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

ORIGINAL

June 7, 2011

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

Re: **Notice of Completion of Construction Activity -**
EM-VER-057-101021 – 9 Sound Shore Drive, Greenwich, Connecticut
EM-VER-115-100115 – 229 Cheshire Road, Prospect, Connecticut
EM-VER-151-100222 – 299 Sheffield Street, Waterbury, Connecticut
EM-VER-151-100107 – 150 Mattatuck Heights, Waterbury, Connecticut
EM-VER-164-101006 – 340 Bloomfield Avenue, Windsor, Connecticut

Dear Ms. Roberts:

The purpose of this letter is to notify you that construction activity associated with 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

11113847-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

Internet: ct.gov/csc

Daniel F. Caruso

Chairman

October 25, 2010

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

RE: **EM-VER-164-101006** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 340 Bloomfield Avenue, Windsor, 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 October 6, 2010. 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

Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Donald Trinks, Mayor, Town of Windsor
Peter Souza, Town Manager, Town of Windsor
Eric Barz, Town Planner, Town of Windsor
Christopher B. Fisher, Esq., Cuddy & Feder LLP

ROBINSON & COLE

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EM-VER-164-101006

ORIGINAL

October 6, 2010

Via Hand Delivery

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

Re: **Notice of Exempt Modification – Antenna Swap**
340 Bloomfield Avenue, Windsor, Connecticut

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains wireless telecommunications antennas at the 120-foot level on the existing 148-foot tower at the above-referenced address. The tower is owned by AT&T. The Connecticut Siting Council ("Council") approved Cellco's use of the existing tower in 2004. Cellco now intends to modify its installation by replacing all twelve of its antennas with six (6) DB844G65ZAXY cellular antennas; three (3) model MG D3-800T0 PCS antennas; two (2) P65-16-XL-4 LTE antennas; and one (1) P65-16-XL-6 LTE antenna, all at the same 120-foot level on the tower. Cellco will also install six (6) antenna cable diplexers on the existing antenna platform. 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 Peter Souza, Windsor's Town Manager and Mayor Donald Trinks. The Town of Windsor 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 antennas and cable diplexers will be located at the same 120-foot level on the existing 148-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

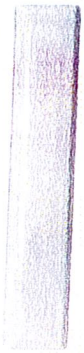
Enclosures
Copy to:
Donald Trinks, Windsor Mayor
Peter Souza, Windsor Town Manager
Sandy M. Carter

Product Specifications

ANDREW®
A CommScope Company

DB844G65ZAXY

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



- Excellent azimuth roll-off, reducing sector-to-sector interference and soft hand-offs
- Air dielectric feed system with no screws, rivets, solder, or welding in dipole feed point
- Low profile for ease of zoning approval
- Excellent upper sidelobe suppression

CHARACTERISTICS

General Specifications

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

Electrical Specifications

Frequency Band, MHz	**806–896**	**870–960**
Beamwidth, Horizontal, degrees	65	65
Gain, dBd	13.5	13.8
Gain, dBi	15.6	15.9
Beamwidth, Vertical, degrees	15.0	15.0
Beam Tilt, degrees	0	0
Upper Sidelobe Suppression (USLS), typical, dB	15	15
Null Fill, dB	20	20
Front-to-Back Ratio at 180°, dB	40	40
VSWR | Return Loss, db	1.33:1 | 17.0	1.33:1 | 17.0
Intermodulation Products, 3rd Order, 2 x 20 W, dBc	-150	-150
Input Power, maximum, watts	500	500
Polarization	Vertical	Vertical
Impedance, ohms	50	50
Lightning Protection	dc Ground	dc Ground

RYMSA WIRELESS

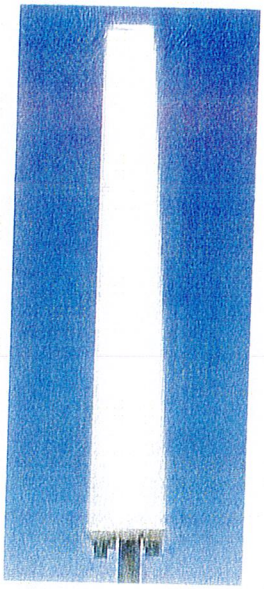
1710-2170 MHz

Model # MG D3-800TX

XPol GSM1800+PCS & UMTS Panel Antenna

Beamwidth: H 65º/V 6.5º
Gain: 16.15 dBd/18.25 dBi
Length: 52.7 in

Electrical Specifications			
Antenna model	MG D3-800TX		
Frequency range (MHz)	1710-1880	1850-1990	1920-2170
Impedance	50 ohms		
VSWR	1.4		
Polarization	±45º		
Isolation between ports (dB)	30		
Average gain (dBd/dBi)	15.7/17.8	15.9/18	16.15/18.25
Horizontal beamwidth (deg)	65º±5º		
Vertical beamwidth (deg)	6.5º±0.5º	6.3º±0.5º	6.3º±0.5º
Electrical tilt (deg)	Fixed 0º-14º		
Upper sidelobe suppression (dB)	18		
Front-to-back ratio (db) @180º±30º	30		
Polarization isolation (dB) @3 dB beamwidth	20		
Maximum power per input (w)	250		
Intermodulation products (dBc)	-150		
Connectors	2 X 7/16 female		
Connector position	Antenna bottom		



Mechanical & Environmental Specifications	
Dimensions in (mm)	52.7 x 6.3 x 3.5 (1380 x 160 x 90)
Survival wind speed mph (kph)	124 (200)
Front windload lbs (N) @100 mph/160 kph	74 (335)
Lateral windload lbs (N) @100 mph/160 kph	42 (188)
Antenna weight lbs (kg)	15 (7)
Clamps weight lbs (kg)	7.7 (3.5)
Mast mounting in (cm)	2.0 to 5.3 (50 to 135)
Radome color	Gray
Grounding	All metallic parts DC grounded
Temperature range F (ºC)	-67º to 140º (-55 to +60º)
Humidity	100%

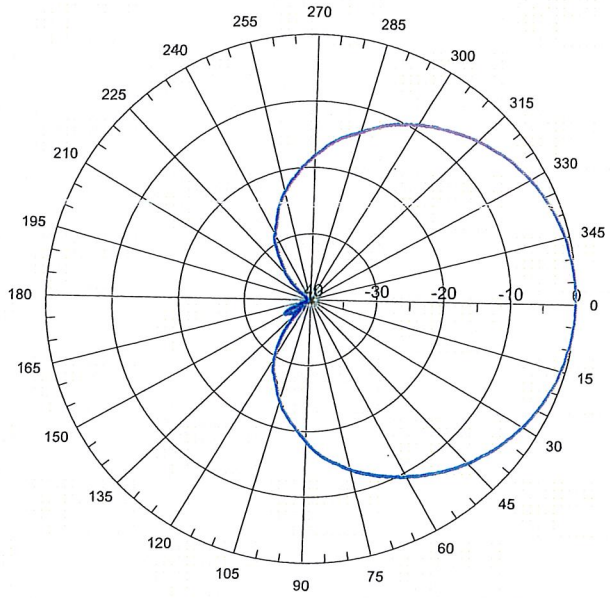
Shipping Specifications	
Dimensions in (mm)	64 x 8.8 x 6.9 (1630 x 225 x 175)
Weight lbs (kg)	27 (12.5)
Material	Cardboard and foam

1710-2170 MHz

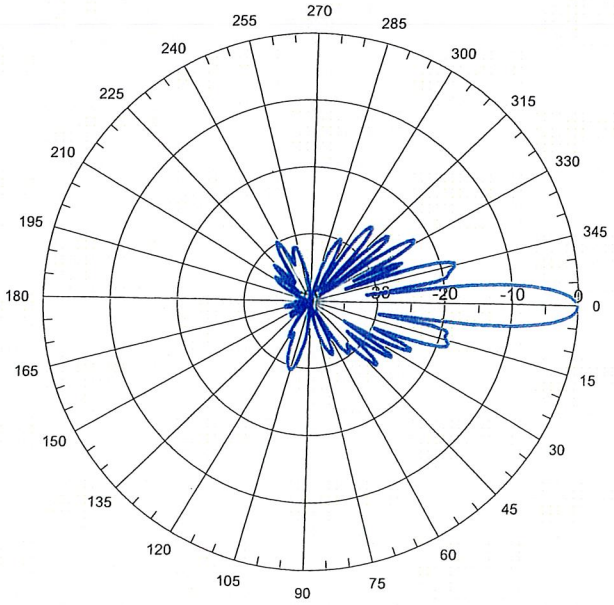
Model # MG D3-800TX

XPol GSM1800+PCS & UMTS Panel Antenna

H plane



E plane



P65-16-XL-4 | Very Low Broadband Antennas

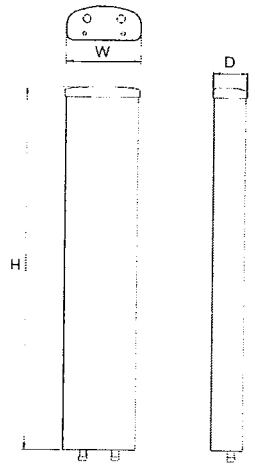
POLARIZATION: Dual linear ±45°
FREQUENCY (MHz): 698-894
HORIZONTAL BEAM WIDTH (°): 65
GAIN (dBi/dBd): 16.0/13.9
TILT: 4
LENGTH: 72"

ELECTRICAL SPECIFICATIONS*

Frequency range (MHz)	698-894	
Frequency band (MHz)	698-806	806-894
Gain (dBi/dBd)	15.5/13.4	16.0/13.9
Polarization	Dual Linear +/- 45	
Nominal Impedance (Ω)	50	
VSWR	< 1.33: 1	
Horizontal beam width, -3 dB (°)	68	65
Vertical beam width, -3 dB (°)	10.5	9.5
Side lobe suppression, vertical 1st upper (dB)	> 15	> 15
Isolation between inputs (dB)	> 30	> 30
Tracking, horizontal plane ±60° (dB)	< 2	< 2
Electrical Downtilt Range	4	
Vertical beam squint (°)	< 0.5	< 0.5
Front to back ratio (dB)	> 30	> 30
Front to back ratio, total power (dB)	> 25	> 25
Cross polar discrimination (XPD) 0° (dB)	> 15	> 15
Cross polar discrimination (XPD) ±60° (dB)	> 10	> 10
IM3, 2xTx@43dBm (dBc)	-153	
Power handling, average per input (W)	400	
Power handling, average total (W)	800	

MECHANICAL SPECIFICATIONS*

Connector	2 X 7/16 DIN Female
Connector position	Bottom
Dimensions, HxWxD, in (mm)	72" x 12" x 5" (1829 x 305 x 125)
Mounting	Pre-mounted Tilt Brackets
Weight, with brackets, lbs (kg)	44 (20)
Weight, without brackets, lbs (kg)	33 (15)
Wind load, frontal/lateral/rear side 42 m/s Cd=1.0 (N)	1380
Maximum operational wind speed, mph (m/s)	100 (45)
Survival wind speed, mph (m/s)	125 (55)
Lightning protection	DC Ground
Operating Temperature	
Radome material	PVC
Packet size, HxWxD, in (mm)	82" x 16" x 10" (2082 x 400 x 255)
Radome colour	Light Grey
Shipping weight, lbs (kg)	55 (25)
RET	N/A
Brackets	7256.00, 7454.00, 2210.00



*All specifications subject to change without notice. Please contact your Powerwave representative for complete performance data.

ANTENNA PATTERNS*

For detailed patterns visit http://www.powerwave.com/rpa/.

P65-16-XL-6 : Very Low Broadband Antennas

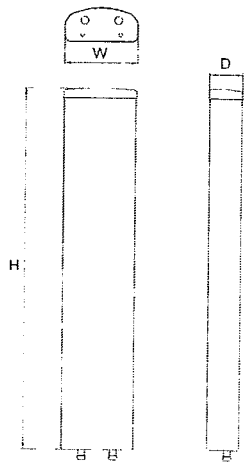
POLARIZATION: Dual linear ±45°
FREQUENCY (MHz): 698-894
HORIZONTAL BEAM WIDTH (°): 65
GAIN (dBi/dBd): 16.0/13.9
TILT: 6°
LENGTH: 1.8m (72")

ELECTRICAL SPECIFICATIONS*

Frequency range (MHz)	698-894	
Frequency band (MHz)	698-806	806-894
Gain (dBi/dBd)	15.5/13.4	16.0/13.9
Polarization	Dual Linear +/- 45	Dual Linear +/- 45
Nominal Impedance (Ω)	50	50
VSWR	< 1.33: 1	< 1.33: 1
Horizontal beam width, -3 dB (°)	68	65
Vertical beam width, -3 dB (°)	10.5	9.5
Side lobe suppression, vertical 1st upper (dB)	> 15	> 15
Isolation between inputs (dB)	> 30	> 30
Tracking, horizontal plane ±60° (dB)	< 2	< 2
Electrical Downtilt Range	6	6
Vertical beam squint (°)	< 0.5	< 0.5
Front to back ratio (dB)	> 30	> 30
Front to back ratio, total power (dB)	> 25	> 25
Cross polar discrimination (XPD) 0° (dB)	> 15	> 15
Cross polar discrimination (XPD) ±60° (dB)	> 10	> 10
IM3, 2xTx@43dBm (dBc)	-153	
Power handling, average per input (W)	400	
Power handling, average total (W)	800	

MECHANICAL SPECIFICATIONS*

Connector	2 X 7/16 DIN Female
Connector position	Bottom
Dimensions, HxWxD, in (mm)	72" x 12" x 5" (1829 x 305 x 125)
Mounting	Pre-mounted Tilt Brackets
Weight, with brackets, lbs (kg)	44 (20)
Weight, without brackets, lbs (kg)	33 (15)
Wind load, frontal/lateral/rear side 42 m/s Cd=1.0 (N)	680
Maximum operational wind speed, mph (m/s)	100 (45)
Survival wind speed, mph (m/s)	125 (55)
Lightning protection	DC Ground
Operating Temperature	
Radome material	PVC
Packet size, HxWxD, in (mm)	82" x 16" x 10" (2082 x 400 x 255)
Radome colour	Light Grey
Shipping weight, lbs (kg)	55 (25)
RET	N/A
Brackets	7256.00, 7454.00, 2210.00



*All specifications subject to change without notice. Please contact your Powerwave representative for complete performance data.

ANTENNA PATTERNS*

For detailed patterns visit http://www.powerwave.com/rpa/.

	General	Power	Density					
Site Name: Windsor 3								
Tower Height: Verizon @ 120Ft.								
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total
*Cingular GSM	2	427	151	0.0135	1900	1.0000	1.35%	
*Cingular UMTS	1	500	151	0.0079	880	0.5867	1.34%	
*T-Mobile GSM	8	126	143	0.0177	1945	1.0000	1.77%	
*T-Mobile UMTS	2	711	143	0.0250	2100	1.0000	2.50%	
*Sprint							11.41%	
*Town							8.83%	
Verizon	**3**	**313**	**120**	**0.0234**	**1970**	**1.0000**	**2.34%**	
Verizon	**9**	**313**	**120**	**0.0703**	**869**	**0.5793**	**12.14%**	
Verizon	**1**	**686**	**120**	**0.0171**	**757**	**0.4973**	**3.44%**	
								45.13%
* Source: Siting Council								

at&t
Glynn Walker
AT&T Mobility
5405 Windward Pkwy
Alpharetta, GA 30004
(770) 708-6122

GPD ASSOCIATES
Kevin Clements
12600 Deerfield Pkwy; Suite 2039
Alpharetta, GA 30004
(678) 762-3305
kclements@gpdgroup.com

GPD# 2010273.56
July 21, 2010

STRUCTURAL ANALYSIS REPORT

AT&T DESIGNATION:	**Site USID:**	**14488**
	Site FA:	**10092835**
	Site Name:	**WINDSORCENTRAL**
	AT&T Project:	**Verizon Modification 12-29-09**
VERIZON DESIGNATION:	**Site Name:**	**Windsor 3**
ANALYSIS CRITERIA:	**Codes:**	**TIA/EIA-222-F & 2003 IBC** **80-mph with 0" ice** **69-mph with 1/2" ice**
SITE DATA:		**340 Bloomfield Avenue, Windsor, CT 06095, Hartford County** **Latitude 41° 51' 8.964" N, Longitude 72° 39' 38.159" W** **148' Summit Monopole**

Mr. Walker,

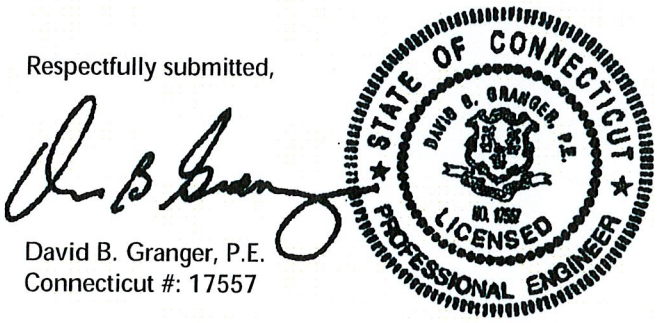
GPD is pleased to submit this Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the addition of the following proposed loading configuration:

Elev. 120' (6) Decibel DB844G65ZAXY Antennas on an existing 14' LP Platform w/ (6) existing 1-5/8" internal coax
(2) Powerwave P65-16-XL-4_2 Antennas on the same mount w/ (2) existing 1-5/8" internal coax
(1) Powerwave P65-16-XL-6_2 Antenna on the same mount w/ (1) existing 1-5/8" internal coax
(3) Rymsa MG D3-800T2 Antennas on the same mount w/ (3) existing 1-5/8" internal coax
(6) RFS FD9R6004/2C-3L Diplexers mounted behind the antennas

Based on our analysis we have determined the designs of the **tower and its foundation are sufficient** for the proposed, existing, and reserved loadings as referenced in Appendix A.

We at GPD appreciate the opportunity of providing our continuing professional services to you and AT&T. If you have any questions please do not hesitate to call.

Respectfully submitted,



David B. Granger, P.E.
Connecticut #: 17557

SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing structure is capable of carrying the proposed loading configuration as specified by Verizon to AT&T. This report was commissioned by Mr. Glynn Walker of AT&T.

TOWER SUMMARY AND RESULTS

Member	Capacity	Results
Monopole	67.8%	Pass
Anchor Rods	57.4%	Pass
Base Plate	57.6%	Pass
Foundation	67.6%	Pass

ANALYSIS METHOD

RISA Tower (Version 5.4.1.8), a commercially available software program, was used to create a three-dimensional model of the tower and calculate primary member stresses for various dead, live, wind, and ice load cases. Selected output from the analysis is included in Appendix B. The following table details the information provided to complete this structural analysis. This analysis is solely based on this information and is being completed without the benefit of a detailed site visit.

DOCUMENTS PROVIDED

Document	Remarks	Source
Preliminary Tower Summary	Verizon Co-location document	Siterra
Site Lease Application	Verizon Application, dated 12/8/09	Siterra
Previous Structural Analysis	GPD Project #: 2010261.42 Rev. 1, dated 2/4/10	Siterra

ASSUMPTIONS

This structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the tower. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. GPD has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The tower shaft sizes and shape are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The antenna configuration is as supplied and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements
3. Some assumptions are made regarding antennas and mount sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type and industry practice.
4. All mounts. If applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed. This analysis is limited to analyzing the tower only.
5. The soil parameters are as per data supplied or as assumed and stated in the calculations. If no data is available, the foundation system is not verified.
6. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
7. All welds and connections are assumed to develop at least the member capacity, unless determined otherwise and explicitly stated in this report.
8. Tower Mounted Amplifiers are assumed to be installed behind antennas.
9. All existing loading was obtained from the previous analysis by GPD Project #: 2010261.42 Rev. 1 dated 2/4/10, site photos, and the provided preliminary tower summary and is assumed to be accurate.
10. Foundations are properly designed and constructed to resist the original design loads indicated in the documents provided.
11. Loading interpreted from photos is accurate to ±5' AGL, antenna size accurate to ±3.3 sf, and coax equal to the number of existing antennas without reserve.

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

DISCLAIMER OF WARRANTIES

GPD ASSOCIATES has not performed a site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD ASSOCIATES in connection with this Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. All tower components have been assumed to only resist dead loads when no other loads are applied. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

GPD ASSOCIATES does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD ASSOCIATES provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD ASSOCIATES, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

GPD ASSOCIATES makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD ASSOCIATES 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 GPD ASSOCIATES pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDIX A

Tower Analysis Summary Form

Tower Analysis Summary Form

General Info

Site Name	WINDSORCENTRAL
Site Number	14488
FA Number	10092835
Date of Analysis	7/21/2010
Company Performing Analysis	GPD

The information contained in this summary report is not to be used independently from the PE stamped tower analysis.

Tower Info	Description	Date
Tower Type (G, SST, MP)	MP	
Tower Height (top of steel AGL)	148'	
Tower Manufacturer	Summit	
Tower Model	n/a	
Tower Design	PJF Project #: 29200-1655	
Foundation Design	n/a	
Geotech Report	n/a	
Tower Mapping	n/a	
Previous Structural Analysis	PJF Project #: A00007-T144	7/26/2007
Previous Structural Analysis	GPD Project #: 2010261.42 Rev. 1	2/4/2010
Boring Log Review	n/a	

Design Parameters

Design Code Used	TIA/EIA-222-F 2003 IBC
Location of Tower (County, State)	Hartford, CT
Basic Wind Speed (mph)	80-fastest
Ice Thickness (in)	0.5
Structure Classification (I, II, III)	
Exposure Category (B, C, D)	
Topographic Category (1 to 5)	

Analysis Results (% Maximum Usage)

Existing/Reserved + Future + Proposed Condition	
Tower	67.8%
Tower Base	57.6%
Foundation	67.6%

Steel Yield Strength (ksi)

Pole	65
Base Plate	55
Anchor Rods	75

Existing / Reserved Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Internal/External
Police Station	148	154	1	Dipole	Unknown	8' Dipole		1	Unknown	13' LP Platform	1	Unknown	1-5/8"	Internal
AT&T Mobility	148	151	6	Panel	Kathrein	800 10121	90/210/330			on the same mount	12	Unknown	1-5/8"	Internal
AT&T Mobility	148	151	6	TMA	Powerwave	LGP 21401				behind the antennas				
T-Mobile	140	140	3	Panel	Unknown	72"x12"x3" Antennas		1	Unknown	13' LP Platform	6	Unknown	1-5/8"	Internal
T-Mobile	140	140	3	TMA	Unknown	TMA				behind the antennas				
Verizon	120	120	6	Panel	Antel	RWA-80014	90/210/330	1	Unknown	14' LP Platform	6	Unknown	1-5/8"	Internal
Verizon	120	120	6	Panel	Decibel	948F85T2E-M_2				on the same mount	6	Unknown	1-5/8"	Internal
Police Station	105	109	1	Omni	Unknown	8' Omni		1	Unknown	14' LP Platform	1	Unknown	7/8"	Internal
Police Station	105	109	1	Yagi	Unknown	8' Yagi				on the same mount	1	Unknown	7/8"	Internal
Sprint	105	105	3	Panel	Unknown	48"x8"x4" Antenna				on the same mount	3	Unknown	1-5/8"	Internal
Sprint	105	105	3	Panel	Unknown	52"x11"x5" Antenna				on the same mount	3	Unknown	1-5/8"	Internal
Police Station	68	68	1	Yagi	Unknown	5' Yagi		3	Unknown	6' Side Arm Mount	1	Unknown	7/8"	Internal
Police Station	68	66	1	Dipole	Unknown	8' Dipole				on the same mount	1	Unknown	7/8"	Internal
Police Station	65	65	1	Dish	Unknown	2' HP		1	Unknown	Pipe Mount	1	Unknown	7/8"	Internal
Unknown	45	45	1	GPS	Unknown	GPS		1	Unknown	3' Side Arm Mount	1	Unknown	1/2"	Internal

Note: (6) 948F85T2E-M_2 and (6) RWA-80014 Antennas at 120' shall be removed prior to the installation of the proposed loading and were not considered in this analysis. All remaining loading shall be reused.

Proposed Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Internal/External
Verizon	120	120	6	Panel	Decibel	DB844G65ZAXY	90/210/330			on the existing mount				
Verizon	120	120	2	Panel	Powerwave	P65-16-XL-4_2	90/330			on the same mount				
Verizon	120	120	1	Panel	Powerwave	P65-16-XL-6_2	210			on the same mount				
Verizon	120	120	3	Panel	Rymsa	MG D3-800T2	90/210/330			on the same mount				
Verizon	120	120	6	Diplexer	RFS	FD9R6004/2C-3L				behind the antennas				

Note: The proposed loading is in addition to the remaining loading at the same elevation.

Future Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Internal/External
AT&T Mobility	148	151	3	Panel	Kathrein	800 10121				on the existing mount	3	LDF7-50A	1-5/8"	Internal

Note: The future loading is in addition to the existing loading at the same elevation.

APPENDIX B

RISA Tower Output File

RISATower	Job	Page
	14488 WINDSORCENTRAL	1 of 4
GPD Group 520 South Main St. Akron, OH 44311 Phone: 330-572-2100 FAX: 330-572-2102	Project 2010273.56	Date 12:27:45 07/21/10
	Client AT&T Mobility	Designed by lrife

Tower Input Data

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

Tower is located in Hartford County, Connecticut.
Basic wind speed of 80 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 69 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF7-50A (1-5/8 FOAM)	A	No	Inside Pole	148.00 - 8.00	16	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	B	No	Inside Pole	140.00 - 8.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	120.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	B	No	Inside Pole	105.00 - 8.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF5-50A (7/8 FOAM)	A	No	Inside Pole	105.00 - 8.00	2	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
LDF5-50A (7/8 FOAM)	A	No	Inside Pole	68.00 - 8.00	2	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
LDF5-50A (7/8 FOAM)	A	No	Inside Pole	65.00 - 8.00	1	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
LDF4-50A (1/2 FOAM)	A	No	Inside Pole	45.00 - 8.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Valmont 13' Platform w/o rails (GPD)	C	None		0.0000	148.00	No Ice	24.80	24.80	1500.00
						1/2" Ice	26.20	26.20	2500.00
(3) 800 10121	A	From Centroid-Face	4.00 0.00 3.00	30.0000	148.00	No Ice	5.46	3.29	46.00
						1/2" Ice	5.88	3.64	78.91
(3) 800 10121	B	From Centroid-Face	4.00 0.00 3.00	30.0000	148.00	No Ice	5.46	3.29	46.00
						1/2" Ice	5.88	3.64	78.91

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(3) 800 10121	C	From Centroid-Face	4.00 0.00 3.00	30.0000	148.00	No Ice 1/2" Ice	5.46 5.88	3.29 3.64	46.00 78.91
(2) LGP21401	A	From Centroid-Face	4.00 0.00 3.00	30.0000	148.00	No Ice 1/2" Ice	0.00 0.00	0.23 0.31	10.00 21.26
(2) LGP21401	B	From Centroid-Face	4.00 0.00 3.00	30.0000	148.00	No Ice 1/2" Ice	0.00 0.00	0.23 0.31	10.00 21.26
(2) LGP21401	C	From Centroid-Face	4.00 0.00 3.00	30.0000	148.00	No Ice 1/2" Ice	0.00 0.00	0.23 0.31	10.00 21.26
8' Dipole	B	From Centroid-Face	4.00 0.00 6.00	0.0000	148.00	No Ice 1/2" Ice	2.40 3.19	2.40 3.19	15.00 32.51
Valmont 13' Platform w/o rails (GPD)	C	None		0.0000	140.00	No Ice 1/2" Ice	24.80 26.20	24.80 26.20	1500.00 2500.00
72" x 12" x 3"	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	8.40 8.95	2.95 3.38	30.00 69.02
72" x 12" x 3"	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	8.40 8.95	2.95 3.38	30.00 69.02
72" x 12" x 3"	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	8.40 8.95	2.95 3.38	30.00 69.02
TMA	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	0.00 0.00	0.12 0.17	1.20 3.05
TMA	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	0.00 0.00	0.12 0.17	1.20 3.05
TMA	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	0.00 0.00	0.12 0.17	1.20 3.05
14' LP Platform	C	None		0.0000	120.00	No Ice 1/2" Ice	35.00 45.00	35.00 45.00	2000.00 2250.00
(2) DB844G65ZAXY	A	From Centroid-Face	4.00 0.00 0.00	30.0000	120.00	No Ice 1/2" Ice	4.67 5.05	3.73 4.10	16.00 48.76
(2) DB844G65ZAXY	B	From Centroid-Face	4.00 0.00 0.00	30.0000	120.00	No Ice 1/2" Ice	4.67 5.05	3.73 4.10	16.00 48.76
(2) DB844G65ZAXY	C	From Centroid-Face	4.00 0.00 0.00	30.0000	120.00	No Ice 1/2" Ice	4.67 5.05	3.73 4.10	16.00 48.76
P65-16-XL-4_2	A	From Centroid-Face	4.00 2.00 0.00	30.0000	120.00	No Ice 1/2" Ice	8.40 8.95	4.12 4.56	33.00 77.53
P65-16-XL-4_2	B	From Centroid-Face	4.00 2.00 0.00	30.0000	120.00	No Ice 1/2" Ice	8.40 8.95	4.12 4.56	33.00 77.53
P65-16-XL-6_2	C	From Centroid-Face	4.00 2.00 0.00	30.0000	120.00	No Ice 1/2" Ice	8.40 8.95	4.12 4.56	33.00 77.53
MG D3-800T2	A	From Centroid-Fa	4.00 -2.00	30.0000	120.00	No Ice 1/2" Ice	3.33 3.67	2.14 2.46	17.60 37.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
		ce	0.00						
MG D3-800T2	B	From Centroid-Face	4.00 -2.00 0.00	30.0000	120.00	No Ice 1/2" Ice	3.33 3.67	2.14 2.46	17.60 37.11
MG D3-800T2	C	From Centroid-Face	4.00 -2.00 0.00	30.0000	120.00	No Ice 1/2" Ice	3.33 3.67	2.14 2.46	17.60 37.11
(2) FD9R6004	A	From Centroid-Face	4.00 0.00 0.00	30.0000	120.00	No Ice 1/2" Ice	0.00 0.00	0.25 0.32	3.00 6.59
(2) FD9R6004	B	From Centroid-Face	4.00 0.00 0.00	30.0000	120.00	No Ice 1/2" Ice	0.00 0.00	0.25 0.32	3.00 6.59
(2) FD9R6004	C	From Centroid-Face	4.00 0.00 0.00	30.0000	120.00	No Ice 1/2" Ice	0.00 0.00	0.25 0.32	3.00 6.59
14' LP Platform	C	None		0.0000	105.00	No Ice 1/2" Ice	35.00 45.00	35.00 45.00	2000.00 2250.00
48"x8"x4" Panel	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice	3.73 4.10	2.09 2.39	40.00 61.68
48"x8"x4" Panel	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice	3.73 4.10	2.09 2.39	40.00 61.68
48"x8"x4" Panel	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice	3.73 4.10	2.09 2.39	40.00 61.68
52"x11"x5" Panels	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice	5.56 5.97	2.73 3.06	15.00 45.98
52"x11"x5" Panels	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice	5.56 5.97	2.73 3.06	15.00 45.98
52"x11"x5" Panels	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice	5.56 5.97	2.73 3.06	15.00 45.98
8' Omni	A	From Centroid-Leg	4.00 0.00 4.00	0.0000	105.00	No Ice 1/2" Ice	1.60 2.42	1.60 2.42	20.00 32.45
8' Yagi	C	From Centroid-Leg	4.00 0.00 4.00	0.0000	105.00	No Ice 1/2" Ice	1.60 2.42	1.60 2.42	35.00 47.45
Sabre 6' Side arm	A	From Leg	3.00 0.00 0.00	0.0000	68.00	No Ice 1/2" Ice	4.10 5.89	10.39 15.44	156.00 202.80
Sabre 6' Side arm	B	From Leg	3.00 0.00 0.00	0.0000	68.00	No Ice 1/2" Ice	4.10 5.89	10.39 15.44	156.00 202.80
Sabre 6' Side arm	C	From Leg	3.00 0.00 0.00	0.0000	68.00	No Ice 1/2" Ice	4.10 5.89	10.39 15.44	156.00 202.80
5' Yagi	B	From Leg	6.00 0.00 0.00	0.0000	68.00	No Ice 1/2" Ice	1.00 1.39	1.00 1.39	25.00 32.86
8' Dipole	C	From Leg	6.00 0.00 -2.00	0.0000	68.00	No Ice 1/2" Ice	2.40 3.19	2.40 3.19	15.00 32.51

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
4.5" Dia x 4' Dish Mount	B	From Leg	0.50	0.00	0.0000	65.00	No Ice	1.32	1.32	43.20
							1/2" Ice	1.58	1.58	56.19
Sabre C10-119-003 3' Sidearm (1)	C	From Leg	1.50	0.00	0.0000	45.00	No Ice	1.22	6.30	160.00
							1/2" Ice	1.85	8.61	200.00
GPS	C	From Leg	3.00	0.00	0.0000	45.00	No Ice	0.17	0.17	0.87
							1/2" Ice	0.24	0.24	3.85

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
2' HP	C	Paraboloid w/Shroud (HP)	From Leg	1.00	0.00	0.0000		65.00	2.00	No Ice	3.14	20.00
										1/2" Ice	3.41	50.00

Critical Deflections and Radius of Curvature - Service Wind

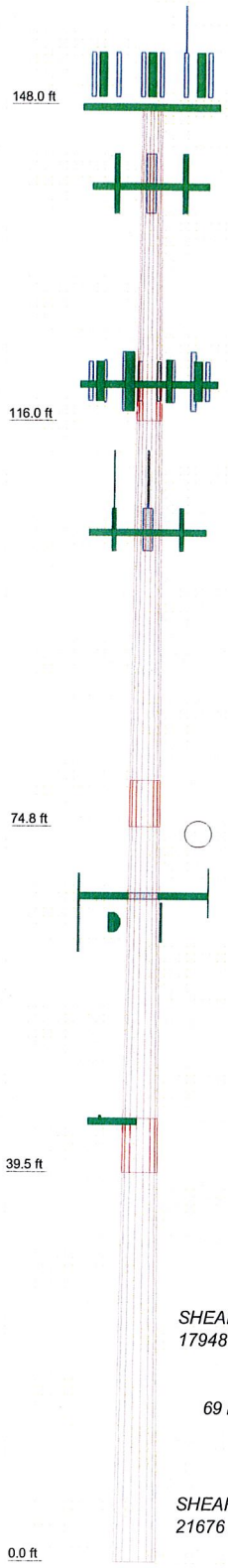
Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
148.00	Valmont 13' Platform w/o rails (GPD)	33	27.989	1.5807	0.0011	38967
140.00	Valmont 13' Platform w/o rails (GPD)	33	25.353	1.5576	0.0008	24354
120.00	14' LP Platform	33	18.969	1.4607	0.0002	7062
105.00	14' LP Platform	33	14.588	1.3187	0.0001	5653
68.00	Sabre 6' Side arm	33	6.005	0.8345	0.0005	4042
65.00	2' HP	33	5.474	0.7947	0.0005	3978
45.00	Sabre C10-119-003 3' Sidearm (1)	33	2.650	0.5366	0.0004	3680

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	148 - 116	Pole	TP30.241x24x0.2188	1	-7469.59	1057260.91	25.0	Pass
L2	116 - 74.75	Pole	TP37.847x29.0721x0.25	2	-14724.30	1512728.33	61.3	Pass
L3	74.75 - 39.5	Pole	TP44.222x36.4208x0.3125	3	-21764.80	2208860.89	67.2	Pass
L4	39.5 - 0	Pole	TP51.3x42.5243x0.375	4	-32933.70	3151118.56	67.8	Pass
							Summary	
						Pole (L4)	67.8	Pass
						RATING =	**67.8**	**Pass**

APPENDIX C

Tower Elevation Drawing



Section	1	2	3	4
Length (ft)	32.00	45.00	40.00	45.00
Number of Sides	18	18	18	18
Thickness (in)	0.2188	0.2500	0.3125	0.3750
Socket Length (ft)	3.75	4.75	5.50	
Top Dia (in)	24.0000	29.0721	36.4208	42.5243
Bot Dia (in)	30.2410	37.8470	44.2220	51.3000
Grade	A607-65			
Weight (lb)	2033.9	4035.1	5401.4	8481.8

Total Weight: 19952.2

AXIAL
40281 lb

SHEAR
17948 lb

MOMENT
1857525 lb-ft

TORQUE 1001 lb-ft
69 mph WIND - 0.5000 in ICE

AXIAL
32946 lb

SHEAR
21676 lb

MOMENT
2203920 lb-ft

TORQUE 1004 lb-ft
REACTIONS - 80 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Valmont 13' Platform w/o rails (GPD)	148	MG D3-800T2	120
(3) 800 10121	148	MG D3-800T2	120
(3) 800 10121	148	(2) FD9R6004	120
(3) 800 10121	148	(2) FD9R6004	120
(2) LGP21401	148	(2) FD9R6004	120
(2) LGP21401	148	14' LP Platform	105
(2) LGP21401	148	48"x8"x4" Panel	105
8' Dipole	148	48"x8"x4" Panel	105
Valmont 13' Platform w/o rails (GPD)	140	48"x8"x4" Panel	105
72" x 12" x 3"	140	52"x11"x5" Panels	105
72" x 12" x 3"	140	52"x11"x5" Panels	105
72" x 12" x 3"	140	52"x11"x5" Panels	105
TMA	140	8' Omni	105
TMA	140	8' Yagi	105
TMA	140	Sabre 6' Side arm	68
14' LP Platform	120	Sabre 6' Side arm	68
(2) DB844G65ZAXY	120	Sabre 6' Side arm	68
(2) DB844G65ZAXY	120	5' Yagi	68
(2) DB844G65ZAXY	120	8' Dipole	68
P65-16-XL-4_2	120	4.5" Dia x 4' Dish Mount	65
P65-16-XL-4_2	120	2' HP	65
P65-16-XL-6_2	120	GPS	45
MG D3-800T2	120	Sabre C10-119-003 3' Sidearm (1)	45

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 67.8%

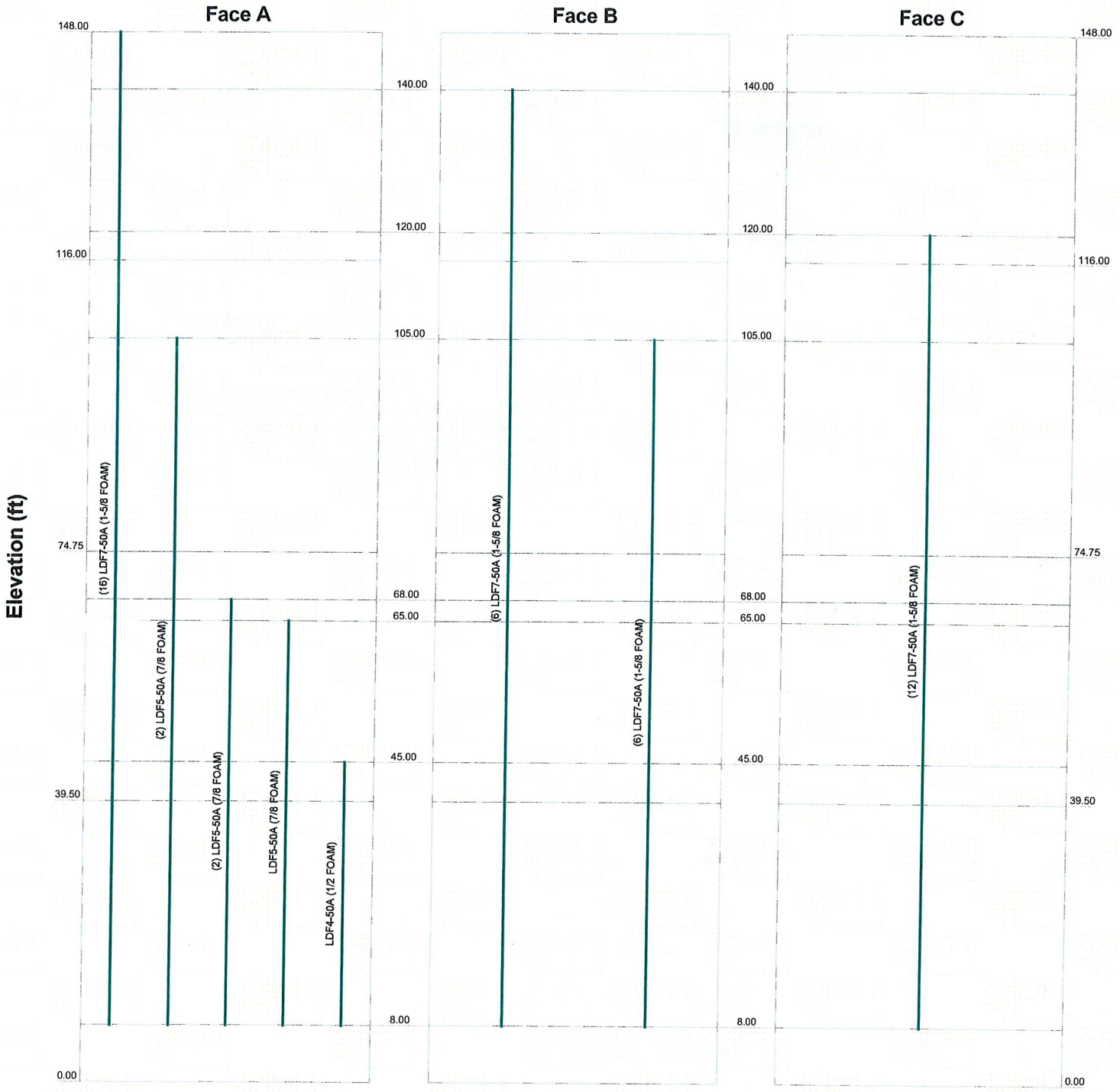
GPD GROUP
Consulting Engineers

GPD Group
520 South Main St.
Akron, OH 44311
Phone: 330-572-2100
FAX: 330-572-2102

Job: *14488 WINDSORCENTRAL*			
Project: *2010273.56*			
Client: AT&T Mobility	Drawn by: lrife	App'd:	
Code: TIA/EIA-222-F	Date: 07/21/10	Scale: NTS	
Path: N:\2010\2010273\56\RISA\14488.eri		Dwg No. E-1	

Feedline Distribution Chart
0' - 148'

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



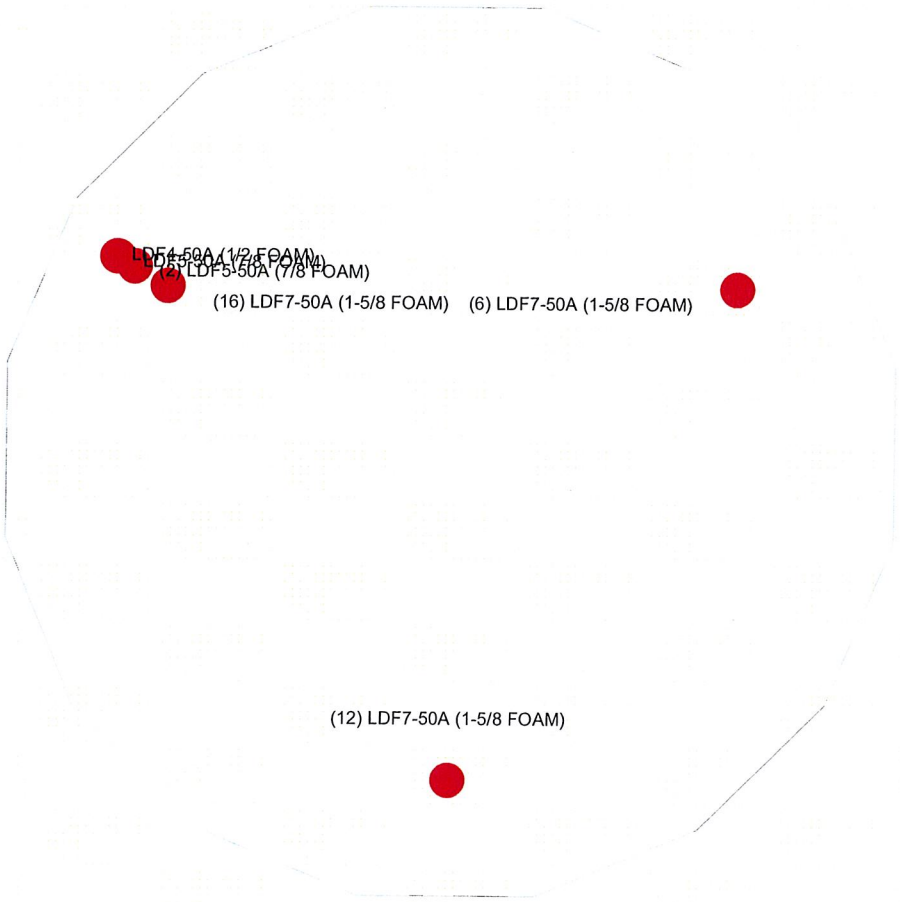
GPD GROUP
Consulting Engineers

GPD Group
520 South Main St.
Akron, OH 44311
Phone: 330-572-2100
FAX: 330-572-2102

Job: ***14488 WINDSORCENTRAL***			
Project: ***2010273.56***			
Client: AT&T Mobility	Drawn by: lrife	App'd:	
Code: TIA/EIA-222-F	Date: 07/21/10	Scale: NTS	
Path: N:\2010\2010273\56\RISA\14488.eri		Dwg No. E-7	

Feedline Plan

Round _____ Flat _____ App In Face _____ App Out Face _____



GPD GROUP
Consulting Engineers

GPD Group
520 South Main St.
Akron, OH 44311
Phone: 330-572-2100
FAX: 330-572-2102

Job: ***14488 WINDSORCENTRAL***			
Project: ***2010273.56***			
Client: AT&T Mobility	Drawn by: lrife	App'd:	
Code: TIA/EIA-222-F	Date: 07/21/10	Scale: NTS	
Path: N:\2010\2010273\56\RISA\14488.eri		Dwg No. E-7	

APPENDIX D

Anchor Rod & Base Plate Analysis

GPD ASSOCIATES

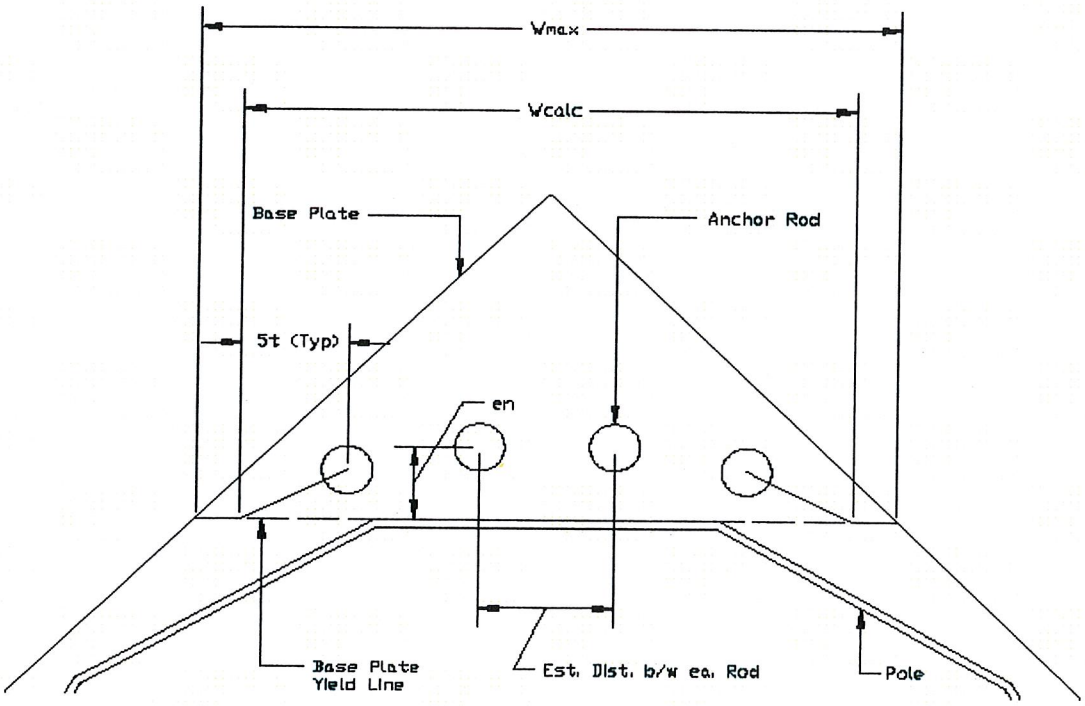
Anchor Rod and Base Plate Stresses
14488 WINDSORCENTRAL
2010273.56

Overturning Moment =	2203.92	k*ft
Axial Force =	32.95	k
Shear Force =	21.68	k

Acceptable Stress Ratio =	105.0%

Anchor Rods		
Pole Diameter =	51.3	in
Number of Rods =	16	
Type =	Upset Rod	
Rod Yield Strength (Fy) =	75	ksi
ASIF =	1.333	
Rod Circle =	58	in
Rod Diameter =	2.25	in
Net Tensile Area =	3.25	in^2
Max Tension on Rod =	111.85	kips
Max Compression on Rod =	115.97	kips
Allow. Rod Force =	195.00	kips
Anchor Rod Capacity =	57.4%	OK

Base Plate		
Plate Strength (Fy) =	55	ksi
Plate Thickness =	2.75	in
Plate Width =	57	in
Est. Dist. b/w ea. Rod =	6	in
w_{calc} =	45.243	in
w_{max} =	29.310	in
w =	29.31	in
S =	36.94	in^3
fb =	31.67	ksi
Fb =	55	ksi
Base Plate Capacity =	57.6%	OK



APPENDIX E

Foundation Analysis

CAISSON ANALYSIS WORKSHEET

GPD ASSOCIATES

Client:	AT&T Mobility	Job No.:	2010273.56		
Site ID:	14488	Sheet No:	1	Of	1
Site Name:	WINDSORCENTRAL	Made By:	LR	Date:	7/21/2010
Location:	Hartford County, CT	Chk'd By:		Date:	
Loading Type:	Wind	Code:	F		

FOUNDATION DATA

Diameter =	7	ft
Length =	33	ft
Rebar Size =	#11	
# of bars =	20	
Tie Size =	#5	
Clear Cover =	4	inches
Edge to Bar Center =	5.33	inches
f'c =	3	ksi

RISA Reactions (Service)

Moment =	2203.92	ft-k
Axial =	32.95	kips
Shear =	21.68	kips

LPILE TYPE 2 ANALYSIS FOR REINFORCING CAPACITY

Mn =	66427.44	in-k
Mn =	5535.62	ft-k
Load Factor =	1.3	
ϕ (flexure) =	0.9	
ϕMn/LF =	3832.35	ft-k

MOMENT FROM CAISSON PROGRAM USING ADJUSTED S.F. AND ACTUAL CAISSON LENGTH

Moment = 2436.2 ft-k (max. moment along caisson)

REINFORCING STEEL CAPACITY

$$\text{Capacity} = \frac{\text{Moment from Caisson}}{\phi\text{Mn/LF}} = \frac{2436.20 \text{ ft-k}}{3832.35 \text{ ft-k}} = 63.6\% \quad \text{O.K.}$$

SOIL CAPACITY FROM CAISSON PROGRAM USING ADDITIONAL SAFETY FACTORS

ADDITIONAL SAFETY FACTOR FROM CAISSON = 2.96

$$\text{Capacity} = \frac{\text{Safety Factor of 2}}{\text{Additional Safety Factor}} = \frac{2.00}{2.96} = 67.6\% \quad \text{O.K.}$$

CAISSON Version 4.46 Wed Jul 21 12:37:42 2010
U.W. Short Course - 1998

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**************************************************************************
*                                                                        *
*  PIER FOUNDATIONS ANALYSIS AND DESIGN - (C) 1995, POWER LINE SYSTEMS, INC.*
*                                                                        *
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*** ANALYSIS IDENTIFICATION : 14488 WINDSORCENTRAL
NOTES : 2010273.56

*** PIER PROPERTIES CONCRETE STRENGTH (ksi) = 3.00 STEEL STRENGTH (ksi) = 60.00
DIAMETER (ft) = 7.000 DISTANCE FROM TOP OF PIER TO GROUND LEVEL (ft) = 0.50

*** SOIL PROPERTIES

LAYER	TYPE	THICKNESS (ft)	DEPTH AT TOP OF LAYER (ft)	DENSITY (pcf)	CU (psf)	KP	PHI (degrees)
1	C	2.00	0.00	100.0	0.0		
2	C	3.00	2.00	37.6	0.0		
3	S	7.00	5.00	55.0		3.690	35.00
4	S	4.00	12.00	50.0		3.124	31.00
5	C	19.00	16.00	50.0	800.0		

*** DESIGN (FACTORED) LOADS AT TOP OF PIER MOMENT (ft-k) = 2203.9 VERTICAL (k) = 33.0 SHEAR (k) = 21.7
ADDITIONAL SAFETY FACTOR AGAINST SOIL FAILURE = 2.96

*** CALCULATED PIER LENGTH (ft) = 33.000

*** CHECK OF SOILS PROPERTIES AND ULTIMATE RESISTING FORCES ALONG PIER

TYPE	TOP OF LAYER BELOW TOP OF PIER (ft)	THICKNESS (ft)	DENSITY (pcf)	CU (psf)	KP	FORCE (k)	ARM (ft)
C	0.50	2.00	100.0	0.0		0.00	1.50
C	2.50	3.00	37.6	0.0		0.00	4.00
S	5.50	7.00	55.0		3.690	274.09	9.44
S	12.50	4.00	50.0		3.124	209.36	14.58
C	16.50	3.57	50.0	800.0		159.97	18.29
C	20.07	12.93	50.0	800.0		-579.23	26.54

*** SHEAR AND MOMENTS ALONG PIER

DISTANCE BELOW TOP OF PIER (ft)	WITH THE ADDITIONAL SAFETY FACTOR SHEAR (k)	WITH THE ADDITIONAL SAFETY FACTOR MOMENT (ft-k)	WITHOUT ADDITIONAL SAFETY FACTOR SHEAR (k)	WITHOUT ADDITIONAL SAFETY FACTOR MOMENT (ft-k)
0.00	64.2	6803.3	21.7	2298.4
3.30	64.2	7015.1	21.7	2370.0
6.60	34.9	7211.3	11.8	2436.2
9.90	-83.7	7143.5	-28.3	2413.4
13.20	-242.8	6609.7	-82.0	2233.0
16.50	-419.3	5527.2	-141.6	1867.3
19.80	-567.1	3899.7	-191.6	1317.5

23.10	-443.5	2195.4	-149.8	741.7
26.40	-295.7	975.7	-99.9	329.6
29.70	-147.8	243.9	-49.9	82.4
33.00	0.0	0.0	0.0	0.0

*** TOTAL REINFORCEMENT PCT = 0.32 REINFORCEMENT AREA (in^2) = 17.73
*** USABLE AXIAL CAP. (k) = 33.0 USABLE MOMENT CAP. (ft-k) = 2821.6

*** US Standard Re-Bars (Select one of the following):

89	BARS #4	(AREA = 0.20 in^2	DIA = 0.500 in)	AT SPACING (in) =	2.61
58	BARS #5	(AREA = 0.31 in^2	DIA = 0.625 in)	AT SPACING (in) =	4.01
41	BARS #6	(AREA = 0.44 in^2	DIA = 0.750 in)	AT SPACING (in) =	5.67
30	BARS #7	(AREA = 0.60 in^2	DIA = 0.875 in)	AT SPACING (in) =	7.75
23	BARS #8	(AREA = 0.79 in^2	DIA = 1.000 in)	AT SPACING (in) =	10.11
18	BARS #9	(AREA = 1.00 in^2	DIA = 1.128 in)	AT SPACING (in) =	12.92
14	BARS #10	(AREA = 1.27 in^2	DIA = 1.270 in)	AT SPACING (in) =	16.61
12	BARS #11	(AREA = 1.56 in^2	DIA = 1.410 in)	AT SPACING (in) =	19.37
8	BARS #14	(AREA = 2.25 in^2	DIA = 1.693 in)	AT SPACING (in) =	29.06

*** PRESSURE UNDER CAISSON DUE TO DESIGN AXIAL LOAD (psf) = 856.2