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

April 13, 2010

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

RE: **EM-VER-151-100225**- Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 1 Farmdale Drive, Waterbury, 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:

- The coax shall be configured per page 1 of the structural analysis report dated January 28, 2010 and sealed by Wm. E. Garrett, P.E.; and

- Not more than 45 days after completion of construction, the Council shall be notified in writing that the coax was configured as specified.

The proposed modifications are to be implemented as specified here and in your notice dated February 25, 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.

CSC
CONNECTICUT SITING COUNCIL

Thank you for your attention and cooperation.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/MP/laf

c: The Honorable Michael J. Jarjura, Mayor, City of Waterbury
Gil Grabeline, Zoning Enforcement Officer, City of Waterbury
American Tower Corporation

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

January 10, 2011

David Martin
Siting Analyst
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **EM-VER-151-100225 – Cellco Partnership d/b/a Verizon Wireless**
1 Farmdale Drive, Waterbury, Connecticut

Dear Mr. Martin:

On April 13, 2010, the Siting Council acknowledged receipt of Cellco's notice of intent to modify the above-referenced telecommunications facility. This modification involved the replacement of three of Cellco's existing antennas with newer model antennas.

As a condition of this acknowledgement, Cellco was required to provide the Council with a letter stating that the coax cables were installed as specified in our filing. Attached is a Tower Modification Certification Letter confirming compliance with this condition.

If you have any questions regarding any of these materials, please do not hesitate to contact me or Rachel Mayo.

Sincerely,

Kenneth C. Baldwin

Attachment
Copy to:
Sandy M. Carter
Brian Ragozzine
Mark Gauger

CENTEK engineering

Centered on Solutions℠

January 7, 2011

Mr. Mark Gauger
Verizon Wireless
99 East River Drive
East Hartford, Connecticut 06108

Re:	**Tower Modification Certification Letter**
Project:	**Verizon ~ Waterbury** 1 Farmdale Drive Waterbury, Connecticut
Tower Owner:	**American Towers** 400 Regency Forest Drive Cary, North Carolina 27518
Engineer:	**American Tower Engineering Services** 400 Regency Forest Drive Cary, North Carolina 27518
Contractor:	**Construction Services of Branford** 63-3 North Branford Road, Branford, CT 06405

Centek Project No.: 10179.CO15

Dear Mr. Gauger,

We are providing this "Tower Modification Certification Letter" with regard to the antenna upgrade by Verizon Wireless at the above referenced project.

The following are the basis for substantiating compliance with the design documents prepared by American Tower Engineering Services:

- Review of the structural analysis report prepared by American Tower Engineering Services dated 1/28/2010.
- Field observations by Centek personnel of antenna installation on 1/5/2011 confirming compliance with the above referenced documents.
- Field observations by Centek personnel of coax cable installation on 1/5/2011 confirming compliance with the above referenced documents.

The work under this Contract has been reviewed and found, to the Engineer's best knowledge, information and belief, to be completed in general compliance with the documents referenced above.

Sincerely,

STATE OF CONNECTICUT
CARLO F. CENTORE
No. 18694
LICENSED
PROFESSIONAL ENGINEER

Carlo F. Centore, PE
Principal ~Structural Engineer

CC: Rachel Mayo, Tom Nolan, Tim Parks

ROBINSON & COL

EM-VER-151-100225

KENNETH C. BALDWIN

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Direct (860) 275-8345

ORIGINAL

February 25, 2010

RECEIVED
FEB 25 2010
CONNECTICUT
SITING COUNCIL

Via Hand Delivery

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

Re: **Notice of Exempt Modification – Antenna Swap**
1 Farmdale Drive, Waterbury, Connecticut

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains fifteen (15) wireless telecommunications antennas at the 129-foot level on the existing 150-foot tower at the above-referenced address. The tower is owned by American Tower Corporation. The Council approved Cellco's use of the existing tower in 1994. Cellco now intends to modify its installation by replacing three (3) of its cellular antennas with three (3) BXA-70063/4CF LTE antennas, all at the same 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 Michael J. Jarjura, Mayor for the City of Waterbury. A copy of this letter is also being sent to Springwich Cellular Tower Holdings, 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 height of the existing tower. Cellco's new LTE antennas will be located at the same 129-foot level on the existing tower.

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

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

4. The installation of three (3) LTE 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:
Michael J. Jarjura, Waterbury Mayor
Springwich Cellular Tower Holdings
Sandy M. Carter

Slant ±45° Dual Polarized FET Panel 63° / 13 dBd
696-900 MHz

Mechanical specifications

Length	1205	mm	47.4	in
Width	285	mm	11.2	in
Depth	126	mm	5.0	in
Depth with z-bracket	166	mm	6.5	in
Weight [4]	4.5	kg	9.9	lbs
Wind Area Fore/Aft	0.36	m^2	3.9	ft^2
Wind Area Side	0.15	m^2	1.7	ft^2
Max Wind Survivability	>201	km/hr	>125	mph
Wind Load @ 100 mph (161 km/hr)				
Fore/Aft	522	N	117	lbf
Side	244	N	55	lbf

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiber-glass radome. RoHS compliant.

Mounting & Downtilting

Mounting hardware attaches to pipe diameter Ø50-160 mm; Ø2.0-6.3 in.

Mounting Bracket Kit	36210002
Downtilt Bracket Kit	36114003

Electrical specifications

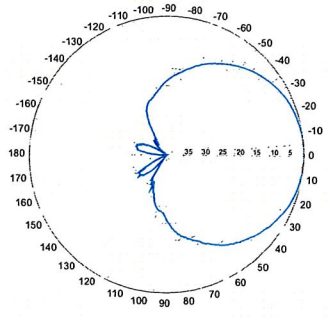
Frequency Range	696-900 MHz
Impedance	50Ω
Connector [3]	NE or E-DIN Female 2 ports / Center
VSWR [1]	≤ 1.4:1
Polarization	Slant ±45°
Isolation Between Ports [1]	< -30 dB
Gain [1]	13.0 dBd 15.0 dBi
Power Rating [2]	500 W
Half Power Angle [1]	
Horizontal Beamwidth	63°
Vertical Beamwidth	15°
Electrical downtilt [5]	0°
Null fill [1]	5%
Lightning protection	Direct ground

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

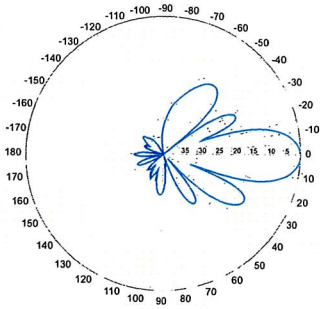
1) Typical values.
2) Power rating limited by connector only.
3) NE indicates an elongated N connector. E-DIN indicates an elongated DIN connector.
4) Antenna weight does not include brackets.
5) Add'l downtilts may be available. Check website for details.

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

Radiation-pattern
750 MHz

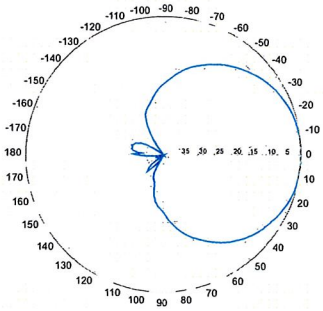


Horizontal

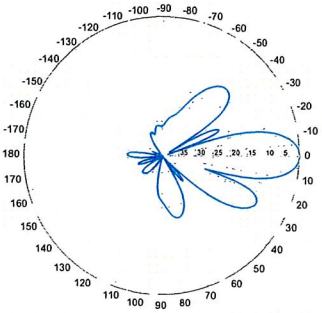


Vertical

850 MHz



Horizontal

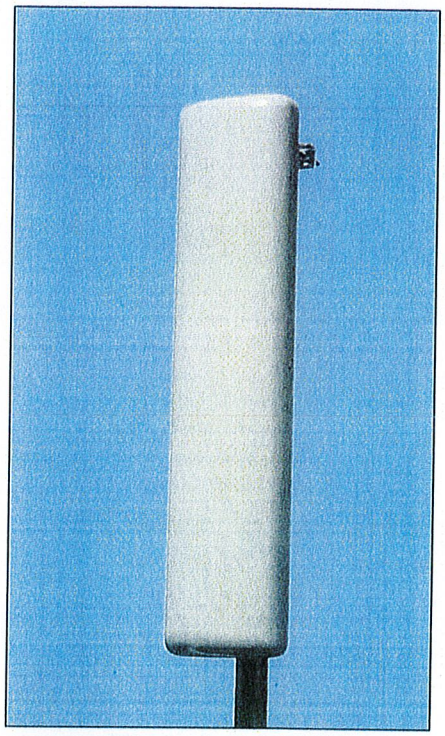


Vertical

696-900 MHz

BXA-70063/4CF __

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 band-width 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: 10/27/08

815.399.0001 • antel@antelinc.com • www.antelinc.com

Amphenol Antel, Inc. The Antenna Technology Company

	General	Power	Density					
Site Name: Waterbury								
Tower Height: Verizon @ 129Ft.								
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total
*Cingular UMTS	1	500	153	0.0077	880	0.5867	1.31%	
*Cingular GSM	8	296	153	0.0364	880	0.5867	6.20%	
*Cingular GSM	3	427	153	0.0197	1900	1.0000	1.97%	
*Arch Paging	1	1990	161	0.0276	931.19	0.6208	4.45%	
Verizon	**3**	**301**	**129**	**0.0195**	**970**	**1.0000**	**1.95%**	
Verizon	**9**	**280**	**129**	**0.0545**	**869**	**0.5793**	**9.40%**	
Verizon	**1**	**652**	**129**	**0.0141**	**757**	**0.4973**	**2.83%**	
								28.11%
* Source: Siting Council								

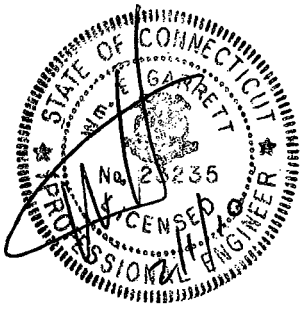
AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**150 ft ITT Meyer Type "B" Guyed Monopole**
ATC Site Name	:	**Wtbr - Waterbury, CT**
ATC Site Number	:	**302476**
Proposed Carrier	:	**Verizon**
Carrier Site Name	:	**Waterbury**
Carrier Site Number	:	**N/A**
County	:	**New Haven**
Eng. Number	:	**44395322**
Date	:	**January 28, 2010**
Usage	:	**99%**
Portholes Required	:	**No**

Submitted by:
Joseph R. Johnston, E.I.
Design.Engineer

American Tower Engineering Services
400 Regency Forest Drive
Cary, NC 27518
Phone: 919-468-0112



Introduction

The purpose of this report is to summarize results of the structural analysis performed on the 150 ft ITT Meyer Type "B" guyed monopole located off Garden Circle on Farmdale Drive, Waterbury, CT 06704, New Haven County (ATC site #302476). The tower was originally designed and manufactured per ITT Meyer Type "B" specifications (AT&T Spec AT-8935, dated April 13, 1984). Tower information was obtained from a mapping completed by Smith Cullum, Inc. (Acquisition #CT-0012, dated June 7, 2001). Tower modifications per design by SpectraSite Communications (Drawing #CT-0012-M1, dated January 12, 2005) have been completed and were considered in this analysis.

Analysis

The tower was analyzed using Powerline Systems, Inc., Software. The analysis assumes that the tower is in good, undamaged, and non-corroded condition.

Basic Wind Speed:	100 mph (3-Second Gust)
Radial Ice:	50 mph (3-Second Gust) w/ ½" ice
Code:	TIA-222-G / 2003 IBC w/ 2005 CT Supplement and 2008 CT Amendments

Antenna Loads

The following antenna loads were used in the tower analysis.

Existing Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax (in)	Carrier
150.0	6	CSS DUO4-8670	Flat Platform w/ Handrails	(12) 1 1/4	AT&T Mobility
	3	Allgon 7770.00			
	3	Powerwave LGP13519			
	3	Diplexer/Coupler			
145.0	6	Powerwave 7250.03	Flat Platform w/ Handrails	(12) 1 5/8	
129.0	6	Decibel 948F85T2E-M	Flat Platform w/ Handrails	(12) 1 5/8	Verizon
	6	Decibel DB844G65ZAXY			
38.8	1	2" x 4" GPS	Pipe	(1) 1/2	AT&T Mobility

Proposed Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax (in)	Carrier
129.0	3	Antel BXA-70063/4CF	Flat Platform w/ Handrails	(3) 1 5/8	Verizon
	3	RFS FD9R6004/1C-3L			

Double stack proposed coax on outside of monopole with existing Verizon coax for a final line configuration of 7 on 8.

Results

The maximum structure usage is: 99%

Pole Reactions	Original Design Reactions	Original Design Reactions x 1.35*	Current Analysis Reactions	% Of Design
Moment (ft-kips)	119.7	161.6	229.8	142
Shear (kips)	13.1	17.7	5.3	30
Guy Tension (kips)	N/A	N/A	38.0	N/A

(*) The design reactions are factored by 1.35 per TIA-222-G, Section 15.5.1

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Conclusion

Based on the analysis results, the structure meets the requirements per TIA-222-G and the 2003 IBC w/ 2005 CT supplements and 2008 CT amendments standards. The tower and foundation can support the existing and proposed antennas with the TX line distribution as described in this report.

If you have any questions or require additional information, please call 919-466-5696.

Standard Conditions

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

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

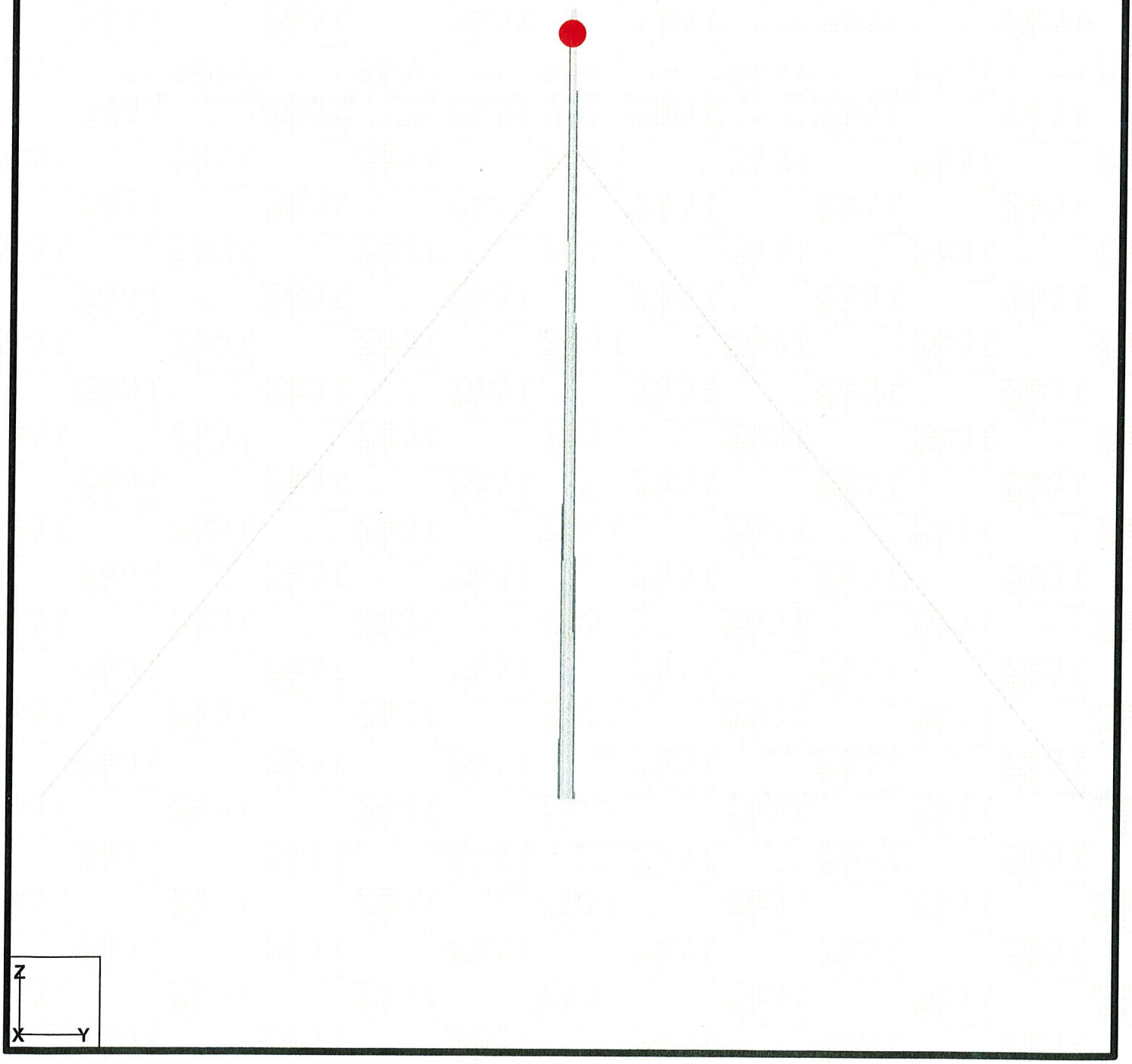
-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to ATC Engineering Services and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume 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, assume that their capacity has not significantly changed from the "as new" condition.

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

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

American Tower Corp., Project: "302476-wtbr-waterbury, ct-verizon-44395322"
PLS-POLE Version 9.23, 10:36:24 AM Monday, February 01, 2010
Undeformed geometry displayed



Project Name : 302476 - Wtbr-Waterbury, CT-Verizon-44395322
Project Notes: 150' Guyed ITT Meyer AT-8935, Type "B" Monopole
Project File : s:\l2 - atc\302476\302476-wtbr-waterbury, ct-verizon-44395322.pol
Date run : 10:36:37 AM Monday, February 01, 2010
by : PLS-POLE Version 9.23
Licensed to : American Tower Corp.

Successfully performed nonlinear analysis

The model has 0 warnings.

Loads from file: s:\l2 - atc\302476\302476-wtbr-waterbury, ct-verizon-44395322.eia

*** Analysis Results:

Maximum element usage is 99.12% for Steel Pole "Monopol" in load case "W 60"

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Tran. Moment (ft-k)	Long. Moment (ft-k)	Vert. Moment (ft-k)	Bending Moment (ft-k)	Found. Usage %
W 0	Monopol:g	-5.14	0.00	60.31	5.14	-0.00	-149.80	-0.00	149.80	0.00
W 0	$Gnd1	-24.27	-0.00	-25.62	24.27	-0.00	-0.00	-0.00	0.00	0.00
W 0	$Gnd2	0.67	1.62	-1.88	1.75	-0.00	-0.00	-0.00	0.00	0.00
W 0	$Gnd3	0.67	-1.62	-1.88	1.75	-0.00	-0.00	-0.00	0.00	0.00
W 60	Monopol:g	-2.67	-4.62	77.92	5.34	199.05	-114.89	0.02	229.83	0.00
W 60	$Gnd1	-22.06	-0.45	-23.34	22.06	-0.00	-0.00	-0.00	0.00	0.00
W 60	$Gnd2	0.06	0.10	-0.20	0.12	-0.00	-0.00	-0.00	0.00	0.00
W 60	$Gnd3	10.64	-19.33	-23.34	22.06	-0.00	-0.00	-0.00	0.00	0.00
W 90	Monopol:g	-0.21	-5.28	72.60	5.29	201.31	-47.00	-0.03	206.73	0.00
W 90	$Gnd1	-12.82	-0.40	-13.63	12.83	-0.00	-0.00	-0.00	0.00	0.00
W 90	$Gnd2	0.30	0.30	-0.51	0.42	-0.00	-0.00	-0.00	0.00	0.00
W 90	$Gnd3	12.74	-22.68	-27.47	26.01	-0.00	-0.00	-0.00	0.00	0.00
W 0 Ice	Monopol:g	-1.30	-0.00	58.00	1.30	0.00	-41.32	-0.00	41.32	0.00
W 0 Ice	$Gnd1	-8.01	-0.00	-8.16	8.01	-0.00	-0.00	-0.00	0.00	0.00
W 0 Ice	$Gnd2	1.81	3.37	-3.85	3.83	-0.00	-0.00	-0.00	0.00	0.00
W 0 Ice	$Gnd3	1.81	-3.37	-3.85	3.83	-0.00	-0.00	-0.00	0.00	0.00
W 60 Ice	Monopol:g	-0.65	-1.12	58.13	1.30	35.77	-20.65	0.00	41.30	0.00
W 60 Ice	$Gnd1	-6.65	-0.12	-6.74	6.65	-0.00	-0.00	-0.00	0.00	0.00
W 60 Ice	$Gnd2	1.24	2.14	-2.44	2.47	-0.00	-0.00	-0.00	0.00	0.00
W 60 Ice	$Gnd3	3.22	-5.82	-6.74	6.65	-0.00	-0.00	-0.00	0.00	0.00
W 90 Ice	Monopol:g	0.00	-1.30	58.04	1.30	41.13	0.29	0.02	41.13	0.00
W 90 Ice	$Gnd1	-5.23	-0.15	-5.29	5.23	-0.00	-0.00	-0.00	0.00	0.00
W 90 Ice	$Gnd2	1.46	2.41	-2.80	2.82	-0.00	-0.00	-0.00	0.00	0.00
W 90 Ice	$Gnd3	3.77	-6.65	-7.77	7.65	-0.00	-0.00	-0.00	0.00	0.00

Summary of Tip Deflections For All Load Cases:

Note: postive tip load results in positive rotation

Load Case	Joint Label	Long. Defl. (in)	Tran. Defl. (in)	Vert. Defl. (in)	Resultant Defl. (in)	Long. Rot. (deg)	Tran. Rot. (deg)	Twist (deg)
W 0	Monopol:t	29.01	-0.00	-0.92	29.03	4.17	0.00	0.00
W 60	Monopol:t	20.18	34.94	-1.32	40.37	2.43	-4.20	-0.00

W 90	Monopol:t	5.80	36.22	-1.18	36.70	0.34	-4.60	0.02
W 0 Ice	Monopol:t	4.60	0.00	-0.70	4.65	0.65	0.00	0.00
W 60 Ice	Monopol:t	2.30	3.98	-0.70	4.65	0.32	-0.56	-0.00
W 90 Ice	Monopol:t	-0.03	4.58	-0.70	4.63	-0.00	-0.65	-0.00

Tubes Summary:

Pole Label	Tube Num.	Weight (lbs)	Load Case	Maximum Usage %	Resultant Moment (ft-k)
Monopol	1	1471	W 60	99.12	262.65
Monopol	2	2651	W 60	49.27	190.94
Monopol	3	4238	W 60	13.21	80.70
Monopol	4	5009	W 60	14.24	229.83

Summary of Steel Pole Usages:

Steel Pole Label	Maximum Usage %	Load Case	Segment Number	Weight (lbs)
Monopol	99.12	W 60	8	13368.6

Summary of Guy Usages:

Guy Label	Maximum Usage %	Load Case	Weight (lbs)	Unstressed Length (ft)
Guy1	89.04	W 0	270.0	167.69
Guy2	14.89	W 0 Ice	270.0	167.69
Guy3	95.43	W 90	270.0	167.69

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
W 0	98.37	Monopol	Steel Pole
W 60	99.12	Monopol	Steel Pole
W 90	98.85	Monopol	Steel Pole
W 0 Ice	29.96	Guy1	Guy
W 60 Ice	25.05	Guy3	Guy
W 90 Ice	28.64	Guy3	Guy

Summary of Steel Pole Usages by Load Case:

Load Case	Maximum Usage %	Steel Pole Label	Segment Number
W 0	98.37	Monopol	8
W 60	99.12	Monopol	8

W 90	98.85	Monopol	8
W 0 Ice	19.59	Monopol	9
W 60 Ice	19.62	Monopol	9
W 90 Ice	19.60	Monopol	9

Summary of Guy Usages by Load Case:

Load Case	Maximum Usage %	Guy Label
W 0	89.04	Guy1
W 60	81.08	Guy1
W 90	95.43	Guy3
W 0 Ice	29.96	Guy1
W 60 Ice	25.05	Guy3
W 90 Ice	28.64	Guy3

*** Weight of structure (lbs):

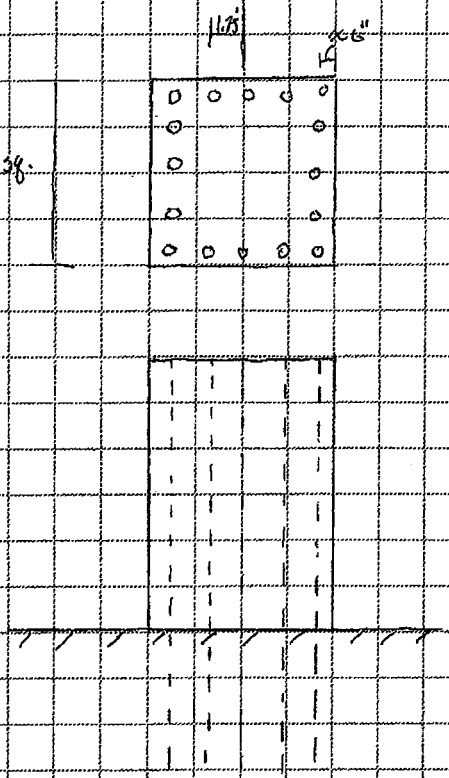
Weight of Guys:	810.0
Weight of Steel Poles:	13368.6
Total:	14178.6

*** End of Report

AMERICAN TOWER™
CORPORATION

302476 - Wtbx - Waterbury, CT JOEJ 1-28-10

Foundation Analysis



Foundation is an 8' sq. caisson which extends 6' below grade and rests on solid bedrock. (16) 1"ø Hollow grantable rebar rockbolts anchor the caisson to the bedrock.

Pullout capacity of (1) 1"ø Hollow grantable rebar rock bolt = 60 kip

Overturning moment capacity =

(60k)(5)(3.5') + (60k)(2)(1.75') = 1260 k-ft

(.5)(1260 k-ft) = 630 k-ft

Max. analysis reaction = 267.6 k-ft

$\frac{229.8\ k\text{-}ft}{630\ k\text{-}ft} = 36\%$ (ok)

* Guy anchor foundations are assumed to also be rock anchors. The number and depth of rock anchors is unknown but we can safely assume the tension capacity of the anchor rod will control.

Existing anchor rod is 1.5"ø solid rod, assume A-36 steel.

Tension capacity = (.8)(Ag)(Fy)
= (.8)(4.71)(36) = 135.65k

max analysis Reaction = 38k

38/135.65 = 28% (ok)

Base/Flange Plate	Plate Type	***Baseplate***	
	Pole Diameter	37.38	in
	Pole Thickness	0.375	in
	Plate Length	44	in
	Plate Thickness	2.5	in
	Plate Fy	60	ksi
	Weld Length	0.25	in
	ϕ_s Resistance	1400.64	k-in
	Applied	137.34	k-in
Stiffeners	#	***0***	

Bolts	#	***8***	
	Bolt Circle	44	in
	(R)adial / (S)quare	S	
	Bolt Gap	6	in
●	Diameter	2.25	in
	Hole Diameter	2.75	in
	Type	#18J	
	Fy	75	ksi
	Fu	100	ksi
	ϕ_s Resistance	259.82	k
	Applied	40.75	k
Reinforcement ●	#	***0***	
Extra Bolts O	#	***0***	

Code Rev. **G**

Moment 229.8 k-ft

Axial 77.9 k

Date	1/27/2010
Engineer	JOEJ
Site #	302476
Carrier	Verizon

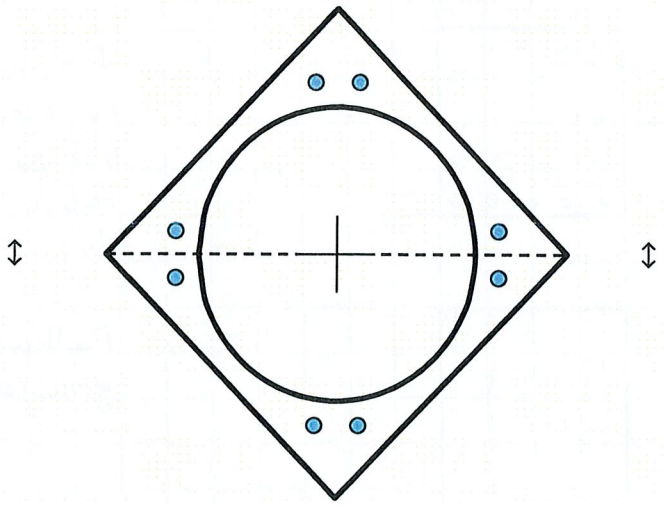


Plate Stress Ratio:

0.10 (Pass)

Bolt Stress Ratio:

0.16 (Pass)

Base/Flange Plate	Plate Type	***Flange @ 110.0 ft***
	Pole Diameter	21.267 in
	Pole Thickness	0.1875 in
	Plate Diameter	28.5 in
	Plate Thickness	1 in
	Plate Fy	60 ksi
	Weld Length	0.25 in
	ϕ_s Resistance	75.16 k-in
	Applied	35.21 k-in
Stiffeners	#	***0***

Bolts	#	***12***
	Bolt Circle	25.75 in
	(R)adial / (S)quare	R
	Diameter	1 in
	Hole Diameter	1.125 in
	Type	A325
	Fy	92 ksi
	Fu	120 ksi
	ϕ_s Resistance	54.52 k
	Applied	24.64 k
Reinforcement ●	#	***0***
Extra Bolts O	#	***0***

Code Rev. **G**

Moment 190.9 k-ft
Axial 60.0 k

Date	1/27/2010
Engineer	JOEJ
Site #	302476
Carrier	Verizon

Required Flange Thickness:
0.68 in OK

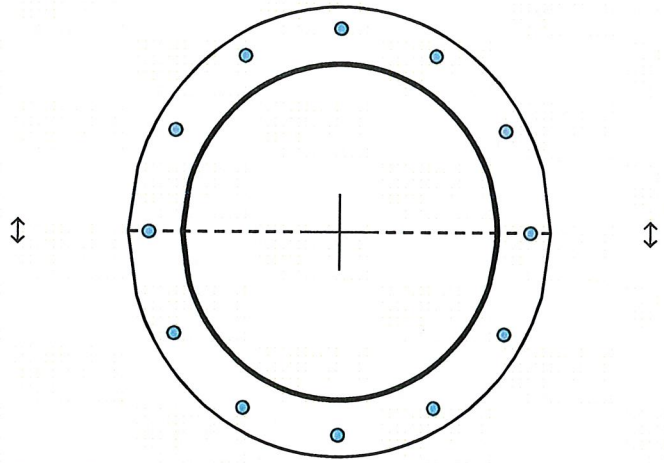


Plate Stress Ratio:
0.47 (Pass)

Bolt Stress Ratio:
0.45 (Pass)

Task:	Determine Point Loads	
Tower Height:	150	ft
Gh:	1.69	
Wind Speed:	100	mph
Ice Wind Speed:	50	
Ice Density:	56	
Tower Type:	MP	

Ice Thick:	0.5	in
Topographic Category (1-4):	1	
Exposure Category (B-D):	B	
Structure Class (1-3):	2	
Height of Crest (H) if Topo Cat. >1:	0	ft
Load Factor; Wind:	1.6	
Load Factor; Dead:	1.2	

Site No.:	302476
Engineer:	JOEJ
Date:	01/27/2010
Carrier:	Verizon

***NOTE: AT&T at 145 currently does not exist and my never install a separate platform at 145. They may extend down from platform at 150 on pipes.

No.	Carrier	Elevation (ft)	Quantity	# of Azimuths	Manufacturer	Model	Height (in)	Width (in)	Depth (in)	Weight (lbs/ea)	Flat/Round (F/R)	Reduction	C_AA_C (ft^2)	Weight (k)
1	AT&T Mobility	150	6	1	CSS	DUO4-8670	48	14	9	66.5	F	0.840		
	AT&T Mobility	150	1	1								1.000	0.00	0.00
2	AT&T Mobility	150	3	1	Allgon	7770	55	11	5	35	F	0.770		
	AT&T Mobility	150	1	1								1.000	0.00	0.00
3	AT&T Mobility	150	3	1		Diplexer/Coupler	12	6	3	5	F	0.500		
	AT&T Mobility	150	1	1								1.000	0.00	0.00
4	AT&T Mobility	150	3	1	Powerwave	LGP13519	7.92	4.4	2.7	5	F	0.500		
	AT&T Mobility	150	1	1		Flat Platform w/ Handrails						1.000	42.20	2.00
5	AT&T Mobility	145	6	1	Allgon	7250.03	61.32	6.3	2.2	15.4		0.730		
	AT&T Mobility	145	1	1	Reserved	Round Platform w/ Handrails						1.000	27.20	2.00
6	Verizon	129	6	1	Decibel	948F85T2E-M	48	7	3.5	8.5	F	0.790		
	Verizon	129	1	1								1.000	0.00	0.00
7	Verizon	129	6	1	Decibel	DB844G65ZAXY	48	10	8	12	F	0.920		
	Verizon	129	1	1								1.000	0.00	0.00
8	Verizon	129	3	1	Antel	BXA-70063/4CF	47.4	11.2	5	9.9	F	0.760		
	Verizon	129	1	1								1.000	0.00	0.00
9	Verizon	129	3	1	RFS	FD9R6004/1C-3L	5.8	6.5	1.5	3.1	F	0.500		
	Verizon	129	1	1		Flat Platform w/ Handrails						1.000	42.20	2.00
10	AT&T Mobility	38.8	1	1			0.001	0.001	0.001	0.001	0.001	0.001		
	AT&T Mobility	38.8	1	1		GPS						1.000	1.00	0.01
11														
12														
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No.	Elevation	C_AA_C	C_AA_C (Ice)	Force	Force (Ice)	Weight	Weight (Ice)	60 Azi	Force	F (Ice)	Height	Sur
	(ft)	(ft^2)	(ft^2)	(lb)	(lb)	(lb)	(lb)	Mult.	mean	mean	Flag	60 Azi.
1	150	24.70	27.01	1612.362	251.932	559	792	1.00	886.80	138.56		
	150	0.00	0.00	0.065	0.010	1	2	1.00	0.04	0.01	0.0000010	1612.427242
2	150	10.19	11.32	665.319	103.956	168	305	1.00	365.93	57.18	0.0000020	
	150	0.00	0.00	0.065	0.010	1	2	1.00	0.04	0.01	0.0333333	2277.811776
3	150	0.79	1.00	51.415	8.034	24	42	1.00	28.28	4.42	0.0333343	
	150	0.00	0.00	0.065	0.010	1	2	1.00	0.04	0.01	0.0333333	2329.291668
4	150	0.38	0.53	24.885	3.888	24	36	1.00	13.69	2.14	0.0333343	
	150	42.20	56.97	2755.170	430.495	2400	3744	1.00	1515.34	236.77	1.5066667	5109.346178
5	145	13.14	15.06	849.679	132.762	129	223	1.00	467.32	73.02	1.5066677	
	145	27.20	36.72	1758.726	274.801	2400	3744	1.00	967.30	151.14	1.5068966	2608.404961
6	129	11.61	13.55	726.216	113.471	71	146	1.00	399.42	62.41	1.5068976	
	129	0.00	0.00	0.063	0.010	1	2	1.00	0.03	0.01	1.5068976	726.2782168
7	129	19.32	21.69	1208.171	188.777	101	215	1.00	664.49	103.83	1.5068986	
	129	0.00	0.00	0.063	0.010	1	2	1.00	0.03	0.01	1.5068986	1934.511507
8	129	8.83	9.82	551.924	86.238	48	146	1.00	303.56	47.43	1.5068996	
	129	0.00	0.00	0.063	0.010	1	2	1.00	0.03	0.01	1.5068996	2486.49796
9	129	0.41	0.56	25.786	4.029	15	24	1.00	14.18	2.22	1.5069006	
	129	42.20	56.97	2638.965	412.338	2400	3744	1.00	1451.43	226.79	1.5077519	5151.248867
10	38.8	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5077529	
	38.8	1.00	1.35	44.366	6.932	12	19	1.00	24.40	3.81	1.5257732	44.3657152
11					#VALUE!			1.00	#VALUE!	#VALUE!	1.5257742	
								1.00	0.00	0.00	1.5257742	#VALUE!
12					#VALUE!			1.00	#VALUE!	#VALUE!	1.5257752	
								1.00	0.00	0.00	1.5257752	#VALUE!
13					#VALUE!			1.00	#VALUE!	#VALUE!	1.5257762	
								1.00	0.00	0.00	1.5257762	#VALUE!
14					#VALUE!			1.00	#VALUE!	#VALUE!	1.5257772	
								1.00	0.00	0.00	1.5257772	#VALUE!
15					#VALUE!			1.00	#VALUE!	#VALUE!	1.5257782	
								1.00	0.00	0.00	1.5257782	#VALUE!
16					#VALUE!			1.00	#VALUE!	#VALUE!	1.5257792	
								1.00	0.00	0.00	1.5257792	#VALUE!
17					#VALUE!			1.00	#VALUE!	#VALUE!	1.5257802	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
18					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
19					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
20					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
21					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
22					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
23					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
24					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
25					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
26					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
27					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
28					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
29					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
30					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
31					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
32					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
33					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
34					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!
35					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	
								1.00	0.00	0.00	#DIV/0!	#VALUE!

Wind Speed:	100	mph
Ice Wind Sp.	50	mph
Ice Thick.	0.5	in

$FW_{@Base}$	0
Height	0
Slope	#DIV/0!
Apex	#DIV/0!

ϕ:	0.85

Site No.:	302476
Engineer:	JOEJ
Date:	40205
Carrier:	Verizon

Load Case Description	Dead Load Factor	Wind Load Factor	Strength Factor	Load Case Type	Basic Wind Speed	Wind Dir. (deg)	Mean Wind Start El.	Mean Wind Stop El.	Ice Thick.	Ice Density	Temp.	Point Loads
W 0	1.2	1.6	1	Regular	100	0			0	56	50	
W 60	1.2	1.6	1	Regular	100	60			0	56	50	
W 90	1.2	1.6	1	Regular	100	90			0	56	50	
W 0 Ice	1.2	1	1	Regular	50	0			0.5	56	10	
W 60 Ice	1.2	1	1	Regular	50	60			0.5	56	10	
W 90 Ice	1.2	1	1	Regular	50	90			0.5	56	10	

Site:	302476
Carrier:	Verizon

Engineer:	JOEJ
Date:	01/27/10

Full Wind Loading

Angle:	0

No Ice

Joint Label	Force X-Dir (lbs)	Force Y-Dir (lbs)	Force Vertical (lbs)	Moment X-Axis (ft-lbs)	Moment Y-Axis (ft-lbs)	Moment Z-Axis (ft-lbs)
Monopol:t	1612.43	0.00	793.0154758			
Monopol:t	665.38	0.00	306.361354			
Monopol:t	51.48	0.00	43.42708869			
Monopol:t	2780.05	0.00	2435.921583			
Monopol:ATT145	2608.40	0.00	2623.272889			
Monopol:Verizon	726.28	0.00	147.1814751			
Monopol:Verizon	1208.23	0.00	215.9313805			
Monopol:Verizon	551.99	0.00	147.2337036			
Monopol:Verizon	2664.75	0.00	2424.20412			
Monopol:ATT38.8	44.37	0.00	12.00300637			

With Ice

Joint Label	Force X-Dir (lbs)	Force Y-Dir (lbs)	Force Vertical (lbs)	Moment X-Axis (ft-lbs)	Moment Y-Axis (ft-lbs)	Moment Z-Axis (ft-lbs)
Monopol:t	251.94	0.00	793.6874758			
Monopol:t	103.97	0.00	307.033354			
Monopol:t	8.04	0.00	44.09908869			
Monopol:t	434.38	0.00	3779.921583			
Monopol:ATT145	407.56	0.00	3967.272889			
Monopol:Verizon	113.48	0.00	147.8534751			
Monopol:Verizon	188.79	0.00	216.6033805			
Monopol:Verizon	86.25	0.00	147.9057036			
Monopol:Verizon	416.37	0.00	3768.20412			
Monopol:ATT38.8	6.93	0.00	18.72300637			