STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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

Daniel F. Caruso
Chairman

November 4, 2006

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

RE: **EM-VER-025-061012** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 1119 Summit Road, Cheshire, Connecticut.

Dear Attorney Baldwin:

At a public meeting held on October 31, 2006, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated October 12, 2006, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

Daniel F. Caruso
Chairman

DFC/MP/laf

c: The Honorable Matt Hall, Council Chairman, Town of Cheshire
Michael A. Milone, Town Manager, Town of Cheshire
Richard A. Pfurr, Town Planner, Town of Cheshire
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels LLP
Christopher B. Fisher, Esq., Cuddy and Feder LLP
Michele G. Briggs, New Cingular Wireless PCS, LLC
Christine Farrell, T-Mobile

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Phone: (860) 827-2935 Fax: (860) 827-2950
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Internet: ct.gov/csc

Daniel F. Caruso
Chairman

October 13, 2006

The Honorable Matt Hall
Council Chairman
Town of Cheshire
Town Hall
84 South Main Street
Cheshire, CT 06410

RE: **EM-VER-025-061012** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 1119 Summit Road, Cheshire, Connecticut.

Dear Mr. Hall:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for Tuesday, October 31, 2006 at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

If you have any questions or comments regarding this proposal, please call me or inform the Council by October 27, 2006.

Thank you for your cooperation and consideration.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/MP/laf

Enclosure: Notice of Intent

c: Richard A. Pfurr, Town Planner, Town of Cheshire
Michael A. Milone, Town Manager, Town of Cheshire

ROBINSON & COLE LLP

KENNETH C. BALDWIN

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

EM-VER-025-061012

October 12, 2006

Via Hand Delivery

S. Derek Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Antenna Swap**
1119 Summit Road, Cheshire, CT

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains a wireless telecommunications facility at 1119 Summit Road in Cheshire. In its continuing effort to improve the quality and reliability of its wireless service, Cellco intends to replace and upgrade its antennas at this facility.

The Council originally approved Cellco's Summit Road facility in Docket No. 199. On March 3, 2005, the Council approved Cellco's request to replace 6 of its cellular antennas with six PCS antennas. Cellco now intends to modify this facility further by replacing the remaining six cellular antennas with six newer model cellular antennas at the same location on the tower. Attached behind Tab 1 are specifications for the existing and proposed replacement antennas as well as a structural report verifying that the Summit Road tower can support the proposed modifications.

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 Michael A. Milone, the Town Manager of Cheshire.

The planned modification to the facility falls 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 structure. Cellco's replacement antennas will be located at the same height and location as the existing antennas.

2. The proposed modifications will not affect associated equipment areas and 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 proposed modifications will not result in changes to radio frequency (RF) power density levels at the facility. Therefore, no new Power Density Calculation Table is provided.

For the foregoing reasons, Cellco respectfully submits that the proposed modifications at 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:
Michael A. Milone, Cheshire Town Manager
Sandy M. Carter
Michelle Kababik

EXISTING

DB844H90E-XY

Directed Dipole Antenna

DECIBEL®
Base Station Antennas

- Excellent azimuth roll-off, 15-20% reduction in cell to cell overlap
- Superior front to back ratio
- Low profile, low wind load for easy zoning
- Outstanding field record with thousands of units deployed, world wide

ELECTRICAL

Frequency (MHz) :	806 - 896	870 - 960
Polarization :	Vertical	Vertical
Gain (dBd/dBi) :	12/14.1	12.4/14.5
Azimuth BW (Deg.):	90	90
Elevation BW (Deg.):	15	15
Beam Tilt (Deg.):	0	0
USLS* (dB) :	>15	>15
Front-To-Back Ratio* (dB) :	40	40
VSWR :	<1.35:1	<1.35:1
Max. Input Power (Watts) :	500	500
Impedance (Ohms) :	50	50
Lightning Protection :	DC Ground	DC Ground

MECHANICAL

Weight :	6.3 kg (14 lb)
Dimensions (LxWxD) :	1,219 x 165 x 203 mm (48 x 6.5 x 8 in)
Max. Wind Area :	0.10 m² (1.1 ft²)
Max. Wind Load (@ 100 mph) :	262.4 N (59 lbf)
Max. Wind Speed :	241 km/h (150 mph)
Hardware Material :	Galvanized Steel
Connector Type :	7-16 DIN - Female (1, Back)
Color :	Light Gray
Standard Mounting Hardware :	DB380
Standard Downtilt Mounting Hardware :	DB5083

Andrew Corporation
2601 Telecom Parkway
Richardson, Texas U.S.A 75082-3521
Tel: 214.631.0310

Fax: 214.631.4706
Toll Free Tel: 1.800.676.5342
Fax: 1.800.229.4706
www.andrew.com

* - Indicates Typical

7/1/2005

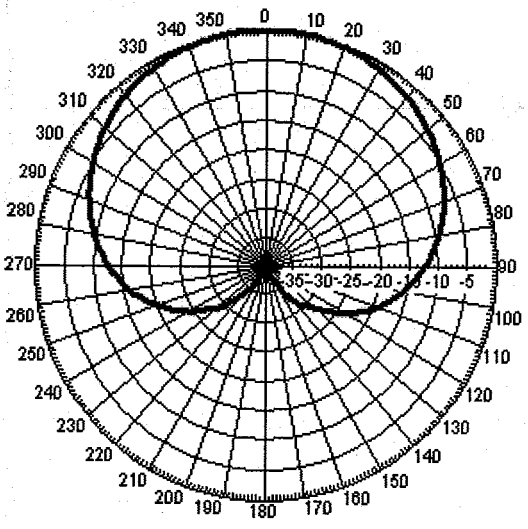
dbtech@andrew.com

DB844H90E-XY

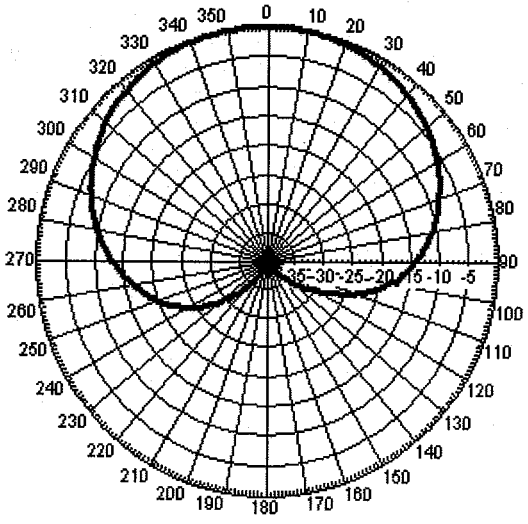
Directed Dipole Antenna

DECIBEL®
Base Station Antennas

AZIMUTH PATTERN

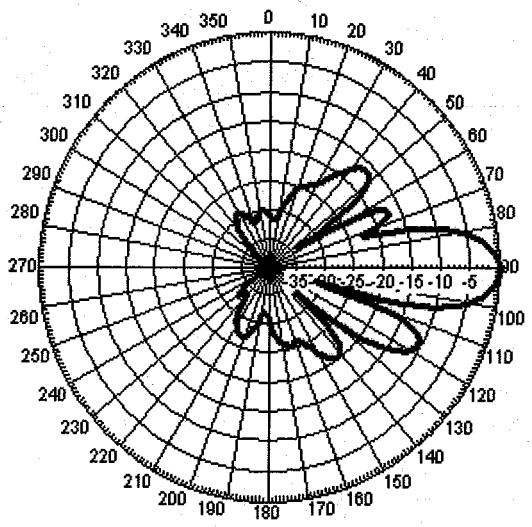


Freq: 860 MHz, Tilt: 0



Freq: 940 MHz, Tilt: 0

ELEVATION PATTERN



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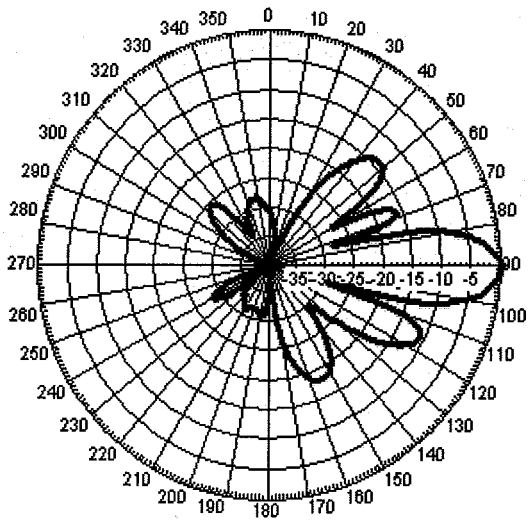

Freq: 940 MHz, Tilt: 0

Andrew Corporation
2601 Telecom Parkway
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Tel: 214.631.0310

Fax: 214.631.4706
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Fax: 1.800.229.4706
www.andrew.com

* - Indicates Typical

7/1/2005

dbtech@andrew.com

PROPOSED

Vertically Polarized, Panel 90° / 11.5 dBd

WPA-80090/4CF ___

When ordering, replace "___" with connector type.

Mechanical specifications

	Length	1205 mm	47.4 in
	Width	205 mm	8.1 in
	Depth	145 mm	5.7 in
4)	Weight	5.4 kg	12.0 lbs
	Wind Area		
	Front	0.25 m^2	2.66 ft^2
	Side	0.17 m^2	1.88 ft^2
	Rated Wind Velocity (Safety factor 2.0)		
		>679 km/hr	>422 mph
	Wind load @ 100 mph (161 km/hr)		
	Front	362 N	81.4 lbs
	Side	264 N	59.4 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting & Downtilting:

Mounting brackets attach to a pipe diameter of Ø50-127 mm (2.0-5.0 in).

Mounting bracket kit #36210002

Downtilt bracket kit #36114003

Electrical specifications

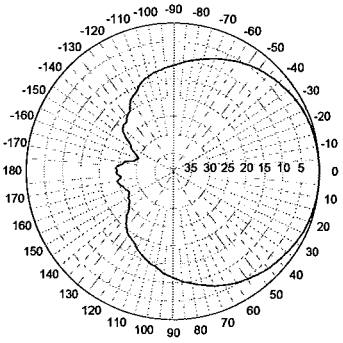
	Frequency Range	806-960 MHz
	Impedance	50Ω
3)	Connector	NE, E-DIN
1)	VSWR	≤1.4:1
	Polarization	Vertical
1)	Gain	11.5 dBd
2)	Power Rating	500 W
1)	Half Power Angle	
	H-Plane	90°
	E-Plane	15°
1)	Electrical Downtilt	0°
1)	Null Fill	10%
	Lightning Protection	Direct Ground

Patented Dipole Design: U.S. Patent No. 6,229,496 B1

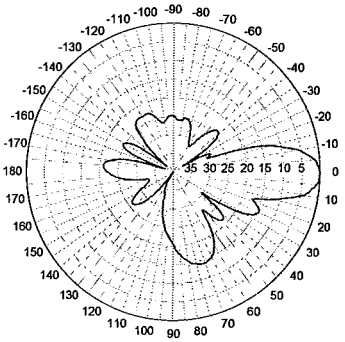
1) Typical Values
2) Power Rating limited by connector only.
3) NE indicates an elongated N Connector. E-DIN indicates an elongated DIN Connector.
4) The antenna weight listed above does not include the bracket weight.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation-pattern[1)]



Horizontal



Vertical

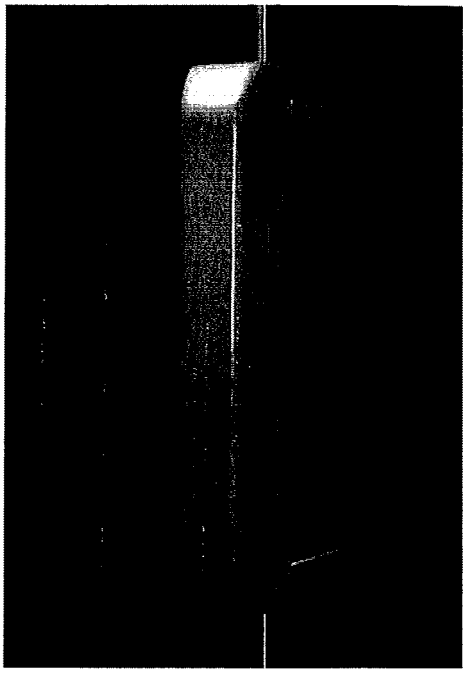
Featuring upper side lobe suppression.

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back Ratio.

CF Denotes a Center-Fed Connector.

806-960 MHz



Amphenol Antel's Exclusive 3T (True Transmission Line Technology) Antenna Design:

- Watercut brass feedline assembly for consistent performance.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad band-width and superior performance.
- Air as insulation for virtually no internal signal loss.

Every Amphenol Antel antenna is under a five-year limited warranty for repair or re-placement.

Antenna available with center-fed connector only.

Amphenol Antel, Inc.
The Antenna Technology Company

1300 Capital Drive Rockford, IL 61109 Toll-Free (888) 417-9562 Tel. (815) 399-0001
Fax. (815) 399-0156 Email: antel@antelinc.com www.antelinc.com

Revision Date: 6/3/04

Date: **October 7, 2006**

Veronica Harris
Crown Castle International
1200 McArthur Blvd.
Mahwah, NJ 07430
(201) 236-9094

PSG Engineering, Ltd.
8206 Forest Gate Drive
Sugar Land, TX 77479

Phone: (281) 343-7099
Fax: (281) 343-7127

Subject: **Analysis Structural Report**

Carrier Designation	***Verizon Wireless* Co-Locate** **Carrier Site Number:** *"NHV 2075"* **Carrier Site Name:** *"Cheshire-2"*
Crown Castle Designation	**Crown Castle BU Number:** *801367* **Crown Castle Site Name:** *CT NHV-2075 CAC 801367* **Crown Castle JDE Job Number:** *76936*
Engineering Firm Designation	**PSG Engineering Project Number:** *0601H223-A060167*
Site Data	**1121 Summit Road, Cheshire, CT, New Haven County** **Latitude *41° 32' 11.2"*, Longitude *-72° 57' 26.3"*** *167* **Foot -** *Monopole* **Tower**

Dear Ms. Harris,

PSG Engineering, Ltd. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the aforementioned 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 219769, in accordance with application 34967, 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.

The analysis has been performed in accordance with the TIA/EIA 222-F standard based upon a wind speed of 85 mph fastest mile (105 mph 3-second gust).

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

Respectfully submitted,

STATE OF CONNECTICUT
OSCAR PEDRAZA
No. 21292
LICENSED PROFESSIONAL ENGINEER

Oscar Pedraza, P.E.
President

10/9/06

Date: **October 7, 2006**

Veronica Harris
Crown Castle International
1200 McArthur Blvd.
Mahwah, NJ 07430
(201) 236-9094

PSG Engineering, Ltd.
8206 Forest Gate Drive
Sugar Land, TX 77479

Phone: (281) 343-7099
Fax: (281) 343-7127

Subject: Analysis Structural Report

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Respectfully submitted,

Oscar Pedraza, P.E.
President

TABLE OF CONTENTS

1) INTRODUCTION

This tower was designed by Paul J, Ford for Summit Manufacturing on June 13, 2001 per TIA/EIA-222-F using a basic wind speed of 85 mph with ½" radial ice.

2) ANALYSIS CRITERIA

This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

- Basic wind speed of 85 mph.
- Nominal ice thickness of 0.5000 in.
- Ice density of 56 pcf.
- A wind speed of 74 mph is used in combination with ice.
- Deflections calculated using a wind speed of 50 mph.
- Feedline torque is considered.
- Pressures are calculated at each section.
- Stress ratio used in tower member design is 1.333

Table 1 – Proposed (P) Antenna and Cable Information

Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount	Number Of Feed Lines	Feed Line Size (inches)
167	6(P)	Antel	WPA-80090/4CF	-	-	-

Table 2 – Installed (I) and Reserved (R) Antenna and Cable Information

Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount	Number Of Feed Lines	Feed Line Size (inches)
174	1(I)	*Decibel	DB222-A	Low Profile Platform (1)	1(I) (Internal)	7/8
*167	*6(I)		*DB844H90-XY		12(I) (Internal)	1 5/8
	6(I)		DB948F85T2E-M			
160	4(I)+3(R)	Allgon	7184	Low Profile Platform (1)	12(I)+6(R) (Internal)	1 5/8
	3(I)		7250.03			
	2(I)		7220.42			
147	6(I)+6(R)	Decibel	DB978H90T2E-M	Low Profile Platform (1)	6(I)+6(R) (Internal)	1 5/8
139	12(I)	RFS/Celwave	APX16PV-16PVL	Low Profile Platform (1)	14(I) (Internal)	1 5/8
	6(I)+12(R)	REMEC	S20057A-1			
128	12(I)	Decibel	DB846G90A-XY	Low Profile Platform (1)	12(I) (Internal)	1 1/4

*Note: (6) Installed Decibel DB844H90-XY antennas will be removed and replaced with proposed loading. (6) Installed Decibel DB948F85T2E-M antennas, mount, and coax lines will remain to support proposed loads.

Table 3 – Original Tower Manufacturer Design Antenna and Cable Information

Center Line Elevation (feet)	Number Of Antenna	Antenna Manufacturer	Antenna Model	Mount	Number Of Feed Lines	Feed Line Size (inches)
167	Not Available		40 Sq. Ft.	14' Platform	Not Available	
158			40 Sq. Ft.	14' Platform		
148			40 Sq. Ft.	14' Platform		
138			40 Sq. Ft.	14' Platform		
128			40 Sq. Ft.	14' Platform		
118			40 Sq. Ft.	14' Platform		

3) ANALYSIS PROCEDURE

Table 4 – Documents Provided

Document	Remarks	Reference	Source
Original Tower Design	Summit	799210	Crown Site Data Manager
CAD Level Drawing(s)	167',158',148',138',128' Level Drawing(s)	-	Crown CAD Dept.

3.1) Analysis Method

RISATower (Version 4.5.2.00), a commercially available software program, was used to create a three-dimensional model of the tower and calculate member stresses for various dead, live, wind, and ice load cases. All loads were computed in accordance with the ANSI/EIA/TIA 222F or the local building code requirements. 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 specifications.
3. The configuration of antennas, transmission cables, mounts, and other appurtenances are as specified in Tables 1 and 2 and the Level drawing(s) listed in Table 4.
4. When applicable, transmission cables are considered to be structural components for calculating wind loads, as allowed by TIA/EIA-222F.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and PSG Engineering should be allowed to review any new information to determine its effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 – Tower Component Stresses vs. Capacity – LC1

Notes	Component	Elevation (ft)	% Capacity	Pass/Fail
RISA Tower Analysis Summary:(Monopole)				
			Summary	
Notes:	**Component**	**Elevation**	**% Capacity**	**Pass/Fail**
	L1	167 - 118.25	53.6	Pass
	L2	118.25 - 77.75	77.5	Pass
	L3	77.75 - 38.25	78.2	Pass
	L4	38.25 - 0	73.7	Pass
Individual Components:				
Notes:	**Component**	**Elevation**	**% Capacity**	**Pass/Fail**
	Base Plate	-	65.6	Pass
	Anchor Bolts	-	87.0	Pass
	Base Foundation	-	77.8	Pass
Structure Rating (max from all components) =				**87.0%**

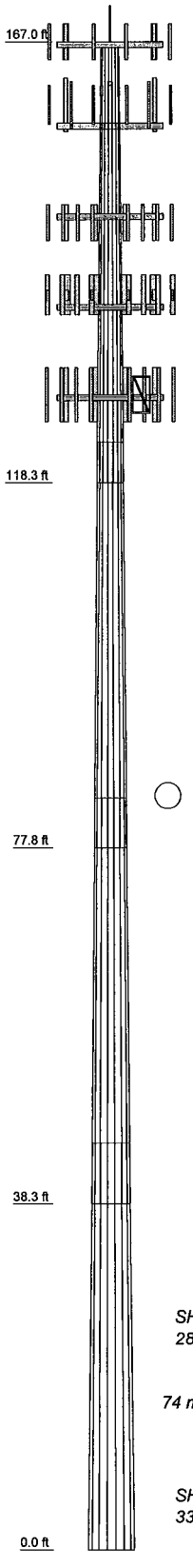
4.1) Recommendations (if applicable)

No modifications are necessary.

APPENDIX A

RISA TOWER OUTPUT

Section	1	2	3	4
Length (ft)	48'9"	45'	45'	45'
Number of Sides	18	18	18	18
Thickness (in)	0.2500	0.3125	0.3750	0.4375
Lap Splice (ft)	4'6"	5'6"	6'9"	
Top Dia (in)	24.0000	33.8114	42.3931	50.5485
Bot Dia (in)	35.3600	44.3000	52.8700	61.0400
Grade	A607-65			
Weight (K)	3.9	5.9	8.6	11.8



AXIAL 56 K
SHEAR 28 K
MOMENT 3516 kip-ft
TORQUE 2 kip-ft
74 mph WIND - 0.5000 in ICE

AXIAL 47 K
SHEAR 33 K
MOMENT 3965 kip-ft
TORQUE 2 kip-ft
REACTIONS - 85 mph WIND

APPURTENANCES

TYPE	ELEVATION	TYPE	ELEVATION
DB222-A	174	(4) DB978H90T2E-M w/Mount Pipe	147
Generic C-2 Lightning Spur	169	(4) DB978H90T2E-M w/Mount Pipe	147
(2) WPA-80090/4CF w/Mount Pipe	167	(4) DB978H90T2E-M w/Mount Pipe	147
(2) WPA-80090/4CF w/Mount Pipe	167	(6) S20057A-1	139
(2) DB948F85T2E-M w/Mount Pipe	167	(4) APX16PV-16PV w/Mount Pipe	139
(2) WPA-80090/4CF w/Mount Pipe	167	(6) S20057A-1	139
(2) DB948F85T2E-M w/Mount Pipe	167	(4) APX16PV-16PV w/Mount Pipe	139
PiROD 13' Low Profile Platform Top (Monopole)	167	(6) S20057A-1	139
		(4) APX16PV-16PV w/Mount Pipe	139
(2) DB948F85T2E-M w/Mount Pipe	167	PiROD 13' Low Profile Platform (Monopole)	138
7250.03 w/Mount Pipe	160		
7184 w/Mount Pipe	160	5' Standoff T-Arm (14' face width)	128
(3) 7184 w/Mount Pipe	160	(4) DB846G90A-XY w/Mount Pipe	128
7250.03 w/Mount Pipe	160	5' Standoff T-Arm (14' face width)	128
(3) 7184 w/Mount Pipe	160	(4) DB846G90A-XY w/Mount Pipe	128
7250.03 w/Mount Pipe	160	PiROD 13' Low Profile Platform (Monopole)	128
(2) 7220.42 w/Mount Pipe	160		
PiROD 13' Low Profile Platform (Monopole)	158	(4) DB846G90A-XY w/Mount Pipe	128
PiROD 13' Low Profile Platform (Monopole)	148		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 78.2%

PSG Engineering, Ltd.
8206 Forest Gate Drive
Sugar Land, Texas
Phone: 281.343.7099
FAX: 281.343.7127

Job: PSG Engineering Project Number: 0601H223-A06016			
Project: (801367) (CT NHV-2075 CAC 801367)			
Client: Crown Castle International	Drawn by: Jamal Huwel	App'd:	
Code: TIA/EIA-222-F	Date: 10/07/06	Scale: NTS	
Path: N:\Production\0601H223\801367.eri		Dwg No. E-1	

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 New Haven County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 74 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in 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 ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	167'-118'3"	48'9"	4'6"	18	24.0000	35.3600	0.2500	1.0000	A607-65 (65 ksi)
L2	118'3"-77'9"	45'	5'6"	18	33.8114	44.3000	0.3125	1.2500	A607-65 (65 ksi)
L3	77'9"-38'3"	45'	6'9"	18	42.3931	52.8700	0.3750	1.5000	A607-65 (65 ksi)
L4	38'3"-0'	45'		18	50.5485	61.0400	0.4375	1.7500	A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	24.3702	18.8456	1342.9976	8.4313	12.1920	110.1540	2687.7623	9.4246	3.7840	15.136
	35.9055	27.8598	4338.8723	12.4641	17.9629	241.5466	8683.4538	13.9325	5.7834	23.133
L2	35.3980	33.2267	4710.6999	11.8921	17.1762	274.2577	9427.5982	16.6165	5.4008	17.283
	44.9834	43.6301	10665.5249	15.6156	22.5044	473.9306	21345.0838	21.8192	7.2468	23.19
L3	44.3473	50.0120	11155.3596	14.9164	21.5357	517.9945	22325.3976	25.0107	6.8012	18.136
	53.6856	62.4822	21753.5159	18.6357	26.8580	809.9467	43535.6557	31.2470	8.6451	23.054
L4	52.9263	69.5853	22076.0091	17.7894	25.6786	859.7040	44181.0664	34.7993	8.1265	18.575
	61.9816	84.1541	39047.5735	21.5139	31.0083	1259.2612	78146.5267	42.0851	9.9730	22.796

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in

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
L1 167'-118'3"				1	1	1		
L2 118'3"-77'9"				1	1	1		
L3 77'9"-38'3"				1	1	1		
L4 38'3"-0'				1	1	1		

Monopole Base Plate Data

Base Plate Data	
Base plate is square	√
Base plate is grouted	
Anchor bolt grade	A615
Anchor bolt size	2.2500 in
Number of bolts	20
Embedment length	84.0000 in
f_c	3 ksi
Grout space	3.0000 in
Base plate grade	A572-55
Base plate thickness	3.0000 in
Bolt circle diameter	68.0000 in
Outer diameter	67.0000 in
Inner diameter	51.0000 in
Base plate type	Plain Plate

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
*										
*										
*										
*										
*										
*										
*										
*										
*										
*										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
EL. 167' LEVEL								
LDF7-50A (1-5/8 FOAM)	A	No	Inside Pole	167' - 10'	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF5-50A (7/8 FOAM)	A	No	Inside Pole	167' - 10'	1	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33

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	Project (801367) (CT NHV-2075 CAC 801367)	**Date** 15:38:31 10/07/06
	Client Crown Castle International	**Designed by** Jamal Huwel

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
*								
*								
EL. 158' LEVEL								
LDF7-50A (1-5/8 FOAM)	B	No	Inside Pole	158' - 10'	18	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
*								
*								
EL. 148' LEVEL								
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	148' - 10'	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
*								
*								
EL. 138' LEVEL								
LDF7-50A (1-5/8 FOAM)	A	No	Inside Pole	138' - 10'	14	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
*								
*								
EL. 128' LEVEL								
LDF6-50A (1-1/4 FOAM)	B	No	Inside Pole	128' - 10'	12	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
*								
*								
TOWER HARDWARE								
Climbing Ladder (Ar)	C	No	CaAa (Out Of Face)	167' - 10'	1	No Ice	0.04	1.00
						1/2" Ice	0.14	1.53

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	167'-118'3"	A	0.000	0.000	0.000	0.000	0.72
		B	0.000	0.000	0.000	0.000	0.66
		C	0.000	0.000	0.000	1.828	0.34
L2	118'3"-77'9"	A	0.000	0.000	0.000	0.000	0.88
		B	0.000	0.000	0.000	0.000	0.92
		C	0.000	0.000	0.000	1.519	0.44
L3	77'9"-38'3"	A	0.000	0.000	0.000	0.000	0.86
		B	0.000	0.000	0.000	0.000	0.90
		C	0.000	0.000	0.000	1.481	0.43
L4	38'3"-0'	A	0.000	0.000	0.000	0.000	0.61
		B	0.000	0.000	0.000	0.000	0.64
		C	0.000	0.000	0.000	1.059	0.31

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	167'-118'3"	A	0.500	0.000	0.000	0.000	0.000	0.72
		B		0.000	0.000	0.000	0.000	0.66
		C		0.000	0.000	0.000	6.703	0.37
L2	118'3"-77'9"	A	0.500	0.000	0.000	0.000	0.000	0.88
		B		0.000	0.000	0.000	0.000	0.92

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	0.000	5.569	0.46
L3	77'9"-38'3"	A	0.500	0.000	0.000	0.000	0.000	0.86
		B		0.000	0.000	0.000	0.000	0.90
		C		0.000	0.000	0.000	5.431	0.45
L4	38'3"-0'	A	0.500	0.000	0.000	0.000	0.000	0.61
		B		0.000	0.000	0.000	0.000	0.64
		C		0.000	0.000	0.000	3.884	0.32

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
EL. 167' LEVEL									
(2) WPA-80090/4CF w/Mount Pipe	A	From Leg	4.00 0' 0'	0.0000	167'	No Ice 1/2" Ice	4.22 4.75	4.13 4.94	0.03 0.07
(2) DB948F85T2E-M w/Mount Pipe	A	From Leg	4.00 0' 0'	0.0000	167'	No Ice 1/2" Ice	2.62 3.23	4.92 6.01	0.03 0.07
DB222-A	A	From Leg	4.00 0' 0'	0.0000	174'	No Ice 1/2" Ice	1.60 2.88	1.60 2.88	0.02 0.02
(2) WPA-80090/4CF w/Mount Pipe	B	From Leg	4.00 0' 0'	0.0000	167'	No Ice 1/2" Ice	4.22 4.75	4.13 4.94	0.03 0.07
(2) DB948F85T2E-M w/Mount Pipe	B	From Leg	4.00 0' 0'	0.0000	167'	No Ice 1/2" Ice	2.62 3.23	4.92 6.01	0.03 0.07
(2) WPA-80090/4CF w/Mount Pipe	C	From Leg	4.00 0' 0'	0.0000	167'	No Ice 1/2" Ice	4.22 4.75	4.13 4.94	0.03 0.07
(2) DB948F85T2E-M w/Mount Pipe	C	From Leg	4.00 0' 0'	0.0000	167'	No Ice 1/2" Ice	2.62 3.23	4.92 6.01	0.03 0.07
PiROD 13' Low Profile Platform Top (Monopole)	C	None		0.0000	167'	No Ice 1/2" Ice	15.70 20.10	15.70 20.10	1.30 1.76
*									
*									
EL. 158' LEVEL									
(2) 7220.42 w/Mount Pipe	A	From Leg	4.00 0' 0'	0.0000	160'	No Ice 1/2" Ice	4.38 4.92	4.81 5.97	0.04 0.08
7250.03 w/Mount Pipe	A	From Leg	4.00 0' 0'	0.0000	160'	No Ice 1/2" Ice	4.45 5.03	3.54 4.72	0.04 0.08
7184 w/Mount Pipe	A	From Leg	4.00 0' 0'	0.0000	160'	No Ice 1/2" Ice	3.33 3.94	3.56 4.60	0.04 0.07
(3) 7184 w/Mount Pipe	B	From Leg	4.00 0' 0'	0.0000	160'	No Ice 1/2" Ice	3.33 3.94	3.56 4.60	0.04 0.07
7250.03 w/Mount Pipe	B	From Leg	4.00	0.0000	160'	No Ice	4.45	3.54	0.04

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	Client Crown Castle International	Designed by Jamal Huwel

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0' 0'			1/2" Ice	5.03	4.72	0.08
(3) 7184 w/Mount Pipe	C	From Leg	4.00 0' 0'	0.0000	160'	No Ice 1/2" Ice	3.33 3.94	3.56 4.60	0.04 0.07
7250.03 w/Mount Pipe	C	From Leg	4.00 0' 0'	0.0000	160'	No Ice 1/2" Ice	4.45 5.03	3.54 4.72	0.04 0.08
PiROD 13' Low Profile Platform (Monopole) * *	A	None		0.0000	158'	No Ice 1/2" Ice	15.70 20.10	15.70 20.10	1.30 1.76
EL. 148' LEVEL									
(4) DB978H90T2E-M w/Mount Pipe	A	From Leg	4.00 0' 0'	0.0000	147'	No Ice 1/2" Ice	3.70 4.32	3.36 4.38	0.03 0.07
(4) DB978H90T2E-M w/Mount Pipe	B	From Leg	4.00 0' 0'	0.0000	147'	No Ice 1/2" Ice	3.70 4.32	3.36 4.38	0.03 0.07
(4) DB978H90T2E-M w/Mount Pipe	C	From Leg	4.00 0' 0'	0.0000	147'	No Ice 1/2" Ice	3.70 4.32	3.36 4.38	0.03 0.07
PiROD 13' Low Profile Platform (Monopole) * *	C	None		0.0000	148'	No Ice 1/2" Ice	15.70 20.10	15.70 20.10	1.30 1.76
EL. 138' LEVEL									
(4) APX16PV-16PV w/Mount Pipe	A	From Leg	4.00 0' 0'	0.0000	139'	No Ice 1/2" Ice	6.79 7.25	3.17 3.80	0.04 0.08
(6) S20057A-1	A	From Leg	4.00 0' 0'	0.0000	139'	No Ice 1/2" Ice	0.83 0.96	0.39 0.50	0.01 0.01
(4) APX16PV-16PV w/Mount Pipe	B	From Leg	4.00 0' 0'	0.0000	139'	No Ice 1/2" Ice	6.79 7.25	3.17 3.80	0.04 0.08
(6) S20057A-1	B	From Leg	4.00 0' 0'	0.0000	139'	No Ice 1/2" Ice	0.83 0.96	0.39 0.50	0.01 0.01
(4) APX16PV-16PV w/Mount Pipe	C	From Leg	4.00 0' 0'	0.0000	139'	No Ice 1/2" Ice	6.79 7.25	3.17 3.80	0.04 0.08
(6) S20057A-1	C	From Leg	4.00 0' 0'	0.0000	139'	No Ice 1/2" Ice	0.83 0.96	0.39 0.50	0.01 0.01
PiROD 13' Low Profile Platform (Monopole) * *	C	None		0.0000	138'	No Ice 1/2" Ice	15.70 20.10	15.70 20.10	1.30 1.76
EL. 128' LEVEL									
(4) DB846G90A-XY w/Mount Pipe	A	From Leg	4.00 0' 0'	0.0000	128'	No Ice 1/2" Ice	5.23 5.78	7.53 8.72	0.04 0.09
5' Standoff T-Arm (14' face width)	A	From Leg	2.67 0' 0'	0.0000	128'	No Ice 1/2" Ice	6.90 8.70	6.90 8.70	0.20 0.26
(4) DB846G90A-XY	B	From Leg	4.00	0.0000	128'	No Ice	5.23	7.53	0.04

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral ft Vert ft ft*	*Azimuth Adjustment °*	*Placement ft*		*C_AA_A Front ft^2*	*C_AA_A Side ft^2*	*Weight K*
w/Mount Pipe			0' 0'			1/2" Ice	5.78	8.72	0.09
5' Standoff T-Arm (14' face width)	B	From Leg	2.67 0' 0'	0.0000	128'	No Ice 1/2" Ice	6.90 8.70	6.90 8.70	0.20 0.26
(4) DB846G90A-XY w/Mount Pipe	C	From Leg	4.00 0' 0'	0.0000	128'	No Ice 1/2" Ice	5.23 5.78	7.53 8.72	0.04 0.09
PiROD 13' Low Profile Platform (Monopole)	C	None		0.0000	128'	No Ice 1/2" Ice	15.70 20.10	15.70 20.10	1.30 1.76
* * ***TOWER HARDWARE***									
Generic C-2 Lightning Spur	B	None		0.0000	169'	No Ice 1/2" Ice	4.00 7.00	4.00 7.00	0.00 0.00

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

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 Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	167 - 118.25	32.528	30	1.7034	0.0044
L2	122.75 - 77.75	17.586	30	1.4258	0.0023
L3	83.25 - 38.25	7.734	30	0.9099	0.0010
L4	45 - 0	2.198	30	0.4461	0.0004

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
174'	DB222-A	30	32.528	1.7034	0.0044	42133
169'	Generic C-2 Lightning Spur	30	32.528	1.7034	0.0044	42133
167'	(2) WPA-80090/4CF w/Mount Pipe	30	32.528	1.7034	0.0044	42133
160'	(2) 7220.42 w/Mount Pipe	30	30.037	1.6716	0.0041	30095
158'	PiROD 13' Low Profile Platform (Monopole)	30	29.328	1.6622	0.0040	23407
148'	PiROD 13' Low Profile Platform (Monopole)	30	25.824	1.6117	0.0035	11087
147'	(4) DB978H90T2E-M w/Mount Pipe	30	25.478	1.6062	0.0034	10532
139'	(4) APX16PV-16PV w/Mount Pipe	30	22.761	1.5575	0.0031	7523
138'	PiROD 13' Low Profile Platform (Monopole)	30	22.428	1.5508	0.0030	7263
128'	(4) DB846G90A-XY w/Mount Pipe	30	19.197	1.4742	0.0026	5400

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	167 - 118.25	93.722	5	4.9086	0.0130
L2	122.75 - 77.75	50.700	5	4.1098	0.0067
L3	83.25 - 38.25	22.309	5	2.6245	0.0027
L4	45 - 0	6.344	5	1.2872	0.0010

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
174'	DB222-A	5	93.722	4.9086	0.0130	14818
169'	Generic C-2 Lightning Spur	5	93.722	4.9086	0.0130	14818
167'	(2) WPA-80090/4CF w/Mount Pipe	5	93.722	4.9086	0.0130	14818
160'	(2) 7220.42 w/Mount Pipe	5	86.551	4.8193	0.0119	10584
158'	PiROD 13' Low Profile Platform (Monopole)	5	84.511	4.7930	0.0116	8231
148'	PiROD 13' Low Profile Platform (Monopole)	5	74.421	4.6498	0.0101	3897
147'	(4) DB978H90T2E-M w/Mount Pipe	5	73.427	4.6340	0.0100	3702
139'	(4) APX16PV-16PV w/Mount Pipe	5	65.602	4.4943	0.0088	2643
138'	PiROD 13' Low Profile Platform (Monopole)	5	64.643	4.4749	0.0087	2551
128'	(4) DB846G90A-XY w/Mount Pipe	5	55.339	4.2518	0.0074	1895

Base Plate Design Data

Plate Thickness in	Number of Anchor Bolts	Anchor Bolt Size in	Actual Allowable Ratio Bolt Tension K	Actual Allowable Ratio Bolt Compression K	Actual Allowable Ratio Plate Stress ksi	Actual Allowable Ratio Stiffener Stress ksi	Controlling Condition	Ratio
3.0000	20	2.2500	137.58 157.41 0.87	142.28 261.31 0.54	34.428 41.250 0.83		Bolt T	0.87 ✓

Compression Checks

Pole 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 $\frac{P}{P_a}$
L1	167 - 118.25 (1)	TP35.36x24x0.25	48'9"	0'	0.0	39.000	27.0277	-12.67	1054.08	0.012
L2	118.25 - 77.75 (2)	TP44.3x33.8114x0.3125	45'	0'	0.0	39.000	42.3586	-20.67	1651.98	0.013
L3	77.75 - 38.25 (3)	TP52.87x42.3931x0.375	45'	0'	0.0	39.000	60.6116	-31.30	2363.85	0.013
L4	38.25 - 0 (4)	TP61.04x50.5485x0.4375	45'	0'	0.0	39.000	84.1541	-47.07	3282.01	0.014

Pole 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 $\frac{f_{by}}{F_{by}}$
L1	167 - 118.25 (1)	TP35.36x24x0.25	518.72	-27.387	39.000	0.702	0.00	0.000	39.000	0.000
L2	118.25 - 77.75 (2)	TP44.3x33.8114x0.3125	1480.76	-39.786	39.000	1.020	0.00	0.000	39.000	0.000
L3	77.75 - 38.25 (3)	TP52.87x42.3931x0.375	2549.02	-40.142	39.000	1.029	0.00	0.000	39.000	0.000
L4	38.25 - 0 (4)	TP61.04x50.5485x0.4375	3964.66	-37.781	39.000	0.969	0.00	0.000	39.000	0.000

Pole 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
L1	167 - 118.25 (1)	TP35.36x24x0.25	0.012	0.702	0.000	0.714 ✔	1.333	H1-3 ✔
L2	118.25 - 77.75 (2)	TP44.3x33.8114x0.3125	0.013	1.020	0.000	1.033 ✔	1.333	H1-3 ✔
L3	77.75 - 38.25 (3)	TP52.87x42.3931x0.375	0.013	1.029	0.000	1.043 ✔	1.333	H1-3 ✔
L4	38.25 - 0 (4)	TP61.04x50.5485x0.4375	0.014	0.969	0.000	0.983 ✔	1.333	H1-3 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	167 - 118.25	Pole	TP35.36x24x0.25	1	-12.67	1405.09	53.6	Pass
L2	118.25 - 77.75	Pole	TP44.3x33.8114x0.3125	2	-20.67	2202.09	77.5	Pass
L3	77.75 - 38.25	Pole	TP52.87x42.3931x0.375	3	-31.30	3151.01	78.2	Pass
L4	38.25 - 0	Pole	TP61.04x50.5485x0.4375	4	-47.07	4374.92	73.7	Pass
							Summary	
						Pole (L3)	78.2	Pass
						Base Plate	65.6	Pass
						RATING =	**78.2**	**Pass**