

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 24, 2010

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

RE: **EM-VER-043-100507**- Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 148 Robert Street, East Hartford, Connecticut.

Dear Attorney Baldwin:

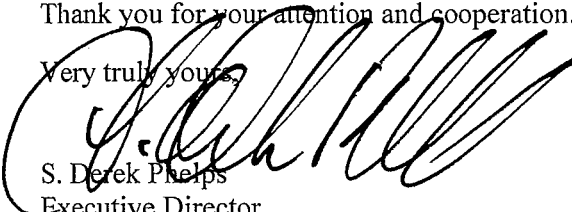
The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated May 7, 2010, 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,


S. Derek Phelps
Executive Director

SDP/CDM/laf

c: The Honorable Melody A. Currey, Mayor, Town of East Hartford
Michael J. Dayton, Town Planner, Town of East Hartford
GTP Global Towers Services

EM-VER-043-100507

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

May 7, 2010

Via Hand Delivery

ORIGINAL

RECEIVED
MAY - 7 2010
CONNECTICUT
SITING COUNCIL

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

Re: **Notice of Exempt Modification – Antenna Swap
148 Roberts Street, East Hartford, Connecticut**

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains wireless telecommunications antennas at the 120-foot level on the existing 130-foot tower at the above-referenced address. The tower is owned by GTP Global Towers Services. The Council approved Cellco’s use of the existing tower in 2002 through Docket No. 228. Cellco now intends to modify its installation by replacing six (6) of its existing PCS with three (3) model BXA-185063/8CF PCS antennas; and three (3) model BXA-70063/6CF LTE antennas, all at the same 120-foot level on the tower. Attached behind Tab 1 are the specifications for the proposed replacement antennas.

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 Melody A. Currey, Mayor for the Town of East Hartford. A copy of this letter is being sent to The Masters Club LLC, the owner of the property on which the tower is located.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco’s antennas will be located at the same 120-foot level on the existing 130-foot tower.



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ROBINSON & COLE_{LLP}

S. Derek Phelps
May 7, 2010
Page 2

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

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

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

Also attached is a Structural Analysis Report confirming that the tower and foundation can support Cellco's proposed antennas modification. (See Tab 3).

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

Sincerely,



Kenneth C. Baldwin

Enclosures

Copy to:

Melody A. Currey, East Hartford Mayor
The Masters Club LLC
Sandy M. Carter



Slant +/- 45° Dual Polarized, Panel 63° / 18.5 dBi

BXA-185063/8CF

When ordering replace "___" with connector type.

Mechanical specifications

| | | |
|---|---------------------|---------------------|
| Length | 1238 mm | 48.8 in |
| Width | 154 mm | 6.1 in |
| Depth | 80 mm | 3.2 in |
| Depth with t-bracket | 108 mm | 4.3 in |
| 4) Weight | 4.5 kg | 10.0 lbs |
| Wind Area | | |
| Fore/Aft | 0.19 m ² | 2.1 ft ² |
| Side | 0.10 m ² | 1.1 ft ² |
| Rated Wind Velocity (Safety factor 2.0) | >322 km/hr | >200 mph |
| Wind Load @ 100 mph (161 km/hr) | | |
| Fore/Aft | 288 N | 65 lbs |
| Side | 170 N | 38 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

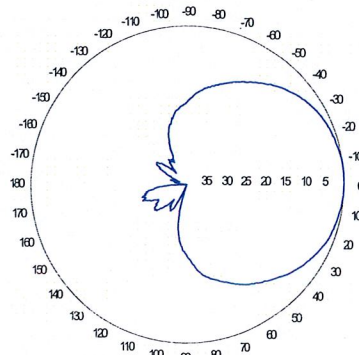
| | |
|----------------------------|---|
| Frequency Range | 1850-1990 MHz |
| Impedance | 50Ω |
| 3) Connector(s) | NE or E-DIN 2 ports / center or bottom |
| 1) VSWR | ≤ 1.4:1 |
| Polarization | Slant ± 45° |
| 1) Isolation Between Ports | < -30 dB |
| 1) Gain | 18.5 dBi |
| 2) Power Rating | 250 W |
| 1) Half Power Angle | |
| H-Plane | 63° |
| 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

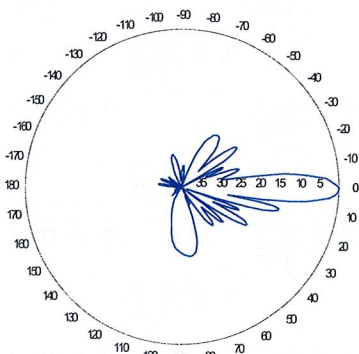
- 1) Typical values.
- 2) Power rating limited by connector only.
- 3) NE indicates an elongated N connector.
E-DIN indicates an elongated DIN connector.
- 4) The antenna weight listed above does not include the bracket weight.

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

Radiation pattern¹⁾



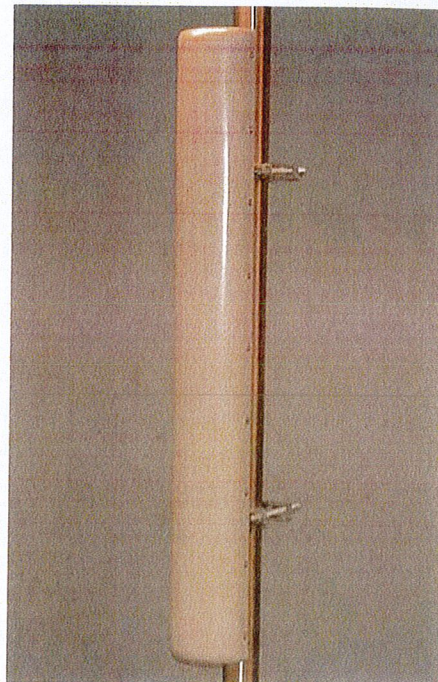
Horizontal



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 bandwidth and superior performance.
- Air as insulation for virtually no internal signal loss.

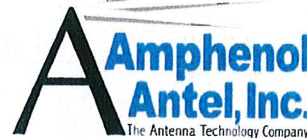
This Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna can be ordered with center-fed or bottom-fed connectors.

Center-fed: BXA-185063/8CF + (NE or E-DIN)
Bottom-fed: BXA-185063/8BF + (NE or E-DIN)

CF Denotes a Center-Fed Connector.

1850-1990 MHz



Revision Date: 7/11/07

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

Mechanical specifications

| | | |
|---------------------------------|---------------------|---------------------|
| Length | 1804 mm | 71.0 in |
| Width | 285 mm | 11.2 in |
| Depth | 114 mm | 4.5 in |
| Depth with z-bracket | 154 mm | 6.1 in |
| Weight ⁴⁾ | 7.9 kg | 17.0 lbs |
| Wind Area Fore/Aft | 0.51 m ² | 5.5 ft ² |
| Wind Area Side | 0.21 m ² | 2.2 ft ² |
| Max Wind Survivability | >201 km/hr | >125 mph |
| Wind Load @ 100 mph (161 km/hr) | | |
| Fore/Aft | 753 N | 169 lbf |
| Side | 351 N | 79 lbf |

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

Mounting & Downtilting

Mounting hardware attaches to pipe diameter $\varnothing 50$ -160 mm; $\varnothing 2.0$ -6.3 in

| | |
|----------------------|----------|
| Mounting Bracket Kit | 36210002 |
| Downtilt Bracket Kit | 36114003 |

Electrical specifications

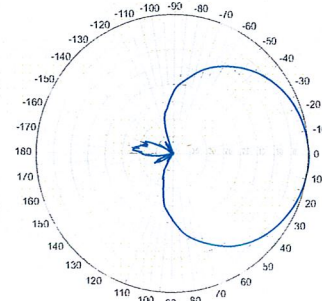
| | |
|---------------------------------------|--|
| Frequency Range | 696-900 MHz |
| Impedance | 50 Ω |
| Connector ³⁾ | NE or E-DIN Female 2 ports / Center |
| VSWR ¹⁾ | $\leq 1.35:1$ |
| Polarization | Slant $\pm 45^\circ$ |
| Isolation Between Ports ¹⁾ | < -25 dB |
| Gain ¹⁾ | 14.5 dBd 16.5 dBi |
| Power Rating ²⁾ | 500 W |
| Half Power Angle ¹⁾ | |
| Horizontal Beamwidth | 63 $^\circ$ |
| Vertical Beamwidth | 11 $^\circ$ |
| Electrical downtilt ⁵⁾ | 0 $^\circ$ |
| Null fill ¹⁾ | 5% |
| Lightning protection | Direct ground |

Patented Dipole Design: U.S. Patent No. 6,608,600 B2

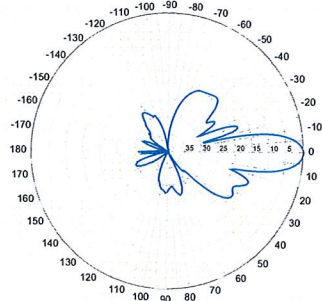
- 1) Typical values.
- 2) Power rating limited by connector only.
- 3) NE indicates an elongated N connector.
E-DIN indicates an elongated DIN connector.
- 4) Antenna weight does not include brackets.
- 5) Add'l downtilts may be available. Check website for details.

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

Radiation-pattern¹⁾
750 MHz

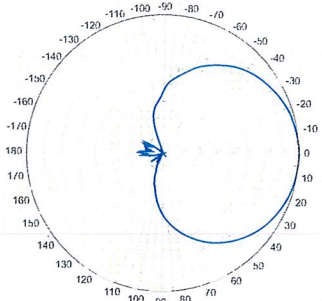


Horizontal

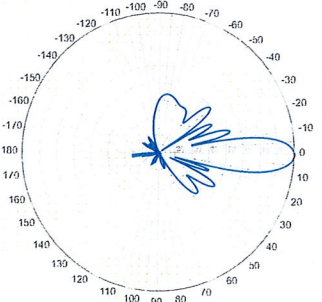


Vertical

850 MHz



Horizontal

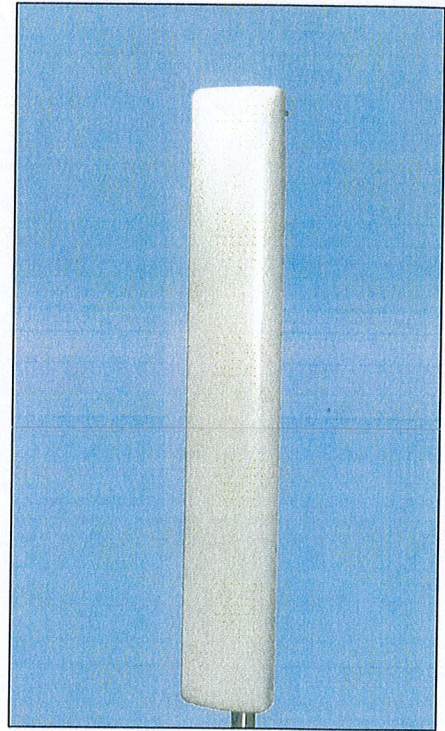


Vertical

696-900 MHz

BXA-70063/6CF

When ordering replace "___" with connector type.



Featuring our Exclusive
3T 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 bandwidth and superior performance.
- Air as insulation for virtually no internal signal loss.

Warranty:

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

Revision Date: 01/08/09



Structural Analysis Report

130 ft. Tapered Monopole

**148 Roberts Street, East Hartford, CT 06108
Hartford County
(CT-5037, East Hartford)
(Revision 1, Antenna Correction)**

**Verizon Wireless
Verizon Site Number: 119677
Verizon Site Name: East Hartford 3 CT**

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

May 5, 2010

750 Park of Commerce Blvd Suite 300 Boca Raton FL 33487-3612
Phone 605-422-1548 Fax 605-422-1550

**Global Tower Services, LLC
May 5, 2010
East Hartford
CT-5037**

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Appendix B - Calculations.....Attached

Global Tower Services, LLC

May 5, 2010

East Hartford

CT-5037

INTRODUCTION

We have completed the structural analysis for the existing 130 ft. tapered monopole located in Hartford County (148 Roberts Street, East Hartford), 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 130 ft. tapered monopole. The original monopole manufacturer is PiROD Inc., Plymouth IN. The existing structure consists of six (6) sections with slip connections.

Original monopole drawings provided by PiROD Inc. were used to model the monopole steel. (PiROD Engineering File Number A-113092, August 10, 2001) The monopole shaft is manufactured from 65 ksi steel, the base plate is 50 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: | 80 mph (fastest mile) 100 mph (3-sec gust) |
| - Serviceability Wind Speed: | 50 mph (fastest mile) |
| - Basic Wind Speed with Ice: | 69.60 mph (fastest mile) |
| - Design Ice Thickness: | 0.50 (inch) |
| - Allowable Stress Increase: | 1/3 for wind loading conditions |

Global Tower Services, LLC

May 5, 2010
East Hartford
CT-5037

ANTENNA LOADING INFORMATION

Existing and Reserved Loading Information

| Antenna Description/Mount | Qty | Elev. (ft.) | TX Lines | Qty | Customer |
|---|-----|-------------|--------------------|--------|-----------|
| Argus LLPX310R / Side Arms | 3 | 130 | 5/8" 1/4" | 3 3 | Clearwire |
| Samsung WiMax Dap Head / Side Arms | 3 | 130 | | | Clearwire |
| Dragonwave A-ANT-18G-2-C / Side Arms | 3 | 127 | 1/2" | 3 | Clearwire |
| Dragonwave Horizon Compact / Side Arms | 3 | 127 | | | Clearwire |
| 948F65T2-M / LP Platform (To be removed & replaced) | 6 | 120 | 1 5/8" (Remain) | 6 | Verizon |
| DB844G65ZAXY / LP Platform | 6 | 120 | 1 5/8" | 6 | Verizon |
| 4' X 1' PCS Antennas / LP Platform | 9 | 110 | 1 5/8" | 9 | Sprint |
| DB844H90E-XY / LP Platform | 12 | 90 | 1 5/8" | 12 | Nextel |

Proposed Loading Information

| Antenna Description/Mount | Qty | Elev. (ft.) | TX Lines | Qty | Customer |
|------------------------------------|-----|-------------|----------|-----|----------|
| Antel BXA-70063-6CF / LP Platform | 3 | 120 | 1 5/8" | 3 | Verizon |
| Antel BXA-180563-8CF / LP Platform | 3 | 120 | 1 5/8" | 3 | Verizon |

Note: All proposed and existing lines are considered inside the monopole shaft unless otherwise noted.

ANALYSIS RESULTS

Structure

The existing 130 ft. tapered monopole **is structurally capable** of supporting the proposed equipment. (See table below)

| Monopole Member | % Capacity | Results |
|---------------------|------------|---------|
| Monopole Shaft | 56 | Pass |
| Monopole Base Plate | 48 | Pass |
| Anchor Bolts | 57 | Pass |

(105 percent is considered acceptable.)

Global Tower Services, LLC

May 5, 2010
East Hartford
CT-5037

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 | 1682.52 Ft-Kips | 2740.19 Ft-Kips | 61 | Pass |
| Shear | 18.80 Kips | 40.85 Kips | 46 | Pass |

Monopole Rating: 61%

Summary and Conclusions

The existing 130 ft. tapered monopole located in Hartford County (148 Roberts Street, East Hartford), CT is **structurally acceptable** based upon the EIA-222-F 1996 Standard and the local building code with the proposed equipment installed.

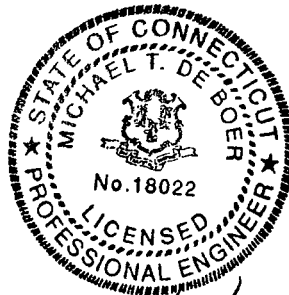
If any other changes are proposed, another structural analysis should be performed to assure the tower is in compliance / conformance with the applicable codes and standards.

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 Structural Engineering



5/5/10

Global Tower Services, LLC

May 5, 2010
East Hartford
CT-5037

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 its 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 uncorroded 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.

Global Tower Services, LLC

May 5, 2010

East Hartford

CT-5037

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 as 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 disclaims 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:\Program Files\TSTower\TSTOWER Input\CT-5037_022710_Verizon.out

Contract:

Revision: 1

Project: Structural Analysis for 140' Monopole

Site: CT-5037 (East Hartford)

Date and Time: 5/5/2010 4:19:03 PM

Engineer: Mike De Boer

DESIGN SPECIFICATION

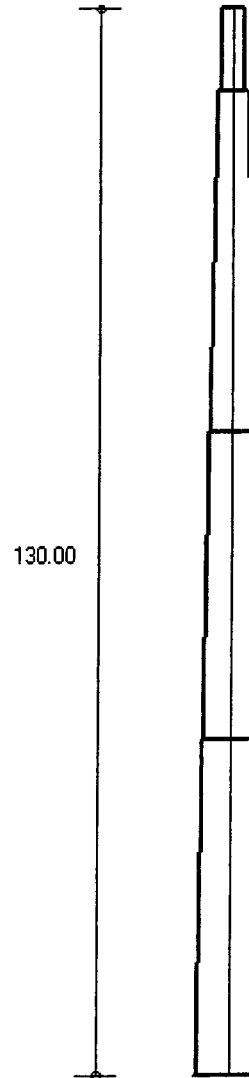
Design Standard: TIA/EIA-222-F-1996

Basic Wind speed = 80.0 (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 | 41.00 | 0.00 | 41.39 | 49.19 | 0.3750 |
| 2 | 37.50 | 0.00 | 34.27 | 41.39 | 0.3125 |
| 3 | 41.50 | 0.00 | 22.00 | 34.27 | 0.2500 |
| 4 | 10.00 | 0.00 | 18.00 | 18.00 | 0.2500 |



MAXIMUM BASE REACTIONS

| | Bare | Iced |
|-----------------|--------|--------|
| Download (Kips) | 26.2 | 32.5 |
| Shear (Kips) | 18.8 | 15.6 |
| Moment (Kipsft) | 1682.5 | 1431.5 |

APPENDIX B

Calculations



TSTower - v 3.9.8 Tower Analysis Program
(c) 1997-2006 TowerSoft www.TSTower.com

Licensed to: Global Tower Partners
Boca Raton, Florida

File: C:\Program Files\TSTower\TSTOWER Input\CT-5037_022710_Verizon.out
Contract: Revision: 1
Project: Structural Analysis for 140' Monopole Site: CT-5037 (East Hartford)
Date and Time: 5/5/2010 4:19:03 PM Engineer: Mike De Boer

Section A: PROJECT DATA

Project Title: Structural Analysis for 140' Monopole
Customer Name: Verizon
Site: CT-5037 (East Hartford)
Contract No.:
Revision: 1
Engineer: Mike De Boer
Date: May 5 2010
Time: 04:18:10 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
Ratio of corner diameter
to diameter of inscribed
circle (r): 0.26

WIND ONLY CONDITIONS:

Basic Wind Speed: 80.00 (mph)

WIND AND ICE CONDITIONS:

Basic Wind Speed: 80.00 (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



TSTower - v 3.9.8 Tower Analysis Program
(c) 1997-2006 TowerSoft www.TSTower.com

Licensed to: Global Tower Partners
Boca Raton, Florida

File: C:\Program Files\TSTower\TSTOWER Input\CT-5037_022710_Verizon.out

Contract:

Revision: 1

Project: Structural Analysis for 140' Monopole

Site: CT-5037 (East Hartford)

Date and Time: 5/5/2010 4:19:03 PM

Engineer: Mike De Boer

Section B: STRUCTURE GEOMETRY

| Total Height (ft) | Bottom Diameter (in) | Top Diameter (in) |
|----------------------|-------------------------|----------------------|
| 130.00 | 49.19 | 18.00 |

| 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 | 41.00 | 0.00 | 49.19 | 41.39 | 0.3750 | 16-sided | Flange | 65.0 | 7473.0 | 0.19018 |
| 2 | 37.50 | 0.00 | 41.39 | 34.27 | 0.3125 | 16-sided | Flange | 65.0 | 4758.1 | 0.18981 |
| 3 | 41.50 | 0.00 | 34.27 | 22.00 | 0.2500 | 16-sided | Flange | 65.0 | 3130.9 | 0.29578 |
| 4 | 10.00 | 0.00 | 18.00 | 18.00 | 0.2500 | Circular | Flange | 65.0 | 474.0 | 0.00000 |

Total Mass:

15836.1



TSTower - v 3.9.8 Tower Analysis Program
 (c) 1997-2006 TowerSoft www.TSTower.com

Licensed to: Global Tower Partners
 Boca Raton, Florida

File: C:\Program Files\TSTower\TSTOWER Input\CT-5037_022710_Verizon.out

Contract:

Revision: 1

Project: Structural Analysis for 140' Monopole

Site: CT-5037 (East Hartford)

Date and Time: 5/5/2010 4:19:03 PM

Engineer: Mike De Boer

Section C: ANTENNA DATA

Structure Azimuth from North: 0

ANTENNAS

| Ant No. | Elev. (ft) | Antenna (#) Type | Ant. Azim. | Mount. Radius (ft) | Mount Type | Mount Azim. | Tx Line (#)Type | Mounting Pipe Size (in) | Mounting Pipe Length (ft) | Full Shielded |
|---------|------------|-----------------------------------|------------|--------------------|------------|-------------|-----------------|-------------------------|---------------------------|---------------|
| 1 | 127.00 | (1) HP2 Vert. Offset 0.00 (ft) | 30 | 1.08 | | 30 | (1)LDF4P-50A | | | |
| 2 | 127.00 | (1) HP2 Vert. Offset 0.00 (ft) | 150 | 1.08 | | 150 | (1)LDF4P-50A | | | |
| 3 | 127.00 | (1) HP2 Vert. Offset 0.00 (ft) | 270 | 1.08 | | 270 | (1)LDF4P-50A | | | |

ANTENNA AND MOUNT WIND AREAS AND WEIGHTS

| Ant No. | Antenna/Mount | Frontal Bare Area (ft) ² | Lateral Bare Area (ft) ² | Frontal Iced Area (ft) ² | Lateral Iced Area (ft) ² | Weight Bare (lbs) | Weight Iced (lbs) | Frequency (GHz) | Allowable Signal Loss (dB) |
|---------|---------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------|-------------------|-----------------|----------------------------|
| 1 | HP2 | 4.86 | 0.34 | 4.86 | 0.34 | 40.78 | 88.32 | 6.00 | 10 |
| 2 | HP2 | 4.86 | 0.34 | 4.86 | 0.34 | 40.78 | 88.32 | 6.00 | 10 |
| 3 | HP2 | 4.86 | 0.34 | 4.86 | 0.34 | 40.78 | 88.32 | 6.00 | 10 |



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Site: CT-5037 (East Hartford)

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Engineer: Mike De Boer

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 | 0.00 | 140.00 | LDF7P-50A | 0.00 | 0.00 | 0.00 | 18 | Yes | 18 | |
| 2 | 0.00 | 110.00 | LDF7P-50A | 0.00 | 0.00 | 0.00 | 9 | Yes | 9 | |
| 3 | 0.00 | 90.00 | LDF7P-50A | 0.00 | 0.00 | 0.00 | 12 | Yes | 12 | |
| 4 | 0.00 | 130.00 | LDF2-50 | 0.00 | 0.00 | 0.00 | 3 | Yes | 3 | |
| 5 | 0.00 | 127.00 | LDF4P-50A | 0.00 | 0.00 | 0.00 | 1 | Yes | 1 | |
| 6 | 0.00 | 127.00 | LDF4P-50A | 0.00 | 0.00 | 0.00 | 1 | Yes | 1 | |
| 7 | 0.00 | 127.00 | LDF4P-50A | 0.00 | 0.00 | 0.00 | 1 | Yes | 1 | |

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 | LDF2-50 | 0.43 | 0.43 | 0.08 |
| 5 | LDF4P-50A | 0.63 | 0.63 | 0.15 |
| 6 | LDF4P-50A | 0.63 | 0.63 | 0.15 |
| 7 | LDF4P-50A | 0.63 | 0.63 | 0.15 |

Utilization of the cross-section for TX Lines: 24.27%



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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 | (6) DB844G65ZAXY | 120.00 | 0.00 | 0.0 | 0.0 | 0.00 | (18)LDF7P-50A | Verizon (1.0) |
| 2 | LP Platform | 120.00 | 0.00 | 0.0 | 0.0 | 0.00 | | Verizon |
| 3 | (9) 4' X 1' Panels | 110.00 | 0.00 | 0.0 | 0.0 | 0.00 | (9)LDF7P-50A | Sprint (0.85) |
| 4 | LP Platform | 110.00 | 0.00 | 0.0 | 0.0 | 0.00 | | Sprint |
| 5 | (12) DB844H90EXY | 90.00 | 0.00 | 0.0 | 0.0 | 0.00 | (12)LDF7P-50A | Nextel (0.80) |
| 6 | LP Platform | 90.00 | 0.00 | 0.0 | 0.0 | 0.00 | | Nextel |
| 7 | (3) LLPX310R | 130.00 | 0.00 | 0.0 | 0.0 | 0.00 | (3)LDF2-50 | Clearwire (1.0) |
| 8 | (3) WiMax Dap Head | 130.00 | 0.00 | 0.0 | 0.0 | 0.00 | | Clearwire (1.0) |
| 9 | (3) Horizon Compact | 127.00 | 0.00 | 0.0 | 0.0 | 0.00 | | Clearwire (1.0) |
| 10 | T-Arms | 130.00 | 0.00 | 0.0 | 0.0 | 0.00 | | Clearwire |
| 11 | (3) BXA-70063-6CF | 120.00 | 0.00 | 0.0 | 0.0 | 0.00 | | Verizon (1.0) |
| 12 | (3) BXA-185063/8CF | 120.00 | 0.00 | 0.0 | 0.0 | 0.00 | | Verizon (1.0) |

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 | (6) DB844G65ZAXY | 28.02 | 28.02 | 31.44 | 31.44 | 0.07 | 0.27 |
| 2 | LP Platform | 21.00 | 21.00 | 27.00 | 27.00 | 1.50 | 2.00 |
| 3 | (9) 4' X 1' Panels | 42.84 | 42.84 | 47.38 | 47.38 | 0.27 | 0.68 |
| 4 | LP Platform | 21.00 | 21.00 | 27.00 | 27.00 | 1.50 | 2.00 |
| 5 | (12) DB844H90EXY | 35.81 | 35.81 | 41.18 | 41.18 | 0.24 | 0.56 |
| 6 | LP Platform | 21.00 | 21.00 | 27.00 | 27.00 | 1.50 | 2.00 |
| 7 | (3) LLPX310R | 14.52 | 14.52 | 16.11 | 16.11 | 0.09 | 0.16 |
| 8 | (3) WiMax Dap Head | 7.59 | 7.59 | 8.67 | 8.67 | 0.11 | 0.18 |
| 9 | (3) Horizon Compact | 1.65 | 1.65 | 2.10 | 2.10 | 0.03 | 0.05 |
| 10 | T-Arms | 16.00 | 16.00 | 20.00 | 20.00 | 0.75 | 1.25 |
| 11 | (3) BXA-70063-6CF | 23.19 | 23.19 | 25.62 | 25.62 | 0.05 | 0.17 |
| 12 | (3) BXA-185063/8CF | 8.67 | 8.67 | 10.29 | 10.29 | 0.03 | 0.08 |



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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) |
|---------------|------------------|------------------|--------------------|------------------|------------------|--------------------|
| 130.00 | 48.3 | 48.2 | -0.9 | 3.15 | -3.16 | 0.00 |
| 128.33 | 47.2 | 47.1 | -0.8 | 3.15 | -3.16 | 0.00 |
| 126.67 | 46.1 | 46.0 | -0.8 | 3.15 | -3.15 | 0.00 |
| 125.00 | 45.0 | 44.9 | -0.8 | 3.14 | -3.15 | 0.00 |
| 123.33 | 43.9 | 43.8 | -0.8 | 3.13 | -3.14 | 0.00 |
| 121.67 | 42.8 | 42.8 | -0.7 | 3.12 | -3.12 | 0.00 |
| 120.00 | 41.7 | 41.7 | -0.7 | 3.10 | -3.11 | 0.00 |
| 113.08 | 37.3 | 37.2 | -0.6 | 3.03 | -3.04 | 0.00 |
| 106.17 | 33.0 | 32.9 | -0.5 | 2.92 | -2.92 | 0.00 |
| 99.25 | 28.8 | 28.8 | -0.4 | 2.76 | -2.77 | 0.00 |
| 92.33 | 24.9 | 24.9 | -0.3 | 2.59 | -2.59 | 0.00 |
| 85.42 | 21.3 | 21.3 | -0.3 | 2.40 | -2.40 | 0.00 |
| 78.50 | 18.0 | 18.0 | -0.2 | 2.19 | -2.20 | 0.00 |
| 72.25 | 15.2 | 15.2 | -0.2 | 2.03 | -2.04 | 0.00 |
| 66.00 | 12.7 | 12.6 | -0.1 | 1.86 | -1.87 | 0.00 |
| 59.75 | 10.3 | 10.3 | -0.1 | 1.68 | -1.69 | 0.00 |
| 53.50 | 8.2 | 8.2 | -0.1 | 1.50 | -1.50 | 0.00 |
| 47.25 | 6.4 | 6.4 | 0.0 | 1.31 | -1.31 | 0.00 |
| 41.00 | 4.8 | 4.8 | 0.0 | 1.11 | -1.11 | 0.00 |
| 34.17 | 3.3 | 3.3 | 0.0 | 0.93 | -0.93 | 0.00 |
| 27.33 | 2.1 | 2.1 | 0.0 | 0.74 | -0.75 | 0.00 |
| 20.50 | 1.2 | 1.2 | 0.0 | 0.56 | -0.56 | 0.00 |
| 13.67 | 0.5 | 0.5 | 0.0 | 0.37 | -0.37 | 0.00 |
| 6.83 | 0.1 | 0.1 | 0.0 | 0.19 | -0.19 | 0.00 |
| 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |



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Section J: ANTENNA DISPLACEMENT DATA

Load Combination Max Envelope

Wind Direction Maximum displacements

| Ant. | Elev. (ft) | N-S Disp (in) | W-E Disp (in) | Vert Disp (in) | N-S Rot (Deg) | W-E Rot (Deg) | Twist Rot (Deg) | Allow. (Deg) |
|------|---------------|------------------|------------------|-------------------|------------------|------------------|--------------------|-----------------|
| 1 | 127.00 | 46.7 | 46.6 | -0.8 | 3.15 | -3.16 | 0.00 | 4.43 |
| 2 | 127.00 | 46.7 | 46.6 | -0.8 | 3.15 | -3.16 | 0.00 | 4.43 |
| 3 | 127.00 | 46.7 | 46.6 | -0.8 | 3.15 | -3.16 | 0.00 | 4.43 |



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Section K: POLE OUTPUT LOAD DATA

| Load Combination | Max Envelope | | | |
|------------------|---------------------|---------------------|--------------------|-----------------------|
| Wind Direction | Maximum Loads | | | |
| Elev. (ft) | Axial Ld. (kips) | Shear Ld. (kips) | Torque (kipsft) | Bend Mom. (kipsft) |
| 130.00 | 1.61 | 1.64 | 0.00 | 0.02 |
| 128.33 | 1.61 | 1.64 | 0.04 | 2.70 |
| 128.33 | 1.80 | 1.81 | 0.05 | 2.74 |
| 126.67 | 1.80 | 1.81 | 0.09 | 5.75 |
| 126.67 | 2.17 | 2.28 | 0.15 | 5.79 |
| 125.00 | 2.17 | 2.28 | 0.20 | 9.58 |
| 125.00 | 2.29 | 2.34 | 0.20 | 9.62 |
| 123.33 | 2.29 | 2.34 | 0.25 | 13.51 |
| 123.33 | 2.42 | 2.41 | 0.25 | 13.55 |
| 121.67 | 2.42 | 2.41 | 0.31 | 17.56 |
| 121.67 | 2.55 | 2.47 | 0.31 | 17.59 |
| 120.00 | 2.55 | 2.47 | 0.36 | 21.63 |
| 120.00 | 5.37 | 6.03 | 0.36 | 21.71 |
| 113.08 | 5.37 | 6.03 | 0.89 | 63.26 |
| 113.08 | 7.51 | 7.88 | 0.88 | 63.39 |
| 106.17 | 7.51 | 7.88 | 1.56 | 117.67 |
| 106.17 | 9.44 | 9.47 | 1.52 | 117.80 |
| 99.25 | 9.44 | 9.47 | 2.30 | 183.02 |
| 99.25 | 10.26 | 9.92 | 2.21 | 183.15 |
| 92.33 | 10.26 | 9.92 | 2.99 | 251.51 |
| 92.33 | 12.83 | 11.83 | 2.84 | 251.65 |
| 85.42 | 12.83 | 11.83 | 3.70 | 332.81 |
| 85.42 | 14.67 | 13.05 | 3.50 | 332.96 |
| 78.50 | 14.67 | 13.05 | 4.37 | 422.90 |
| 78.50 | 15.73 | 13.53 | 4.15 | 423.04 |
| 72.25 | 15.73 | 13.53 | 4.91 | 507.45 |
| 72.25 | 16.85 | 13.99 | 4.65 | 507.56 |
| 66.00 | 16.85 | 13.99 | 5.37 | 594.40 |
| 66.00 | 18.01 | 14.45 | 5.04 | 594.50 |
| 59.75 | 18.01 | 14.45 | 5.72 | 684.67 |
| 59.75 | 19.19 | 14.90 | 5.32 | 684.76 |
| 53.50 | 19.19 | 14.90 | 5.95 | 777.28 |
| 53.50 | 20.41 | 15.34 | 5.49 | 777.37 |
| 47.25 | 20.41 | 15.34 | 6.06 | 873.17 |
| 47.25 | 21.65 | 15.77 | 5.52 | 873.24 |
| 41.00 | 21.65 | 15.77 | 6.02 | 971.26 |
| 41.00 | 23.09 | 16.22 | 5.44 | 971.33 |
| 34.17 | 23.09 | 16.22 | 5.92 | 1082.23 |
| 34.17 | 24.71 | 16.68 | 5.29 | 1082.29 |
| 27.33 | 24.71 | 16.68 | 5.69 | 1195.83 |
| 27.33 | 26.38 | 17.13 | 4.99 | 1195.88 |
| 20.50 | 26.38 | 17.13 | 5.31 | 1312.55 |
| 20.50 | 28.09 | 17.59 | 4.53 | 1312.59 |
| 13.67 | 28.09 | 17.59 | 4.77 | 1432.45 |
| 13.67 | 29.84 | 18.05 | 3.91 | 1432.47 |
| 6.83 | 29.84 | 18.05 | 4.06 | 1556.15 |
| 6.83 | 31.63 | 18.52 | 3.13 | 1556.16 |
| 0.00 | 31.63 | 18.52 | 3.17 | 1682.52 |
| Base | 32.53 | 18.80 | 3.17 | 1682.52 |



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Section L: STRENGTH ASSESSMENT DATA

| Load Combination | Max Envelope | | | | | |
|------------------|--------------|--------|--------|--------|-----------|---------|
| Wind Direction | Maximum | | | | | |
| Elev. | Bending | Axial | Shear | Total | Allowable | Assess. |
| (ft) | Stress | Stress | Stress | Stress | Stress | |
| | (ksi) | (ksi) | (ksi) | (ksi) | (ksi) | |
| 130.00 | 0.00 | 0.12 | 0.11 | 0.22 | 52.00 | 0.004 |
| 128.33 | 0.47 | 0.12 | 0.11 | 0.62 | 52.00 | 0.012 |
| 128.33 | 0.54 | 0.07 | 0.13 | 0.65 | 52.00 | 0.013 |
| 126.67 | 1.13 | 0.07 | 0.13 | 1.23 | 52.00 | 0.024 |
| 126.67 | 1.14 | 0.09 | 0.16 | 1.26 | 52.00 | 0.024 |
| 125.00 | 1.88 | 0.09 | 0.16 | 1.99 | 52.00 | 0.038 |
| 125.00 | 1.89 | 0.10 | 0.17 | 2.01 | 52.00 | 0.039 |
| 123.33 | 2.66 | 0.10 | 0.17 | 2.77 | 52.00 | 0.053 |
| 123.33 | 2.67 | 0.10 | 0.17 | 2.79 | 52.00 | 0.054 |
| 121.67 | 3.45 | 0.10 | 0.17 | 3.57 | 52.00 | 0.069 |
| 121.67 | 3.46 | 0.11 | 0.18 | 3.59 | 52.00 | 0.069 |
| 120.00 | 4.25 | 0.11 | 0.18 | 4.38 | 52.00 | 0.084 |
| 120.00 | 2.82 | 0.20 | 0.35 | 3.07 | 52.00 | 0.059 |
| 113.08 | 6.85 | 0.18 | 0.32 | 7.05 | 52.00 | 0.136 |
| 113.08 | 6.87 | 0.26 | 0.42 | 7.16 | 52.00 | 0.138 |
| 106.17 | 10.80 | 0.24 | 0.38 | 11.06 | 52.00 | 0.213 |
| 106.17 | 10.81 | 0.30 | 0.46 | 11.14 | 52.00 | 0.214 |
| 99.25 | 14.41 | 0.28 | 0.43 | 14.71 | 52.00 | 0.283 |
| 99.25 | 14.42 | 0.31 | 0.45 | 14.76 | 52.00 | 0.284 |
| 92.33 | 17.18 | 0.29 | 0.42 | 17.49 | 52.00 | 0.336 |
| 92.33 | 17.19 | 0.37 | 0.50 | 17.58 | 52.00 | 0.338 |
| 85.42 | 19.91 | 0.35 | 0.47 | 20.27 | 52.00 | 0.390 |
| 85.42 | 19.92 | 0.40 | 0.51 | 20.34 | 52.00 | 0.391 |
| 78.50 | 22.34 | 0.38 | 0.48 | 22.73 | 52.00 | 0.437 |
| 78.50 | 17.97 | 0.33 | 0.40 | 18.32 | 52.00 | 0.352 |
| 72.25 | 20.12 | 0.32 | 0.39 | 20.46 | 52.00 | 0.393 |
| 72.25 | 20.13 | 0.35 | 0.40 | 20.49 | 52.00 | 0.394 |
| 66.00 | 22.05 | 0.34 | 0.39 | 22.40 | 52.00 | 0.431 |
| 66.00 | 22.06 | 0.37 | 0.40 | 22.43 | 52.00 | 0.431 |
| 59.75 | 23.81 | 0.35 | 0.39 | 24.18 | 52.00 | 0.465 |
| 59.75 | 23.82 | 0.38 | 0.40 | 24.21 | 52.00 | 0.466 |
| 53.50 | 25.40 | 0.37 | 0.39 | 25.78 | 52.00 | 0.496 |
| 53.50 | 25.40 | 0.40 | 0.40 | 25.81 | 52.00 | 0.496 |
| 47.25 | 26.85 | 0.39 | 0.39 | 27.25 | 52.00 | 0.524 |
| 47.25 | 26.86 | 0.41 | 0.40 | 27.28 | 52.00 | 0.525 |
| 41.00 | 28.16 | 0.40 | 0.39 | 28.57 | 52.00 | 0.549 |
| 41.00 | 23.58 | 0.36 | 0.33 | 23.95 | 52.00 | 0.461 |
| 34.17 | 24.67 | 0.35 | 0.32 | 25.03 | 52.00 | 0.481 |
| 34.17 | 24.68 | 0.38 | 0.33 | 25.06 | 52.00 | 0.482 |
| 27.33 | 25.66 | 0.37 | 0.32 | 26.03 | 52.00 | 0.501 |
| 27.33 | 25.66 | 0.40 | 0.33 | 26.06 | 52.00 | 0.501 |
| 20.50 | 26.55 | 0.39 | 0.32 | 26.94 | 52.00 | 0.518 |
| 20.50 | 26.55 | 0.41 | 0.33 | 26.97 | 52.00 | 0.519 |
| 13.67 | 27.36 | 0.40 | 0.32 | 27.77 | 52.00 | 0.534 |
| 13.67 | 27.36 | 0.43 | 0.33 | 27.80 | 52.00 | 0.535 |
| 6.83 | 28.11 | 0.42 | 0.32 | 28.54 | 52.00 | 0.549 |
| 6.83 | 28.11 | 0.45 | 0.33 | 28.57 | 52.00 | 0.549 |
| 0.00 | 28.79 | 0.44 | 0.32 | 29.24 | 52.00 | 0.562 |



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Section M: SECTION PROPERTIES DATA

| Elev. (ft) | Diam. (in) | Width (in) | Thick. (in) | W/t | Area (in ²) | S (in ³) |
|---------------|---------------|---------------|----------------|------|----------------------------|-------------------------|
| 130.0 | 18.0 | 18.0 | 0.250 | 72.0 | 13.9 | 61.02 |
| 128.3 | 18.0 | 18.0 | 0.250 | 72.0 | 13.9 | 61.02 |
| 128.3 | 18.0 | 18.0 | 0.250 | 72.0 | 13.9 | 61.02 |
| 126.7 | 18.0 | 18.0 | 0.250 | 72.0 | 13.9 | 61.02 |
| 126.7 | 18.0 | 18.0 | 0.250 | 72.0 | 13.9 | 61.02 |
| 125.0 | 18.0 | 18.0 | 0.250 | 72.0 | 13.9 | 61.02 |
| 125.0 | 18.0 | 18.0 | 0.250 | 72.0 | 13.9 | 61.02 |
| 123.3 | 18.0 | 18.0 | 0.250 | 72.0 | 13.9 | 61.02 |
| 123.3 | 18.0 | 18.0 | 0.250 | 72.0 | 13.9 | 61.02 |
| 121.7 | 18.0 | 18.0 | 0.250 | 72.0 | 13.9 | 61.02 |
| 121.7 | 18.0 | 18.0 | 0.250 | 72.0 | 13.9 | 61.02 |
| 120.0 | 18.0 | 18.0 | 0.250 | 72.0 | 13.9 | 61.02 |
| 120.0 | 22.0 | 3.9 | 0.250 | 15.5 | 17.3 | 92.46 |
| 113.1 | 24.0 | 4.3 | 0.250 | 17.1 | 18.9 | 110.77 |
| 113.1 | 24.0 | 4.3 | 0.250 | 17.1 | 18.9 | 110.77 |
| 106.2 | 26.1 | 4.7 | 0.250 | 18.8 | 20.6 | 130.74 |
| 106.2 | 26.1 | 4.7 | 0.250 | 18.8 | 20.6 | 130.74 |
| 99.3 | 28.1 | 5.1 | 0.250 | 20.4 | 22.2 | 152.37 |
| 99.3 | 28.1 | 5.1 | 0.250 | 20.4 | 22.2 | 152.37 |
| 92.3 | 30.2 | 5.5 | 0.250 | 22.0 | 23.8 | 175.65 |
| 92.3 | 30.2 | 5.5 | 0.250 | 22.0 | 23.8 | 175.65 |
| 85.4 | 32.2 | 5.9 | 0.250 | 23.6 | 25.4 | 200.59 |
| 85.4 | 32.2 | 5.9 | 0.250 | 23.6 | 25.4 | 200.59 |
| 78.5 | 34.3 | 6.3 | 0.250 | 25.3 | 27.1 | 227.18 |
| 78.5 | 34.3 | 6.2 | 0.313 | 19.8 | 33.8 | 282.42 |
| 72.3 | 35.5 | 6.4 | 0.313 | 20.6 | 35.0 | 302.58 |
| 72.3 | 35.5 | 6.4 | 0.313 | 20.6 | 35.0 | 302.58 |
| 66.0 | 36.6 | 6.7 | 0.313 | 21.3 | 36.1 | 323.44 |
| 66.0 | 36.6 | 6.7 | 0.313 | 21.3 | 36.1 | 323.44 |
| 59.8 | 37.8 | 6.9 | 0.313 | 22.1 | 37.3 | 345.00 |
| 59.8 | 37.8 | 6.9 | 0.313 | 22.1 | 37.3 | 345.00 |
| 53.5 | 39.0 | 7.1 | 0.313 | 22.8 | 38.5 | 367.25 |
| 53.5 | 39.0 | 7.1 | 0.313 | 22.8 | 38.5 | 367.25 |
| 47.3 | 40.2 | 7.4 | 0.313 | 23.6 | 39.7 | 390.20 |
| 47.3 | 40.2 | 7.4 | 0.313 | 23.6 | 39.7 | 390.20 |
| 41.0 | 41.4 | 7.6 | 0.313 | 24.3 | 40.9 | 413.84 |
| 41.0 | 41.4 | 7.5 | 0.375 | 20.0 | 49.0 | 494.36 |
| 34.2 | 42.7 | 7.7 | 0.375 | 20.6 | 50.5 | 526.32 |
| 34.2 | 42.7 | 7.7 | 0.375 | 20.6 | 50.5 | 526.32 |
| 27.3 | 44.0 | 8.0 | 0.375 | 21.3 | 52.1 | 559.29 |
| 27.3 | 44.0 | 8.0 | 0.375 | 21.3 | 52.1 | 559.29 |
| 20.5 | 45.3 | 8.3 | 0.375 | 22.0 | 53.6 | 593.26 |
| 20.5 | 45.3 | 8.3 | 0.375 | 22.0 | 53.6 | 593.26 |
| 13.7 | 46.6 | 8.5 | 0.375 | 22.7 | 55.2 | 628.23 |
| 13.7 | 46.6 | 8.5 | 0.375 | 22.7 | 55.2 | 628.23 |
| 6.8 | 47.9 | 8.8 | 0.375 | 23.4 | 56.7 | 664.20 |
| 6.8 | 47.9 | 8.8 | 0.375 | 23.4 | 56.7 | 664.20 |
| 0.0 | 49.2 | 9.0 | 0.375 | 24.1 | 58.3 | 701.17 |

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

File: C:\Program Files\TSTower\TSTOWER Input\CT-5037_022710_Verizon.out

Contract:

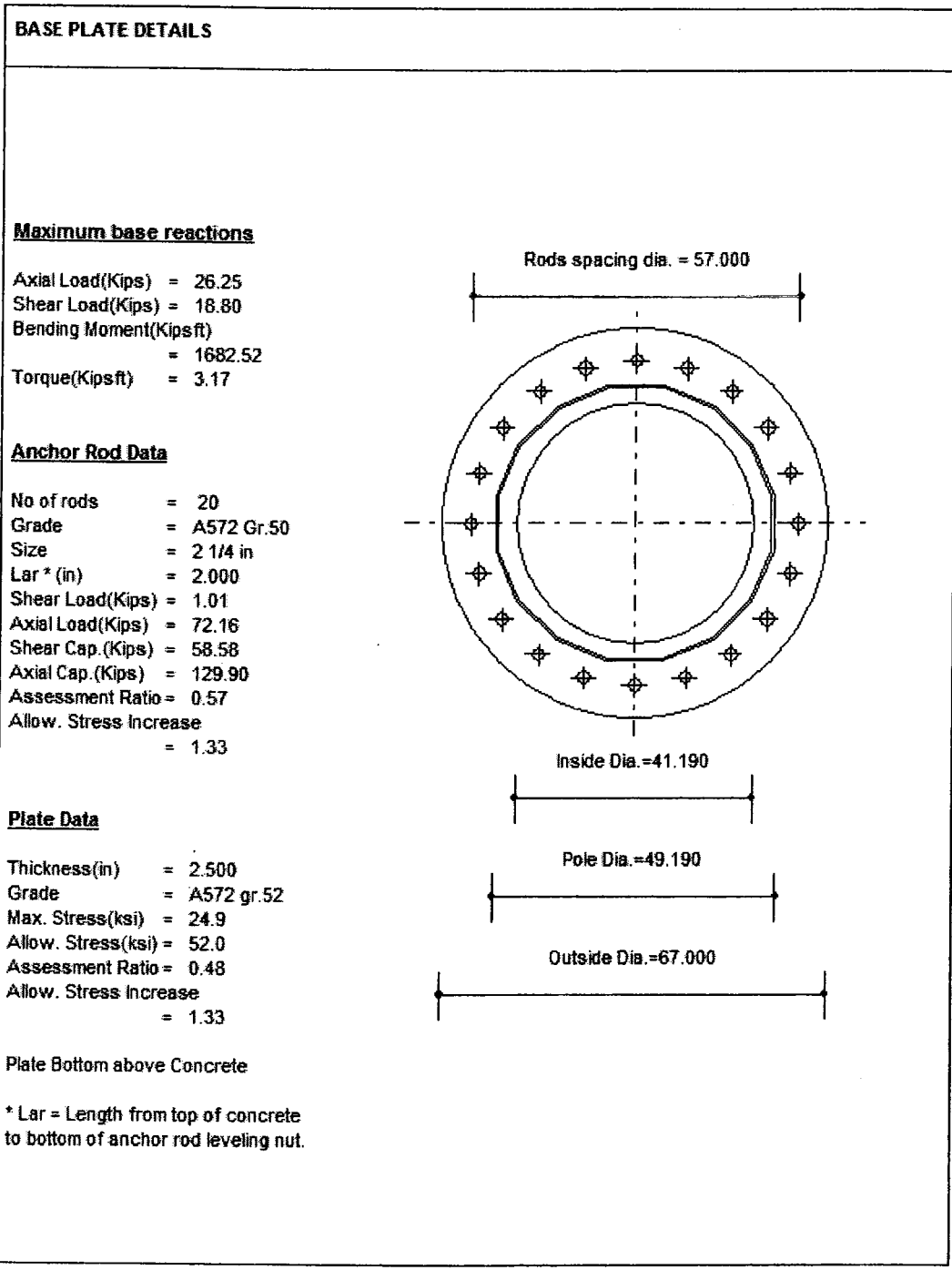
Revision: 1

Project: Structural Analysis for 140' Monopole

Site: CT-5037 (East Hartford)

Date and Time: 5/5/2010 4:19:03 PM

Engineer: Mike De Boer



File: C:\Program Files\TSTower\TSTOWER Input\CT-5037_022710_Verizon.out

Contract:

Revision: 1

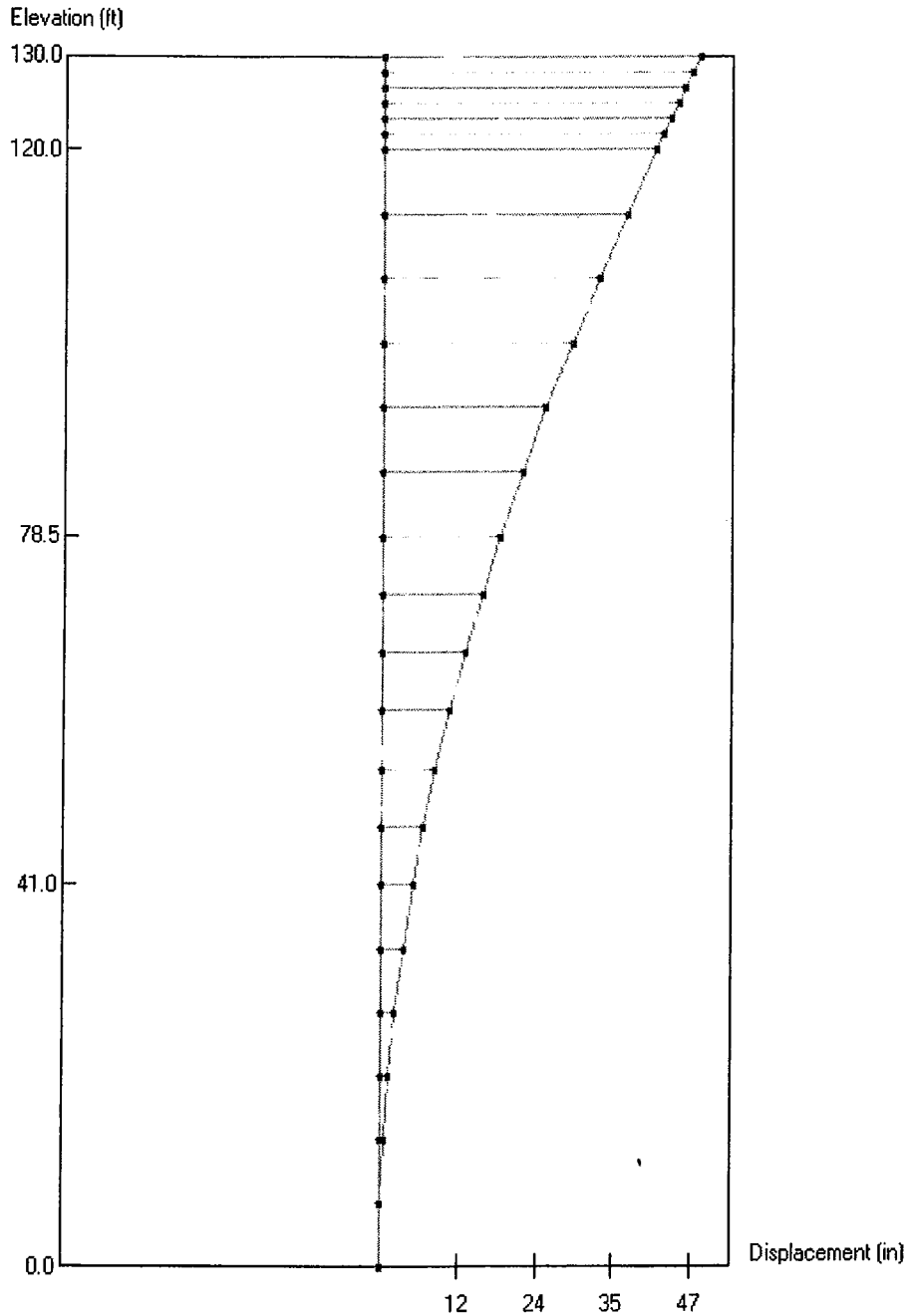
Project: Structural Analysis for 140' Monopole

Site: CT-5037 (East Hartford)

Date and Time: 5/5/2010 4:19:03 PM

Engineer: Mike De Boer

Horizontal Displacement Diagram
Max. Envelope (All Loading Cases)



File: C:\Program Files\TSTower\TSTOWER Input\CT-5037_022710_Verizon.out

Contract:

Revision: 1

Project: Structural Analysis for 140' Monopole

Site: CT-5037 (East Hartford)

Date and Time: 5/5/2010 4:19:03 PM

Engineer: Mike De Boer

Bending Moment Diagram
Max. Envelope (All Loading Cases)

