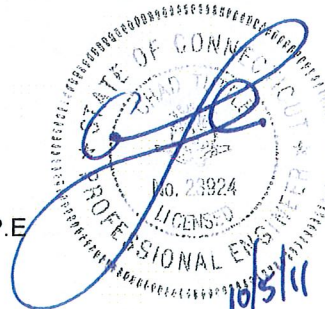


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1) INTRODUCTION

This tower is a 177 ft Monopole tower designed by Summit in August of 2000. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F. This tower has been modified multiple times and those modifications have been incorporated in this analysis.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice, 28.1 mph with 1 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		1	Antel	BXA-171063-8BF-EDIN-2			
157	156	2	Antel	BXA-171085-8BF-EDIN-2	--	--	--
		3	Antel	BXA-70063-6CF-2			
		6	RFS Celwave	FD9R6004/2C-3L			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		9(MLA)	--	MLA_ANTENNA	9(MLA)	1 5/8	2
177	178	6	Decibel	DB980H90E-M			
	177	1	--	Platform Mount [LP 712-1]	6	1 5/8	1
	169	3	EMS Wireless	RR90-17-02DP			
167	169	6	Ericsson	KRY 112 75/1 TMA	6	1 5/8	1
	167	1	--	T-Arm Mount [TA 602-3]			
	157	1	--	Platform Mount [LP 304-1]			
		2	Antel	LPA-80063/6CF	12	1 5/8	1
157	156	4	Antel	LPA-80080/6CF			
		2	Decibel	DB950F65E-M			
		4	Decibel	DB950F85E-M	--	--	3
	139	12	Decibel	DB844H90			
137	137	1	--	Platform Mount [LP 712-1]	12	1 1/4	1
	129	6	Kathrein	AP14/17-880/1940/065D/ADT/XXP			
127	129	6	Powerwave	LGP 17201	12	1 5/8	1
	127	1	--	Platform Mount [LP 304-1]			
	117	3	RFS Celwave	APXV18-206517S-C			
		3	--	Flush Mounts	6	1 5/8	1
	80	1	Spectracom	8225			
79	79	1	--	Side Arm [SO 701-1]	1	1/2	1

Notes:

- 1) Existing Equipment
- 2) MLA Equipment Controlling
- 3) Equipment to be removed

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
177	177	1	--	Low Profile Platform	--	--
		12	DAPA	48000		
167	167	1	--	Clamp On Low Profile Platform	--	--
		12	DAPA	48000		
157	157	1	--	Clamp On Low Profile Platform	--	--
		12	DAPA	48000		
75	75	1	--	GPS Antenna W/ Mount	--	--

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Online Application	Verizon Wireless Co-locate Revision# 1	130812	CCISITES
Tower Manufacturer Drawings	Summit Manufacturing, Job No. 10633	1613568	CCISITES
Foundation Drawings	Summit Manufacturing, Job No. 10633	1613623	CCISITES
Geotech Report	Criscuolo Shepard Associates, File No. 99900.24	1531965	CCISITES
	Hutter Trankina Engineering Dated: 8/20/2004	1634507	CCISITES
Tower Modification Drawings	Global Signal Dated: 11/15/2005	1623517	CCISITES
	Modification/PMI By B&T Engineering, Project No. 80185	2461484	On-File
Antenna Configuration	Crown CAD Package	Date:9/13/2011	CCISITES

3.1) Analysis Method

RISATower (version 5.4.2.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.
- 5) Mount areas and weights are assumed based on photographs provided and are not analyzed for their load carrying capacity.

This analysis may be affected if any assumptions are not valid or have been made in error. B&T Engineering, Inc. should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	177 - 129.75	Pole	TP30.268x22x0.219	1	-9.223	1061.189	71.2	Pass
L2	129.75 - 120	Pole	TP31.536x29.174x0.25	2	-13.072	1290.600	86.6	Pass
L3	120 - 110	Pole	TP33.286x31.536x0.394	3	-15.264	1702.428	81.5	Pass
L4	110 - 84	Pole	TP37.836x33.286x0.718	4	-22.531	2584.287	75.2	Pass
L5	84 - 80	Pole	TP38.045x35.57x0.783	5	-27.273	2776.412	78.8	Pass
L6	80 - 39.25	Pole	TP45.167x38.045x0.734	6	-41.424	3299.761	89.4	Pass
L7	39.25 - 20	Pole	TP47.91x42.695x0.761	7	-54.844	3607.884	96.8	Pass
L8	20 - 0	Pole	TP51.41x47.91x0.779	8	-64.605	4033.511	95.7	Pass
Summary:								
Pole (L7)							96.8	Pass
Rating =							96.8	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC1

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	72.8	Pass
1	Base Plate	Base	73.2	Pass
1	Base Foundation	Base	55.1	Pass

Structure Rating (max from all components) =	96.8%
-----------------------------------------------------	--------------

Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) Capacities up to 100% are considered acceptable based on analysis methods used.
- 3) The percent capacities shown above (excluding foundations) include the 1/3 increase in allowable stresses as allowed by TIA/EIA-222-F.

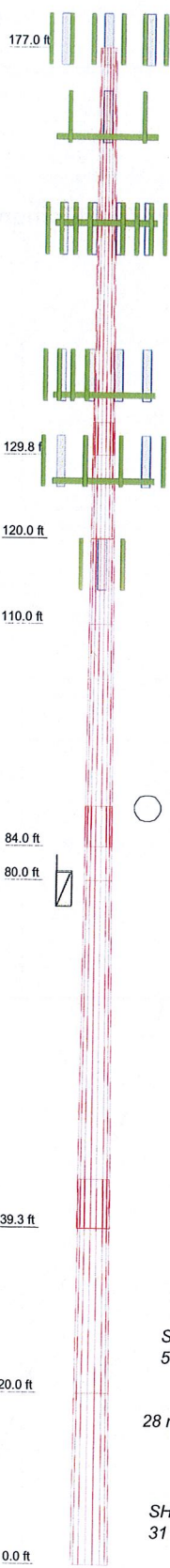
4.1) Recommendations

N/A

APPENDIX A

RISATOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	47.250	18	0.219	3.750	22.000	30.288	A607-65	3.0
2	13.500	18	0.250	29.174	31.536	33.286	A607-65	1.2
3	10.000	18	0.384	31.536	33.286	31.536	A607-65	1.4
4	26.000	18	0.718	4.750	33.286	37.836	A607-65	7.4
5	8.750	18	0.783	35.570	38.045	38.045	A607-65	2.8
6	40.750	18	0.734	5.750	38.045	45.167	A607-65	13.9
7	25.000	18	0.761	42.695	47.910	47.910	A607-65	9.6
8	20.000	18	0.779	47.910	51.410	40.3 ksi	A607-65	8.6
								47.9



DESIGNED APPURTENANCE LOADING

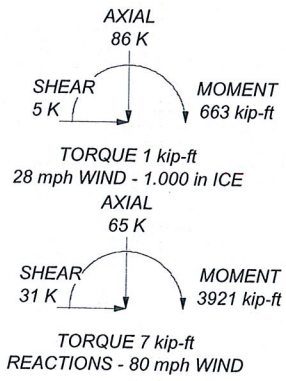
TYPE	ELEVATION	TYPE	ELEVATION
(3) MLA_ANTENNA w/ Mount Pipe (MLA)	178	BXA-70063-6CF-2 w/ Mount Pipe (P)	156
(3) MLA_ANTENNA w/ Mount Pipe (MLA)	178	(2) FD9R6004/2C-3L (P)	156
(3) MLA_ANTENNA w/ Mount Pipe (MLA)	178	(2) FD9R6004/2C-3L (P)	156
Platform Mount [LP 712-1] (E)	177	(4) DBB44H90 w/ Mount Pipe (E)	139
RR90-17-00DP w/ Mount Pipe (E)	169	(4) DBB44H90 w/ Mount Pipe (E)	139
RR90-17-00DP w/ Mount Pipe (E)	169	Platform Mount [LP 712-1] (E)	137
RR90-17-00DP w/ Mount Pipe (E)	169	(2) AP14/17-880/1940/065D/ADT/XXP w/ Mount Pipe (E)	129
(2) KRY 112 75/1 TMA (E)	169	(2) AP14/17-880/1940/065D/ADT/XXP w/ Mount Pipe (E)	129
(2) KRY 112 75/1 TMA (E)	169	(2) AP14/17-880/1940/065D/ADT/XXP w/ Mount Pipe (E)	129
(2) KRY 112 75/1 TMA (E)	169	(2) AP14/17-880/1940/065D/ADT/XXP w/ Mount Pipe (E)	129
T-Arm Mount [TA 602-3] (E)	167	(2) AP14/17-880/1940/065D/ADT/XXP w/ Mount Pipe (E)	129
(3) 6' x 2" Mount Pipe (E)	167	(2) LGP 17201 (E)	129
(3) 6' x 2" Mount Pipe (E)	167	(2) LGP 17201 (E)	129
Platform Mount [LP 304-1] (E)	157	(2) LGP 17201 (E)	129
(2) LPA-80080/6CF w/ Mount Pipe (E)	156	Platform Mount [LP 304-1] (E)	127
(2) LPA-80080/6CF w/ Mount Pipe (E)	156	APXV18-206517S-C w/ Mount Pipe (E)	117
BXA-171063-8BF-EDIN-2 w/ Mount Pipe (P)	156	APXV18-206517S-C w/ Mount Pipe (E)	117
BXA-171085-8BF-EDIN-2 w/ Mount Pipe (P)	156	APXV18-206517S-C w/ Mount Pipe (E)	117
BXA-171085-8BF-EDIN-2 w/ Mount Pipe (P)	156	8225 (E)	80
BXA-70063-6CF-2 w/ Mount Pipe (P)	156	Side Arm Mount [SO 701-1] (E)	79
BXA-70063-6CF-2 w/ Mount Pipe (P)	156		

MATERIAL STRENGTH

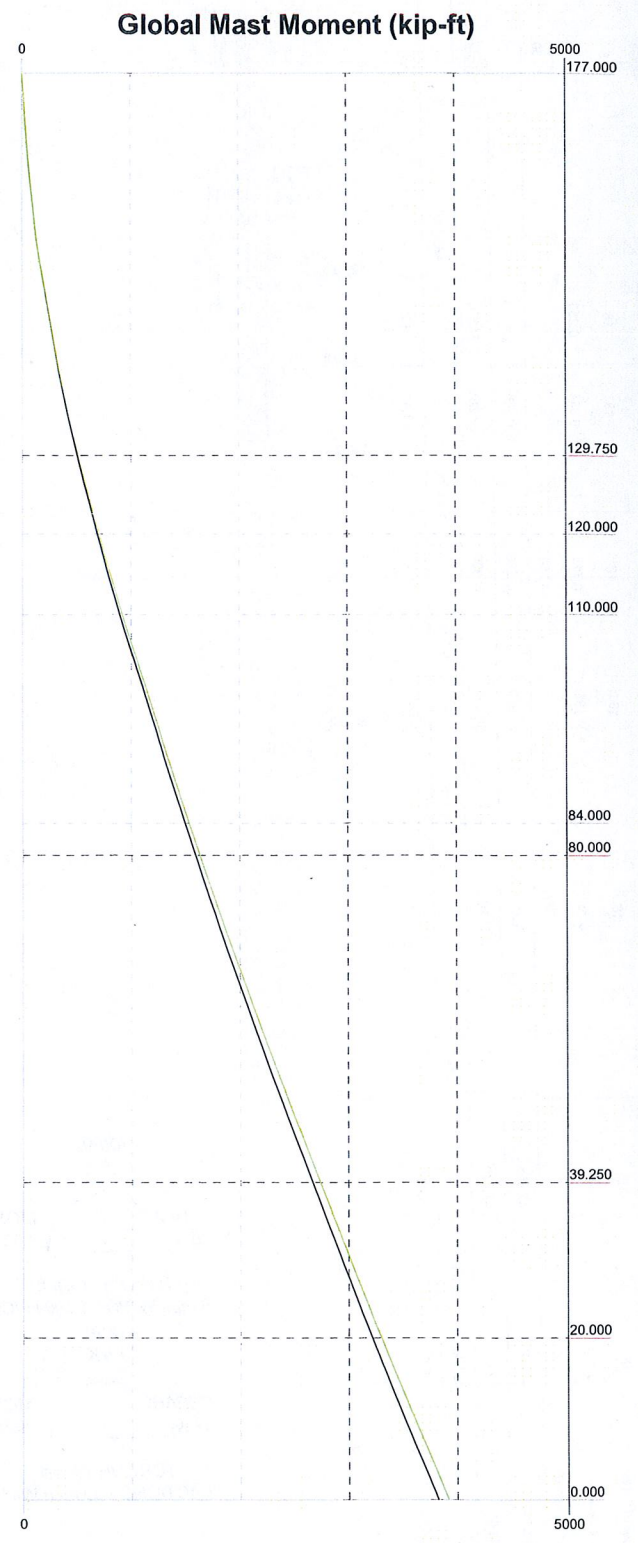
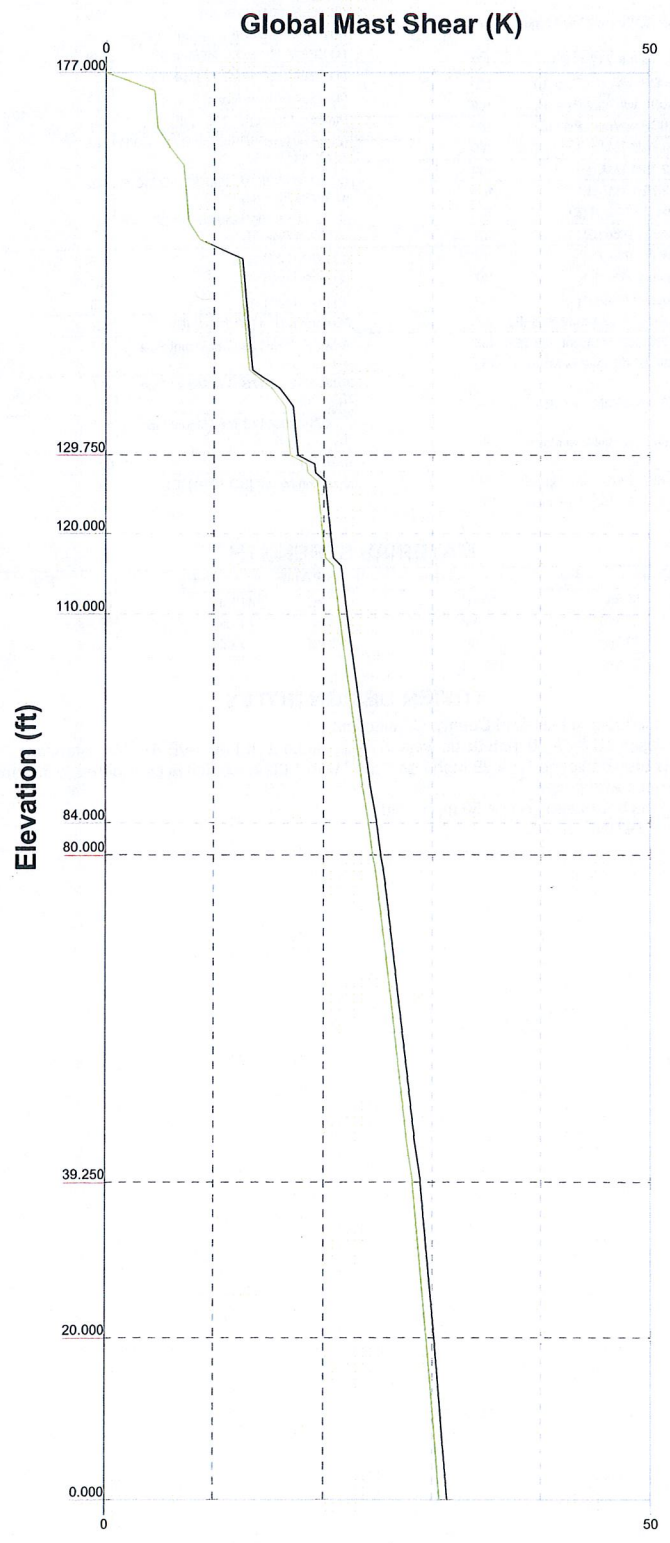
GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi	40.8 ksi	41 ksi	65 ksi
51.8 ksi	52 ksi	65 ksi	39.6 ksi	40 ksi	65 ksi
39.1 ksi	39 ksi	65 ksi	40.3 ksi	40 ksi	65 ksi
37.5 ksi	38 ksi	80 ksi			


TOWER DESIGN NOTES

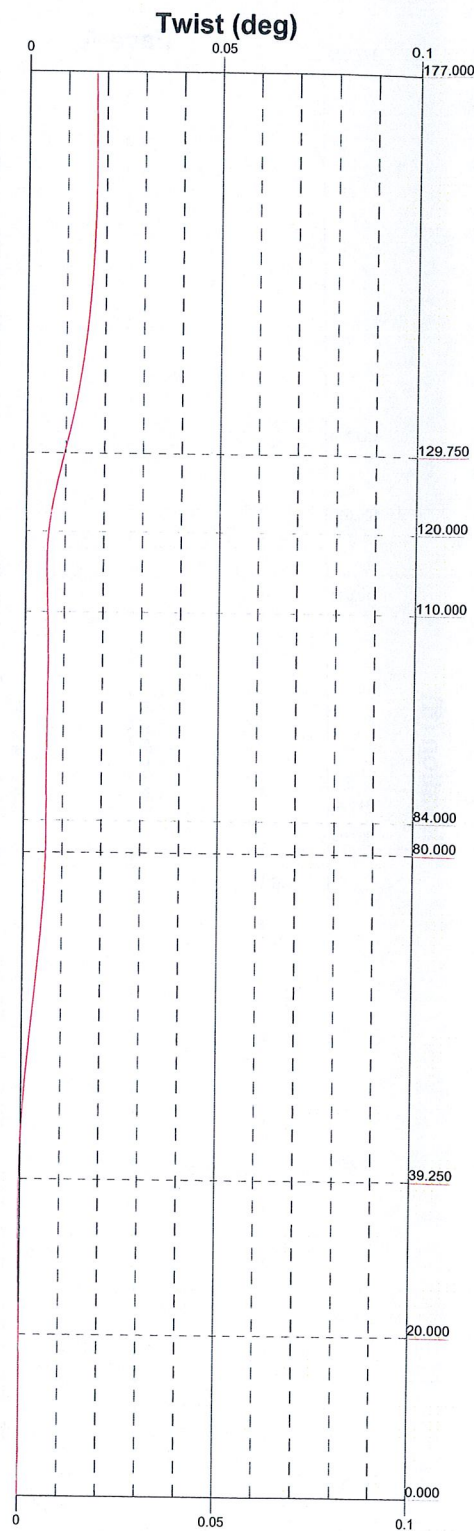
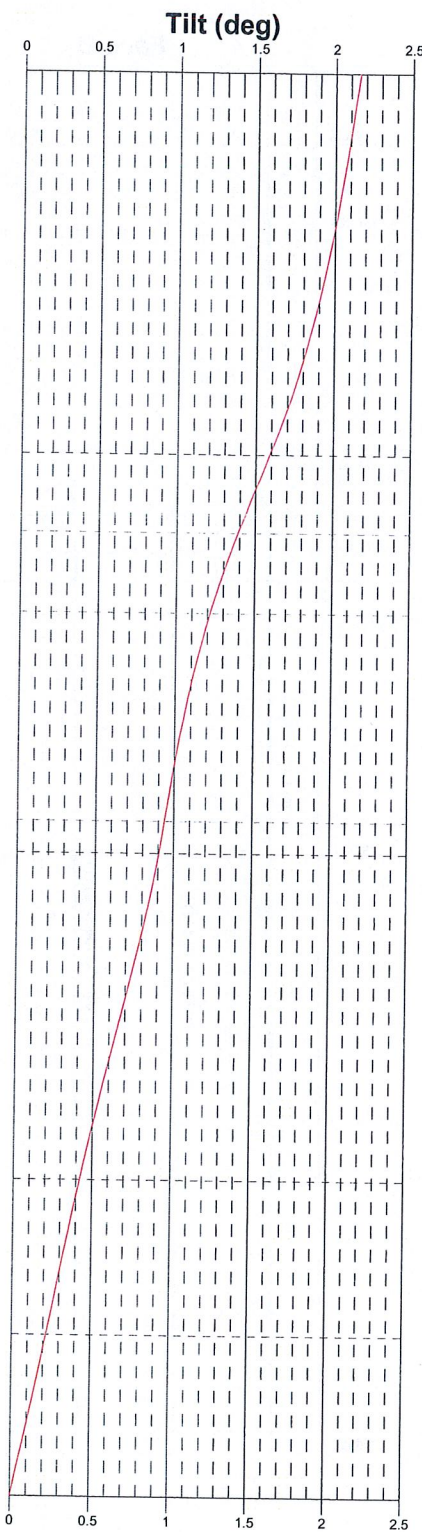
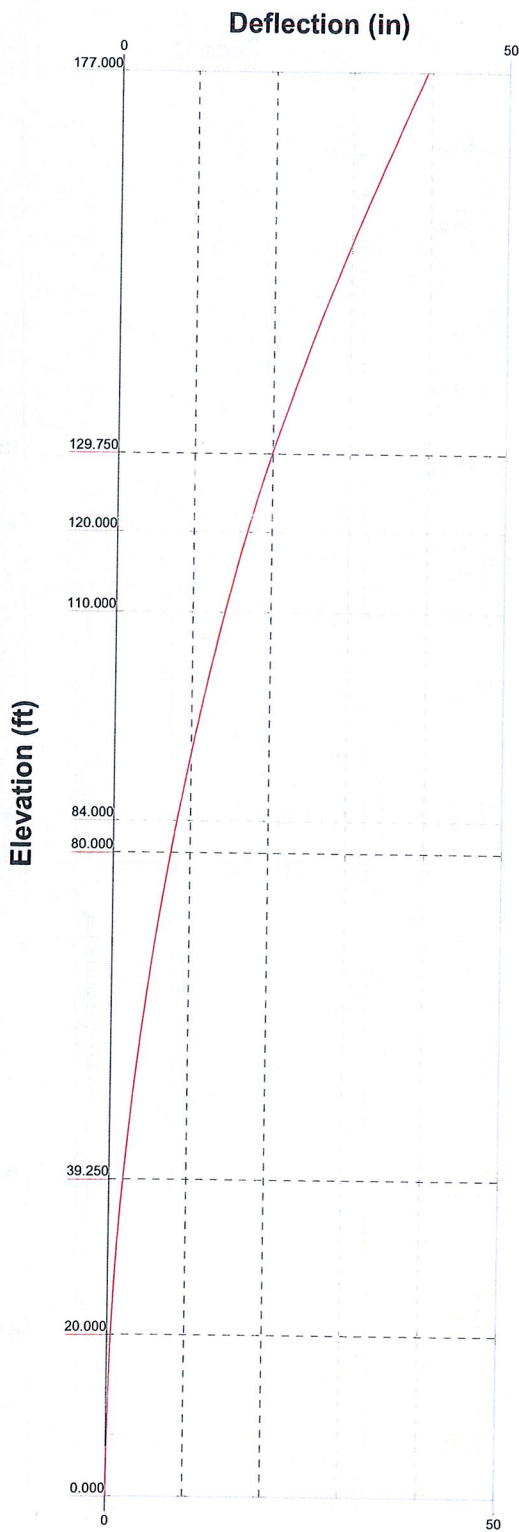
1. Tower is located in Litchfield County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 28 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 96.8%




<p>B&T Engineering, Inc. 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p>Job: 83609- SCOVILLE HILL / HARWINTON ROD, CT (BU# 87637)</p>
	<p>Project: 177' Summit MP/ App ID: 130812; Rev: 1</p>
	<p>Client: Crown Castle USA, Inc. Drawn by: skadam App'd:</p>
	<p>Code: TIA/EIA-222-F Date: 10/04/11 Scale: NTS</p>
	<p>Path: D:\Projects\2011\100411\177 Summit MP\177 Summit MP.dwg Dwg No. E-1</p>



 <p>B&T Engineering, Inc. 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job: 83609- SCOVILLE HILL / HARWINTON ROD, CT (BU# 87637)		
	Project: 177' Summit MP/ App ID: 130812; Rev: 1		
	Client: Crown Castle USA, Inc.	Drawn by: skadam	App'd:
	Code: TIA/EIA-222-F	Date: 10/04/11	Scale: NTS
	Path:		Dwg No. E-4

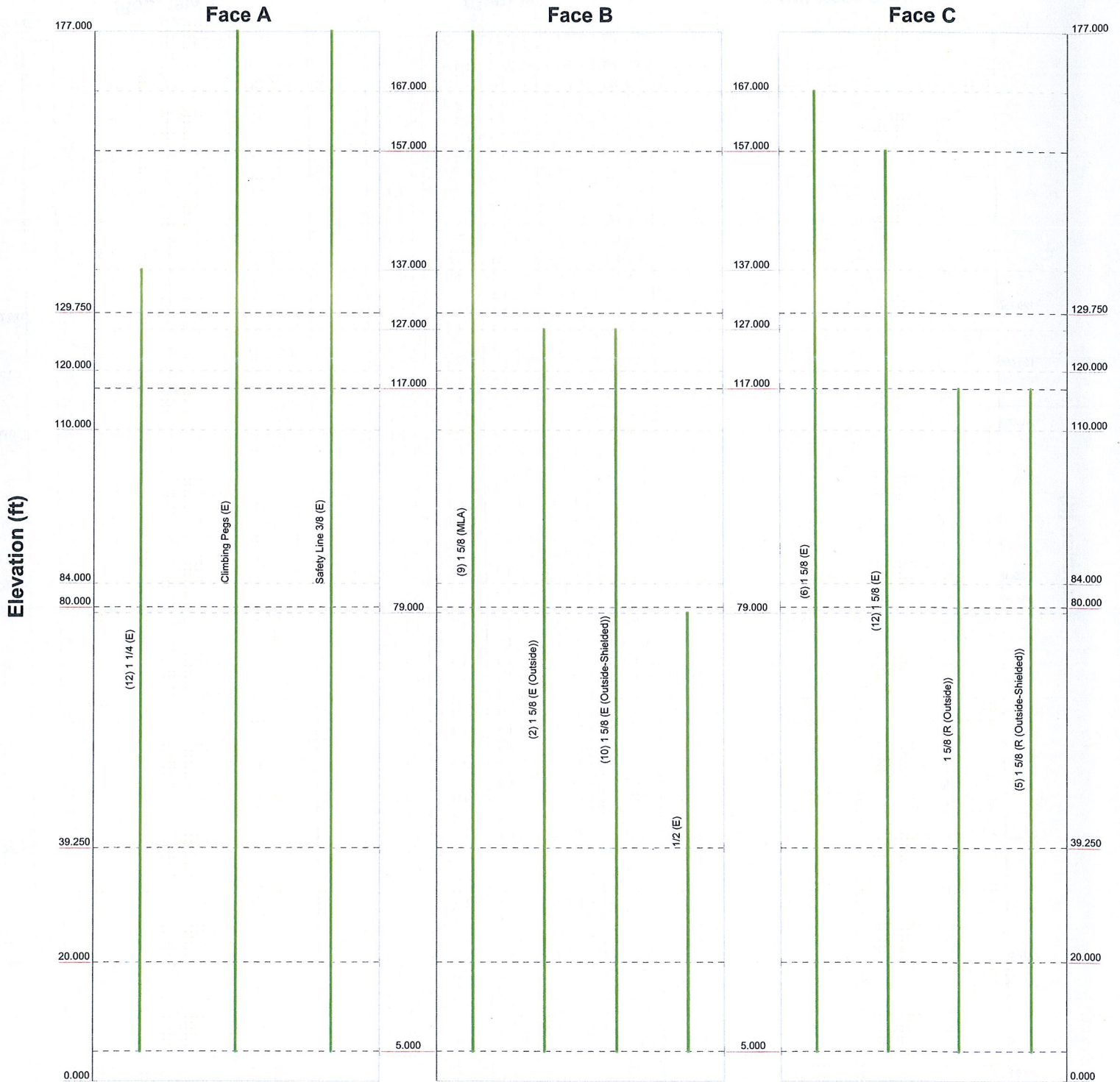


 <p>B&T Engineering, Inc. 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job: 83609- SCOVILLE HILL / HARWINTON ROD, CT (BU# 87637)
	Project: 177' Summit MP/ App ID: 130812; Rev: 1
	Client: Crown Castle USA, Inc.
	Code: TIA/EIA-222-F
	Path: <small>B:\83609-SCOVILLE HILL\2010\Drawings\TIA\222-F\TIA222-F-001-50mph.ctb</small>
Drawn by: skadam	App'd:
Date: 10/04/11	Scale: NTS
Dwg No. E-5	

Feedline Distribution Chart

0' - 177'

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



B&T Engineering, Inc. 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job: 83609- SCOVILLE HILL / HARWINTON ROD, CT (BU# 87637)		
	Project: 177' Summit MP / App ID: 130812; Rev: 1		
	Client: Crown Castle USA, Inc.	Drawn by: skadam	App'd:
	Code: TIA/EIA-222-F	Date: 10/04/11	Scale: NTS
	Path:	Dwg No. E-7	

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	Client Crown Castle USA, Inc.	Designed by skadam

Tower Input Data

There is a pole section.
 This tower is designed using the TIA/EIA-222-F standard.
 The following design criteria apply:
 Tower is located in Litchfield County, Connecticut.
 Basic wind speed of 80 mph.
 Nominal ice thickness of 1.000 in.
 Ice thickness is considered to increase with height.
 Ice density of 56.000 pcf.
 A wind speed of 28 mph is used in combination with ice.
 Temperature drop of 50.000 °F.
 Deflections calculated using a wind speed of 50 mph.
 A non-linear (P-delta) analysis was used.
 Pressures are calculated at each section.
 Stress ratio used in pole design is 1.333.
 Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	Elevation <i>ft</i>	Section Length <i>ft</i>	Splice Length <i>ft</i>	Number of Sides	Top Diameter <i>in</i>	Bottom Diameter <i>in</i>	Wall Thickness <i>in</i>	Bend Radius <i>in</i>	Pole Grade
L1	177.000-129.750	47.250	3.750	18	22.000	30.268	0.219	0.875	A607-65 (65 ksi)
L2	129.750-120.000	13.500	0.000	18	29.174	31.536	0.250	1.000	A607-65 (65 ksi)
L3	120.000-110.000	10.000	0.000	18	31.536	33.286	0.394	1.574	51.8 ksi (52 ksi)
L4	110.000-84.000	26.000	4.750	18	33.286	37.836	0.718	2.870	39.1 ksi (39 ksi)
L5	84.000-80.000	8.750	0.000	18	35.570	38.045	0.783	3.131	37.5 ksi (38 ksi)
L6	80.000-39.250	40.750	5.750	18	38.045	45.167	0.734	2.934	40.8 ksi (41 ksi)
L7	39.250-20.000	25.000	0.000	18	42.695	47.910	0.761	3.045	39.6 ksi (40 ksi)
L8	20.000-0.000	20.000		18	47.910	51.410	0.779	3.115	40.3 ksi (40 ksi)

Tapered Pole Properties

Section	Tip Dia. <i>in</i>	Area <i>in²</i>	I <i>in⁴</i>	r <i>in</i>	C <i>in</i>	I/C <i>in³</i>	J <i>in⁴</i>	I/Q <i>in²</i>	w <i>in</i>	w/t
L1	22.339	15.126	906.645	7.732	11.176	81.124	1814.482	7.565	3.487	15.937
	30.735	20.868	2380.622	10.667	15.376	154.826	4764.376	10.436	4.942	22.587
L2	30.290	22.951	2425.878	10.268	14.820	163.684	4854.947	11.478	4.695	18.779
	32.022	24.825	3069.973	11.107	16.020	191.630	6143.985	12.415	5.110	20.441
L3	32.022	38.906	4767.116	11.056	16.020	297.567	9540.504	19.457	4.858	12.341
	33.799	41.092	5616.764	11.677	16.909	332.170	11240.918	20.550	5.166	13.124

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Section	Tip Dia. in	Area in ²	<i>l</i> in ⁴	<i>r</i> in	<i>C</i> in	<i>I/C</i> in ³	<i>J</i> in ⁴	<i>Iu/Q</i> in ²	<i>w</i> in	<i>w/t</i>
L4	33.799	74.170	9939.386	11.562	16.909	587.806	19891.850	37.092	4.596	6.405
	38.420	84.532	14714.230	13.177	19.221	765.541	29447.821	42.274	5.396	7.521
L5	37.483	86.421	13212.728	12.349	18.069	731.220	26442.843	43.219	4.883	6.238
	38.632	92.570	16238.604	13.228	19.327	840.209	32498.574	46.294	5.318	6.795
L6	38.632	86.878	15280.175	13.246	19.327	790.619	30580.456	43.447	5.405	7.367
	45.864	103.461	25806.692	15.774	22.945	1124.728	51647.341	51.740	6.658	9.076
L7	44.571	101.314	22507.710	14.886	21.689	1037.748	45045.036	50.667	6.175	8.112
	48.649	113.914	31993.009	16.738	24.338	1314.514	64028.115	56.968	7.092	9.317
L8	48.649	116.489	32692.099	16.732	24.338	1343.238	65427.215	58.256	7.062	9.069
	52.203	125.140	40529.550	17.974	26.116	1551.888	81112.430	62.582	7.678	9.86

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor <i>A_f</i>	Adjust. Factor <i>A_r</i>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
<i>ft</i>	<i>ft</i> ²	in					in	in
177.000-129.750				1	1	1.05		
L1								
129.750-120.000				1	1	1.05		
L2								
120.000-110.000				1	1	1.05		
L3								
110.000-84.000				1	1	1.05		
L4								
84.000-80.000				1	1	1.05		
L5								
80.000-39.250				1	1	1.05		
L6								
39.250-20.000				1	1	1.05		
L7								
20.000-0.000				1	1	1.05		
L8								

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement <i>ft</i>	Total Number	<i>C_AA_A</i>	Weight	
						<i>ft</i> ² / <i>ft</i>	<i>k/ft</i>	
1 5/8 (MLA)	B	No	Inside Pole	177.000 - 5.000	9	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001 0.001

1 5/8 (E)	C	No	Inside Pole	167.000 - 5.000	6	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001 0.001

1 5/8 (E)	C	No	Inside Pole	157.000 - 5.000	12	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001

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Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _{AA}		Weight klf
						In Face	Out Face	
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001

1 1/4 (E)	A	No	Inside Pole	137.000 - 5.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001

1 5/8 (E (Outside))	B	No	CaAa (Out Of Face)	127.000 - 5.000	2	No Ice	0.198	0.001
						1/2" Ice	0.298	0.003
						1" Ice	0.398	0.005
						2" Ice	0.598	0.011
						4" Ice	0.998	0.030
1 5/8 (E (Outside-Shielded))	B	No	Inside Pole	127.000 - 5.000	10	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001

1 5/8 (R (Outside))	C	No	CaAa (Out Of Face)	117.000 - 5.000	1	No Ice	0.198	0.001
						1/2" Ice	0.298	0.003
						1" Ice	0.398	0.005
						2" Ice	0.598	0.011
						4" Ice	0.998	0.030
1 5/8 (R (Outside-Shielded))	C	No	Inside Pole	117.000 - 5.000	5	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001

1/2 (E)	B	No	Inside Pole	79.000 - 5.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000

Climbing Pegs (E)	A	No	Inside Pole	177.000 - 5.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
Safety Line 3/8 (E)	A	No	Inside Pole	177.000 - 5.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000

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
L1	177.000-129.750	A	0.000	0.000	0.000	0.000	0.087
		B	0.000	0.000	0.000	0.000	0.442
		C	0.000	0.000	0.000	0.000	0.573
L2	129.750-120.000	A	0.000	0.000	0.000	0.000	0.083
		B	0.000	0.000	0.000	2.772	0.179

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Tower Section	Tower Elevation ft	Face	A_R	A_F	C_{AA} In Face	C_{AA} Out Face	Weight K
			ft^2	ft^2	ft^2	ft^2	
L3	120.000-110.000	C	0.000	0.000	0.000	0.000	0.183
		A	0.000	0.000	0.000	0.000	0.085
		B	0.000	0.000	0.000	3.960	0.218
L4	110.000-84.000	C	0.000	0.000	0.000	1.386	0.231
		A	0.000	0.000	0.000	0.000	0.222
		B	0.000	0.000	0.000	10.296	0.568
L5	84.000-80.000	C	0.000	0.000	0.000	5.148	0.649
		A	0.000	0.000	0.000	0.000	0.034
		B	0.000	0.000	0.000	1.584	0.087
L6	80.000-39.250	C	0.000	0.000	0.000	0.792	0.100
		A	0.000	0.000	0.000	0.000	0.348
		B	0.000	0.000	0.000	16.137	0.900
L7	39.250-20.000	C	0.000	0.000	0.000	8.068	1.017
		A	0.000	0.000	0.000	0.000	0.164
		B	0.000	0.000	0.000	7.623	0.425
L8	20.000-0.000	C	0.000	0.000	0.000	3.812	0.480
		A	0.000	0.000	0.000	0.000	0.128
		B	0.000	0.000	0.000	5.940	0.331
		C	0.000	0.000	0.000	2.970	0.374

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R	A_F	C_{AA} In Face	C_{AA} Out Face	Weight K
				ft^2	ft^2	ft^2	ft^2	
L1	177.000-129.750	A	1.202	0.000	0.000	0.000	0.000	0.087
		B		0.000	0.000	0.000	0.000	0.442
		C		0.000	0.000	0.000	0.000	0.573
L2	129.750-120.000	A	1.173	0.000	0.000	0.000	0.000	0.083
		B		0.000	0.000	0.000	6.136	0.247
		C		0.000	0.000	0.000	0.000	0.183
L3	120.000-110.000	A	1.162	0.000	0.000	0.000	0.000	0.085
		B		0.000	0.000	0.000	8.606	0.311
		C		0.000	0.000	0.000	3.012	0.263
L4	110.000-84.000	A	1.138	0.000	0.000	0.000	0.000	0.222
		B		0.000	0.000	0.000	22.128	0.801
		C		0.000	0.000	0.000	11.064	0.765
L5	84.000-80.000	A	1.115	0.000	0.000	0.000	0.000	0.034
		B		0.000	0.000	0.000	3.404	0.123
		C		0.000	0.000	0.000	1.702	0.118
L6	80.000-39.250	A	1.073	0.000	0.000	0.000	0.000	0.348
		B		0.000	0.000	0.000	33.633	1.233
		C		0.000	0.000	0.000	16.817	1.184
L7	39.250-20.000	A	1.000	0.000	0.000	0.000	0.000	0.164
		B		0.000	0.000	0.000	15.888	0.583
		C		0.000	0.000	0.000	7.944	0.559
L8	20.000-0.000	A	1.000	0.000	0.000	0.000	0.000	0.128
		B		0.000	0.000	0.000	11.940	0.441
		C		0.000	0.000	0.000	5.970	0.429

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Feed Line Center of Pressure

Section	Elevation	CP _x	CP _z	CP _x	CP _z
	ft	in	in	Ice in	Ice in
L1	177.000-129.750	0.000	0.000	0.000	0.000
L2	129.750-120.000	0.335	0.193	0.622	0.359
L3	120.000-110.000	0.278	0.335	0.482	0.581
L4	110.000-84.000	0.214	0.371	0.370	0.641
L5	84.000-80.000	0.216	0.374	0.376	0.652
L6	80.000-39.250	0.220	0.380	0.381	0.659
L7	39.250-20.000	0.223	0.386	0.391	0.678
L8	20.000-0.000	0.173	0.299	0.306	0.530

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz Lateral	Vert						ft
(3) MLA_ANTENNA w/ Mount Pipe (MLA)	C	From Leg	4.000	0.000	0.000	178.000	No Ice	8.637	6.946	0.066
							1/2" Ice	9.290	8.127	0.131
							1" Ice	9.910	9.021	0.209
							2" Ice	11.176	10.844	0.391
							4" Ice	13.829	14.851	0.896
(3) MLA_ANTENNA w/ Mount Pipe (MLA)	B	From Leg	4.000	0.000	0.000	178.000	No Ice	8.637	6.946	0.066
							1/2" Ice	9.290	8.127	0.131
							1" Ice	9.910	9.021	0.209
							2" Ice	11.176	10.844	0.391
							4" Ice	13.829	14.851	0.896
(3) MLA_ANTENNA w/ Mount Pipe (MLA)	A	From Leg	4.000	0.000	0.000	178.000	No Ice	8.637	6.946	0.066
							1/2" Ice	9.290	8.127	0.131
							1" Ice	9.910	9.021	0.209
							2" Ice	11.176	10.844	0.391
							4" Ice	13.829	14.851	0.896
Platform Mount [LP 712-1] (E)	C	None			0.000	177.000	No Ice	24.530	24.530	1.335
							1/2" Ice	29.940	29.940	1.646
							1" Ice	35.350	35.350	1.956
							2" Ice	46.170	46.170	2.577
							4" Ice	67.810	67.810	3.820
RR90-17-00DP w/Mount Pipe (E)	C	From Leg	4.000	0.000	0.000	169.000	No Ice	4.672	3.399	0.035
							1/2" Ice	5.202	4.237	0.071
							1" Ice	5.712	4.952	0.117
							2" Ice	6.764	6.431	0.229
							4" Ice	8.996	9.590	0.569
RR90-17-00DP w/Mount Pipe (E)	B	From Leg	4.000	0.000	0.000	169.000	No Ice	4.672	3.399	0.035
							1/2" Ice	5.202	4.237	0.071
							1" Ice	5.712	4.952	0.117
							2" Ice	6.764	6.431	0.229
							4" Ice	8.996	9.590	0.569
RR90-17-00DP w/Mount Pipe (E)	A	From Leg	4.000	0.000	0.000	169.000	No Ice	4.672	3.399	0.035
							1/2" Ice	5.202	4.237	0.071
							1" Ice	5.712	4.952	0.117
							2" Ice	6.764	6.431	0.229
							4" Ice	8.996	9.590	0.569

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA}		Weight	
			Horz	Lateral Vert			Front	Side		
			ft	ft	°	ft	ft ²	ft ²	K	
(2) KRY 112 75/1 TMA (E)	C	From Leg	4.000	0.000	0.000	169.000	4" Ice	8.996	9.590	0.569
							No Ice	1.983	0.942	0.030
							1/2" Ice	2.176	1.094	0.043
							1" Ice	2.377	1.254	0.059
							2" Ice	2.804	1.600	0.098
(2) KRY 112 75/1 TMA (E)	B	From Leg	4.000	0.000	0.000	169.000	4" Ice	3.764	2.396	0.214
							No Ice	1.983	0.942	0.030
							1/2" Ice	2.176	1.094	0.043
							1" Ice	2.377	1.254	0.059
							2" Ice	2.804	1.600	0.098
(2) KRY 112 75/1 TMA (E)	A	From Leg	4.000	0.000	0.000	169.000	4" Ice	3.764	2.396	0.214
							No Ice	1.983	0.942	0.030
							1/2" Ice	2.176	1.094	0.043
							1" Ice	2.377	1.254	0.059
							2" Ice	2.804	1.600	0.098
T-Arm Mount [TA 602-3] (E)	C	None			0.000	167.000	4" Ice	3.764	2.396	0.214
							No Ice	11.590	11.590	0.774
							1/2" Ice	15.440	15.440	0.990
							1" Ice	19.290	19.290	1.206
							2" Ice	26.990	26.990	1.639
(3) 6' x 2" Mount Pipe (E)	C	From Leg	4.000	0.000	0.000	167.000	4" Ice	42.390	42.390	2.503
							No Ice	1.425	1.425	0.022
							1/2" Ice	1.925	1.925	0.033
							1" Ice	2.294	2.294	0.048
							2" Ice	3.060	3.060	0.090
(3) 6' x 2" Mount Pipe (E)	B	From Leg	4.000	0.000	0.000	167.000	4" Ice	4.702	4.702	0.231
							No Ice	1.425	1.425	0.022
							1/2" Ice	1.925	1.925	0.033
							1" Ice	2.294	2.294	0.048
							2" Ice	3.060	3.060	0.090
(3) 6' x 2" Mount Pipe (E)	A	From Leg	4.000	0.000	0.000	167.000	4" Ice	4.702	4.702	0.231
							No Ice	1.425	1.425	0.022
							1/2" Ice	1.925	1.925	0.033
							1" Ice	2.294	2.294	0.048
							2" Ice	3.060	3.060	0.090

(2) LPA-80063/6CF w/ Mount Pipe (E)	C	From Leg	4.000	0.000	0.000	156.000	4" Ice	8.834	19.217	0.857
							No Ice	10.337	10.430	0.049
							1/2" Ice	10.905	11.479	0.136
							1" Ice	11.481	12.405	0.236
							2" Ice	12.657	14.310	0.461
(2) LPA-80080/6CF w/ Mount Pipe (E)	B	From Leg	4.000	0.000	0.000	156.000	4" Ice	15.116	18.337	1.053
							No Ice	4.564	10.728	0.046
							1/2" Ice	5.105	11.990	0.110
							1" Ice	5.612	12.968	0.185
							2" Ice	6.651	14.980	0.363
(2) LPA-80080/6CF w/ Mount Pipe (E)	A	From Leg	4.000	0.000	0.000	156.000	4" Ice	8.834	19.217	0.857
							No Ice	4.564	10.728	0.046
							1/2" Ice	5.105	11.990	0.110
							1" Ice	5.612	12.968	0.185
							2" Ice	6.651	14.980	0.363
BXA-171063-8BF-EDIN-2 w/ Mount Pipe (P)	C	From Leg	4.000	0.000	0.000	156.000	4" Ice	8.834	19.217	0.857
							No Ice	3.179	3.353	0.029
							1/2" Ice	3.555	3.971	0.059
							1" Ice	3.964	4.595	0.098
							2" Ice	4.853	5.893	0.193
							4" Ice	6.767	8.885	0.487

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA}		Weight
			Horz	Lateral Vert			Front	Side	
			ft	ft	°	ft	ft ²	ft ²	K
Pipe (E)			0.000			1/2" Ice	3.690	5.596	0.066
			0.000			1" Ice	4.119	6.284	0.112
						2" Ice	5.007	7.712	0.224
						4" Ice	6.920	10.833	0.553
Platform Mount [LP 712-1] (E)	C	None			0.000	No Ice	24.530	24.530	1.335
						1/2" Ice	29.940	29.940	1.646
						1" Ice	35.350	35.350	1.956
						2" Ice	46.170	46.170	2.577
						4" Ice	67.810	67.810	3.820
***** (2)						No Ice	5.394	3.750	0.056
AP14/17-880/1940/065D/AD T/XXP w/ Mount Pipe (E)	C	From Leg	4.000		0.000	1/2" Ice	5.863	4.421	0.096
			0.000			1" Ice	6.336	5.074	0.145
			0.000			2" Ice	7.314	6.430	0.264
						4" Ice	9.396	9.533	0.612
(2)	B	From Leg	4.000		0.000	No Ice	5.394	3.750	0.056
AP14/17-880/1940/065D/AD T/XXP w/ Mount Pipe (E)			0.000			1/2" Ice	5.863	4.421	0.096
			0.000			1" Ice	6.336	5.074	0.145
			0.000			2" Ice	7.314	6.430	0.264
						4" Ice	9.396	9.533	0.612
(2)	A	From Leg	4.000		0.000	No Ice	5.394	3.750	0.056
AP14/17-880/1940/065D/AD T/XXP w/ Mount Pipe (E)			0.000			1/2" Ice	5.863	4.421	0.096
			0.000			1" Ice	6.336	5.074	0.145
			0.000			2" Ice	7.314	6.430	0.264
						4" Ice	9.396	9.533	0.612
(2) LGP 17201 (E)	C	From Leg	4.000		0.000	No Ice	1.946	0.518	0.031
			0.000			1/2" Ice	2.134	0.640	0.042
			0.000			1" Ice	2.330	0.770	0.055
						2" Ice	2.749	1.056	0.089
						4" Ice	3.690	1.733	0.193
(2) LGP 17201 (E)	B	From Leg	4.000		0.000	No Ice	1.946	0.518	0.031
			0.000			1/2" Ice	2.134	0.640	0.042
			0.000			1" Ice	2.330	0.770	0.055
						2" Ice	2.749	1.056	0.089
						4" Ice	3.690	1.733	0.193
(2) LGP 17201 (E)	A	From Leg	4.000		0.000	No Ice	1.946	0.518	0.031
			0.000			1/2" Ice	2.134	0.640	0.042
			0.000			1" Ice	2.330	0.770	0.055
						2" Ice	2.749	1.056	0.089
						4" Ice	3.690	1.733	0.193
Platform Mount [LP 304-1] (E)	C	None			0.000	No Ice	17.460	17.460	1.349
						1/2" Ice	22.440	22.440	1.625
						1" Ice	27.420	27.420	1.900
						2" Ice	37.380	37.380	2.451
						4" Ice	57.300	57.300	3.554
***** (E)						No Ice	5.404	4.700	0.052
APXV18-206517S-C w/ Mount Pipe (E)	C	From Leg	1.500		0.000	1/2" Ice	5.960	5.860	0.094
			0.000			1" Ice	6.481	6.734	0.148
			0.000			2" Ice	7.547	8.515	0.280
						4" Ice	9.919	12.277	0.679
APXV18-206517S-C w/ Mount Pipe (E)	B	From Leg	1.500		0.000	No Ice	5.404	4.700	0.052
			0.000			1/2" Ice	5.960	5.860	0.094
			0.000			1" Ice	6.481	6.734	0.148
						2" Ice	7.547	8.515	0.280
						4" Ice	9.919	12.277	0.679
APXV18-206517S-C w/ (E)	A	From Leg	1.500		0.000	No Ice	5.404	4.700	0.052

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz Lateral ft	Vert ft						
Mount Pipe (E)			0.000			1/2" Ice	5.960	5.860	0.094	
			0.000			1" Ice	6.481	6.734	0.148	
						2" Ice	7.547	8.515	0.280	
						4" Ice	9.919	12.277	0.679	

8225 (E)	C	From Leg	4.000		0.000	80.000	No Ice	0.894	0.894	0.001
			0.000				1/2" Ice	1.080	1.080	0.009
			0.000				1" Ice	1.284	1.284	0.018
							2" Ice	1.719	1.719	0.046
							4" Ice	2.691	2.691	0.137
Side Arm Mount [SO 701-1] (E)	C	From Leg	3.000		0.000	79.000	No Ice	0.850	1.670	0.065
			0.000				1/2" Ice	1.140	2.340	0.079
			0.000				1" Ice	1.430	3.010	0.093
							2" Ice	2.010	4.350	0.121
							4" Ice	3.170	7.030	0.177

Load Combinations

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

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Comb. No.	Description
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov.	Force	Major Axis	Minor Axis
				Load Comb.	K	Moment kip-ft	Moment kip-ft
L1	177 - 129.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-20.679	3.019	3.951
			Max. Mx	11	-9.217	449.255	-4.017
			Max. My	2	-9.300	-4.211	441.015
			Max. Vy	11	-17.347	449.255	-4.017
			Max. Vx	2	-16.662	-4.211	441.015
			Max. Torque	10			-7.332
L2	129.75 - 120	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-26.845	2.963	3.943
			Max. Mx	11	-13.065	708.881	-5.504
			Max. My	2	-13.140	-5.735	691.362
			Max. Vy	11	-20.617	708.881	-5.504
			Max. Vx	2	-19.927	-5.735	691.362
			Max. Torque	10			-7.326
L3	120 - 110	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-29.924	2.896	3.860
			Max. Mx	11	-15.264	923.751	-6.630
			Max. My	2	-15.332	-6.873	899.328
			Max. Vy	11	-22.133	923.751	-6.630
			Max. Vx	2	-21.443	-6.873	899.328
			Max. Torque	4			7.298
L4	110 - 84	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-38.433	2.739	3.592
			Max. Mx	11	-22.531	1416.525	-9.053
			Max. My	2	-22.589	-9.301	1377.356
			Max. Vy	11	-24.274	1416.525	-9.053
			Max. Vx	2	-23.579	-9.301	1377.356
			Max. Torque	4			7.261
L5	84 - 80	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-43.961	2.668	3.473
			Max. Mx	11	-27.273	1633.324	-10.062
			Max. My	2	-27.327	-10.309	1588.045
			Max. Vy	11	-25.241	1633.324	-10.062
			Max. Vx	2	-24.544	-10.309	1588.045
			Max. Torque	4			7.167
L6	80 - 39.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-60.188	2.842	2.678
			Max. Mx	11	-41.424	2573.279	-13.852
			Max. My	2	-41.455	-13.683	2503.664
			Max. Vy	11	-28.350	2573.279	-13.852
			Max. Vx	2	-27.672	-13.683	2503.664
			Max. Torque	4			7.152
L7	39.25 - 20	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-75.370	2.606	2.285
			Max. Mx	11	-54.844	3306.023	-16.437

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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
L8	20 - 0	Pole	Max. My	2	-54.859	-16.240	3219.504
			Max. Vy	11	-30.161	3306.023	-16.437
			Max. Vx	2	-29.493	-16.240	3219.504
			Max. Torque	4			7.005
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-86.252	2.455	2.040
			Max. Mx	11	-64.605	3920.951	-18.460
			Max. My	2	-64.606	-18.239	3821.174
			Max. Vy	11	-31.358	3920.951	-18.460
			Max. Vx	2	-30.703	-18.239	3821.174
			Max. Torque	4			6.942

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	86.252	-0.001	-0.001
	Max. H _x	11	64.613	31.342	-0.097
	Max. H _z	2	64.613	-0.097	30.688
	Max. M _x	2	3821.174	-0.097	30.688
	Max. M _z	5	3919.689	-31.342	0.097
	Max. Torsion	4	6.891	-27.192	15.428
	Min. Vert	27	64.613	-0.038	11.985
	Min. H _x	5	64.613	-31.342	0.097
	Min. H _z	8	64.613	0.097	-30.688
	Min. M _x	8	-3820.322	0.097	-30.688
	Min. M _z	11	-3920.951	31.342	-0.097
	Min. Torsion	10	-6.891	27.192	-15.428

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _y K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	64.613	-0.000	-0.000	-0.391	0.597	0.000
Dead+Wind 0 deg - No Ice	64.613	0.097	-30.688	-3821.174	-18.239	-3.711
Dead+Wind 30 deg - No Ice	64.613	15.755	-26.626	-3318.752	-1975.969	-6.125
Dead+Wind 60 deg - No Ice	64.613	27.192	-15.428	-1927.070	-3403.967	-6.891
Dead+Wind 90 deg - No Ice	64.613	31.342	-0.097	-19.241	-3919.689	-5.813
Dead+Wind 120 deg - No Ice	64.613	27.095	15.261	1893.664	-3385.164	-3.182
Dead+Wind 150 deg - No Ice	64.613	15.587	26.529	3299.143	-1943.331	0.298
Dead+Wind 180 deg - No Ice	64.613	-0.097	30.688	3820.322	19.464	3.698
Dead+Wind 210 deg - No Ice	64.613	-15.755	26.626	3317.936	1977.172	6.111
Dead+Wind 240 deg - No Ice	64.613	-27.192	15.428	1926.290	3405.189	6.891
Dead+Wind 270 deg - No Ice	64.613	-31.342	0.097	18.460	3920.951	5.826
Dead+Wind 300 deg - No Ice	64.613	-27.095	-15.261	-1894.480	3386.446	3.196
Dead+Wind 330 deg - No Ice	64.613	-15.587	-26.529	-3299.994	1944.595	-0.297
Dead+Ice+Temp	86.252	0.001	0.001	-2.040	2.455	-0.000
Dead+Wind 0 deg+Ice+Temp	86.252	0.007	-4.979	-646.511	1.012	-0.590
Dead+Wind 30 deg+Ice+Temp	86.252	2.545	-4.315	-561.078	-328.717	-0.961
Dead+Wind 60 deg+Ice+Temp	86.252	4.402	-2.495	-325.935	-569.629	-1.074
Dead+Wind 90 deg+Ice+Temp	86.252	5.080	-0.006	-4.088	-657.172	-0.900

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Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 120 deg+Ice+Temp	86.252	4.396	2.484	318.224	-567.890	-0.485
Dead+Wind 150 deg+Ice+Temp	86.252	2.534	4.308	554.639	-325.705	0.060
Dead+Wind 180 deg+Ice+Temp	86.252	-0.006	4.979	641.810	4.490	0.589
Dead+Wind 210 deg+Ice+Temp	86.252	-2.545	4.315	556.378	334.219	0.960
Dead+Wind 240 deg+Ice+Temp	86.252	-4.402	2.495	321.236	575.131	1.074
Dead+Wind 270 deg+Ice+Temp	86.252	-5.080	0.007	-0.610	662.675	0.900
Dead+Wind 300 deg+Ice+Temp	86.252	-4.396	-2.484	-322.924	573.394	0.485
Dead+Wind 330 deg+Ice+Temp	86.252	-2.534	-4.308	-559.341	331.208	-0.061
Dead+Wind 0 deg - Service	64.613	0.038	-11.985	-1493.837	-6.738	-1.458
Dead+Wind 30 deg - Service	64.613	6.154	-10.400	-1297.635	-772.050	-2.408
Dead+Wind 60 deg - Service	64.613	10.622	-6.027	-753.672	-1330.400	-2.712
Dead+Wind 90 deg - Service	64.613	12.242	-0.038	-7.799	-1531.951	-2.290
Dead+Wind 120 deg - Service	64.613	10.583	5.961	740.000	-1322.941	-1.255
Dead+Wind 150 deg - Service	64.613	6.089	10.363	1289.490	-759.329	0.116
Dead+Wind 180 deg - Service	64.613	-0.038	11.985	1492.974	8.004	1.456
Dead+Wind 210 deg - Service	64.613	-6.154	10.400	1296.861	773.364	2.406
Dead+Wind 240 deg - Service	64.613	-10.621	6.026	752.769	1331.579	2.712
Dead+Wind 270 deg - Service	64.613	-12.242	0.038	6.945	1533.223	2.292
Dead+Wind 300 deg - Service	64.613	-10.584	-5.961	-740.907	1324.302	1.257
Dead+Wind 330 deg - Service	64.613	-6.089	-10.363	-1290.354	760.601	-0.116

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	0.000	-64.613	0.000	0.000	64.613	0.000	0.000%
2	0.097	-64.613	-30.689	-0.097	64.613	30.688	0.002%
3	15.755	-64.613	-26.626	-15.755	64.613	26.626	0.000%
4	27.192	-64.613	-15.429	-27.192	64.613	15.428	0.000%
5	31.343	-64.613	-0.097	-31.342	64.613	0.097	0.001%
6	27.095	-64.613	15.261	-27.095	64.613	-15.261	0.000%
7	15.588	-64.613	26.529	-15.587	64.613	-26.529	0.000%
8	-0.097	-64.613	30.689	0.097	64.613	-30.688	0.002%
9	-15.755	-64.613	26.626	15.755	64.613	-26.626	0.000%
10	-27.192	-64.613	15.429	27.192	64.613	-15.428	0.000%
11	-31.343	-64.613	0.097	31.342	64.613	-0.097	0.001%
12	-27.095	-64.613	-15.261	27.095	64.613	15.261	0.000%
13	-15.588	-64.613	-26.529	15.587	64.613	26.529	0.000%
14	0.000	-86.252	0.000	-0.001	86.252	-0.001	0.002%
15	0.007	-86.252	-4.979	-0.007	86.252	4.979	0.000%
16	2.546	-86.252	-4.315	-2.545	86.252	4.315	0.000%
17	4.403	-86.252	-2.495	-4.402	86.252	2.495	0.000%
18	5.080	-86.252	-0.007	-5.080	86.252	0.006	0.000%
19	4.396	-86.252	2.484	-4.396	86.252	-2.484	0.000%
20	2.534	-86.252	4.309	-2.534	86.252	-4.308	0.000%
21	-0.007	-86.252	4.979	0.006	86.252	-4.979	0.000%
22	-2.546	-86.252	4.315	2.545	86.252	-4.315	0.000%
23	-4.403	-86.252	2.495	4.402	86.252	-2.495	0.000%
24	-5.080	-86.252	0.007	5.080	86.252	-0.007	0.000%
25	-4.396	-86.252	-2.484	4.396	86.252	2.484	0.000%
26	-2.534	-86.252	-4.309	2.534	86.252	4.308	0.000%
27	0.038	-64.613	-11.988	-0.038	64.613	11.985	0.004%
28	6.154	-64.613	-10.401	-6.154	64.613	10.400	0.002%
29	10.622	-64.613	-6.027	-10.622	64.613	6.027	0.001%
30	12.243	-64.613	-0.038	-12.242	64.613	0.038	0.002%
31	10.584	-64.613	5.961	-10.583	64.613	-5.961	0.002%
32	6.089	-64.613	10.363	-6.089	64.613	-10.363	0.001%

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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	
33	-0.038	-64.613	11.988	0.038	64.613	-11.985	0.004%
34	-6.154	-64.613	10.401	6.154	64.613	-10.400	0.001%
35	-10.622	-64.613	6.027	10.621	64.613	-6.026	0.002%
36	-12.243	-64.613	0.038	12.242	64.613	-0.038	0.002%
37	-10.584	-64.613	-5.961	10.584	64.613	5.961	0.001%
38	-6.089	-64.613	-10.363	6.089	64.613	10.363	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	15	0.00002517	0.00010621
3	Yes	18	0.00000001	0.00007915
4	Yes	18	0.00000001	0.00009647
5	Yes	16	0.00000001	0.00009317
6	Yes	18	0.00000001	0.00007894
7	Yes	18	0.00000001	0.00008214
8	Yes	15	0.00002517	0.00013395
9	Yes	18	0.00000001	0.00009363
10	Yes	18	0.00000001	0.00007846
11	Yes	16	0.00000001	0.00008040
12	Yes	18	0.00000001	0.00008809
13	Yes	18	0.00000001	0.00008270
14	Yes	7	0.00000001	0.00003171
15	Yes	15	0.00000001	0.00013706
16	Yes	15	0.00000001	0.00014461
17	Yes	15	0.00000001	0.00014621
18	Yes	15	0.00000001	0.00013758
19	Yes	15	0.00000001	0.00014209
20	Yes	15	0.00000001	0.00014053
21	Yes	15	0.00000001	0.00013390
22	Yes	15	0.00000001	0.00014427
23	Yes	15	0.00000001	0.00014604
24	Yes	15	0.00000001	0.00014046
25	Yes	15	0.00000001	0.00014726
26	Yes	15	0.00000001	0.00014543
27	Yes	13	0.00014761	0.00010863
28	Yes	14	0.00006304	0.00014917
29	Yes	15	0.00000001	0.00010931
30	Yes	14	0.00006318	0.00008591
31	Yes	14	0.00006302	0.00014747
32	Yes	15	0.00000001	0.00007545
33	Yes	13	0.00014758	0.00011630
34	Yes	15	0.00000001	0.00010257
35	Yes	14	0.00006302	0.00014686
36	Yes	14	0.00006318	0.00008161
37	Yes	15	0.00000001	0.00009044
38	Yes	15	0.00000001	0.00007689

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Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	177 - 129.75	39.340	36	2.160	0.015
L2	133.5 - 120	21.179	36	1.663	0.012
L3	120 - 110	16.811	36	1.387	0.007
L4	110 - 84	14.085	36	1.212	0.005
L5	88.75 - 80	9.202	36	0.978	0.004
L6	80 - 39.25	7.466	36	0.905	0.003
L7	45 - 20	2.368	36	0.486	0.001
L8	20 - 0	0.458	36	0.220	0.001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
178.000	(3) MLA_ANTENNA w/ Mount Pipe	36	39.340	2.160	0.015	23760
177.000	Platform Mount [LP 712-1]	36	39.340	2.160	0.015	23760
169.000	RR90-17-00DP w/Mount Pipe	36	35.754	2.098	0.015	14850
167.000	T-Arm Mount [TA 602-3]	36	34.864	2.082	0.015	11880
157.000	Platform Mount [LP 304-1]	36	30.488	1.992	0.015	5939
156.000	(2) LPA-80063/6CF w/ Mount Pipe	36	30.060	1.982	0.015	5656
139.000	(4) DB844H90 w/ Mount Pipe	36	23.188	1.761	0.013	3124
137.000	Platform Mount [LP 712-1]	36	22.443	1.727	0.013	2969
129.000	(2) AP14/17-880/1940/065D/ADT/XXP w/ Mount Pipe	36	19.631	1.574	0.010	2676
127.000	Platform Mount [LP 304-1]	36	18.972	1.532	0.010	2653
117.000	APXV18-206517S-C w/ Mount Pipe	36	15.953	1.330	0.007	2941
80.000	8225	36	7.466	0.905	0.003	4755
79.000	Side Arm Mount [SO 701-1]	36	7.279	0.896	0.003	4699

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	177 - 129.75	100.413	11	5.513	0.038
L2	133.5 - 120	54.100	11	4.248	0.030
L3	120 - 110	42.952	11	3.544	0.019
L4	110 - 84	35.993	11	3.097	0.014
L5	88.75 - 80	23.520	11	2.500	0.009
L6	80 - 39.25	19.082	11	2.313	0.008
L7	45 - 20	6.055	11	1.242	0.003
L8	20 - 0	1.171	11	0.563	0.001

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Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
178.000	(3) MLA_ ANTENNA w/ Mount Pipe	11	100.413	5.513	0.038	9468
177.000	Platform Mount [LP 712-1]	11	100.413	5.513	0.038	9468
169.000	RR90-17-00DP w/Mount Pipe	11	91.270	5.356	0.039	5917
167.000	T-Arm Mount [TA 602-3]	11	89.000	5.314	0.039	4733
157.000	Platform Mount [LP 304-1]	11	77.843	5.085	0.039	2364
156.000	(2) LPA-80063/6CF w/ Mount Pipe	11	76.752	5.059	0.039	2251
139.000	(4) DB844H90 w/ Mount Pipe	11	59.227	4.495	0.034	1241
137.000	Platform Mount [LP 712-1]	11	57.327	4.410	0.033	1179
129.000	(2) AP14/17-880/1940/065D/ADT/XXP w/ Mount Pipe	11	50.152	4.019	0.026	1060
127.000	Platform Mount [LP 304-1]	11	48.470	3.912	0.025	1050
117.000	APXV18-206517S-C w/ Mount Pipe	11	40.762	3.398	0.017	1160
80.000	8225	11	19.082	2.313	0.008	1867
79.000	Side Arm Mount [SO 701-1]	11	18.604	2.290	0.008	1844

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _u	Kl/r	F _a	A	Actual P	Allow. P _a	Ratio P/P _a
	ft		ft	ft		ksi	in ²	K	K	
L1	177 - 129.75 (1)	TP30.268x22x0.219	47.250	0.000	0.0	39.000	20.413	-9.223	796.091	0.012
L2	129.75 - 120 (2)	TP31.536x29.174x0.25	13.500	0.000	0.0	39.000	24.825	-13.072	968.192	0.014
L3	120 - 110 (3)	TP33.286x31.536x0.394	10.000	0.000	0.0	31.080	41.092	-15.264	1277.140	0.012
L4	110 - 84 (4)	TP37.836x33.286x0.718	26.000	0.000	0.0	23.460	82.639	-22.531	1938.700	0.012
L5	84 - 80 (5)	TP38.045x35.57x0.783	8.750	0.000	0.0	22.500	92.570	-27.273	2082.830	0.013
L6	80 - 39.25 (6)	TP45.167x38.045x0.734	40.750	0.000	0.0	24.480	101.121	-41.424	2475.440	0.017
L7	39.25 - 20 (7)	TP47.91x42.695x0.761	25.000	0.000	0.0	23.760	113.914	-54.844	2706.590	0.020
L8	20 - 0 (8)	TP51.41x47.91x0.779	20.000	0.000	0.0	24.180	125.140	-64.605	3025.890	0.021

Pole Bending Design Data

Section No.	Elevation	Size	Actual M _x	Actual f _{bx}	Allow. F _{bx}	Ratio f _{bx} /F _{bx}	Actual M _y	Actual f _{by}	Allow. F _{by}	Ratio f _{by} /F _{by}
	ft		kip-ft	ksi	ksi		kip-ft	ksi	ksi	
L1	177 - 129.75 (1)	TP30.268x22x0.219	450.589	36.506	39.000	0.936	0.000	0.000	39.000	0.000
L2	129.75 - 120 (2)	TP31.536x29.174x0.25	709.253	44.414	39.000	1.139	0.000	0.000	39.000	0.000
L3	120 - 110 (3)	TP33.286x31.536x0.394	923.775	33.372	31.080	1.074	0.000	0.000	31.080	0.000
L4	110 - 84 (4)	TP37.836x33.286x0.718	1416.55	23.244	23.460	0.991	0.000	0.000	23.460	0.000
L5	84 - 80 (5)	TP38.045x35.57x0.783	1633.35	23.328	22.500	1.037	0.000	0.000	22.500	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 $\frac{f_{by}}{F_{by}}$
L6	80 - 39.25 (6)	TP45.167x38.045x0.734	2573.31 7	28.752	24.480	1.174	0.000	0.000	24.480	0.000
L7	39.25 - 20 (7)	TP47.91x42.695x0.761	3306.06 7	30.181	23.760	1.270	0.000	0.000	23.760	0.000
L8	20 - 0 (8)	TP51.41x47.91x0.779	3920.99 2	30.319	24.180	1.254	0.000	0.000	24.180	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	177 - 129.75 (1)	TP30.268x22x0.219	17.276	0.846	26.000	0.065	7.329	0.290	26.000	0.011
L2	129.75 - 120 (2)	TP31.536x29.174x0.25	20.547	0.828	26.000	0.064	7.301	0.223	26.000	0.009
L3	120 - 110 (3)	TP33.286x31.536x0.394	22.133	0.539	20.720	0.052	6.371	0.112	20.720	0.005
L4	110 - 84 (4)	TP37.836x33.286x0.718	24.274	0.294	15.640	0.038	6.305	0.050	15.640	0.003
L5	84 - 80 (5)	TP38.045x35.57x0.783	25.242	0.273	15.000	0.036	6.277	0.043	15.000	0.003
L6	80 - 39.25 (6)	TP45.167x38.045x0.734	28.351	0.280	16.320	0.034	5.948	0.032	16.320	0.002
L7	39.25 - 20 (7)	TP47.91x42.695x0.761	30.162	0.265	15.840	0.033	5.873	0.026	15.840	0.002
L8	20 - 0 (8)	TP51.41x47.91x0.779	31.358	0.251	16.120	0.031	5.828	0.022	16.120	0.001

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	177 - 129.75 (1)	0.012	0.936	0.000	0.065	0.011	0.950	1.333	H1-3+VT ✓
L2	129.75 - 120 (2)	0.014	1.139	0.000	0.064	0.009	1.154	1.333	H1-3+VT ✓
L3	120 - 110 (3)	0.012	1.074	0.000	0.052	0.005	1.087	1.333	H1-3+VT ✓
L4	110 - 84 (4)	0.012	0.991	0.000	0.038	0.003	1.003	1.333	H1-3+VT ✓
L5	84 - 80 (5)	0.013	1.037	0.000	0.036	0.003	1.050	1.333	H1-3+VT ✓
L6	80 - 39.25 (6)	0.017	1.174	0.000	0.034	0.002	1.192	1.333	H1-3+VT ✓
L7	39.25 - 20 (7)	0.020	1.270	0.000	0.033	0.002	1.291	1.333	H1-3+VT ✓
L8	20 - 0 (8)	0.021	1.254	0.000	0.031	0.001	1.276	1.333	H1-3+VT ✓

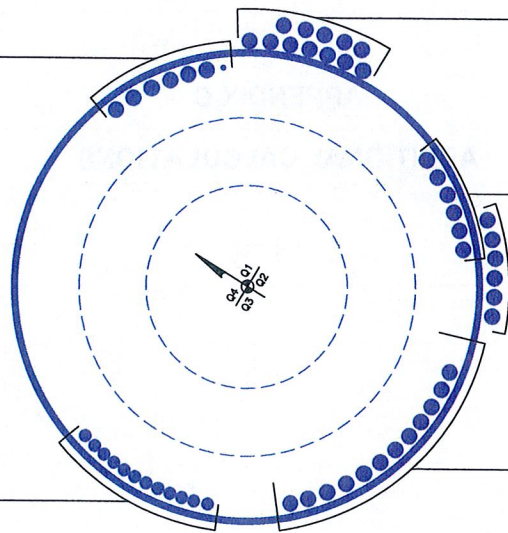
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Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
L1	177 - 129.75	Pole	TP30.268x22x0.219	1	-9.223	1061.189	71.2	Pass
L2	129.75 - 120	Pole	TP31.536x29.174x0.25	2	-13.072	1290.600	86.6	Pass
L3	120 - 110	Pole	TP33.286x31.536x0.394	3	-15.264	1702.428	81.5	Pass
L4	110 - 84	Pole	TP37.836x33.286x0.718	4	-22.531	2584.287	75.2	Pass
L5	84 - 80	Pole	TP38.045x35.57x0.783	5	-27.273	2776.412	78.8	Pass
L6	80 - 39.25	Pole	TP45.167x38.045x0.734	6	-41.424	3299.761	89.4	Pass
L7	39.25 - 20	Pole	TP47.91x42.695x0.761	7	-54.844	3607.884	96.8	Pass
L8	20 - 0	Pole	TP51.41x47.91x0.779	8	-64.605	4033.511	95.7	Pass
Summary								
Pole (L7)							96.8	Pass
RATING =							96.8	Pass

APPENDIX B
BASE LEVEL DRAWING

(MLA)
(9) 1-5/8" TO 177 FT LEVEL
(INSTALLED)
(6) 1-5/8" TO 177 FT LEVEL
(1) 1/2" TO 78 FT LEVEL



(INSTALLED)
(12) 1-5/8" TO 127 FT LEVEL

(INSTALLED)
(6) 1-5/8" TO 167 FT LEVEL

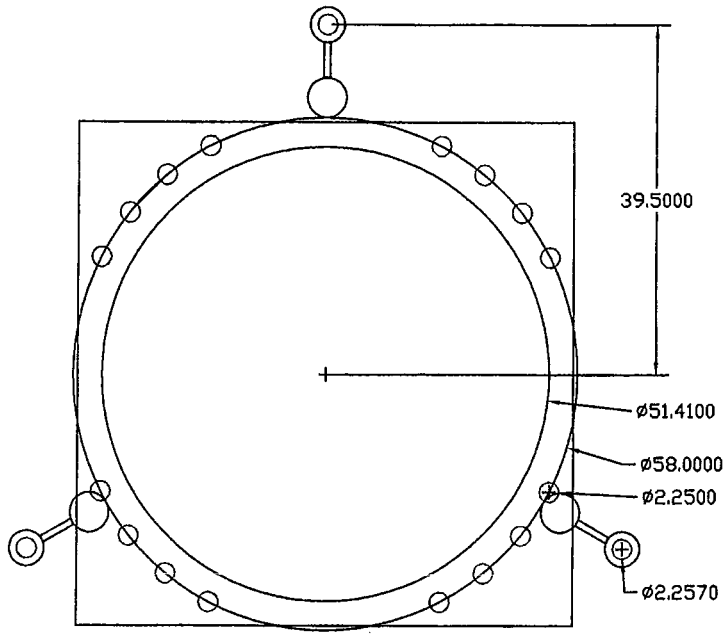
(INSTALLED)
(6) 1-5/8" TO 117 FT LEVEL

(INSTALLED)
(12) 1-1/4" TO 137 FT LEVEL

(INSTALLED)
(12) 1-5/8" TO 157 FT LEVEL

BUSINESS UNIT: 876376

APPENDIX C
ADDITIONAL CALCULATIONS



----- REGIONS -----

Area:	75.6198
Perimeter:	134.3691
Bounding box:	X: -35.3365 -- 35.3365
	Y: -26.9270 -- 40.6285
Centroid:	X: 0.0000
	Y: 0.0000
Moments of inertia:	X: 36143.9097
	Y: 36143.9097
Product of inertia:	XY: 0.0000
Radll of gyration:	X: 21.8625
	Y: 21.8625
Principal moments and X-Y directions about centroid:	
	I: 36143.9097 along [1.0000 0.0000]
	J: 36143.9097 along [0.0000 1.0000]

EXISTING MODIFICATION

MOMENT TO EXISTING MODIFIED RODS: (3) #18 BARS

$$T_{ACT} = \frac{3921 \times 12 \times 39.5}{36143.91} \times 3.25 \text{ IN}^2 = 167.1 \text{ K}$$

T_{ALLOW} = 195 K

UNITY % = 85.7 %

$$M_{EXIST} = \left[3921 - \left(\frac{167.1 \times 2 \times 39.5}{12} \right) \right]$$

= 2820.9 K-FT

⤴ ENTER INTO CSI TOOL

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F / G

- Assumptions:**
- 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
 - 2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
 - 3) Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: 876376
 Site Name: Scoville, CT
 App #: 130812; Rev: 1

Anchor Rod Data

Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	58	in
Anchor Spacing:	6	in

Plate Data

W=Side:	57	in
Thick:	2.75	in
Grade:	55	ksi
Clip Distance:	0	in

Stiffener Data (Welding at both sides)

Configuration:	Unstiffened	
Weld Type:		**
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data

Diam:	51.41	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round

Stress Increase Factor

ASD ASIF:	1.333	
-----------	-------	--

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Base Reactions

TIA Revision:	F	
Unfactored Moment, M:	2820.9	ft-kips
Unfactored Axial, P:	65	kips
Unfactored Shear, V:	31	kips

Anchor Rod Results

TIA F --> Maximum Rod Tension: 141.8 Kips
 Allowable Tension: 195.0 Kips
 Anchor Rod Stress Ratio: 72.8% **Pass**

Base Plate Results

Base Plate Stress: 40.3 ksi
 Allowable PL Bending Stress: 55.0 ksi
 Base Plate Stress Ratio: 73.2% **Pass**

Flexural Check

PL Ref. Data

Yield Line (in):	29.20
Max PL Length:	29.20

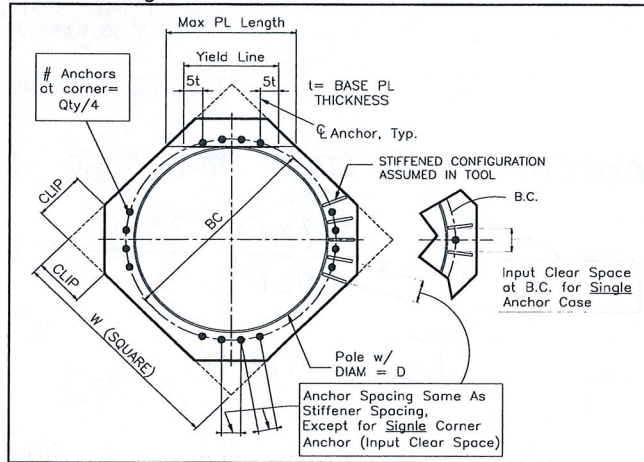
N/A - Unstiffened

Stiffener Results

Horizontal Weld : N/A
 Vertical Weld: N/A
 Plate Flex+Shear, $f_b/F_b + (f_v/F_v)^2$: N/A
 Plate Tension+Shear, $f_t/F_t + (f_v/F_v)^2$: N/A
 Plate Comp. (AISC Bracket): N/A

Pole Results

Pole Punching Shear Check: N/A



(Bearing and Stability Checks) Tool for TIA Rev F or G - Any application (MP, SST, GT)

Site Data

BU#: 876376
Site Name: Scoville Hill/Harwinton Rod, CT
App #: 130812 Rev. 1

Enter Load Factors Below:

For P (DL)	1.2	<---- Enter Factor
For P,V, and M (WL)	1.35	<---- Enter Factor

Pad & Pier Data

Base PL Dist. Above Pier:	3	in
Pier Dist. Above Grade:	6	in
Pad Bearing Depth, D:	4	ft
Pad Thickness, T:	4	ft
Pad Width=Length, L:	24.5	ft
Pier Cross Section Shape:	Square	<--Pull Down
Enter Pier Side Width:	7	ft
Concrete Density:	150.0	pcf
Pier Cross Section Area:	49.00	ft^2
Pier Height:	0.50	ft
Soil (above pad) Height:	0.00	ft

Soil Parameters

Unit Weight, γ :	120.0	pcf
Ultimate Bearing Capacity, q_n :	53.33	ksf
Strength Reduct. factor, ϕ :	0.75	
Angle of Friction, Φ :	30.0	degrees
Undrained Shear Strength, C_u :	10.00	ksf
Allowable Bearing: $\phi * q_n$:	40.00	ksf
Passive Pres. Coeff., K_p :	3.00	

Forces/Moments due to Wind and Lateral Soil

Factored Pad Passive Force:	3465.4	klps
Pad Force Location Above D:	1.99	ft
ϕ (Passive Pressure Moment):	5162.79	ft-kips
Factored O.T. M(WL), "1.6W":	5492.1	ft-kips
Factored OT (MW-Msoil), M1	329.35	ft-kips

Resistance due to Foundation Gravity

Soil Wedge Projection grade, a:	0.00	ft
Sum of Soil Wedges Wt:	0.00	klps
Soil Wedges ecc, K1:	0.00	ft
Ftg+Soil above Pad wt:	363.8	klps
Unfactored (Total ftg-soil Wt):	363.83	klps
1.2D. No Soil Wedges.	514.59	klps
0.9D. With Soil Wedges	385.94	klps

Resistance due to Cohesion (Vertical)

$\phi * (1/2 * C_u)$ (Total Vert. Planes)	0.00	klps
Cohesion Force Eccentricity, K2	0.00	ft

Monopole Base Reaction Forces

TIA Revision:	F	<--Pull Down
Unfactored DL Axial, PD:	65	klps
Unfactored WL Axial, PW:	0	klps
Unfactored WL Shear, V:	31	klps
Unfactored WL Moment, M:	3921	ft-kips

Load Factor Shaft Factored Loads

1.20	1.2D+1.6W, Pu:	78	klps
0.90	0.9D+1.6W, Pu:	58.5	klps
1.35	Vu:	41.85	klps
	Mu:	5293.35	ft-kips

1.2D+1.6W Load Combination, Bearing Results:

(No Soil Wedges) [Reaction+Conc+Soil]	514.59	P1="1.2D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil), M1	329.35	ft-kips

Orthogonal Direction:

ecc1 = M1/P1 = 0.64 ft
 Orthogonal qu= 0.95 ksf
 qu/ $\phi * q_n$ Ratio= **2.37% Pass**

Diagonal Direction:

ecc2 = (0.707M1)/P1 = 0.45 ft
 Diagonal qu= 1.31 ksf
 qu/ $\phi * q_n$ Ratio= **3.27% Pass**

Run

<-- Press Upon Completing All Input

Overtuning Stability Check

0.9D+1.6W Load Combination, Bearing Results:

(w/ Soil Wedges) [Reaction+Conc+Soil]	385.94	P2="0.9D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil) - 0.9(M of Wedge + M of Cohesion), M2	329.35	ft-kips

Orthogonal ecc3 = M2/P2 = 0.85 ft
 Ortho Non Bearing Length, NBL= **22.79 ft**
 Orthogonal qu= 0.73 ksf
 Diagonal qu= 1.01 ksf

Max Reaction Moment (ft-kips) so that qu= $\phi * q_n$ = 100% Capacity Rating

Actual M:	3921.00		
M Orthogonal:	7122.81	55.05%	Pass
M Diagonal:	7882.96	49.74%	Pass