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

November 16, 2011

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

Re: **Notice of Completion of Construction Activity**
EM-VER-142-100331 – 319 Peter Green Road, Ellington, CT
EM-VER-078-110429 – 230 Clover Mill Road, Mansfield, CT
EM-VER-104-110408 – 2 Hinckley Hill Road, Norwich, CT
EM-VER-158-110614 – Bayberry Road, Westport, CT
EM-VER-110-110907 – 1 Central Square, Plainville, CT

Dear Ms. Roberts:

The purpose of this letter is to notify the Council that construction activity associated with each of the above-referenced facility modifications has been completed. If you have any questions or need any additional information regarding any of these facilities, please do not hesitate to contact me.

Sincerely,

Kenneth C. Baldwin

Copy to:
Sandy M. Carter

11389626-v1

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

May 31, 2011

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

RE: **EM-VER-078-110429** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 230 Clover Mill Road, Mansfield, Connecticut.

Dear Attorney Baldwin:

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

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

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated April 27, 2011. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

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

Very truly yours,

Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Elizabeth Patterson, Mayor, Town of Mansfield
Matthew W. Hart, Town Manager, Town of Mansfield
Gregory Padick, Town Planner, Town of Mansfield
Global Tower Services, LLC

ROBINSON & COLE LLP

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

EM-VER-078-110429

ORIGINAL

April 27, 2011

Via Hand Delivery

RECEIVED
APR 29 2011
CONNECTICUT
SITING COUNCIL

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

Re: **Notice of Exempt Modification – Antenna Swap**
230 Clover Mill Road, Mansfield, Connecticut

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 178-foot level on the existing 180-foot tower at the above-referenced address. The tower is owned by Global Tower Services, LLC. The Connecticut Siting Council ("Council") approved Cellco's use of this tower in 2004. Cellco intends to remove all if its existing antennas and replace them with twelve (12) new antennas (six (6) model LPA-80080/4CF cellular antennas; three (3) model BXA-185090/8CF PCS antennas; and three (3) model BXA 70063/6CF LTE antennas). All new antennas will be installed at the same 178-foot level on the tower. Cellco will also install six (6) coax cable diplexers on its existing antenna platform. Attached behind Tab 1 of this filing are the specifications for each of 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 Matthew Hart, Town Manager for the Town of Mansfield. The Town of Mansfield is 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 replacement antennas and diplexers will be located at the 178-foot level on the 180-foot tower.

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) power density levels at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative General Power Density table for the 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 modifications. (See Tab 3).

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

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Matthew Hart, Mansfield Town Manager
Sandy M. Carter

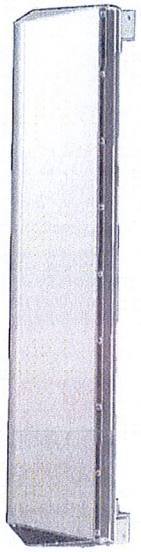
Amphenol ANTENNA SOLUTIONS

LPA-80080-4CF-EDIN-X

V-Pol | Log Periodic | 80° | 12.5 dBd

Replace "X" with desired electrical downtilt.

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

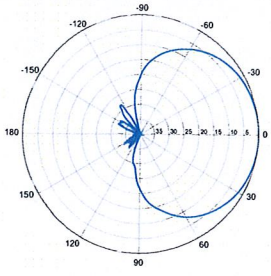


Electrical Characteristics	
Frequency bands	806-960 MHz
Polarization	Vertical
Horizontal beamwidth	80°
Vertical beamwidth	15°
Gain	12.5 dBd (14.6 dBi)
Electrical downtilt (X)	0, 2, 4, 5, 6, 8, 10, 12, 14
Impedance	50Ω
VSWR	≤1.4:1
Upper sidelobe suppression (0°)	-14.2 dB
Front-to-back ratio (+/-30°)	-34.7 dB
Null fill	15% (-16.48 dB)
Input power	500 W
Lightning protection	Direct Ground
Connector(s)	1 Port / EDIN or NE / Female / Center (Back)

Mechanical Characteristics		
Dimensions Length x Width x Depth	1200 x 140 x 335 mm	47.2 x 5.5 x 13.2 in
Depth of antenna with z-bracket	375 mm	14.8 in
Weight without mounting brackets	5.4 kg	12 lbs
Survival wind speed	> 201 km/hr	> 125 mph
Wind area	Front: 0.17 m² Side: 0.40 m²	Front: 1.8 ft² Side: 4.3 ft²
Wind load @ 161 km/hr (100 mph)	Front: 254 N Side: 574 N	Front: 57 lbf Side: 129 lbf

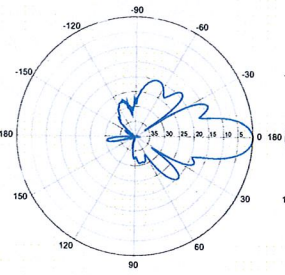
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting & Downtilt Bracket Kit (0-20°)	21699999	50-102 mm 2.0-4.0 in	5.4 kg 12 lbs
Lock-Down Brace	If the lock-down brace is used, the maximum diameter of the mounting pipe is 88.9 mm or 3.5 in.		

LPA-80080-4CF-EDIN-X



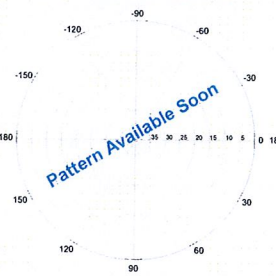
Horizontal

LPA-80080-4CF-EDIN-0



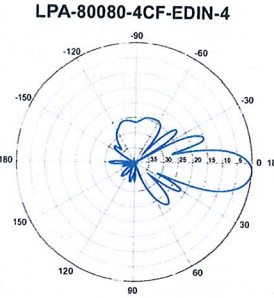
0° | Vertical

LPA-80080-4CF-EDIN-2



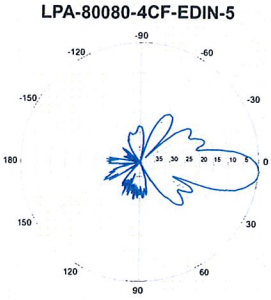
2° | Vertical

LPA-80080-4CF-EDIN-4



2° | Vertical

LPA-80080-4CF-EDIN-5

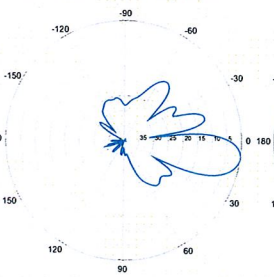


5° | Vertical

LPA-80080-4CF-EDIN-6

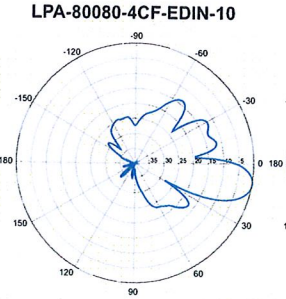
6° | Vertical

LPA-80080-4CF-EDIN-8



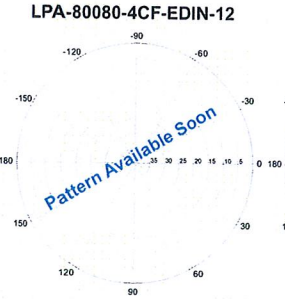
8° | Vertical

LPA-80080-4CF-EDIN-10



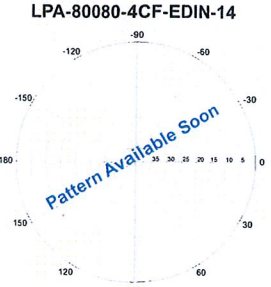
10° | Vertical

LPA-80080-4CF-EDIN-12



12° | Vertical

LPA-80080-4CF-EDIN-14



14° | Vertical

Slant +/- 45° Dual Polarized, Panel 90° / 16.5 dBi

BXA-185090/8CF ___

When ordering replace "___" with connector type.

Mechanical specifications

Length	1225 mm	48.2 in
Width	154 mm	6.1 in
Depth	105 mm	4.1 in
Depth with t-bracket	133 mm	5.2 in
[4] Weight	5.0 kg	11.0 lbs
Wind Area		
Fore/Aft	0.19 m^2	2.0 ft^2
Side	0.13 m^2	1.4 ft^2
Rated Wind Velocity (Safety factor 2.0)	>322 km/hr	>200 mph
Wind Load @ 100 mph (161 km/hr)		
Fore/Aft	283 N	64.0 lbs
Side	211 N	47.5 lbs

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

Mounting and Downtilting

Mounting brackets attach to a pipe diameter of Ø50-102 mm (2.0-4.0 in).

Mounting bracket kit #26799997
Downtilt bracket kit #26799999

The downtilt bracket kit includes the mounting bracket kit.

Electrical specifications

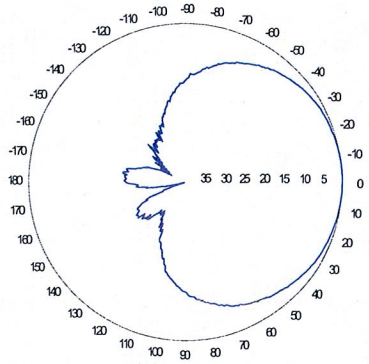
	Frequency Range	1850-1990 MHz
	Impedance	50Ω
[3]	Connector(s)	NE or E-DIN 2 ports / center
[1]	VSWR	≤ 1.4:1
	Polarization	Slant ± 45°
[1]	Isolation Between Ports	< -30 dB
[1]	Gain	16.5 dBi
[2]	Power Rating	250 W
[1]	Half Power Angle	
	H-Plane	90°
	E-Plane	7°
[1]	Electrical Downtilt	0°
[1]	Null Fill	5%
	Lightning Protection	Direct Ground

Patented Dipole Design: U.S. Patent No. 6,597,324 B2

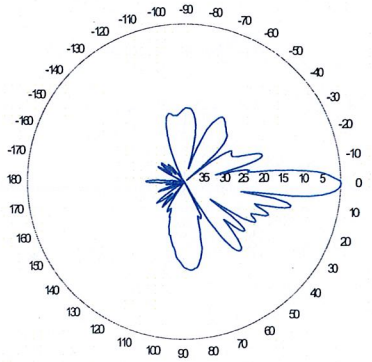
1) Typical values.
2) Power rating limited by connector only.
3) NE indicates an elongated N connector.
   E-DIN indicates an elongated DIN connector.
4) The antenna weight listed above does not include the bracket weight.

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

Radiation pattern[1]



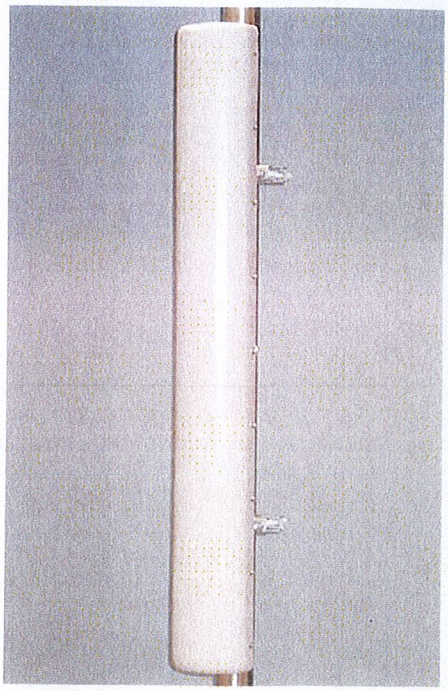
Horizontal



Vertical

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.



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.

This Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna available with center-fed connectors only.

CF Denotes a Center-Fed Connector.

1850-1990 MHz

Amphenol Antel, Inc. 1300 Capital Drive Rockford, Illinois 61109 USA Tel. (815) 399-0001
Toll-Free (888) 417-9562 Fax. (815) 399-0156 antel@antelinc.com www.antelinc.com

Amphenol Antel, Inc. The Antenna Technology Company

Revision Date: 7/11/07

Amphenol ANTENNA SOLUTIONS

BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

Replace "X" with desired electrical downtilt.

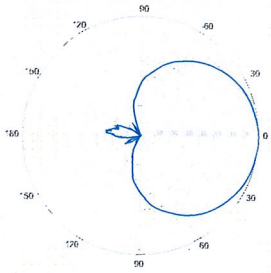
Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.

Electrical Characteristics	696-900 MHz	
Frequency bands	696-806 MHz	806-900 MHz
Polarization	±45°	
Horizontal beamwidth	65°	63°
Vertical beamwidth	13°	11°
Gain	14.0 dBd (16.1 dBi)	14.5 dBd (16.6 dBi)
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 10	
Impedance	50Ω	
VSWR	≤1.35:1	
Upper sidelobe suppression (0°)	-18.3 dB	-18.2 dB
Front-to-back ratio (+/-30°)	-33.4 dB	-36.3 dB
Null fill	5% (-26.02 dB)	
Isolation between ports	< -25 dB	
Input power	500 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

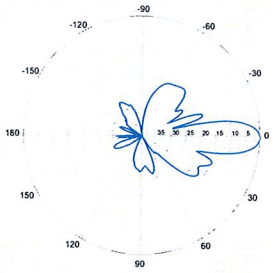
Mounting Options	Part Number	Fits Pipe Diameter	Weight
3-Point Mounting Bracket Kit	36210003	50-160 mm 2.0-6.3 in	6.3 kg 14 lbs
3-Point Downtilt Bracket Kit (0-14°)	36210004	50-160 mm 2.0-6.3 in	7.3 kg 16 lbs
Downtilt Mounting Applications	A mounting bracket and downtilt bracket kit must be ordered for downtilt applications		
Concealment Configurations	For concealment configurations, order BXA-70063-6CF-EDIN-X-FP		

BXA-70063-6CF-EDIN-X



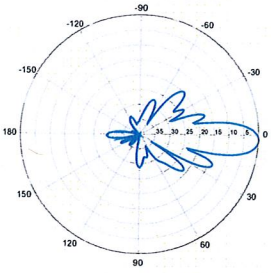
Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0

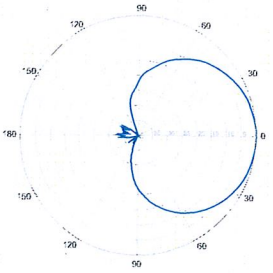


0° | Vertical | 750 MHz

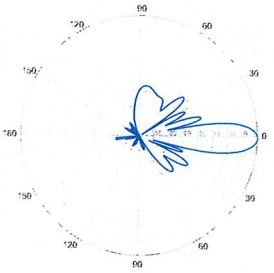
BXA-70063-6CF-EDIN-2



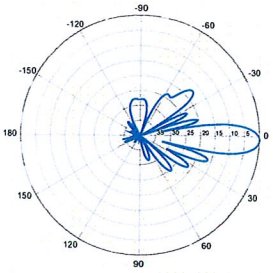
2° | Vertical | 750 MHz



Horizontal | 850 MHz



0° | Vertical | 850 MHz

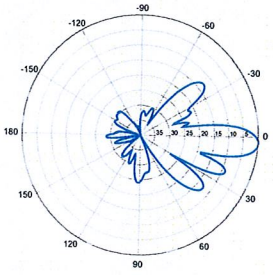


2° | Vertical | 850 MHz

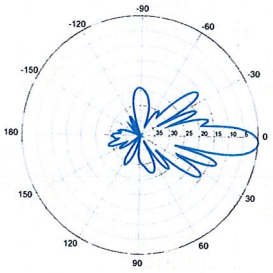
BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

BXA-70063-6CF-EDIN-3

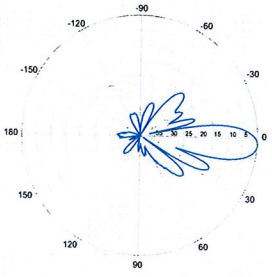


3° | Vertical | 750 MHz

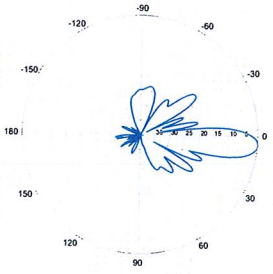


3° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-4

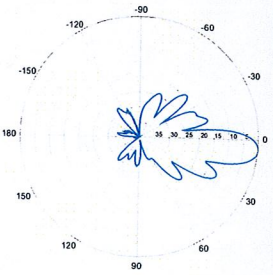


4° | Vertical | 750 MHz

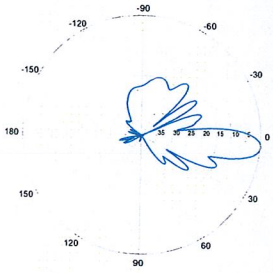


4° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-5

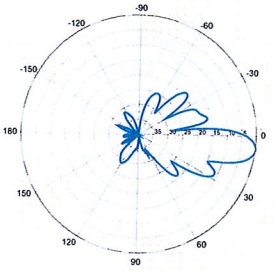


5° | Vertical | 750 MHz

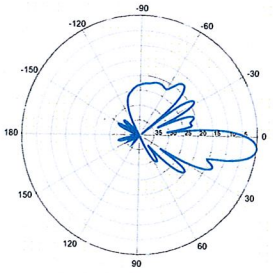


5° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-6

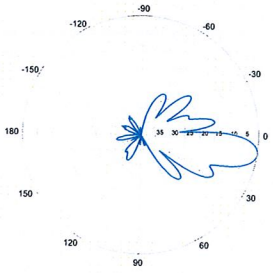


6° | Vertical | 750 MHz

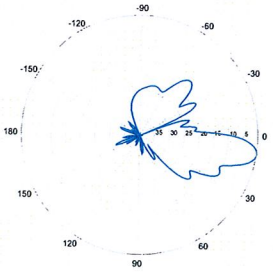


6° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-8

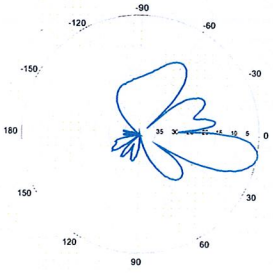


8° | Vertical | 750 MHz

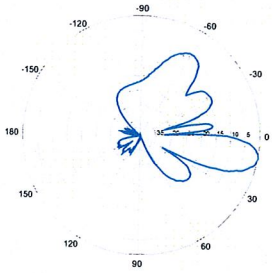


8° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-10



10° | Vertical | 750 MHz



10° | Vertical | 850 MHz

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

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

Product Description

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

Features/Benefits

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

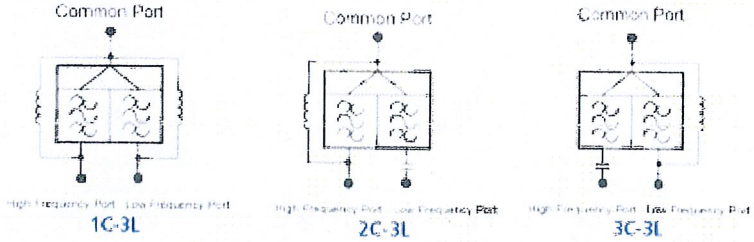
Technical Specifications

Product Type	Diplexer/Cross Band Coupler
Frequency Band, MHz	698-2200
Configuration	Sharelite Single diplexer, outdoor, DC pass in the 1710-2170MHz path, with mounting hardware SEM2-1A
Mounting	Wall Mounting: With 4 screws (maximum 6mm diameter); Pole Mounting: With included clamp set 40-110mm (1.57-4.33)
Frequency Range Low Frequency Path, MHz	698-960
Frequency Range High Frequency Path, MHz	1710-2200
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 698-960 MHz Path, Typ, dB	0.07
Insertion Loss 1710-2200MHz path, Typ, dB	0.13
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
Application	LTE 700MHz, GSM900/3G/UMTS, GSM900/GSM1800, Cellular 800/PCS
Dimensions, H x W x D, mm (in)	147 x 164 x 37 (5.8 x 6.5 x 1.5)
Shipping Dimensions, H x W x D, mm (in)	254 x 406 x 82 (10 x 16 x 3.2) for 2 * Single Units in 1 * box, 280 x 406 x 241 (11 x 16 x 9.5) for 6 * units = 3 * Boxes in 1 * overwrap
Volume, L	0.43
Housing	Aluminum

Notes

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

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



1C-3L 2C-3L 3C-3L

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 FT9DW/xC-3L (Can be ordered separately but included with the Dual Diplexer Kit)	
CA020-2	Ground Cable, 2m, includes lugs (Optional)	
CA030-2	Ground Cable, 2m, includes lugs (Optional)	
SEM6	Mounting Hardware for 6 Diplexers, Tower Base (Optional)	

	General	Power	Density					
Site Name: Mansfield Ctr								
Tower Height: Verizon @ 178'								
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total
*Fire Svcs & EMS	1	500	187	0.0051	420	0.2800	1.84%	
*Fire Svcs & EMS	1	500	187	0.0051	420	0.2800	1.84%	
*Fire Svcs & EMS	1	500	188	0.0051	152	0.2000	2.54%	
*Emergency Mgmt	1	500	188	0.0051	153	0.2000	2.54%	
*Public Works	1	500	188	0.0051	152	0.2000	2.54%	
*Fire Svcs & EMS	1	500	188	0.0051	150	0.2000	2.54%	
*Fire Svcs & EMS	1	500	188	0.0051	150	0.2000	2.54%	
*Cingular GSM	4	296	168	0.0151	880	0.5867	2.57%	
*Cingular GSM	2	427	168	0.0109	1900	1.0000	1.09%	
*Cingular UMTS	1	500	168	0.0064	880	0.5867	1.09%	
*Sprint	11	205.9	157.5	0.0328	1962.5	1.0000	3.28%	
*T-Mobile	8	169	148	0.0222	1935	1.0000	2.22%	
Verizon	**11**	**395**	**178**	**0.0704**	**1970**	**1.0000**	**7.04%**	
Verizon	**9**	**267**	**178**	**0.0389**	**869**	**0.5793**	**6.71%**	
Verizon	**1**	**703**	**178**	**0.0114**	**757**	**0.4973**	**2.29%**	
								42.7%
* Source: Siting Council								

Structural Analysis Report

180 ft. Tapered Monopole

Global Tower Services

750 Park of Commerce Boulevard
Suite 300
Boca Raton, FL 33487-3612

P: 605.422.1548
F: 605.422.1550

230 Clover Mill Rd., Mansfield, CT 06268
Tolland County
(CT-5030, Mansfield Center I)

Verizon Wireless
Verizon Site Number: 117997
Verizon Site Name: Mansfield Center CT

Prepared by:
Global Tower Services, LLC
Michael T. De Boer, P.E.
Director of Engineering

February 11, 2011

Global Tower Services, LLC
February 11, 2011
Mansfield Center I
CT-5030

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Global Tower Services, LLC
February 11, 2011
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CT-5030

INTRODUCTION

We have completed the structural analysis for the existing 180 ft. tapered monopole located in Tolland County (230 Clover Mill Rd, Mansfield), CT. The objective of the analysis is to determine if the existing tapered monopole design is in conformance / compliance with the current codes and standards for the proposed equipment installation.

TSTower written by TowerSoft was utilized in performing the analysis. This program is a commercially available software program which was used to create a non-linear three-dimensional beam model and calculate member stresses for various loading conditions.

DESCRIPTION OF STRUCTURE

The existing structure is a 180 ft. tapered monopole. The original monopole manufacturer is PennSummit Tublular, West Hazelton, PA. The existing structure consists of four (4) sections with slip connections.

Original monopole drawings provided by PennSummit Tubular were used to model the monopole steel. (PennSummit Design No. 20031, December 23, 2003) The monopole shaft is manufactured from 65 ksi steel, the base plate is 55 ksi steel and the anchor bolts are A615 Grade 75 steel.

The monopole, for the purpose of analysis, is considered to be in good condition with no defects.

DESIGN PARAMETERS

- Standard:	ANSI/TIA-222-F-1996
- Basic Wind Speed:	85 mph (fastest mile) 105 mph (3-sec gust)
- Serviceability Wind Speed:	50 mph (fastest mile)
- Basic Wind Speed with Ice:	73.95 mph (fastest mile)
- Design Ice Thickness:	0.50 (inch)
- Allowable Stress Increase:	1/3 for wind loading conditions

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CT-5030

ANTENNA LOADING INFORMATION

Existing and Reserved Loading Information

Antenna Description/Mount	Qty	Elev. (ft.)	TX Lines	Qty	Customer
Decibel DB844H80 / Platform Mount **(To be removed and replaced)**	12	178	1 5/8" (Remain)	12	Verizon
Powerwave 7770 / Pipe Mount	3	168	1 5/8"	6	ATT
Powerwave LGP21401 / Pipe Mount	6	168			ATT
6' x 1' Panels / LP Platform	6	158	1 5/8"	6	Sprint
RFS APX16PV-16PVL-E / LP Platform	6	148	1 5/8"	12	T-Mobile

Proposed Loading Information

Antenna Description/Mount	Qty	Elev. (ft.)	TX Lines	Qty	Customer
Antel LPA-80080-4CF / Platform Mount	6	178	1 5/8"	6	Verizon
Antel BXA-70063-6CF / Platform Mount	3	178	1 5/8"	3	Verizon
Antel BXA-185090-8CF /Platform Mount	3	178	1 5/8"	3	Verizon
RFS FD9R6004-2CL-3L / Platform Mount	6	178			Verizon

Note: Verizon's final configuration is to include: Twelve (12) antennas, six (6) Diplexers and twelve (12) lines. All proposed and existing lines are considered inside the monopole shaft unless otherwise noted.

ANALYSIS RESULTS

Structure

The existing 180 ft. tapered monopole **is structurally capable** of supporting the proposed equipment. **(See table below)**

Monopole Member	% Capacity	Results
Monopole Shaft	63	Pass
Monopole Base Plate	35	Pass
Anchor Bolts	57	Pass

(105 percent is considered acceptable.)

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ANALYSIS RESULTS continued

Foundation

The existing foundation has also been evaluated. The existing foundation was found to be **acceptable** with the proposed equipment installed. (See table below)

Foundation Component	Design Reactions	Original Reactions	% Capacity	Results
Overturning Moment	4015.60 Ft-Kips	6250.00 Ft-Kips	64	Pass
Shear	33.10 Kips	48.00 Kips	69	Pass

Monopole Rating: 69%

SUMMARY AND CONCLUSIONS

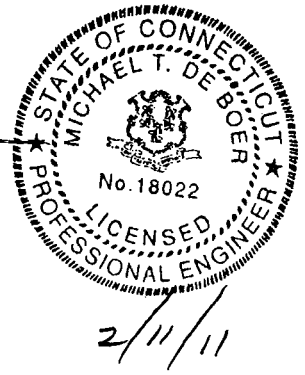
The existing 180 ft. tapered monopole located in Tolland County (230 Clover Mill Rd, Mansfield), CT **is structurally acceptable** based upon the EIA-222-F 1996 Standard and the local building code with the proposed equipment installed.

If any other changes are proposed, another structural analysis should be performed to assure the tower is in compliance / conformance with the applicable codes and standards.

Should any further questions arise, please contact the Global Tower Services, LLC Engineering Department at 605-422-1308.

Global Tower Services, LLC

Michael T. De Boer, P.E.
Director of Engineering



2/11/11

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Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but not necessarily limited to:

- Information supplied by the client regarding the structure itself, the antenna and transmission line loading on the structure and it components, or relevant information.

- Information from drawings in possession of Global Tower Services, LLC, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Global Tower Services, LLC and used in the performance of our engineering services is correct and complete. In the absence of information contrary, we consider that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated; and we, therefore consider that their capacity has not significantly changed from the original design condition.

All services will be performed to the codes and standards specified by the client, and we do not imply to meet any other code and standard requirements unless explicitly agreed to in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes and standards, the client shall specify the exact requirements. In the absence of information to the contrary, all work will be performed in accordance with the revision of ANSI/TIA/EIA-222 requested.

All services are performed, results obtained and recommendations made in accordance with the generally accepted engineering principles and practices. Global Tower Services, LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

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February 11, 2011
Mansfield Center I
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Disclaimer of Warranties

The engineering services by **Global Tower Services, LLC** in connection with this Structural Analysis are limited to a computer analysis of the tower structure, size and capacity of its members. **Global Tower Services, LLC** does not analyze the fabrication, including welding, except as included in this report.

The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines. Any mention of structural modifications are reasonable estimates and should not be used a precise construction document. Precise modification drawings are obtainable from **Global Tower Services, LLC** but are beyond the scope of this report.

Global Tower Services, LLC makes no warranties, expressed or implied, in connection with this report and disclaim any liability arising from material, fabrication and erection of this tower. **Global Tower Services, LLC** will not be responsible whatsoever for or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of **Global Tower Services, LLC** pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDIX A

Monopole Profile

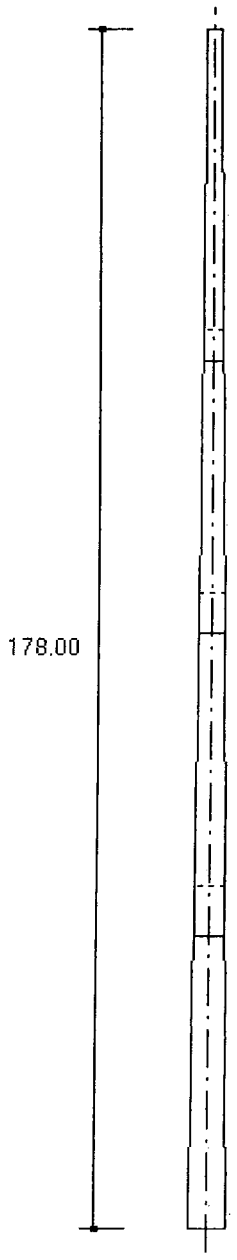
File: C:\TSTower\TSTOWER Input\CT-5030_021111_Verizon.out
Contract:
Project: Structural Analysis of 180 ft. Monopole
Date and Time: 2/11/2011 3:46:35 PM

Revision: 1
Site: CT-5030 (Mansfield Center I)
Engineer: Mike De Boer

DESIGN SPECIFICATION

Design Standard: TIA/EIA-222-F-1996
Basic Wind speed = 85.0 (mph)
Service Wind speed = 50.0 (mph)
Ice thickness = 0.50 (in)

Sct.	Length (ft)	Overlap (ft)	Top Dia. (in)	Bot Dia. (in)	Thick. (in)
1	51.00	7.25	55.51	68.36	0.4375
2	51.00	6.00	45.23	58.08	0.3750
3	45.00	4.75	36.15	47.49	0.3750
4	49.00	0.00	25.50	37.85	0.2500



MAXIMUM BASE REACTIONS

Download (Kips)	60.8
Shear (Kips)	33.1
Moment (Kipsft)	4015.6

APPENDIX B

Calculations

Section A: PROJECT DATA

Project Title:	Structural Analysis of 180 ft. Monopole
Customer Name:	Verizon Wireless
Site:	CT-5030 (Mansfield Center I)
Contract No.:	
Revision:	1
Engineer:	Mike De Boer
Date:	Feb 11 2011
Time:	03:43:24 PM
Design Standard:	TIA/EIA-222-F-1996

GENERAL DESIGN CONDITIONS

Start Wind direction:	0.00 (Deg)
End Wind direction:	330.00 (Deg)
Increment wind direction:	30.00 (Deg)
Elevation above ground:	0.00(ft)
Gust Response Factor Gh:	1.69
Material Density:	490.1(lbs/ft^3)
Young's Modulus:	29000.0(ksi)
Poisson Ratio:	0.3
Weight Multiplier:	1.00
Allowable Stress Incr. Factor:	1.333
Increase allowable stress:	Yes

WIND ONLY CONDITIONS:

Basic Wind Speed:	85.00(mph)

WIND AND ICE CONDITIONS:

Basic Wind Speed:	85.00(mph)
Ice Thickness:	0.50(in)
Ice density:	56.19(lbs/ft^3)
Wind pressure reduction for iced conditions:	0.75

WIND ONLY SERVICEABILITY CONDITIONS:

Operational Wind Speed:	50.00(mph)

Analysis performed using: TowerSoft Finite Element Analysis Program

File: C:\TSTower\TSTOWER Input\CT-5030_021111_Verizon.out
Contract:
Project: Structural Analysis of 180 ft. Monopole
Date and Time: 2/11/2011 3:46:35 PM

Revision: 1
Site: CT-5030 (Mansfield Center I)
Engineer: Mike De Boer

Section B: STRUCTURE GEOMETRY

Total Height (ft)	Bottom Diameter (in)	Top Diameter (in)
178.00	68.36	25.50

Sect. No	Length (ft)	Overlap (ft)	Bot Dia. (in)	Top Dia. (in)	Thick. (in)	Sides	Joint Type	Yield Stress (ksi)	Mass (lbs)	Calculated Taper (in/ft)
1	51.00	7.25	68.36	55.51	0.4375	18-sided	Flange	65.0	14820.6	0.25202
2	51.00	6.00	58.08	45.23	0.3750	18-sided	Telescopic	65.0	10593.5	0.25202
3	45.00	4.75	47.49	36.15	0.3750	18-sided	Telescopic	65.0	7554.6	0.25202
4	49.00	0.00	37.85	25.50	0.2500	18-sided	Telescopic	65.0	4157.9	0.25202
Total Mass:									37126.6	

Section D: TRANSMISSION LINE DATA

Transmission Lines Position

No.	Bot El (ft)	Top El (ft)	Desc.	Radius (ft)	Az.	Orient.	No.	Shielded	Shielded Lines	Antenna
1	6.00	170.00	LDF7P-50A	0.00	0.00	0.00	6	Yes	6	
2	6.00	180.00	LDF7P-50A	0.00	0.00	0.00	12	Yes	12	
3	6.00	160.00	LDF7P-50A	0.00	0.00	0.00	6	Yes	6	
4	6.00	150.00	LDF7P-50A	0.00	0.00	0.00	12	Yes	12	
5	6.00	180.00	LDF5P-50A	0.00	0.00	0.00	4	Yes	4	
6	6.00	110.00	LDF7P-50A	0.00	0.00	0.00	4	Yes	4	

Transmission Lines Details

No.	Desc.	Width (in)	Depth (in)	Unit Mass (lb/ft)
1	LDF7P-50A	2.01	2.01	0.92
2	LDF7P-50A	2.01	2.01	0.92
3	LDF7P-50A	2.01	2.01	0.92
4	LDF7P-50A	2.01	2.01	0.92
5	LDF5P-50A	1.10	1.10	0.33
6	LDF7P-50A	2.01	2.01	0.92

Utilization of the cross-section for TX Lines: 13.18%

Section F: POINT LOAD DATA

Structure Azimuth from North:0.00

POINT LOADS

No.	Description	Elev. (ft)	Radius (ft)	Azim. (Deg)	Orient. (Deg)	Vertical Offset (ft)	Tx Line	Comments
1	(3) Antel BXA-70063-6CF	178.00	0.00	0.0	0.0	0.00		Verizon (0.75)
2	(3) Powerwave 7770	170.00	0.00	0.0	0.0	0.00		ATT (1.00)
3	(6) Powerwave LGP21401	170.00	0.00	0.0	0.0	0.00		ATT (1.00)
4	(9) 6' Panels	160.00	0.00	0.0	0.0	0.00		Sprint (0.80)
5	(6) APX19PV-16PVL-E	148.00	0.00	0.0	0.0	0.00		T-Mobile (0.85)
6	(4) 18'x16 Element Dipole (1.00)	178.00	0.00	0.0	0.0	0.00		City of Mansfield
7	(4) 18'x16 Element Dipole (1.00)	110.00	0.00	0.0	0.0	0.00		City of Mansfield
8	Platform Mount	178.00	0.00	0.0	0.0	0.00		Verizon
9	LP Platform	160.00	0.00	0.0	0.0	0.00		Sprint (1.00)
10	LP Platform	150.00	0.00	0.0	0.0	0.00		T-Mobile (1.00)
11	T-Arms (1.00)	110.00	0.00	0.0	0.0	0.00		Town of Mansfield
12	(6) Antel LPA-80080-4CF	178.00	0.00	0.0	0.0	0.00		Verizon (0.75)
13	(3) Antel BXA-185090-8CF	178.00	0.00	0.0	0.0	0.00		Verizon (0.75)
14	(6) RFS FD9R6004-2C03L	178.00	0.00	0.0	0.0	0.00		Verizon (1.00)
15	Flush Mounts	170.00	0.00	0.0	0.0	0.00		ATT

POINT LOADS WIND AREAS AND WEIGHTS

No.	Description	Frontal Bare Area (ft^2)	Lateral Bare Area (ft^2)	Frontal Iced Area (ft^2)	Lateral Iced Area (ft^2)	Weight Bare (Kips)	Weight Iced (Kips)
1	(3) Antel BXA-70063-6CF	17.39	17.39	19.21	19.21	0.05	0.17
2	(3) Powerwave 7770	17.64	17.64	19.59	19.59	0.11	0.20
3	(6) Powerwave LGP21401	7.74	7.74	9.18	9.18	0.09	0.13
4	(9) 6' Panels	60.48	60.48	83.04	83.04	0.27	0.55
5	(6) APX19PV-16PVL-E	34.17	34.17	37.49	37.49	0.24	0.45
6	(4) 18'x16 Element Dipole	16.00	16.00	24.00	24.00	0.16	1.00
7	(4) 18'x16 Element Dipole	16.00	16.00	24.00	24.00	0.16	1.00
8	Platform Mount	30.00	30.00	38.00	38.00	2.00	2.50
9	LP Platform	24.00	24.00	30.00	30.00	1.50	2.00
10	LP Platform	24.00	24.00	30.00	30.00	1.50	2.00
11	T-Arms	21.00	21.00	27.00	27.00	1.25	1.75
12	(6) Antel LPA-80080-4CF	27.27	27.27	29.93	29.93	0.07	0.27
13	(3) Antel BXA-185090-8CF	6.44	6.44	7.65	7.65	0.04	0.09
14	(6) RFS FD9R6004-2C03L	2.20	2.20	2.98	2.98	0.02	0.04
15	Flush Mounts	6.00	6.00	8.00	8.00	0.15	0.25

File: C:\TSTower\TSTOWER Input\CT-5030_021111_Verizon.out
Contract:
Project: Structural Analysis of 180 ft. Monopole
Date and Time: 2/11/2011 3:46:35 PM

Revision: 1
Site: CT-5030 (Mansfield Center I)
Engineer: Mike De Boer

Section H: STRUCTURE DISPLACEMENT DATA

Load Combination Max Envelope

Wind Direction Maximum displacements

Elev. (ft)	N-S Disp (in)	W-E Disp (in)	Vert.Disp (in)	N-S Rot (deg)	W-E Rot (deg)	Twist Rot (deg)
178:00	81.1	-80.9	-1.9	-4.10	-4.11	0.00
169.17	73.5	-73.4	-1.7	-4.06	-4.07	0.00
160.33	66.1	-66.0	-1.4	-3.97	-3.98	0.00
151.50	58.8	-58.7	-1.2	-3.82	-3.83	0.00
142.67	51.9	-51.8	-1.0	-3.61	-3.62	0.00
133.83	45.4	-45.4	-0.8	-3.36	-3.37	0.00
129.08	42.2	-42.1	-0.7	-3.21	-3.22	0.00
122.22	37.7	-37.6	-0.6	-3.05	-3.05	0.00
115.35	33.4	-33.3	-0.5	-2.88	-2.89	0.00
108.48	29.4	-29.3	-0.4	-2.71	-2.71	0.00
101.62	25.6	-25.5	-0.4	-2.53	-2.53	0.00
94.75	22.1	-22.0	-0.3	-2.35	-2.35	0.00
88.75	19.2	-19.2	-0.2	-2.19	-2.19	0.00
81.20	15.9	-15.9	-0.2	-1.98	-1.98	0.00
73.65	12.9	-12.9	-0.1	-1.77	-1.78	0.00
66.10	10.3	-10.3	-0.1	-1.57	-1.57	0.00
58.55	8.0	-8.0	-0.1	-1.36	-1.36	0.00
51.00	6.0	-6.0	0.0	-1.16	-1.16	0.00
43.75	4.4	-4.4	0.0	-0.97	-0.97	0.00
36.46	3.0	-3.0	0.0	-0.80	-0.80	0.00
29.17	1.9	-1.9	0.0	-0.63	-0.63	0.00
21.88	1.1	-1.1	0.0	-0.47	-0.47	0.00
14.58	0.5	-0.5	0.0	-0.31	-0.31	0.00
7.29	0.1	-0.1	0.0	-0.15	-0.15	0.00
0.00	0.0	0.0	0.0	0.00	0.00	0.00

File: C:\TSTower\TSTOWER Input\CT-5030_021111_Verizon.out
Contract:
Project: Structural Analysis of 180 ft. Monopole
Date and Time: 2/11/2011 3:46:35 PM

Revision: 1
Site: CT-5030 (Mansfield Center I)
Engineer: Mike De Boer

Section K: POLE OUTPUT LOAD DATA

Load Combination — Max Envelope
Wind Direction — Maximum

Elev. (ft)	Axial Ld. (kips)	Shear Ld. (kips)	Torque (kipsft)	Bend Mom. (kipsft)
178.00	4.24	5.68	0.01	0.10
169.17	4.24	5.68	0.00	50.05
169.17	5.60	7.84	0.02	50.27
160.33	5.60	7.84	0.01	119.23
160.33	8.84	12.70	0.03	119.51
151.50	8.84	12.70	0.02	231.25
151.50	11.94	15.70	0.05	231.61
142.67	11.94	15.70	0.04	370.20
142.67	13.74	17.39	0.06	370.60
133.83	13.74	17.39	0.05	523.58
133.83	14.82	18.04	0.07	523.88
129.08	14.82	18.04	0.06	609.42
129.08	16.30	18.64	0.08	609.66
122.22	16.30	18.64	0.07	737.03
122.22	18.17	19.36	0.08	737.31
115.35	18.17	19.36	0.08	869.59
115.35	20.32	20.45	0.09	869.86
108.48	20.32	20.45	0.08	1009.58
108.48	24.04	22.49	0.09	1009.83
101.62	24.04	22.49	0.09	1164.26
101.62	25.75	23.22	0.10	1164.51
94.75	25.75	23.22	0.09	1323.18
94.75	27.41	23.91	0.10	1323.39
88.75	27.41	23.91	0.10	1466.44
88.75	29.77	24.65	0.10	1466.65
81.20	29.77	24.65	0.10	1652.02
81.20	32.39	25.46	0.10	1652.23
73.65	32.39	25.46	0.10	1843.70
73.65	34.51	26.24	0.11	1843.89
66.10	34.51	26.24	0.10	2041.32
66.10	36.70	27.02	0.11	2041.49
58.55	36.70	27.02	0.10	2244.83
58.55	38.96	27.79	0.10	2244.99
51.00	38.96	27.79	0.10	2455.09
51.00	41.24	28.53	0.10	2455.22
43.75	41.24	28.53	0.10	2660.70
43.75	44.67	29.25	0.10	2660.80
36.46	44.67	29.25	0.10	2874.42
36.46	48.29	29.96	0.10	2874.51
29.17	48.29	29.96	0.10	3092.33
29.17	51.00	30.63	0.10	3092.40
21.88	51.00	30.63	0.10	3315.23
21.88	53.77	31.32	0.10	3315.27
14.58	53.77	31.32	0.10	3543.16
14.58	56.63	32.02	0.10	3543.19
7.29	56.63	32.02	0.10	3777.29
7.29	59.44	32.72	0.10	3777.30
0.00	59.44	32.72	0.10	4015.60
Base	60.77	33.15	0.10	4015.60

Section L: STRENGTH ASSESSMENT DATA

Load Combination — Max Envelope
Wind Direction — Maximum

Elev. (ft)	Bending Stress (ksi)	Axial Stress (ksi)	Shear Stress (ksi)	Total Stress (ksi)	Allowable Stress (ksi)	Assess.
178.00	0.01	0.21	0.26	0.51	52.00	0.010
169.17	3.77	0.19	0.24	3.99	52.00	0.077
169.17	4.08	0.15	0.36	4.28	52.00	0.082
160.33	8.27	0.14	0.33	8.43	52.00	0.162
160.33	8.29	0.24	0.54	8.58	52.00	0.165
151.50	13.88	0.22	0.50	14.13	52.00	0.272
151.50	13.90	0.31	0.62	14.25	52.00	0.274
142.67	19.41	0.29	0.58	19.73	52.00	0.379
142.67	19.43	0.34	0.64	19.81	52.00	0.381
133.83	24.19	0.32	0.60	24.53	52.00	0.472
133.83	24.20	0.35	0.62	24.58	52.00	0.473
129.08	18.28	0.26	0.42	18.56	52.00	0.357
122.22	20.15	0.25	0.40	20.42	52.00	0.393
122.22	20.16	0.29	0.42	20.46	52.00	0.394
115.35	21.78	0.28	0.40	22.06	52.00	0.424
115.35	21.78	0.31	0.43	22.11	52.00	0.425
108.48	23.24	0.30	0.41	23.55	52.00	0.453
108.48	23.25	0.35	0.45	23.61	52.00	0.454
101.62	24.72	0.33	0.43	25.07	52.00	0.482
101.62	24.73	0.36	0.44	25.10	52.00	0.483
94.75	25.99	0.35	0.43	26.36	52.00	0.507
94.75	26.00	0.38	0.44	26.39	52.00	0.507
88.75	27.87	0.41	0.45	28.29	52.00	0.544
81.20	28.96	0.39	0.43	29.36	52.00	0.565
81.20	28.96	0.44	0.44	29.41	52.00	0.566
73.65	29.90	0.42	0.43	30.33	52.00	0.583
73.65	29.91	0.45	0.44	30.37	52.00	0.584
66.10	30.73	0.43	0.42	31.17	52.00	0.599
66.10	30.73	0.47	0.44	31.20	52.00	0.600
58.55	31.44	0.45	0.42	31.90	52.00	0.613
58.55	31.44	0.48	0.43	31.93	52.00	0.614
51.00	32.08	0.46	0.42	32.55	52.00	0.626
51.00	32.08	0.49	0.43	32.58	52.00	0.627
43.75	28.77	0.46	0.37	29.24	52.00	0.562
36.46	29.16	0.44	0.36	29.61	52.00	0.569
36.46	29.16	0.48	0.37	29.65	52.00	0.570
29.17	29.49	0.47	0.36	29.97	52.00	0.576
29.17	29.49	0.50	0.36	30.00	52.00	0.577
21.88	29.78	0.48	0.35	30.27	52.00	0.582
21.88	29.78	0.51	0.36	30.30	52.00	0.583
14.58	30.02	0.50	0.35	30.53	52.00	0.587
14.58	30.02	0.53	0.36	30.56	52.00	0.588
7.29	30.25	0.51	0.35	30.76	52.00	0.592
7.29	30.25	0.54	0.36	30.79	52.00	0.592
0.00	30.43	0.53	0.35	30.96	52.00	0.595

Section M: SECTION PROPERTIES DATA

Elev. (ft)	Diam. (in)	Width (in)	Thick. (in)	W/t	Area (in^2)	S (in^3)
178.0	25.5	4.0	0.250	16.0	20.1	124.83
169.2	27.7	4.4	0.250	17.6	21.8	147.91
169.2	27.7	4.4	0.250	17.6	21.8	147.91
160.3	30.0	4.8	0.250	19.1	23.6	172.94
160.3	30.0	4.8	0.250	19.1	23.6	172.94
151.5	32.2	5.2	0.250	20.7	25.4	199.93
151.5	32.2	5.2	0.250	20.7	25.4	199.93
142.7	34.4	5.6	0.250	22.3	27.1	228.87
142.7	34.4	5.6	0.250	22.3	27.1	228.87
133.8	36.7	6.0	0.250	23.9	28.9	259.78
133.8	36.7	6.0	0.250	23.9	28.9	259.78
129.1	37.8	6.2	0.250	24.7	29.8	277.20
129.1	37.3	5.8	0.375	15.6	44.0	400.27
122.2	39.1	6.1	0.375	16.4	46.0	438.83
122.2	39.1	6.1	0.375	16.4	46.0	438.83
115.4	40.8	6.4	0.375	17.2	48.1	479.16
115.4	40.8	6.4	0.375	17.2	48.1	479.16
108.5	42.5	6.7	0.375	18.0	50.2	521.27
108.5	42.5	6.7	0.375	18.0	50.2	521.27
101.6	44.3	7.1	0.375	18.8	52.2	565.15
101.6	44.3	7.1	0.375	18.8	52.2	565.15
94.8	46.0	7.4	0.375	19.6	54.3	610.81
94.8	46.0	7.4	0.375	19.6	54.3	610.81
88.8	47.5	7.6	0.375	20.3	56.1	652.15
88.8	46.7	7.5	0.375	20.0	55.2	631.48
81.2	48.6	7.8	0.375	20.9	57.5	684.58
81.2	48.6	7.8	0.375	20.9	57.5	684.58
73.7	50.5	8.2	0.375	21.8	59.7	739.83
73.7	50.5	8.2	0.375	21.8	59.7	739.83
66.1	52.5	8.5	0.375	22.7	62.0	797.22
66.1	52.5	8.5	0.375	22.7	62.0	797.22
58.6	54.4	8.8	0.375	23.6	64.2	856.76
58.6	54.4	8.8	0.375	23.6	64.2	856.76
51.0	56.3	9.2	0.375	24.5	66.5	918.43
51.0	56.3	9.2	0.375	24.5	66.5	918.43
43.8	58.1	9.5	0.375	25.3	68.7	979.68
43.8	57.3	9.2	0.438	21.1	79.0	1109.71
36.5	59.2	9.6	0.438	21.8	81.6	1182.83
36.5	59.2	9.6	0.438	21.8	81.6	1182.83
29.2	61.0	9.9	0.438	22.6	84.1	1258.28
29.2	61.0	9.9	0.438	22.6	84.1	1258.28
21.9	62.8	10.2	0.438	23.3	86.7	1336.07
21.9	62.8	10.2	0.438	23.3	86.7	1336.07
14.6	64.7	10.5	0.438	24.1	89.2	1416.18
14.6	64.7	10.5	0.438	24.1	89.2	1416.18
7.3	66.5	10.9	0.438	24.8	91.8	1498.63
7.3	66.5	10.9	0.438	24.8	91.8	1498.63
0.0	68.4	11.2	0.438	25.6	94.3	1583.42

Note: w/t values marked with * (asterisk) indicate width to thickness exceeding maximum allowable values by standards.

TowerSoft Tower - v 5.0.1 Monopole Analysis Program
Licensed to: Global Tower Partners, Boca Raton FL

Project: Structural Analysis of 180 ft. Monopole
Site: CT-5030 (Mansfield Center I)
Contract:
Engineer: Mike De Boer

BASE PLATE DETAILS

Maximum Base Reactions

Axial Load(Kips)	= 50.70
Shear Load(Kips)	= 33.15
Bending Moment(Kipsft)	= 4015.60
Torque(Kipsft)	= 0.10

Anchor Rod Data

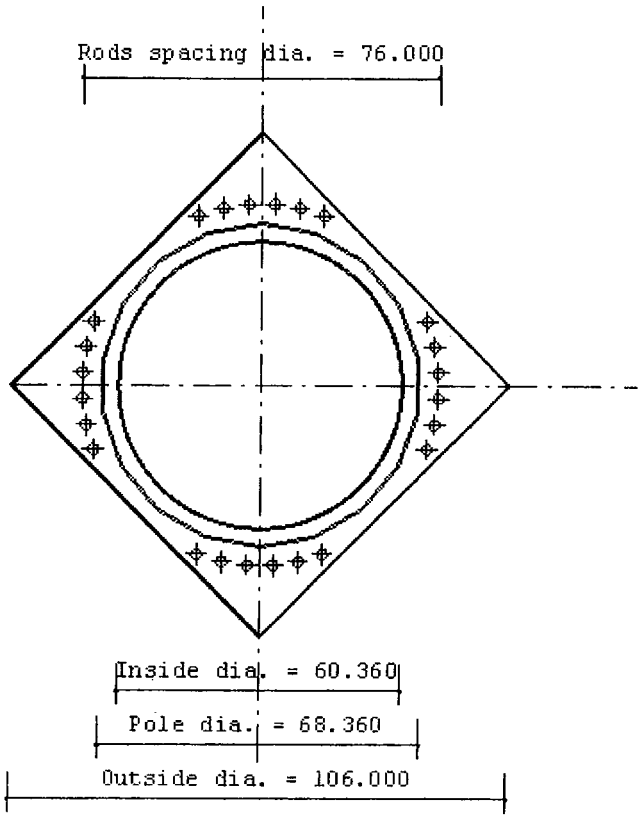
No of rods	= 24
Grade	= A615 Gr.75
Size	= 2 1/4 in
Rods Spacing(in)	= 5.500
Lar * (in)	= 3.000
Shear Load(Kips)	= 1.38
Axial Load(Kips)	= 107.79
Shear Cap.(Kips)	= 90.12
Axial Cap.(Kips)	= 194.85
Assessment Ratio	= 0.57
Allow. Stress Increase	= 1.33

Plate Data

Thickness(in)	= 3.000
Grade	= A572 gr.50
Max. Stress(ksi)	= 17.4
Allow. Stress(ksi)	= 50.0
Assessment Ratio	= 0.3
Allow. Stress Increase	= 1.33

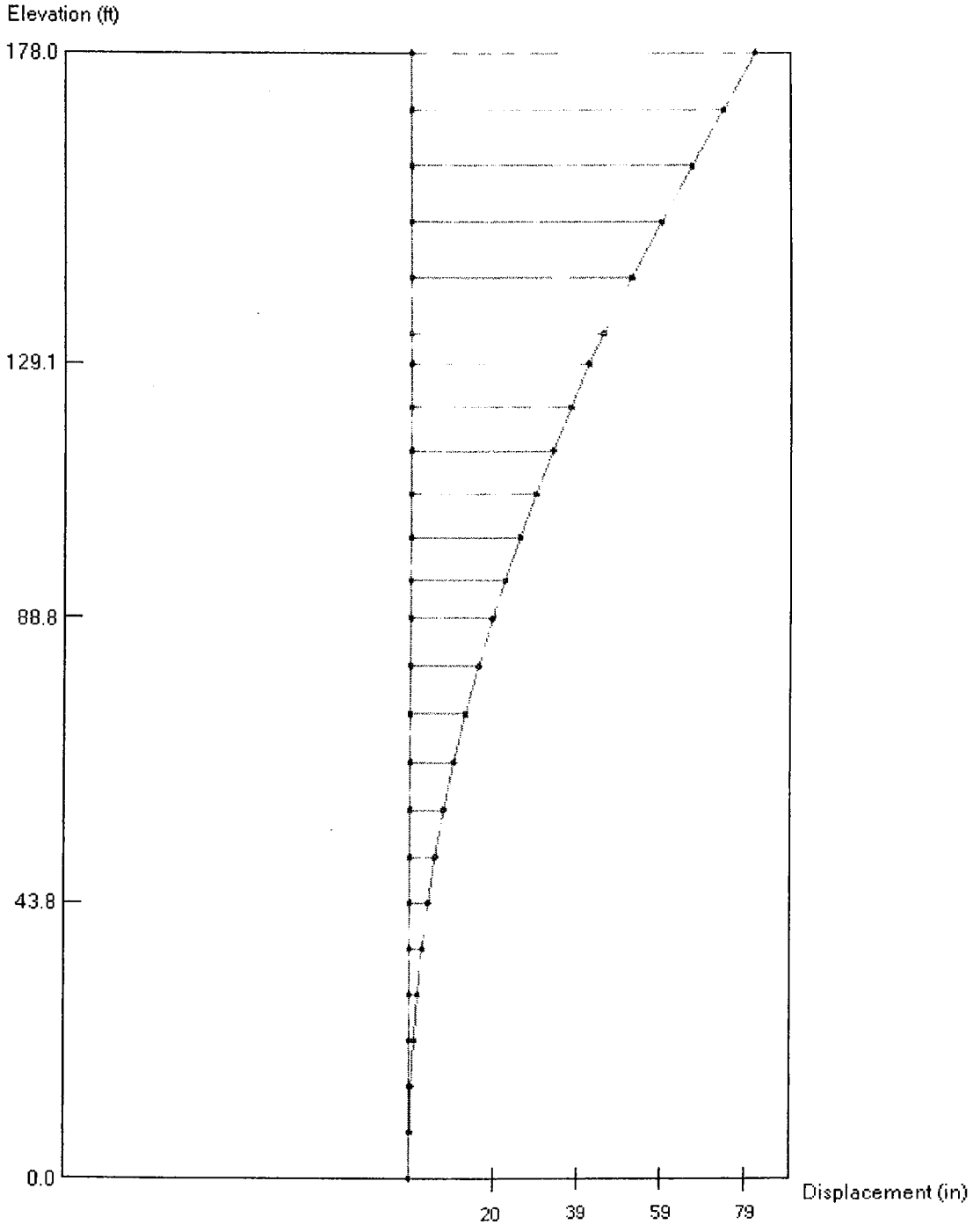
Plate Bottom above Concrete

* Lar = Length from top of concrete
to bottom of anchor rod leveling nut.



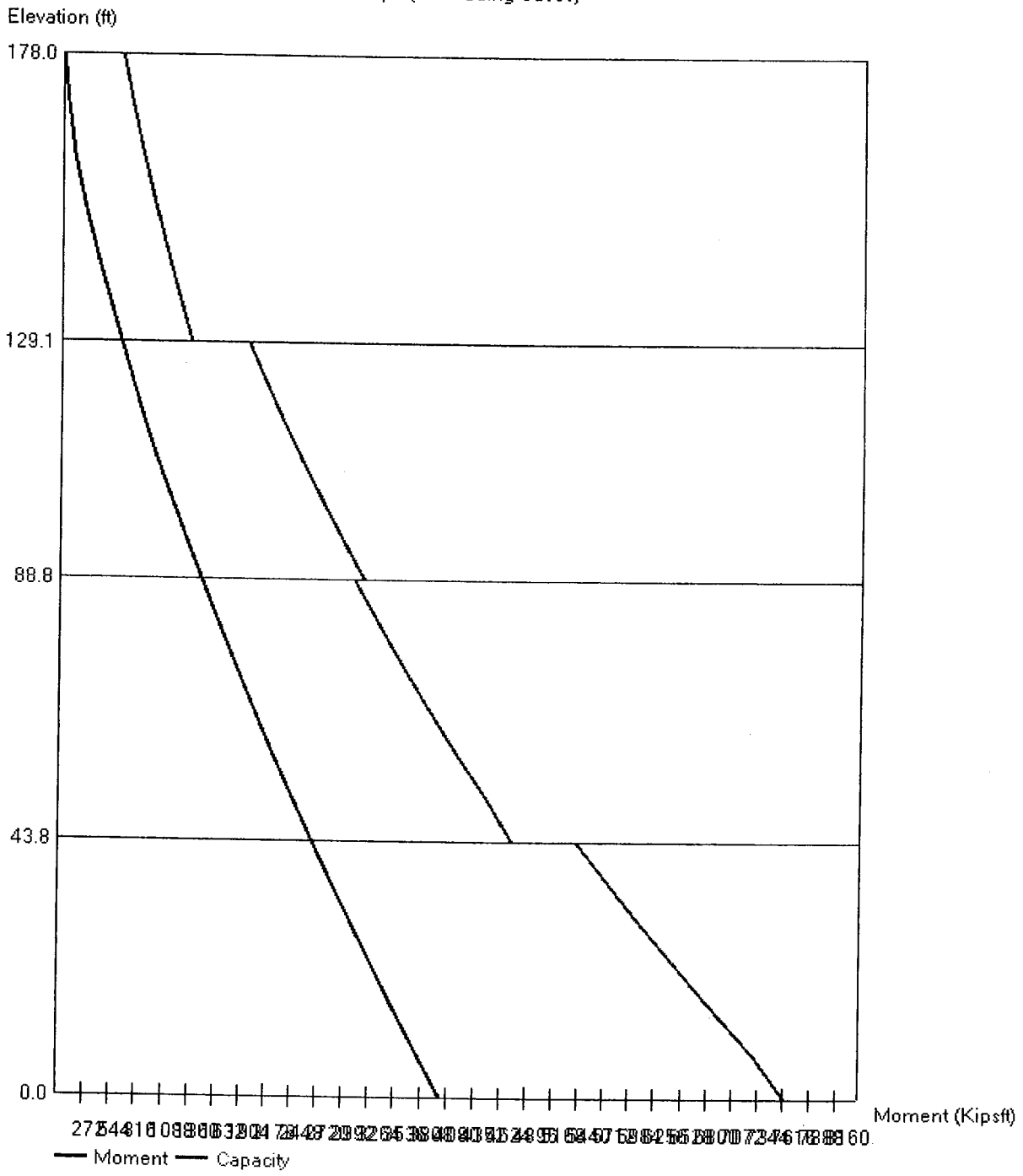
Horizontal Displacement Diagram

Max. Envelope (All Loading Cases)



Bending Moment Diagram

Max. Envelope (All Loading Cases)



APPENDIX C

Collocation Application

GLOBAL TOWER PARTNERS

Collocation Application

Check one: New ☐ Addition to Existing ☒ **Modification XXX**			**GTP Lease**	
PLEASE RETURN THIS APPLICATION TO: (E-MAIL IS PREFERRED)			GTP Site I.D. #:	CT-5030
GTP Acquisition Partners II, LLC			GTP Site Name:	Mansfield Center I
c/o Global Tower Partners	E-Mail:	tconte@gtpsites.com	Date Received:	1-25-11
41 Woodstone Drive			Revision Dates:	1-27-11
Voorhees, NJ 08043	Office:	(856) 282-7277	**RSM Approval:**	Charles Laurette 1/31/11
Attn: Timothy E. Conte	Fax:	(253) 390-8020	**Structural Req'd:**	**YES** ☒ **NO** ☐

APPLICANT/CARRIER INFORMATION

Carrier Name:	Verizon Wireless	Contact Name:	Jim Smith
Carrier Site Name:	Mansfield Center CT	Contact Number:	860-608-0028
Carrier Site Number:	117997	Contact Fax:	860-290-8951
Carrier Legal Entity Name, type of entity (LP, GP, LLC, Corp) and state of registration:	Cellco Partnership d/b/a Verizon Wireless A Delaware General Partnership	Contact Address:	Verizon Wireless 99 East River Dr, 9th Fl East Hartford CT 06108
Notice Address for Lease:	Per Existing Agreement		
With copies to:	Per Existing Agreement		
Carrier Invoice Address:	Verizon Wireless 99 East River Dr, 9th floor East Hartford CT 06108	Contact E-mail:	jsmith@structureconsulting.net
Carrier Invoice Contact - Name, Title, Phone No.	Tim Parks Real Estate Specialist 860-803-8239		

ADDITIONAL CARRIER INFORMATION

Leasing Contact Name/Number:	Jim Smith 860-608-0028
RF Contact Name/Number:	Mark Brauer 860-803-8241
Construction Contact Name/Number:	Mark Gauger 860-803-8204
Emergency Contact Name/Number:	Bedminster Network Operations Control Center (NOCC) 800-852-2671

SITE INFORMATION

Latitude:	41	46	32.79	N	Existing Structure Type:	Monopole
Longitude:	72	13	20.99	W	Existing Structure Height:	180 ft
Site Address:	230 Clover Mill Road, Mansfield CT 06268					

ANTENNA & COAX

Equipment Type	Antenna – Type 1	Antenna – Type 2	Antenna – Type 3	OTHER (dish, TTA)
Desired Rad Center (feet agl)	178	178	178	178
Antenna Quantity	3 (1/sector)	6 (2/sector)	3 (1/sector)	6 diplexers (2/sector)
Antenna Manufacturer	Antel	Antel	Antel	RFS
Antenna Model **(Attach Spec Sheet)**	BXA-70063-6CF	LPA-80080/4CF	BXA-185090/8CF	FD9R6004/2C-3L
Weight (per antenna) (lbs)	17.0	12.0	11.0	3.1
Antenna Dimensions	71.0" x 11.2" x 4.5"	47.2" x 5.5" x 13.2"	48.2" x 6.1" x 4.1"	5.8" x 6.5" x 1.5"
Quantity & Diameter of Coax Cables **PER ANTENNA**	1 ea @ 1-5/8"	1 ea @ 1-5/8"	1 ea @ 1-5/8"	N/A
Orientation/Azimuth (degrees from true north)	0 / 120 / 240	0 / 120 / 240	0 / 120 / 240	N/A
Mechanical Tilt (degrees)	0	0	0	N/A
# Of Channels				
Antenna Mount Mounting Height (feet agl)	178	178	178	*behind cell antennas
Antenna Mounting Type	T-Frame ☐ Sector ☐	Platform ☒ Low Profile ☐ Other:		
Transmit Frequency (MHz)	746-757	869-880, 890-891.5,	1970-1975	N/A
Receive Frequency (MHz)	776-787	824-835, 845-846.5,	1890-1895	N/A
ERP (watts)	891	469	619	N/A
Type of Service (i.e. Cellular, PCS, ESMR)	LTE	Cellular	PCS	N/A

GROUND SPACE REQUIREMENTS

Total Ground Area Dimensions Required (length x width x height in ft.)	12' x 30' x 10'4" (existing shelter, no change)		
Cabinet Pad Dimensions	NA	Cabinet Manufacturer	NA
Shelter Pad Dimensions	12' x 30' (existing, no change)	Shelter Manufacturer	Kullman Industrial Inc

AC POWER REQUIREMENTS

Voltage:	240	Total Amperage:	200