



HPC Wireless Services
22 Shelter Rock Lane.
Building C
Danbury, CT, 06810
P.: 203.797.1112

November 26, 2013

VIA OVERNIGHT COURIER

Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051
Attn: Ms. Melanie Bachman, Acting Executive Director

Re: Sprint Spectrum, L.P. – Exempt Modification
290 Preston Avenue, Middletown, Connecticut

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Sprint Spectrum, L.P. ("Sprint"). Sprint is undertaking modifications to certain existing sites in its Connecticut system in order to implement updated technology. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction that constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the Mayor of the City of Middletown.

Sprint plans to modify the existing wireless communications facility owned by the AT&T and located at 290 Preston Avenue, Middletown (coordinates 43°-33'-26.47" N, 72°-44'-35.75" W). Attached are plan and elevation drawings depicting the planned changes, and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration. Also included is a power density report reflecting the modification to Sprint's operations at the site.

The changes to the facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. Sprint will remove the existing twelve (12) CMDA antennas that belonged to Nextel, and add three (3) dual-band panel LTE antennas mounted to existing mounting pipes on the existing platform and frame, all at a centerline height of approximately 125' AGL. Sprint will also add three (3) Notch filters and six (6) RRHs (remote radio heads) behind the LTEs on existing collar mounts and mounting pipes, respectively, on the

existing frame. During an interim period of up to one year, the six (6) existing Sprint CDMA antennas will remain. Sprint will also install three (3) hybridflex cables along the existing coaxial cable run, and will remove the coaxial cable at the end of the interim period. The proposed modifications will not extend the height of the approximately 148' AGL structure.

2. Sprint will replace three (3) of the four (4) existing cabinets with three (3) similar cabinets, and add a Fiber/Power Distribution Box on a new H-frame, all on the existing Concrete Equipment Pad under the Ice Canopy. The existing GPS antenna on the monopole will be replaced by another GPS antenna at that location. These changes will have no effect on the site boundaries.

3. The proposed changes will not increase the noise level at the existing facility by six decibels or more. The incremental effect of the proposed changes will be negligible.

4. The changes to the facility will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site. As indicated on the attached report prepared by EBI Consulting, Sprint's operations at the site will result in a power density of approximately 15.801%; the combined site operations will result in a total power density of approximately 70.871%.

Please contact me by phone at (203) 610-1071 or by e-mail at mjhowlett@optonline.net with questions concerning this matter. Thank you for your consideration.

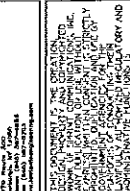
Respectfully yours,



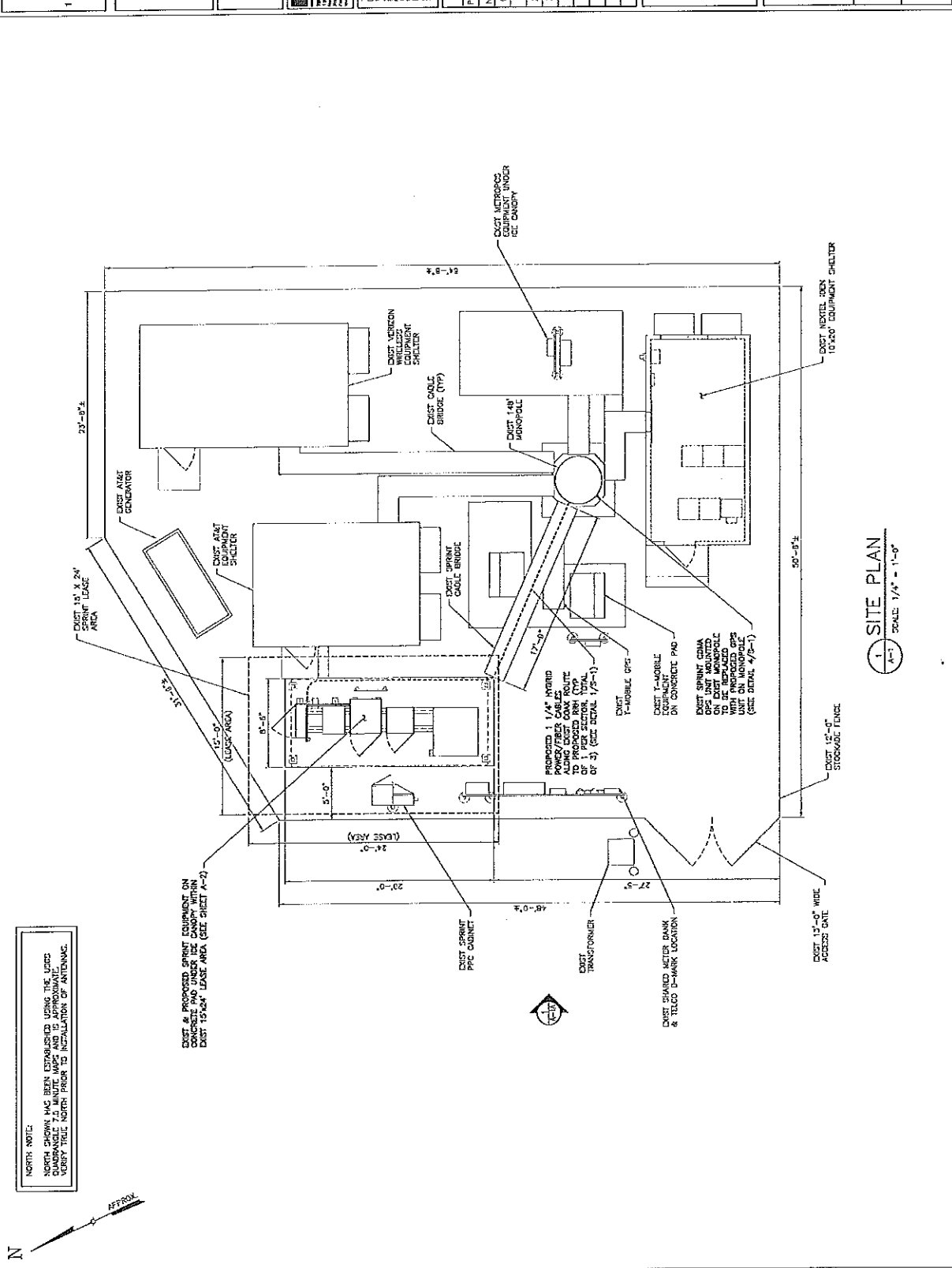
Melanie J. Howlett

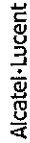
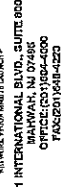
Attachments

cc: Honorable Mayor Daniel Drew, Mayor, City of Middletown
Ernest and Brenda Trumpold (underlying property owners)

[illegible]7745

SITE NUMBER: CT63MCBIS
 SITE NAME: MIDDLETOWN-AT&T
 SITE ADDRESS: 290 PRESTON AVE
 MIDDLETOWN, CT 06492
 SHEET TITLE: SITE PLAN
 SHEET NO: A-1





Transporto Engineering de Servicing Corporation P.O.
1979 Route 300
Newburgh, NY 12550
Phone (516) 338-0818
Fax (516) 337-9713
www.transportoservicing.com

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SUBMITTALS

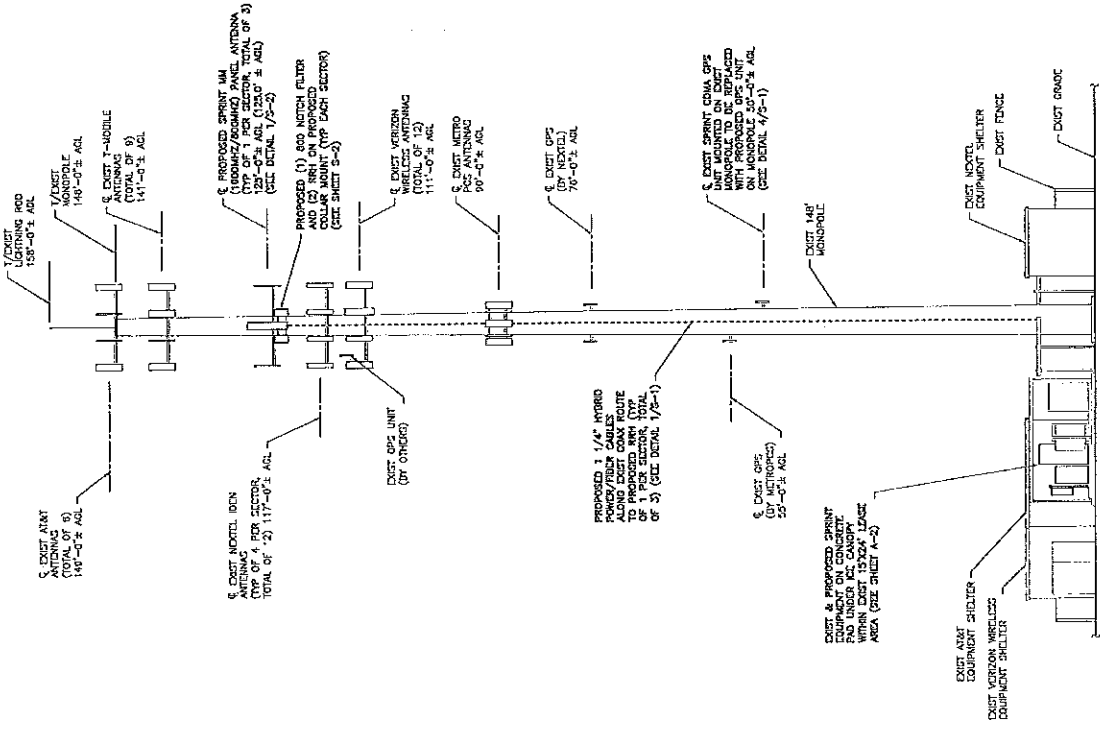
[illegible]

0720

SITE NUMBER
 CT43NC816
 SITE NAME
 MIDDLETOWN-AT&T
 SITE ADDRESS
 230 PRESTON AVE
 MIDDLETOWN, CT 06482

SHEET TITLE:
ELEVATION

SHEET NO:
A-1A

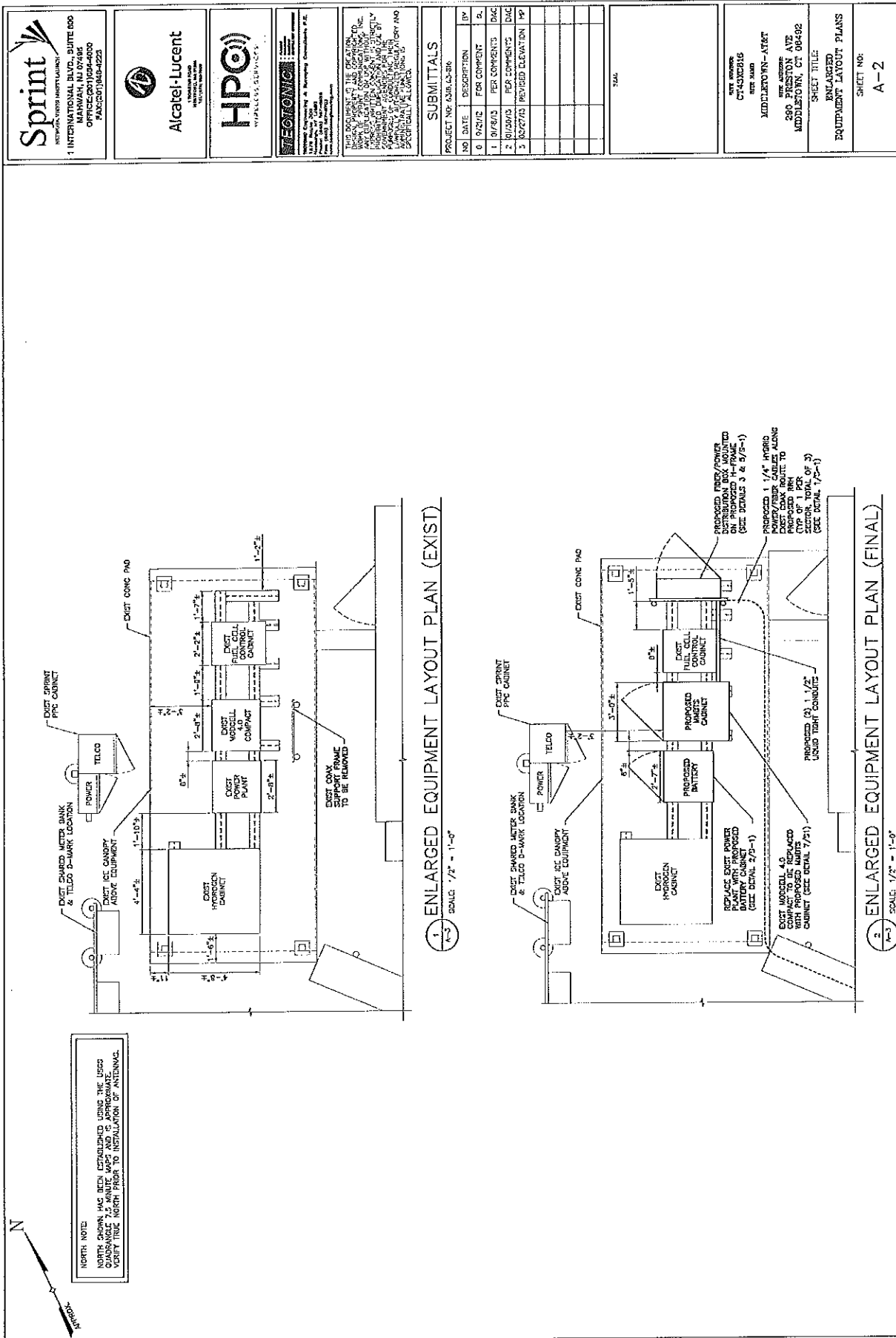


THE PROPOSED INSTALLATION &
EXISTING MONOPOLE SHALL BE
ANALYZED BY A PROFESSIONAL
ENGINEER LICENSED IN THE STATE
OF CONNECTICUT
(TO BE COORDINATED BY OTHERS).

1
A-1A

ELEVATION

SCALE: 3/8" = 1'-0"





1 INTERNATIONAL BLVD., SUITE 800
MARWAH, NJ 07498
OFFICE: (201) 694-4000
FAX: (201) 640-4223



Alcatel-Lucent



www.elsevier.com/locate/jbiotec



Integrated Engineering & Surveying Consultants P.L.
1278 Rajawade 200
Nonsangwan, 44 12350
Phnom (646) 867-8686
Fax (846) 887-8702
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SUBMITTALS					
PROJECT NO. 8316-LX-00					
NO	DATE	DESCRIPTION	BY	DATE	
0	9/24/12	FOR COMMENT	DL		
1	9/28/12	PER COMMENTS	DL		
2	10/22/12	PER COMMENTS	DL		
3	10/22/12	REVISED ELEVATION	MP		

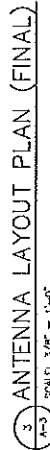
5374

CTA3NCB10
DEPARTMENTAL
MIDDLETOWN-AT&T
SITE ADDRESS
290 PRESTON AVE
MIDDLETOWN, CT 06492

SHEET TITLE: ANTENNA LAYOUT PLANS

QUESTIONS

A-3



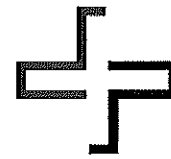
THE PROPOSED INSTALLATION & EXISTING MONOPOLE SHALL BE ANALYZED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT (TO BE COORDINATED BY OTHERS).

[illegible]

**AT&T Towers**

5405 Windward Parkway
Alpharetta, GA 30004

November 7, 2013

**B+T GRP**

1717 S. Boulder, Suite 300
Tulsa, OK 74119

B+T No.: 86667.004.01

**STRUCTURAL ANALYSIS
148' Monopole Tower****AT&T DESIGNATION:**

Site ID: 14635
Site FA: 10035088
Site Name: Middletown SW
AT&T Project: Sprint Modification 12-14-2012

ANALYSIS CRITERIA:

Codes: TIA/EIA-222-F (85 mph fastest mile)
IBC 2006
2005 Connecticut Building Code

SITE DATA:

290 Preston Avenue, Middletown, CT, Middlesex County
Latitude 41.557353°, Longitude -72.743277°
Market MA/RI/VT/NH/ME/CT

Ms. Charlotte Malone,

B+T Group 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 existing and proposed loading configuration detailed in the analysis report.

Analysis Results

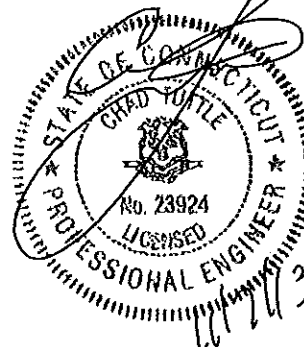
Tower Stress Level with Proposed Equipment:	95.1%	Pass
Foundation Ratio with Proposed Equipment:	89.6%	Pass

We at B+T Group appreciate the opportunity of providing our continuing professional services to you and AT&T Towers. If you have any questions or need further assistance on this or any other project please give us a call.

Respectfully Submitted by: B+T Engineering, Inc.

Analysis Prepared by: Zach Smith

Analysis Reviewed by: Chad E. Tuttle, P.E.



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ANALYSIS RESULTS:

Table 1 - Section Capacity (Summary)

Elevation (ft)	% Capacity	Pass / Fail
148 - 111	56.5	Pass
111 - 98.25	95.1	Pass
98.25 - 90	93.1	Pass
90 - 75	85.5	Pass
75 - 60	92.1	Pass
60 - 39.75	86.1	Pass
39.75 - 30	86.8	Pass

Table 2 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	88.8	Pass
1	Base Plate	Base	79.3	Pass
1	Base Foundation	Base	89.6	Pass

Structure Rating (max from all components) =	95.1%
---	--------------

Notes:

- 1.) See additional documentation in "Appendix B - Calculations" for calculation supporting the % capacity consumed.

Recommendations:

N/A

ANALYSIS PROCEDURE:

Table 4 - Documents Provided

Document	Description	Date	Source
Tower Data	PennSummit/PJF Project # 29201-0230	2/26/2001	Siterra
Foundation Information	PennSummit/PJF Project # 29201-0230	2/26/2001	Siterra
Geotech Report	Dr. Clarence Welti, P.E., P.C.	7/25/2000	Siterra
Loading	Site Lease Application	3/20/2013	Siterra
	NOC2	2/18/2013	Siterra
	Previous Analysis by B+T Group	10/12/2012	Siterra
Previous Structural Analysis	B+T Group	10/12/2012	Siterra
	GPD Associates	1/26/2010	Siterra
	GPD Associates	5/9/2009	Siterra
Modification Drawings	B+T Group Project No. 84934.003	11/8/2012	On File

ANALYSIS METHOD:

tnxTower, a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix B.

ASSUMPTIONS:

1. Tower and structures were built in accordance with the manufacturer's specifications.
2. The tower and structures have been maintained in accordance with the manufacturer's specifications.
3. The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Appendix A of this report.
4. Mount areas and weights are assumed based on photographs provided.
5. Refer to the base level drawing for transmission line distribution.
6. Existing loading is taken from the previous analysis dated 11/8/12 performed by B+T Group.
7. Generic future loading has been considered.

If any of these assumptions have been made in error, B+T Group should be notified to determine the effect on the structural integrity of the tower.

APPENDIX A
TOWER ANALYSIS LOADING

TOWER ANALYSIS LOADING:

Existing / Reserved Loading

Antenna Owner	Antenna				Mount		Transmission Line	
	Mount Height (ft)	Antenna CL (ft)	Quantity	Manufacturer	Model	Quantity	Type	Size (in)
AT&T Mobility	148	150	3	KMW	AM-X-CD-16-65-00T	12		1-5/8
AT&T Mobility	148	149	6	Powerwave	AXCM-800/1900-90-13	1	L.P. Platform	3/8
AT&T Mobility	148	149	12	Powerwave	16"x14"x3" TME	2		7/8
AT&T Mobility	148	148	6	Ericsson	RBS6601			
AT&T Mobility	148	148	1	Raycap	DC6-48-60-18-8F			
T-Mobile	140	141	6	EMS	RR65-18-00DPL2	6	L.P. Platform	1-5/8
T-Mobile	140	141	3	RFS	APX16-DWV	1		1/2
T-Mobile	140	141	3	Ericsson	7"x6"x3"			
Sprint	124	125	6	Andrew	DB980F65T4E-M	1	L.P. Platform	1-5/8
Nextel	116	117	12*	Andrew	844G90VTA-SX	10*	L.P. Platform	7/8
Verizon	110	111	6	Amphenol	LPA-80063/4CF	18	L.P. Platform	1-5/8
Verizon	110	111	3	Andrew	LNK-6514DS-T4M			
Verizon	110	111	3	Raymsa	MG D3-800T0			
Verizon	110	111	6	RFS	6"x5" TME			
Metro PCS	90	90	3	Unknown	6"x6"x4" Panel	3	Pipe Mount	1-5/8
Nextel	76	76	2*	Unknown	GPS	2*	Standoff Mount	1/2
Metro PCS	55	55	1	Unknown	GPS	1	Standoff Mount	3/8
Unknown	50	50	1	Unknown	GPS	1	Standoff Mount	1/2

*Equipment to be Removed

Proposed Loading

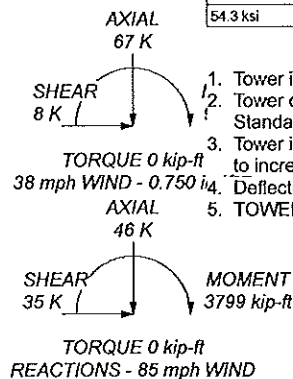
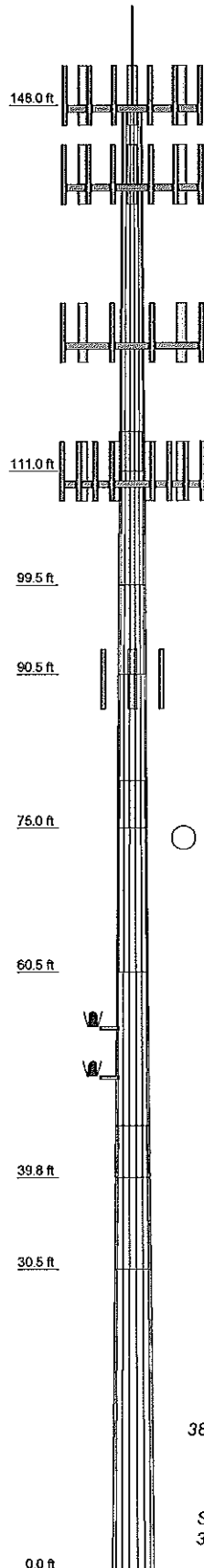
Antenna Owner	Antenna				Mount		Transmission Line	
	Mount Height (ft)	Antenna CL (ft)	Quantity	Manufacturer	Model	Quantity	Type	Size (in)
Sprint	124	125	3	Powerwave	APXVSP18-C-A20	3		1-1/4"
Sprint	124	125	3	Alcatel	1900 RRH			
Sprint	124	125	3	Alcatel	800 RRH			

Future Loading

Antenna Owner	Antenna				Mount		Transmission Line	
	Mount Height (ft)	Antenna CL (ft)	Quantity	Manufacturer	Model	Quantity	Type	Size (in)
AT&T Mobility	148	150	3	KMW	AM-X-CD-16-65-00T	6		1-5/8"

APPENDIX B
CALCULATIONS

Section	1	2	3	4	5	6	7	8
Length (ft)	37,000	15,500	9,000	15,500	19,250	20,750	14,500	30,500
Number of Slides	18	18	18	18	18	18	18	18
Thickness (in)	0.250	0.250	0.352	0.426	0.480	0.541	0.601	0.621
Socket Length (ft)	4,000			4,790		5,250		
Top Dia (in)	24,000	29,441	31,232	33,852	34,936	36,936	40,777	43,742
Bot Dia (in)	30,661	31,232	33,852	36,843	38,936	42,849	43,742	48,020
Grade	A607-85			52.3 ksi	54.5 ksi	54.3 ksi	56.2 ksi	57.3 ksi
Weight (K)	2.7	1.3	1.1	2.5	3.6	4.9	3.9	9.4



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lighting Rod 5/8" x 8" (E)	153	(2) DB980F65T4E-M w/ Mount Pipe (Sprint-E)	125
AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-E)	150	APXVSPP18-C-A20 w/ Mount Pipe (Sprint-P)	125
AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-E)	150	APXVSPP18-C-A20 w/ Mount Pipe (Sprint-P)	125
AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-E)	150	APXVSPP18-C-A20 w/ Mount Pipe (Sprint-P)	125
AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-Future)	150	1900MHz RRH (Sprint-P)	125
AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-Future)	150	1900MHz RRH (Sprint-P)	125
AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-Future)	150	1900MHz RRH (Sprint-P)	125
AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-Future)	150	800MHz RRH (Sprint-P)	125
(2) AXCM-800/1900-90-13 w/ Mount Pipe (ATI-E)	149	800MHz RRH (Sprint-P)	125
(2) AXCM-800/1900-90-13 w/ Mount Pipe (ATI-E)	149	800MHz RRH (Sprint-P)	125
(2) AXCM-800/1900-90-13 w/ Mount Pipe (ATI-E)	149	14' L.P. Platform (E)	124
(4) 16"x14"x3" (ATI-E-Shielded)	149	(2) LPA-80063/4CF w/ Mount Pipe (E - Verizon)	111
(4) 16"x14"x3" (ATI-E-Shielded)	149	(2) LPA-80063/4CF w/ Mount Pipe (E - Verizon)	111
(4) 16"x14"x3" (ATI-E-Shielded)	149	LNX-6514DS-T4M w/ Mount Pipe (E - Verizon)	111
DC6-48-60-18-8F (ATI-E)	148	LNX-6514DS-T4M w/ Mount Pipe (E - Verizon)	111
(2) RBS6601 (ATI-E)	148	LNX-6514DS-T4M w/ Mount Pipe (E - Verizon)	111
(2) RBS6601 (ATI-E)	148	MG D3 800TO w/ Mount Pipe (E - Verizon)	111
6' x 2" Mount Pipe (ATI-E)	148	MG D3 800TO w/ Mount Pipe (E - Verizon)	111
6' x 2" Mount Pipe (ATI-E)	148	MG D3 800TO w/ Mount Pipe (E - Verizon)	111
14' L.P. Platform (ATI-E)	148	MG D3 800TO w/ Mount Pipe (E - Verizon)	111
(2) RR65-18-00DPL2 w/ Mount Pipe (T-Mobile-E)	141	(2) 6"x5" TME (E - Verizon)	111
(2) RR65-18-00DPL2 w/ Mount Pipe (T-Mobile-E)	141	(2) 6"x5" TME (E - Verizon)	111
(2) RR65-18-00DPL2 w/ Mount Pipe (T-Mobile-E)	141	(2) 6"x5" TME (E - Verizon)	111
APX16DWV-16DWVS-C w/ Mount Pipe (T-Mobile-E)	141	14' L.P. Platform (E - Verizon)	110
APX16DWV-16DWVS-C w/ Mount Pipe (T-Mobile-E)	141	6'x6"x4" Panel (E - Metro PCS)	90
APX16DWV-16DWVS-C w/ Mount Pipe (T-Mobile-E)	141	6'x6"x4" Panel (E - Metro PCS)	90
APX16DWV-16DWVS-C w/ Mount Pipe (T-Mobile-E)	141	6'x6"x4" Panel (E - Metro PCS)	90
7'x6"x3" TMA (T-Mobile-E)	141	6' x 2" Mount Pipe (E - Metro PCS)	90
7'x6"x3" TMA (T-Mobile-E)	141	6' x 2" Mount Pipe (E - Metro PCS)	90
7'x6"x3" TMA (T-Mobile-E)	141	GPS (E - Metro PCS)	55
6' x 2" Mount Pipe (T-Mobile-E)	140	Side Arm Mount [ISO 702-1] (E - Metro PCS)	55
6' x 2" Mount Pipe (T-Mobile-E)	140	GPS (E)	50
6' x 2" Mount Pipe (T-Mobile-E)	140	Side Arm Mount [ISO 702-1] (E)	50
(2) DB980F65T4E-M w/ Mount Pipe (Sprint-E)	125		
(2) DB980F65T4E-M w/ Mount Pipe (Sprint-E)	125		

MATERIAL STRENGTH

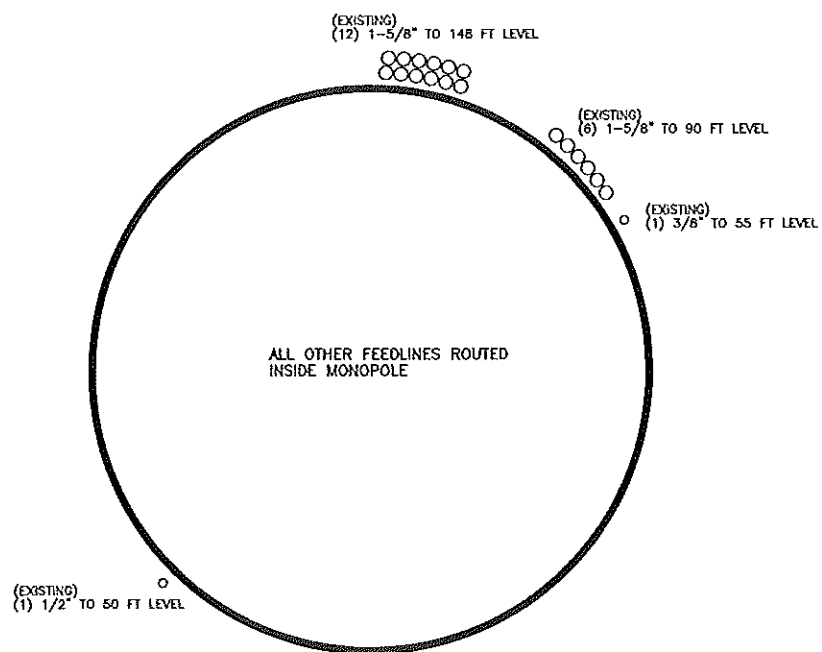
GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi	56.2 ksi	56 ksi	65 ksi
52.3 ksi	52 ksi	65 ksi	55.4 ksi	55 ksi	65 ksi
54.5 ksi	55 ksi	65 ksi	57.3 ksi	57 ksi	65 ksi
54.3 ksi	54 ksi	65 ksi			

TOWER DESIGN NOTES

- Tower is located in Middlesex County, Connecticut.
- Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
- Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
- Deflections are based upon a 50 mph wind.
- TOWER RATING: 95.1%

B+T Group
1717 S. Boulder Ave.
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 86667.004 - Middletown, CT (USID# 1.
Project: 148' PennSummit Monopole / Sprint Co-loc:
Client: AT&T Towers
Drawn by: zsmith
Code: TIA/EIA-222-F
Date: 11/07/13
Scale: N
Path:
Dwg No.



0' - 148'

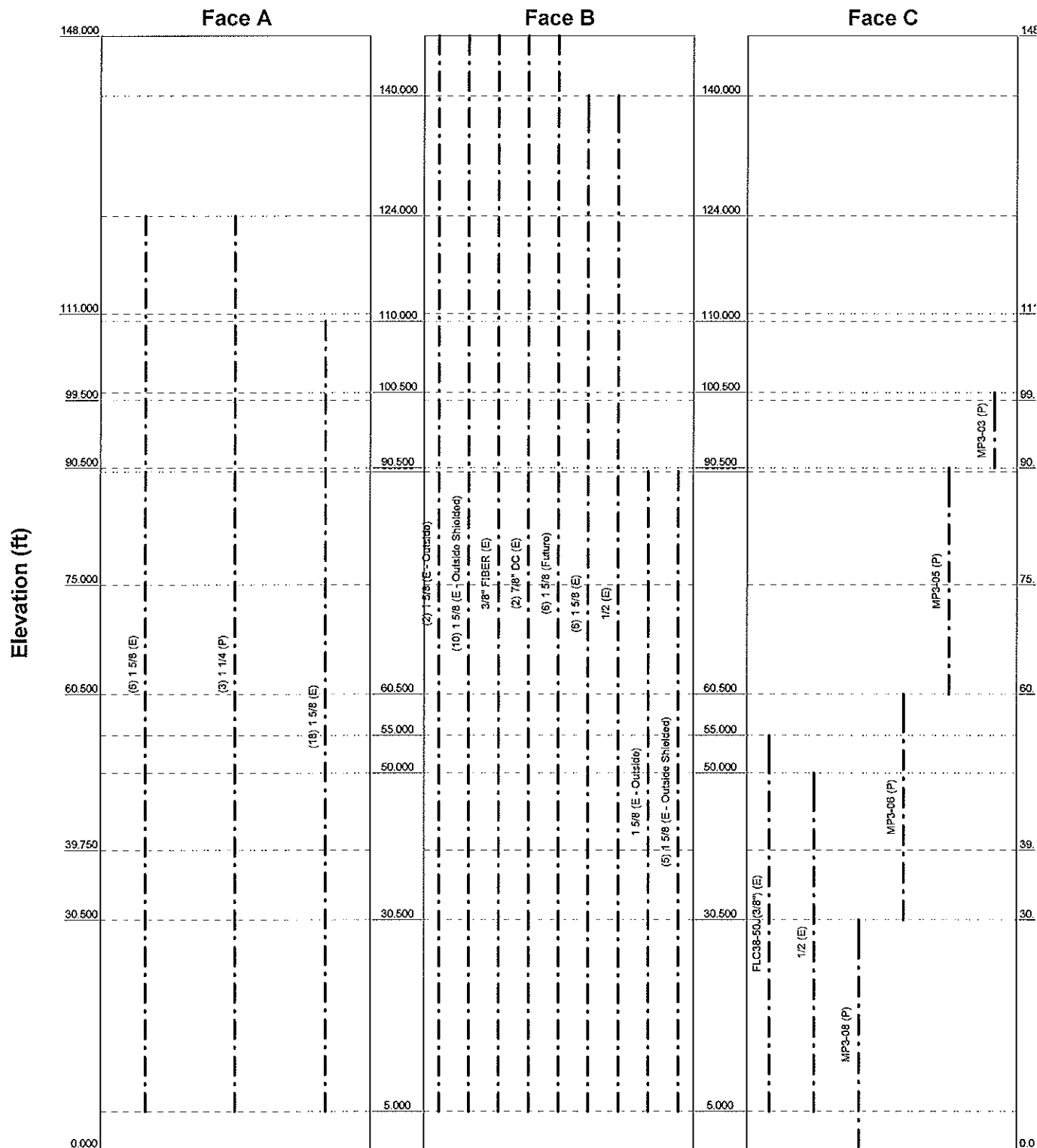
Round

Flat

App In Face

App Out Face

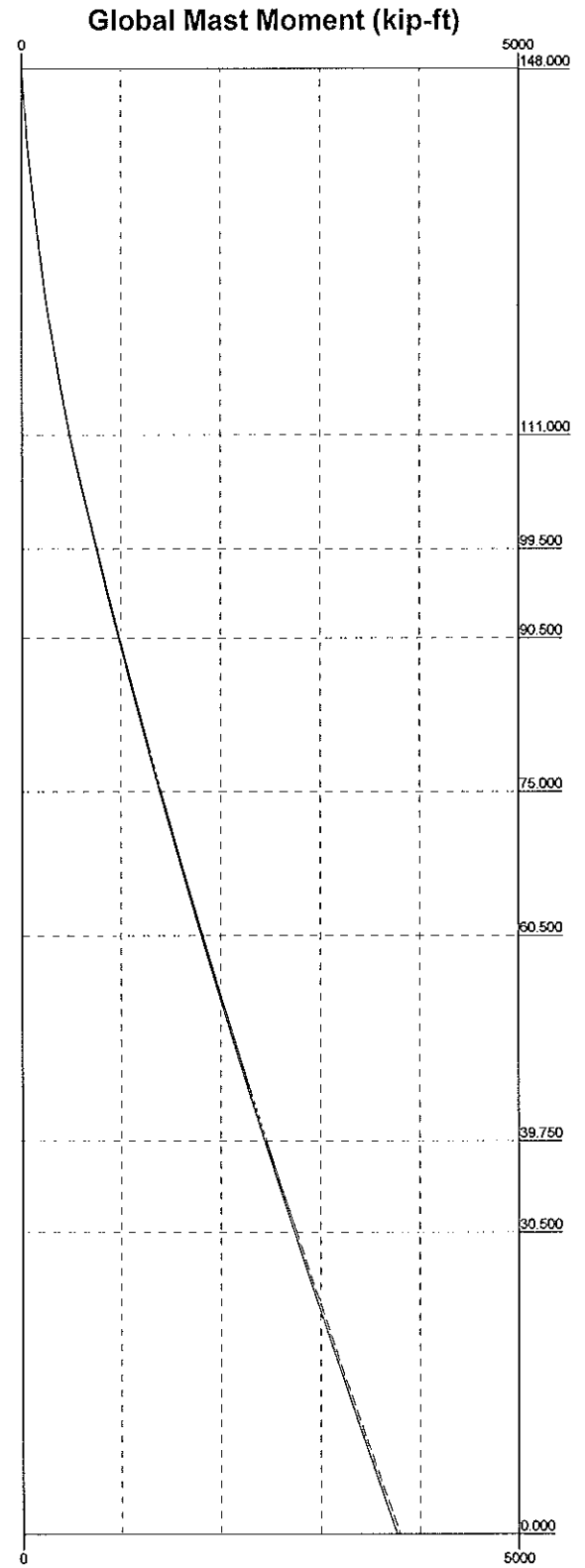
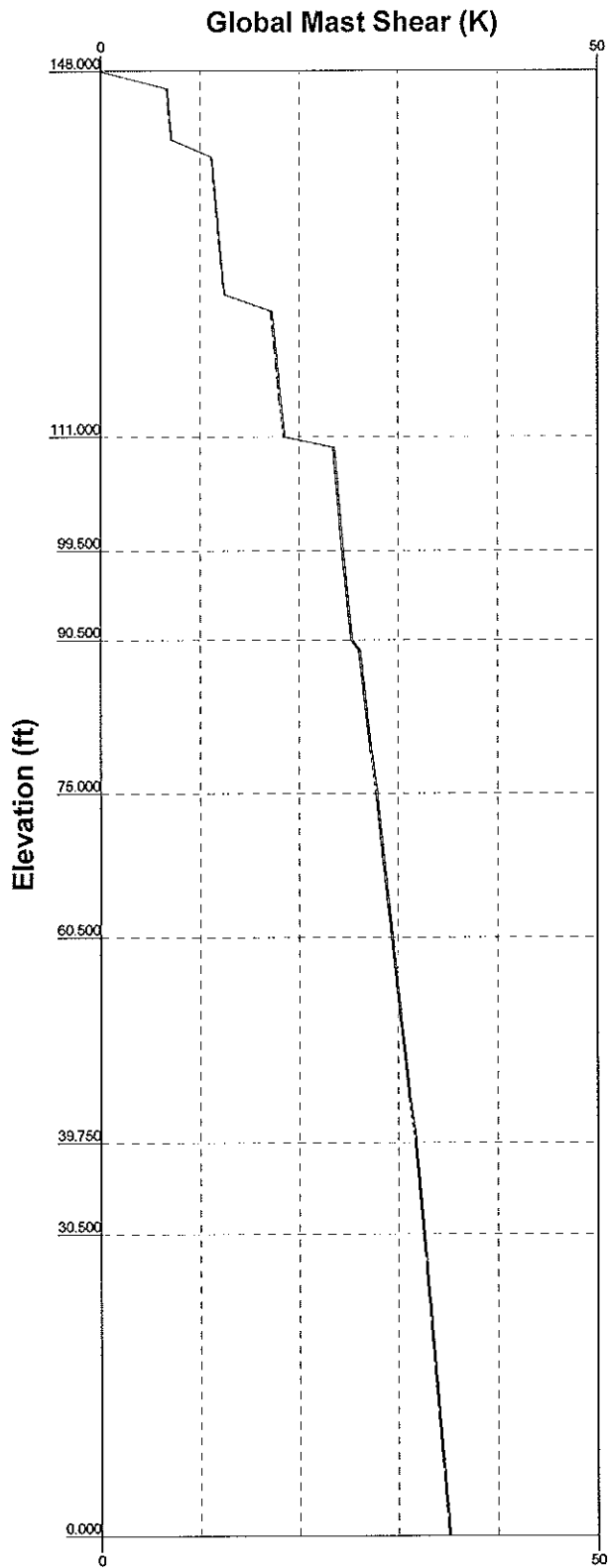
Truss Leg



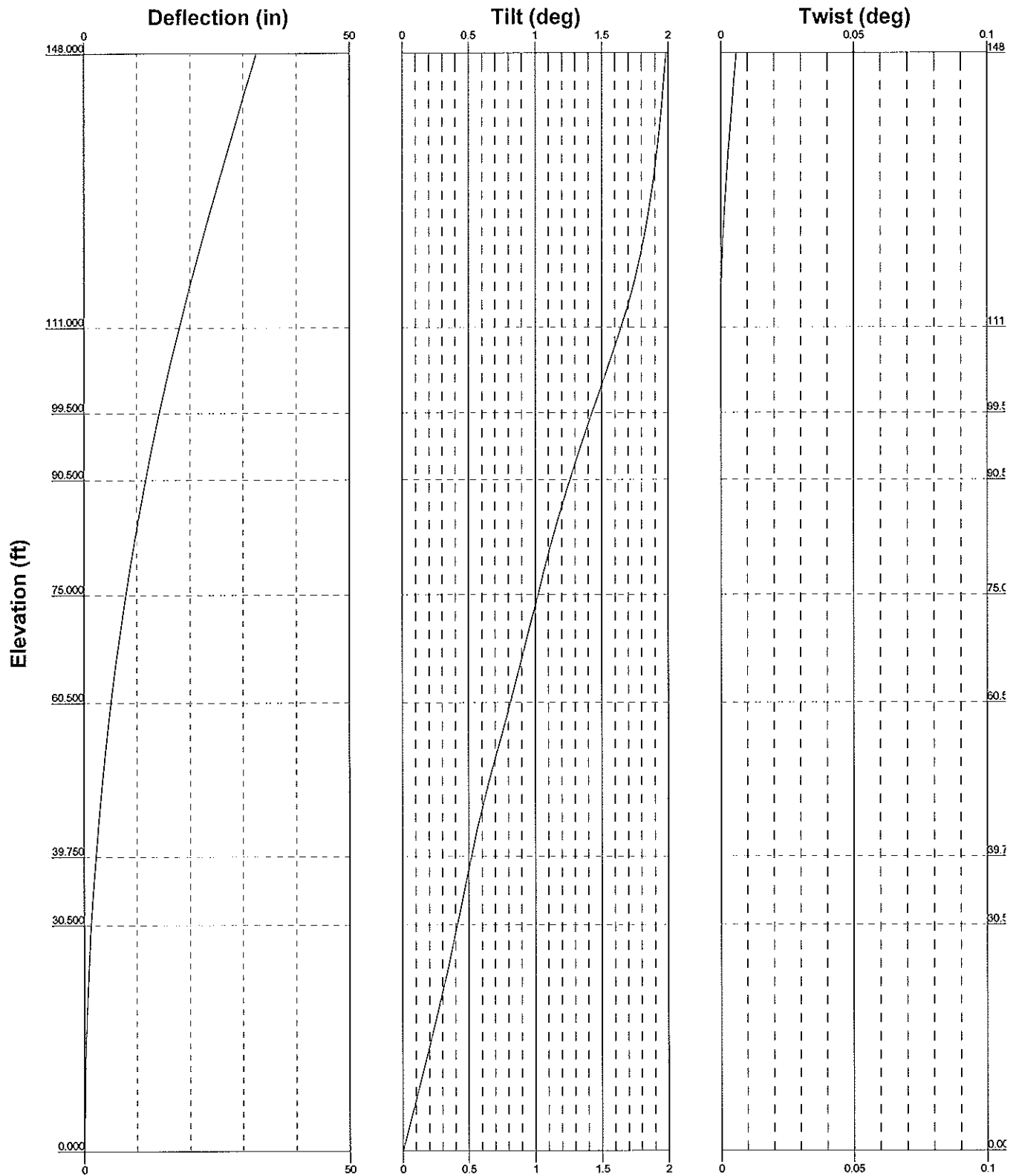
 B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job: 86667.004 - Middletown, CT (USID# 1.		
	Project: 148' PennSummit Monopole / Sprint Co-loc		
	Client: AT&T Towers	Drawn by: zsmith	App'd.
	Code: TIA/EIA-222-F	Date: 11/07/13	Scale: N
	Path:		

—— Vx - - - - Vz

—— Mx - - - - Mz



 B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job: 86667.004 - Middletown, CT (USID# 1.		
	Project: 148' PennSummit Monopole / Sprint Co-loc		
	Client: AT&T Towers	Drawn by: zsmith	App'd:
	Code: TIA/EIA-222-F	Date: 11/07/13	Scale: N
	Path:		



B+T Group
 1717 S. Boulder Ave.
 Tulsa, OK 74119
 Phone: (918) 587-4630
 FAX: (918) 295-0265

Job: **86667.004 - Middletown, CT (USID# 1.**
 Project: **148' PennSummit Monopole / Sprint Co-loc**
 Client: **AT&T Towers** Drawn by: **zsmith** App'd:
 Code: **TIA/EIA-222-F** Date: **11/07/13** Scale: **N**
 Path: Dwg No.

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page 1 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date 10:55:49 11/07/13
	Client	AT&T Towers	Designed by zsmith

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 Middlesex County, Connecticut.

Basic wind speed of 85 mph.

Nominal ice thickness of 0.750 in.

Ice thickness is considered to increase with height.

Ice density of 56.000 pcf.

A wind speed of 38 mph is used in combination with ice.

Temperature drop of 50.000 °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, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace I,y Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	Use Clear Spans For KL/r	SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	All Leg Panels Have Same Allowable
√ Escalate Ice	√ Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	Include Angle Block Shear Check
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Poles
Leg Bolts Are At Top Of Section	SR Members Have Cut Ends	√ Include Shear-Torsion Interaction
Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination	Use TIA-222-G Tension Splice Capacity	
	Exemption	

Tapered Pole Section Geometry

Section	Elevation	Section Length	Splice Length	Number of Sides	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
	ft	ft	ft		in	in	in	in	
L1	148.000-111.000	37.000	4.000	18	24.000	30.661	0.250	1.000	A607-65 (65 ksi)
	0								
L2	111.000-99.500	15.500	0.000	18	29.441	31.232	0.250	1.000	A607-65 (65 ksi)
L3	99.500-90.500	9.000	0.000	18	31.232	33.852	0.352	1.408	52.3 ksi (52 ksi)
L4	90.500-75.000	15.500	4.750	18	33.852	36.643	0.426	1.704	54.5 ksi (55 ksi)
L5	75.000-60.500	19.250	0.000	18	34.936	38.936	0.480	1.919	54.3 ksi

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page 2 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date 10:55:49 11/07/13
	Client	AT&T Towers	Designed by zsmith

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L6	60.500-39.750	20.750	5.250	18	38.936	42.849	0.541	2.163	(54 ksi) 56.2 ksi
L7	39.750-30.500	14.500	0.000	18	40.777	43.742	0.601	2.405	(56 ksi) 55.4 ksi
L8	30.500-0.000	30.500		18	43.742	49.020	0.621	2.483	(55 ksi) 57.3 ksi (57 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L1	24.370	18.846	1342.998	8.431	12.192	110.154	2687.762	9.425	3.784	15.136
	31.134	24.131	2819.528	10.796	15.576	181.020	5642.767	12.068	4.956	19.825
L2	30.364	23.163	2493.598	10.363	14.956	166.729	4990.478	11.584	4.742	18.966
	31.714	24.584	2981.348	10.999	15.866	187.910	5966.620	12.294	5.057	20.227
L3	31.714	34.491	4155.275	10.962	15.866	261.900	8316.017	17.249	4.877	13.86
	34.374	37.417	5305.202	11.893	17.197	308.499	10617.385	18.712	5.339	15.171
L4	34.374	45.196	6379.802	11.866	17.197	370.987	12767.999	22.602	5.208	12.226
	37.208	48.970	8115.054	12.857	18.615	435.950	16240.785	24.490	5.699	13.379
L5	36.477	52.472	7870.370	12.232	17.747	443.468	15751.096	26.241	5.304	11.055
	39.537	58.564	10942.177	13.652	19.779	553.208	21898.751	29.288	6.008	12.522
L6	39.537	65.905	12274.727	13.630	19.779	620.579	24565.606	32.959	5.901	10.911
	43.510	72.622	16423.084	15.019	21.767	754.484	32867.777	36.318	6.590	12.185
L7	42.496	76.677	15636.435	14.263	20.715	754.840	31293.444	38.346	6.119	10.175
	44.417	82.335	19359.634	15.315	22.221	871.234	38744.742	41.175	6.640	11.043
L8	44.417	84.967	19960.370	15.308	22.221	898.269	39947.005	42.491	6.606	10.641
	49.776	95.367	28223.484	17.182	24.902	1133.375	56484.106	47.692	7.535	12.137

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
ft	ft ²	in					in	in
L1 148.000-111.0 00				1	1	1		
L2 111.000-99.50 0				1	1	1		
L3 99.500-90.500				1	1	1		
L4 90.500-75.000				1	1	1		
L5 75.000-60.500				1	1	1		
L6 60.500-39.750				1	1	1		
L7 39.750-30.500				1	1	1		
L8 30.500-0.000				1	1	1		

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page 3 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date 10:55:49 11/07/13
	Client	AT&T Towers	Designed by zsmith

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight klf
1 5/8 (E - Outside)	B	No	CaAa (Out Of Face)	148.000 - 5.000	2	No Ice	0.198	0.001
						1/2" Ice	0.298	0.003
						1" Ice	0.398	0.005
						2" Ice	0.598	0.011
						4" Ice	0.998	0.030
1 5/8 (E - Outside Shielded)	B	No	CaAa (Out Of Face)	148.000 - 5.000	10	No Ice	0.000	0.001
						1/2" Ice	0.000	0.003
						1" Ice	0.000	0.005
						2" Ice	0.000	0.011
						4" Ice	0.000	0.030
3/8" FIBER (E)	B	No	Inside Pole	148.000 - 5.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
7/8" DC (E)	B	No	Inside Pole	148.000 - 5.000	2	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
1 5/8 (Future)	B	No	Inside Pole	148.000 - 5.000	6	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
**** 1 5/8 (E)	B	No	Inside Pole	140.000 - 5.000	6	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
1/2 (E)	B	No	Inside Pole	140.000 - 5.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
**** 1 5/8 (E)	A	No	Inside Pole	124.000 - 5.000	6	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
1 1/4 (P)	A	No	Inside Pole	124.000 - 5.000	3	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
**** **** 1 5/8 (E)	A	No	Inside Pole	110.000 - 5.000	18	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
**** 1 5/8 (E - Outside)	B	No	CaAa (Out Of Face)	90.000 - 5.000	1	No Ice	0.198	0.001
						1/2" Ice	0.298	0.003
						1" Ice	0.398	0.005

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page 4 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date 10:55:49 11/07/13
	Client	AT&T Towers	Designed by zsmith

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight klf
1 5/8 (E - Outside Shielded)	B	No	CaAa (Out Of Face)	90.000 - 5.000	5	2" Ice	0.598	0.011
						4" Ice	0.998	0.030
						No Ice	0.000	0.001
						1/2" Ice	0.000	0.003
						1" Ice	0.000	0.005
						2" Ice	0.000	0.011
						4" Ice	0.000	0.030

FLC38-50J(3/8") (E)	C	No	CaAa (Out Of Face)	55.000 - 5.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.002
						2" Ice	0.000	0.006
						4" Ice	0.000	0.022

1/2 (E)	C	No	CaAa (Out Of Face)	50.000 - 5.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.002
						2" Ice	0.000	0.007
						4" Ice	0.000	0.023

MP3-08 (P)	C	No	CaAa (Out Of Face)	30.500 - 0.000	1	No Ice	0.467	0.000
						1/2" Ice	0.551	0.000
						1" Ice	0.634	0.000
						2" Ice	0.800	0.000
						4" Ice	1.134	0.000
MP3-06 (P)	C	No	CaAa (Out Of Face)	60.500 - 30.500	1	No Ice	0.434	0.000
						1/2" Ice	0.518	0.000
						1" Ice	0.601	0.000
						2" Ice	0.768	0.000
						4" Ice	1.101	0.000
MP3-05 (P)	C	No	CaAa (Out Of Face)	90.500 - 60.500	1	No Ice	0.348	0.000
						1/2" Ice	0.432	0.000
						1" Ice	0.515	0.000
						2" Ice	0.682	0.000
						4" Ice	1.015	0.000
MP3-03 (P)	C	No	CaAa (Out Of Face)	100.500 - 90.500	1	No Ice	0.262	0.010
						1/2" Ice	0.345	0.015
						1" Ice	0.428	0.020
						2" Ice	0.595	0.040
						4" Ice	0.928	0.080

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	148.000-111.000	A	0.000	0.000	0.000	0.000	0.107
		B	0.000	0.000	0.000	14.652	0.924
		C	0.000	0.000	0.000	0.000	0.000
L2	111.000-99.500	A	0.000	0.000	0.000	0.000	0.291
		B	0.000	0.000	0.000	4.554	0.303
		C	0.000	0.000	0.000	0.262	0.010
L3	99.500-90.500	A	0.000	0.000	0.000	0.000	0.242
		B	0.000	0.000	0.000	3.564	0.237
		C	0.000	0.000	0.000	2.355	0.089
L4	90.500-75.000	A	0.000	0.000	0.000	0.000	0.418
		B	0.000	0.000	0.000	9.108	0.502

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page 5 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date 10:55:49 11/07/13
	Client	AT&T Towers	Designed by zsmith

Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
L5	75.000-60.500	C	0.000	0.000	0.000	5.399	0.000
		A	0.000	0.000	0.000	0.000	0.391
		B	0.000	0.000	0.000	8.613	0.473
L6	60.500-39.750	C	0.000	0.000	0.000	5.051	0.000
		A	0.000	0.000	0.000	0.000	0.559
		B	0.000	0.000	0.000	12.326	0.677
L7	39.750-30.500	C	0.000	0.000	0.000	9.012	0.004
		A	0.000	0.000	0.000	0.000	0.249
		B	0.000	0.000	0.000	5.495	0.302
L8	30.500-0.000	C	0.000	0.000	0.000	4.018	0.003
		A	0.000	0.000	0.000	0.000	0.687
		B	0.000	0.000	0.000	15.147	0.832
		C	0.000	0.000	0.000	14.249	0.008

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
L1	148.000-111.000	A	0.883	0.000	0.000	0.000	0.000	0.107
		B		0.000	0.000	0.000	27.724	2.319
		C		0.000	0.000	0.000	0.000	0.000
L2	111.000-99.500	A	0.862	0.000	0.000	0.000	0.000	0.291
		B		0.000	0.000	0.000	8.617	0.737
		C		0.000	0.000	0.000	0.409	0.019
L3	99.500-90.500	A	0.851	0.000	0.000	0.000	0.000	0.242
		B		0.000	0.000	0.000	6.629	0.562
		C		0.000	0.000	0.000	3.632	0.167
L4	90.500-75.000	A	0.837	0.000	0.000	0.000	0.000	0.418
		B		0.000	0.000	0.000	16.812	1.316
		C		0.000	0.000	0.000	7.562	0.000
L5	75.000-60.500	A	0.817	0.000	0.000	0.000	0.000	0.391
		B		0.000	0.000	0.000	15.898	1.242
		C		0.000	0.000	0.000	7.074	0.000
L6	60.500-39.750	A	0.788	0.000	0.000	0.000	0.000	0.559
		B		0.000	0.000	0.000	22.139	1.700
		C		0.000	0.000	0.000	11.739	0.037
L7	39.750-30.500	A	0.756	0.000	0.000	0.000	0.000	0.249
		B		0.000	0.000	0.000	9.869	0.758
		C		0.000	0.000	0.000	5.233	0.028
L8	30.500-0.000	A	0.750	0.000	0.000	0.000	0.000	0.687
		B		0.000	0.000	0.000	26.622	2.014
		C		0.000	0.000	0.000	18.061	0.071

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	148.000-111.000	0.438	0.253	0.698	0.403
L2	111.000-99.500	0.416	0.270	0.678	0.431
L3	99.500-90.500	0.140	0.397	0.294	0.581
L4	90.500-75.000	0.236	0.532	0.490	0.745
L5	75.000-60.500	0.245	0.543	0.509	0.765

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page 6 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date 10:55:49 11/07/13
	Client	AT&T Towers	Designed by zsmith

Section	Elevation	CP _X	CP _Z	CP _X Ice	CP _Z Ice
	ft	in	in	in	in
L6	60.500-39.750	0.159	0.592	0.429	0.807
L7	39.750-30.500	0.161	0.599	0.436	0.819
L8	30.500-0.000	0.026	0.576	0.251	0.774

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A ₁ Front ft ²	C _A A ₁ Side ft ²	Weight K
Lighting Rod 5/8" x 8" (E)	C	None		0.000	153.000	No Ice	0.500	0.500	0.031
						1/2" Ice	1.314	1.314	0.037
						1" Ice	2.144	2.144	0.047
						2" Ice	3.613	3.613	0.084
						4" Ice	5.683	5.683	0.227

(2) AXCM-800/1900-90-13 w/ Mount Pipe (AT&T-E)	C	From Leg	4.000 0.000 0.000	50.000	149.000	No Ice	5.980	4.120	0.053
						1/2" Ice	6.440	4.770	0.097
						1" Ice	6.900	5.420	0.141
						2" Ice	7.820	6.720	0.229
						4" Ice	9.660	9.320	0.404
(2) AXCM-800/1900-90-13 w/ Mount Pipe (AT&T-E)	B	From Leg	4.000 0.000 0.000	50.000	149.000	No Ice	5.980	4.120	0.053
						1/2" Ice	6.440	4.770	0.097
						1" Ice	6.900	5.420	0.141
						2" Ice	7.820	6.720	0.229
						4" Ice	9.660	9.320	0.404
(2) AXCM-800/1900-90-13 w/ Mount Pipe (AT&T-E)	A	From Leg	4.000 0.000 0.000	50.000	149.000	No Ice	5.980	4.120	0.053
						1/2" Ice	6.440	4.770	0.097
						1" Ice	6.900	5.420	0.141
						2" Ice	7.820	6.720	0.229
						4" Ice	9.660	9.320	0.404
(4) 16"x14"x3" (AT&T-E-Shielded)	C	From Leg	4.000 0.000 0.000	0.000	149.000	No Ice	0.000	0.544	0.010
						1/2" Ice	0.000	0.675	0.022
						1" Ice	0.000	0.815	0.036
						2" Ice	0.000	1.119	0.072
						4" Ice	0.000	1.832	0.181
(4) 16"x14"x3" (AT&T-E-Shielded)	B	From Leg	4.000 0.000 0.000	0.000	149.000	No Ice	0.000	0.544	0.010
						1/2" Ice	0.000	0.675	0.022
						1" Ice	0.000	0.815	0.036
						2" Ice	0.000	1.119	0.072
						4" Ice	0.000	1.832	0.181
(4) 16"x14"x3" (AT&T-E-Shielded)	A	From Leg	4.000 0.000 0.000	0.000	149.000	No Ice	0.000	0.544	0.010
						1/2" Ice	0.000	0.675	0.022
						1" Ice	0.000	0.815	0.036
						2" Ice	0.000	1.119	0.072
						4" Ice	0.000	1.832	0.181
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-E)	C	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice	8.498	6.304	0.074
						1/2" Ice	9.149	7.479	0.139
						1" Ice	9.767	8.368	0.212
						2" Ice	11.031	10.179	0.385
						4" Ice	13.679	14.024	0.874
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.000 0.000	0.000	150.000	No Ice	8.498	6.304	0.074
						1/2" Ice	9.149	7.479	0.139

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page	7 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date	10:55:49 11/07/13
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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CA Front ft²	CA Side ft²	Weight K
(AT&T-E)			0.000			1" Ice 9.767	8.368	0.212
						2" Ice 11.031	10.179	0.385
						4" Ice 13.679	14.024	0.874
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-E)	A	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 8.498	6.304	0.074
						1/2" Ice 9.149	7.479	0.139
						1" Ice 9.767	8.368	0.212
						2" Ice 11.031	10.179	0.385
						4" Ice 13.679	14.024	0.874
(2) RBS6601 (AT&T-E)	C	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 2.942	1.190	0.055
						1/2" Ice 3.172	1.351	0.074
						1" Ice 3.410	1.521	0.097
						2" Ice 3.913	1.887	0.151
						4" Ice 5.023	2.721	0.302
(2) RBS6601 (AT&T-E)	B	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 2.942	1.190	0.055
						1/2" Ice 3.172	1.351	0.074
						1" Ice 3.410	1.521	0.097
						2" Ice 3.913	1.887	0.151
						4" Ice 5.023	2.721	0.302
(2) RBS6601 (AT&T-E)	A	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 2.942	1.190	0.055
						1/2" Ice 3.172	1.351	0.074
						1" Ice 3.410	1.521	0.097
						2" Ice 3.913	1.887	0.151
						4" Ice 5.023	2.721	0.302
DC6-48-60-18-8F (AT&T-E)	A	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 2.567	4.317	0.019
						1/2" Ice 2.798	4.596	0.050
						1" Ice 3.038	4.885	0.085
						2" Ice 3.543	5.488	0.167
						4" Ice 4.658	6.797	0.383
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-Future)	C	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 8.498	6.304	0.074
						1/2" Ice 9.149	7.479	0.139
						1" Ice 9.767	8.368	0.212
						2" Ice 11.031	10.179	0.385
						4" Ice 13.679	14.024	0.874
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-Future)	B	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 8.498	6.304	0.074
						1/2" Ice 9.149	7.479	0.139
						1" Ice 9.767	8.368	0.212
						2" Ice 11.031	10.179	0.385
						4" Ice 13.679	14.024	0.874
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-Future)	A	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 8.498	6.304	0.074
						1/2" Ice 9.149	7.479	0.139
						1" Ice 9.767	8.368	0.212
						2" Ice 11.031	10.179	0.385
						4" Ice 13.679	14.024	0.874
6' x 2" Mount Pipe (AT&T-E)	C	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1.425	1.425	0.022
						1/2" Ice 1.925	1.925	0.033
						1" Ice 2.294	2.294	0.048
						2" Ice 3.060	3.060	0.090
						4" Ice 4.702	4.702	0.231
6' x 2" Mount Pipe (AT&T-E)	B	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1.425	1.425	0.022
						1/2" Ice 1.925	1.925	0.033
						1" Ice 2.294	2.294	0.048
						2" Ice 3.060	3.060	0.090
						4" Ice 4.702	4.702	0.231
6' x 2" Mount Pipe (AT&T-E)	A	From Leg	4.000 0.000 0.000	0.000	148.000	No Ice 1.425	1.425	0.022
						1/2" Ice 1.925	1.925	0.033
						1" Ice 2.294	2.294	0.048
						2" Ice 3.060	3.060	0.090

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 293-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page 8 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date 10:55:49 11/07/13
	Client	AT&T Towers	Designed by zsmith

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
14' L.P. Platform (AT&T-E)	C	None		0.000	148.000	4" Ice No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.702 32.000 37.000 42.000 52.000 72.000	4.702 32.000 37.000 42.000 52.000 72.000	0.231 1.600 2.040 2.480 3.360 5.119
/									
(2) RR65-18-00DPL2 w/ Mount Pipe (T-Mobile-E)	C	From Leg	4.000 0.000 0.000	50.000	141.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.593 5.088 5.578 6.588 8.731	3.319 4.089 4.784 6.225 9.308	0.034 0.069 0.114 0.224 0.557
(2) RR65-18-00DPL2 w/ Mount Pipe (T-Mobile-E)	B	From Leg	4.000 0.000 0.000	50.000	141.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.593 5.088 5.578 6.588 8.731	3.319 4.089 4.784 6.225 9.308	0.034 0.069 0.114 0.224 0.557
(2) RR65-18-00DPL2 w/ Mount Pipe (T-Mobile-E)	A	From Leg	4.000 0.000 0.000	50.000	141.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.593 5.088 5.578 6.588 8.731	3.319 4.089 4.784 6.225 9.308	0.034 0.069 0.114 0.224 0.557
APX16DWV-16DWVS-C w/ Mount Pipe (T-Mobile-E)	C	From Leg	4.000 0.000 0.000	50.000	141.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.466 7.994 8.518 9.595 11.873	3.494 4.263 4.960 6.403 9.490	0.061 0.110 0.165 0.298 0.683
APX16DWV-16DWVS-C w/ Mount Pipe (T-Mobile-E)	B	From Leg	4.000 0.000 0.000	50.000	141.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.466 7.994 8.518 9.595 11.873	3.494 4.263 4.960 6.403 9.490	0.061 0.110 0.165 0.298 0.683
APX16DWV-16DWVS-C w/ Mount Pipe (T-Mobile-E)	A	From Leg	4.000 0.000 0.000	50.000	141.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.466 7.994 8.518 9.595 11.873	3.494 4.263 4.960 6.403 9.490	0.061 0.110 0.165 0.298 0.683
7"x6"x3" TMA (T-Mobile-E)	C	From Leg	4.000 0.000 0.000	0.000	141.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.408 0.497 0.594 0.815 1.359	0.204 0.273 0.351 0.533 0.999	0.010 0.013 0.018 0.031 0.081
7"x6"x3" TMA (T-Mobile-E)	B	From Leg	4.000 0.000 0.000	0.000	141.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.408 0.497 0.594 0.815 1.359	0.204 0.273 0.351 0.533 0.999	0.010 0.013 0.018 0.031 0.081
7"x6"x3" TMA (T-Mobile-E)	A	From Leg	4.000 0.000 0.000	0.000	141.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.408 0.497 0.594 0.815 1.359	0.204 0.273 0.351 0.533 0.999	0.010 0.013 0.018 0.031 0.081
6' x 2" Mount Pipe (T-Mobile-E)	C	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	Page
	86667.004 - Middletown, CT (USID# 14635)	9 of 32
	Project	Date
	148' PennSummit Monopole / Sprint Co-locate	10:55:49 11/07/13
	Client	Designed by
	AT&T Towers	zsmith

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A ₁ Front ft ²	C _A A ₁ Side ft ²	Weight K
6' x 2" Mount Pipe (T-Mobile-E)	B	From Leg	4.000	0.000	140.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
6' x 2" Mount Pipe (T-Mobile-E)	A	From Leg	4.000	0.000	140.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
14' L.P. Platform (T-Mobile-E)	C	None		0.000	140.000	No Ice	32.000	32.000	1.600
						1/2" Ice	37.000	37.000	2.040
						1" Ice	42.000	42.000	2.480
						2" Ice	52.000	52.000	3.360
						4" Ice	72.000	72.000	5.119
/									
(2) DB980F65T4E-M w/Mount Pipe (Sprint-E)	C	From Leg	4.000	45.000	125.000	No Ice	4.371	3.954	0.034
			0.000			1/2" Ice	4.959	5.045	0.074
			0.000			1" Ice	5.471	5.849	0.120
						2" Ice	6.522	7.492	0.235
						4" Ice	8.983	10.977	0.593
(2) DB980F65T4E-M w/Mount Pipe (Sprint-E)	B	From Leg	4.000	90.000	125.000	No Ice	4.371	3.954	0.034
			0.000			1/2" Ice	4.959	5.045	0.074
			0.000			1" Ice	5.471	5.849	0.120
						2" Ice	6.522	7.492	0.235
						4" Ice	8.983	10.977	0.593
(2) DB980F65T4E-M w/Mount Pipe (Sprint-E)	A	From Leg	4.000	70.000	125.000	No Ice	4.371	3.954	0.034
			0.000			1/2" Ice	4.959	5.045	0.074
			0.000			1" Ice	5.471	5.849	0.120
						2" Ice	6.522	7.492	0.235
						4" Ice	8.983	10.977	0.593
APXVSPP18-C-A20 w/ Mount Pipe (Sprint-P)	C	From Leg	4.000	45.000	125.000	No Ice	8.498	6.946	0.083
			0.000			1/2" Ice	9.149	8.127	0.151
			0.000			1" Ice	9.767	9.021	0.227
						2" Ice	11.031	10.844	0.406
						4" Ice	13.679	14.851	0.909
APXVSPP18-C-A20 w/ Mount Pipe (Sprint-P)	B	From Leg	4.000	90.000	125.000	No Ice	8.498	6.946	0.083
			0.000			1/2" Ice	9.149	8.127	0.151
			0.000			1" Ice	9.767	9.021	0.227
						2" Ice	11.031	10.844	0.406
						4" Ice	13.679	14.851	0.909
APXVSPP18-C-A20 w/ Mount Pipe (Sprint-P)	A	From Leg	4.000	70.000	125.000	No Ice	8.498	6.946	0.083
			0.000			1/2" Ice	9.149	8.127	0.151
			0.000			1" Ice	9.767	9.021	0.227
						2" Ice	11.031	10.844	0.406
						4" Ice	13.679	14.851	0.909
1900MHz RRH (Sprint-P)	C	From Leg	4.000	0.000	125.000	No Ice	2.907	3.801	0.044
			0.000			1/2" Ice	3.145	4.065	0.075
			0.000			1" Ice	3.391	4.337	0.110
						2" Ice	3.909	4.908	0.192
						4" Ice	5.050	6.152	0.407
1900MHz RRH (Sprint-P)	B	From Leg	4.000	0.000	125.000	No Ice	2.907	3.801	0.044
			0.000			1/2" Ice	3.145	4.065	0.075
			0.000			1" Ice	3.391	4.337	0.110
						2" Ice	3.909	4.908	0.192
						4" Ice	5.050	6.152	0.407
1900MHz RRH	A	From Leg	4.000	0.000	125.000	No Ice	2.907	3.801	0.044

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page	10 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date	10:55:49 11/07/13
	Client	AT&T Towers	Designed by	zsmith

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
(Sprint-P)			0.000 0.000			1/2" Ice 1" Ice 2" Ice 4" Ice	3.145 3.391 3.909 5.050	4.065 4.337 4.908 6.152	0.075 0.110 0.192 0.407
800MHZ RRH (Sprint-P)	C	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.490 2.706 2.931 3.407 4.462	2.068 2.271 2.481 2.928 3.927	0.053 0.074 0.098 0.157 0.318
800MHZ RRH (Sprint-P)	B	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.490 2.706 2.931 3.407 4.462	2.068 2.271 2.481 2.928 3.927	0.053 0.074 0.098 0.157 0.318
800MHZ RRH (Sprint-P)	A	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.490 2.706 2.931 3.407 4.462	2.068 2.271 2.481 2.928 3.927	0.053 0.074 0.098 0.157 0.318
14' L.P. Platform (E)	C	None		0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	32.000 37.000 42.000 52.000 72.000	32.000 37.000 42.000 52.000 72.000	1.600 2.040 2.480 3.360 5.119
*** ***									
(2) LPA-80063/4CF w/ Mount Pipe (E - Verizon)	C	From Leg	4.000 0.000 0.000	50.000	111.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.248 7.719 8.200 9.195 11.320	7.260 7.957 8.672 10.156 13.391	0.038 0.104 0.176 0.344 0.796
(2) LPA-80063/4CF w/ Mount Pipe (E - Verizon)	B	From Leg	4.000 0.000 0.000	50.000	111.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.248 7.719 8.200 9.195 11.320	7.260 7.957 8.672 10.156 13.391	0.038 0.104 0.176 0.344 0.796
(2) LPA-80063/4CF w/ Mount Pipe (E - Verizon)	A	From Leg	4.000 0.000 0.000	50.000	111.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.248 7.719 8.200 9.195 11.320	7.260 7.957 8.672 10.156 13.391	0.038 0.104 0.176 0.344 0.796
LNx-6514DS-T4M w/ Mount Pipe (E - Verizon)	C	From Leg	4.000 0.000 0.000	50.000	111.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.568 9.220 9.838 11.104 13.754	7.004 8.185 9.081 10.904 14.926	0.058 0.127 0.203 0.384 0.889
LNx-6514DS-T4M w/ Mount Pipe (E - Verizon)	B	From Leg	4.000 0.000 0.000	50.000	111.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.568 9.220 9.838 11.104 13.754	7.004 8.185 9.081 10.904 14.926	0.058 0.127 0.203 0.384 0.889
LNx-6514DS-T4M w/ Mount Pipe (E - Verizon)	A	From Leg	4.000 0.000 0.000	50.000	111.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.568 9.220 9.838 11.104 13.754	7.004 8.185 9.081 10.904 14.926	0.058 0.127 0.203 0.384 0.889
MG D3 800TO w/Mount Pipe	C	From Leg	4.000	50.000	111.000	No Ice	3.337	2.158	0.018

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page	11 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date	10:55:49 11/07/13
	Client	AT&T Towers	Designed by	zsmith

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A Front ft ²	C _A A Side ft ²	Weight K
(E - Verizon)			0.000 0.000			1/2" Ice 3.676 1" Ice 4.023 2" Ice 4.832 4" Ice 6.570	2.482 2.813 3.498 5.012	0.037 0.061 0.122 0.304
MG D3 800TO w/Mount Pipe (E - Verizon)	B	From Leg	4.000 0.000 0.000	50.000	111.000	No Ice 3.337 1/2" Ice 3.676 1" Ice 4.023 2" Ice 4.832 4" Ice 6.570	2.158 2.482 2.813 3.498 5.012	0.018 0.037 0.061 0.122 0.304
MG D3 800TO w/Mount Pipe (E - Verizon)	A	From Leg	4.000 0.000 0.000	50.000	111.000	No Ice 3.337 1/2" Ice 3.676 1" Ice 4.023 2" Ice 4.832 4" Ice 6.570	2.158 2.482 2.813 3.498 5.012	0.018 0.037 0.061 0.122 0.304
(2) 6"x5" TME (E - Verizon)	C	From Leg	4.000 0.000 0.000	0.000	111.000	No Ice 0.292 1/2" Ice 0.367 1" Ice 0.452 2" Ice 0.646 4" Ice 1.139	0.175 0.238 0.309 0.477 0.918	0.010 0.013 0.016 0.028 0.072
(2) 6"x5" TME (E - Verizon)	B	From Leg	4.000 0.000 0.000	0.000	111.000	No Ice 0.292 1/2" Ice 0.367 1" Ice 0.452 2" Ice 0.646 4" Ice 1.139	0.175 0.238 0.309 0.477 0.918	0.010 0.013 0.016 0.028 0.072
(2) 6"x5" TME (E - Verizon)	A	From Leg	4.000 0.000 0.000	0.000	111.000	No Ice 0.292 1/2" Ice 0.367 1" Ice 0.452 2" Ice 0.646 4" Ice 1.139	0.175 0.238 0.309 0.477 0.918	0.010 0.013 0.016 0.028 0.072
14' L.P. Platform (E - Verizon)	C	None		0.000	110.000	No Ice 32.000 1/2" Ice 37.000 1" Ice 42.000 2" Ice 52.000 4" Ice 72.000	32.000 37.000 42.000 52.000 72.000	1.600 2.040 2.480 3.360 5.119
*** 6'x6"x4" Panel (E - Metro PCS)	C	From Leg	2.000 0.000 0.000	80.000	90.000	No Ice 4.700 1/2" Ice 5.147 1" Ice 5.602 2" Ice 6.533 4" Ice 8.521	2.950 3.381 3.819 4.719 6.606	0.025 0.049 0.079 0.155 0.382
6'x6"x4" Panel (E - Metro PCS)	B	From Leg	2.000 0.000 0.000	80.000	90.000	No Ice 4.700 1/2" Ice 5.147 1" Ice 5.602 2" Ice 6.533 4" Ice 8.521	2.950 3.381 3.819 4.719 6.606	0.025 0.049 0.079 0.155 0.382
6'x6"x4" Panel (E - Metro PCS)	A	From Leg	2.000 0.000 0.000	80.000	90.000	No Ice 4.700 1/2" Ice 5.147 1" Ice 5.602 2" Ice 6.533 4" Ice 8.521	2.950 3.381 3.819 4.719 6.606	0.025 0.049 0.079 0.155 0.382
6' x 2" Mount Pipe (E - Metro PCS)	C	From Leg	2.000 0.000 0.000	0.000	90.000	No Ice 1.425 1/2" Ice 1.925 1" Ice 2.294 2" Ice 3.060 4" Ice 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
6' x 2" Mount Pipe (E - Metro PCS)	B	From Leg	2.000 0.000	0.000	90.000	No Ice 1.425 1/2" Ice 1.925	1.425 1.925	0.022 0.033

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page	12 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date	10:55:49 11/07/13
	Client	AT&T Towers	Designed by	zsmith

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
6' x 2" Mount Pipe (E - Metro PCS)	A	From Leg	2.000	0.000	90.000	No Ice	1.425	1.425	0.022
			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231

GPS (E - Metro PCS)	C	From Leg	3.000	0.000	55.000	No Ice	0.204	0.204	0.008
			0.000			1/2" Ice	0.273	0.273	0.010
			0.000			1" Ice	0.351	0.351	0.013
						2" Ice	0.533	0.533	0.023
						4" Ice	0.999	0.999	0.065
Side Arm Mount [SO 702-1] (E - Metro PCS)	C	From Leg	1.000	0.000	55.000	No Ice	1.000	1.430	0.027
			0.000			1/2" Ice	1.000	2.050	0.038
			0.000			1" Ice	1.000	2.670	0.049
						2" Ice	1.000	3.910	0.071
						4" Ice	1.000	6.390	0.115

GPS (E)	C	From Leg	3.000	0.000	50.000	No Ice	0.204	0.204	0.008
			0.000			1/2" Ice	0.273	0.273	0.010
			0.000			1" Ice	0.351	0.351	0.013
						2" Ice	0.533	0.533	0.023
						4" Ice	0.999	0.999	0.065
Side Arm Mount [SO 702-1] (E)	C	From Leg	1.000	0.000	50.000	No Ice	1.000	1.430	0.027
			0.000			1/2" Ice	1.000	2.050	0.038
			0.000			1" Ice	1.000	2.670	0.049
						2" Ice	1.000	3.910	0.071
						4" Ice	1.000	6.390	0.115

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page	13 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date	10:55:49 11/07/13
	Client	AT&T Towers	Designed by	zsmith

Comb. No.	Description
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	148 - 111	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-19.018	-1.763	-0.619
			Max. Mx	5	-9.116	-416.485	0.388
			Max. My	8	-9.148	0.179	-412.070
			Max. Vy	5	18.161	-416.485	0.388
			Max. Vx	8	17.947	0.179	-412.070
			Max. Torque	11			-1.039
L2	111 - 99.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-26.661	-2.672	-1.165
			Max. Mx	5	-13.333	-764.974	1.149
			Max. My	8	-13.363	0.851	-757.156
			Max. Vy	5	24.537	-764.974	1.149
			Max. Vx	8	24.322	0.851	-757.156
			Max. Torque	12			-0.859
L3	99.5 - 90.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-29.049	-3.044	-1.606
			Max. Mx	5	-15.149	-989.822	1.526
			Max. My	8	-15.176	1.328	-980.175
			Max. Vy	5	25.448	-989.822	1.526
			Max. Vx	8	25.233	1.328	-980.175
			Max. Torque	12			-0.856
L4	90.5 - 75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-32.692	-4.077	-2.203
			Max. Mx	5	-17.742	-1276.904	1.993
			Max. My	8	-17.766	1.678	-1264.834
			Max. Vy	5	27.333	-1276.904	1.993
			Max. Vx	8	27.118	1.678	-1264.834
			Max. Torque	12			-0.834
L5	75 - 60.5	Pole	Max Tension	1	0.000	0.000	0.000

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page	14 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date	10:55:49 11/07/13
	Client	AT&T Towers	Designed by	zsmith

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L6	60.5 - 39.75	Pole	Max. Compression	14	-40.195	-6.021	-3.327
			Max. Mx	5	-23.589	-1825.272	2.810
			Max. My	8	-23.608	2.282	-1808.849
			Max. Vy	5	29.527	-1825.272	2.810
			Max. Vx	8	29.312	2.282	-1808.849
			Max. Torque	12			-0.783
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-46.260	-7.304	-4.469
			Max. Mx	5	-28.477	-2296.143	3.231
			Max. My	8	-28.490	2.806	-2276.634
			Max. Vy	5	31.229	-2296.143	3.231
			Max. Vx	8	31.031	2.806	-2276.634
L7	39.75 - 30.5	Pole	Max. Torque	12			-0.734
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-53.882	-8.768	-5.381
			Max. Mx	5	-34.781	-2760.767	3.612
			Max. My	8	-34.790	3.018	-2738.215
			Max. Vy	5	32.717	-2760.767	3.612
			Max. Vx	8	32.519	3.018	-2738.215
			Max. Torque	12			-0.352
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-67.342	-11.401	-7.038
			Max. Mx	5	-46.330	-3798.588	4.436
			Max. My	8	-46.330	3.525	-3769.770
L8	30.5 - 0	Pole	Max. Vy	5	35.314	-3798.588	4.436
			Max. Vx	8	35.121	3.525	-3769.770
			Max. Torque	12			-0.316

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	18	67.342	-8.493	-0.008
	Max. H _x	11	46.348	35.290	-0.042
	Max. H _z	2	46.348	-0.042	35.098
	Max. M _x	2	3765.885	-0.042	35.098
	Max. M _z	5	3798.588	-35.290	0.042
	Max. Torsion	7	0.210	-17.609	-30.375
	Min. Vert	1	46.348	0.000	0.000
	Min. H _x	5	46.348	-35.290	0.042
	Min. H _z	8	46.348	0.042	-35.098
	Min. M _x	8	-3769.770	0.042	-35.098
	Min. M _z	11	-3792.874	35.290	-0.042
	Min. Torsion	13	-0.214	17.609	30.375

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	46.348	0.000	0.000	1.891	-2.779	0.000
Dead+Wind 0 deg - No Ice	46.348	0.042	-35.098	-3765.885	-9.251	0.187

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page 15 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date 10:55:49 11/07/13
	Client	AT&T Towers	Designed by zsmith

Load Combination	Vertical K	Shear _x K	Shear _y K	Overtuning Moment, M _x kip-ft	Overtuning Moment, M _y kip-ft	Torque kip-ft
Dead+Wind 30 deg - No Ice	46.348	17.681	-30.416	-3264.253	-1906.291	0.111
Dead+Wind 60 deg - No Ice	46.348	30.583	-17.585	-1887.455	-3293.266	0.008
Dead+Wind 90 deg - No Ice	46.348	35.290	-0.042	-4.436	-3798.588	-0.095
Dead+Wind 120 deg - No Ice	46.348	30.541	17.513	1880.307	-3286.898	-0.175
Dead+Wind 150 deg - No Ice	46.348	17.609	30.375	3261.783	-1895.235	-0.210
Dead+Wind 180 deg - No Ice	46.348	-0.042	35.098	3769.770	3.525	-0.190
Dead+Wind 210 deg - No Ice	46.348	-17.681	30.416	3268.147	1900.560	-0.118
Dead+Wind 240 deg - No Ice	46.348	-30.583	17.585	1891.359	3287.541	-0.012
Dead+Wind 270 deg - No Ice	46.348	-35.290	0.042	8.340	3792.874	0.099
Dead+Wind 300 deg - No Ice	46.348	-30.541	-17.513	-1876.413	3281.190	0.182
Dead+Wind 330 deg - No Ice	46.348	-17.609	-30.375	-3257.898	1889.521	0.214
Dead+Ice+Temp	67.342	0.000	0.000	7.038	-11.401	-0.000
Dead+Wind 0 deg+Ice+Temp	67.342	-0.008	-8.483	-932.188	-11.151	0.050
Dead+Wind 30 deg+Ice+Temp	67.342	4.240	-7.343	-806.175	-482.066	0.055
Dead+Wind 60 deg+Ice+Temp	67.342	7.351	-4.235	-462.248	-826.890	0.045
Dead+Wind 90 deg+Ice+Temp	67.342	8.493	0.008	7.438	-953.229	0.023
Dead+Wind 120 deg+Ice+Temp	67.342	7.359	4.248	477.032	-827.232	-0.005
Dead+Wind 150 deg+Ice+Temp	67.342	4.253	7.351	820.706	-482.659	-0.032
Dead+Wind 180 deg+Ice+Temp	67.342	0.008	8.483	946.375	-11.837	-0.051
Dead+Wind 210 deg+Ice+Temp	67.342	-4.240	7.343	820.365	459.078	-0.056
Dead+Wind 240 deg+Ice+Temp	67.342	-7.351	4.235	476.439	803.904	-0.046
Dead+Wind 270 deg+Ice+Temp	67.342	-8.493	-0.008	6.753	930.245	-0.023
Dead+Wind 300 deg+Ice+Temp	67.342	-7.359	-4.248	-462.843	804.248	0.005
Dead+Wind 330 deg+Ice+Temp	67.342	-4.253	-7.351	-806.520	459.673	0.032
Dead+Wind 0 deg - Service	46.348	0.014	-12.145	-1303.342	-5.082	0.066
Dead+Wind 30 deg - Service	46.348	6.118	-10.525	-1129.573	-662.281	0.039
Dead+Wind 60 deg - Service	46.348	10.582	-6.085	-652.612	-1142.790	0.002
Dead+Wind 90 deg - Service	46.348	12.211	-0.014	-0.263	-1317.855	-0.036
Dead+Wind 120 deg - Service	46.348	10.568	6.060	652.679	-1140.577	-0.064
Dead+Wind 150 deg - Service	46.348	6.093	10.510	1131.260	-658.448	-0.075
Dead+Wind 180 deg - Service	46.348	-0.014	12.145	1307.241	-0.655	-0.066
Dead+Wind 210 deg - Service	46.348	-6.118	10.525	1133.473	656.544	-0.040
Dead+Wind 240 deg - Service	46.348	-10.582	6.085	656.512	1137.053	-0.002
Dead+Wind 270 deg - Service	46.348	-12.211	0.014	4.164	1312.120	0.036
Dead+Wind 300 deg - Service	46.348	-10.568	-6.060	-648.779	1134.842	0.065
Dead+Wind 330 deg - Service	46.348	-6.093	-10.510	-1127.362	652.712	0.076

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-46.348	0.000	0.000	46.348	0.000	0.000%
2	0.042	-46.348	-35.098	-0.042	46.348	35.098	0.000%
3	17.681	-46.348	-30.416	-17.681	46.348	30.416	0.000%
4	30.583	-46.348	-17.585	-30.583	46.348	17.585	0.000%
5	35.290	-46.348	-0.042	-35.290	46.348	0.042	0.000%
6	30.541	-46.348	17.513	-30.541	46.348	-17.513	0.000%
7	17.609	-46.348	30.375	-17.609	46.348	-30.375	0.000%
8	-0.042	-46.348	35.098	0.042	46.348	-35.098	0.000%
9	-17.681	-46.348	30.416	17.681	46.348	-30.416	0.000%
10	-30.583	-46.348	17.585	30.583	46.348	-17.585	0.000%
11	-35.290	-46.348	0.042	35.290	46.348	-0.042	0.000%
12	-30.541	-46.348	-17.513	30.541	46.348	17.513	0.000%
13	-17.609	-46.348	-30.375	17.609	46.348	30.375	0.000%
14	0.000	-67.342	0.000	-0.000	67.342	-0.000	0.000%
15	-0.008	-67.342	-8.483	0.008	67.342	8.483	0.000%
16	4.240	-67.342	-7.343	-4.240	67.342	7.343	0.000%

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page	16 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date	10:55:49 11/07/13
	Client	AT&T Towers	Designed by	zsmith

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
17	7.351	-67.342	-4.235	-7.351	67.342	4.235	0.000%
18	8.493	-67.342	0.008	-8.493	67.342	-0.008	0.000%
19	7.359	-67.342	4.248	-7.359	67.342	-4.248	0.000%
20	4.253	-67.342	7.351	-4.253	67.342	-7.351	0.000%
21	0.008	-67.342	8.483	-0.008	67.342	-8.483	0.000%
22	-4.240	-67.342	7.343	4.240	67.342	-7.343	0.000%
23	-7.351	-67.342	4.235	7.351	67.342	-4.235	0.000%
24	-8.493	-67.342	-0.008	8.493	67.342	0.008	0.000%
25	-7.359	-67.342	-4.248	7.359	67.342	4.248	0.000%
26	-4.253	-67.342	-7.351	4.253	67.342	7.351	0.000%
27	0.014	-46.348	-12.145	-0.014	46.348	12.145	0.000%
28	6.118	-46.348	-10.525	-6.118	46.348	10.525	0.000%
29	10.582	-46.348	-6.085	-10.582	46.348	6.085	0.000%
30	12.211	-46.348	-0.014	-12.211	46.348	0.014	0.000%
31	10.568	-46.348	6.060	-10.568	46.348	-6.060	0.000%
32	6.093	-46.348	10.510	-6.093	46.348	-10.510	0.000%
33	-0.014	-46.348	12.145	0.014	46.348	-12.145	0.000%
34	-6.118	-46.348	10.525	6.118	46.348	-10.525	0.000%
35	-10.582	-46.348	6.085	10.582	46.348	-6.085	0.000%
36	-12.211	-46.348	0.014	12.211	46.348	-0.014	0.000%
37	-10.568	-46.348	-6.060	10.568	46.348	6.060	0.000%
38	-6.093	-46.348	-10.510	6.093	46.348	10.510	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00052661
3	Yes	6	0.00000001	0.00003595
4	Yes	6	0.00000001	0.00003617
5	Yes	4	0.00000001	0.00061611
6	Yes	6	0.00000001	0.00003544
7	Yes	6	0.00000001	0.00003610
8	Yes	4	0.00000001	0.00035400
9	Yes	6	0.00000001	0.00003591
10	Yes	6	0.00000001	0.00003577
11	Yes	4	0.00000001	0.00042334
12	Yes	6	0.00000001	0.00003607
13	Yes	6	0.00000001	0.00003533
14	Yes	4	0.00000001	0.00011722
15	Yes	5	0.00000001	0.00043230
16	Yes	5	0.00000001	0.00051508
17	Yes	5	0.00000001	0.00051646
18	Yes	5	0.00000001	0.00044246
19	Yes	5	0.00000001	0.00052270
20	Yes	5	0.00000001	0.00052282
21	Yes	5	0.00000001	0.00043849
22	Yes	5	0.00000001	0.00050999
23	Yes	5	0.00000001	0.00051001
24	Yes	5	0.00000001	0.00043129
25	Yes	5	0.00000001	0.00050396
26	Yes	5	0.00000001	0.00050252
27	Yes	4	0.00000001	0.00018110
28	Yes	5	0.00000001	0.00008460
29	Yes	5	0.00000001	0.00008565

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page 17 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date 10:55:49 11/07/13
	Client	AT&T Towers	Designed by zsmith

30	Yes	4	0.00000001	0.00019088
31	Yes	5	0.00000001	0.00008278
32	Yes	5	0.00000001	0.00008561
33	Yes	4	0.00000001	0.00017660
34	Yes	5	0.00000001	0.00008420
35	Yes	5	0.00000001	0.00008381
36	Yes	4	0.00000001	0.00018392
37	Yes	5	0.00000001	0.00008492
38	Yes	5	0.00000001	0.00008146

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	148 - 111	32.439	30	1.984	0.003
L2	115 - 99.5	19.368	30	1.715	0.001
L3	99.5 - 90.5	14.188	30	1.427	0.001
L4	90.5 - 75	11.655	30	1.261	0.000
L5	79.75 - 60.5	9.007	30	1.089	0.000
L6	60.5 - 39.75	5.117	30	0.811	0.000
L7	45 - 30.5	2.855	30	0.582	0.000
L8	30.5 - 0	1.310	30	0.412	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
153.000	Lighting Rod 5/8" x 8'	30	32.439	1.984	0.003	25962
150.000	AM-X-CD-16-65-00T-RET w/ Mount Pipe	30	0.014	1.154	0.000	0.033
149.000	(2) AXCM-800/1900-90-13 w/ Mount Pipe	30	32.439	1.984	0.003	25962
148.000	(2) RBS6601	30	32.439	1.984	0.003	25962
141.000	(2) RR65-18-00DPL2 w/ Mount Pipe	30	29.554	1.951	0.003	18544
140.000	6' x 2" Mount Pipe	30	29.144	1.946	0.003	16226
125.000	(2) DB980F65T4E-M w/Mount Pipe	30	23.130	1.840	0.002	5643
124.000	14' L.P. Platform	30	22.743	1.830	0.002	5408
111.000	(2) LPA-80063/4CF w/ Mount Pipe	30	17.944	1.648	0.001	3418
110.000	14' L.P. Platform	30	17.596	1.630	0.001	3309
90.000	6'x6"x4" Panel	30	11.523	1.253	0.000	3407
55.000	GPS	30	4.234	0.728	0.000	3885
50.000	GPS	30	3.512	0.652	0.000	4668

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page	18 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date	10:55:49 11/07/13
	Client	AT&T Towers	Designed by	zsmith

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	148 - 111	93.333	5	5.709	0.009
L2	115 - 99.5	55.760	5	4.937	0.004
L3	99.5 - 90.5	40.859	5	4.109	0.002
L4	90.5 - 75	33.568	5	3.633	0.001
L5	79.75 - 60.5	25.945	5	3.136	0.001
L6	60.5 - 39.75	14.744	5	2.337	0.000
L7	45 - 30.5	8.227	5	1.677	0.000
L8	30.5 - 0	3.776	5	1.188	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
153.000	Lighting Rod 5/8" x 8'	5	93.333	5.709	0.009	9188
150.000	AM-X-CD-16-65-00T-RET w/ Mount Pipe	5	93.333	5.709	0.009	9188
149.000	(2) AXCM-800/1900-90-13 w/ Mount Pipe	5	93.333	5.709	0.009	9188
148.000	(2) RBS6601	5	93.333	5.709	0.009	9188
141.000	(2) RR65-18-00DPL2 w/ Mount Pipe	5	85.041	5.616	0.008	6562
140.000	6' x 2" Mount Pipe	5	83.862	5.602	0.008	5742
125.000	(2) DB980F65T4E-M w/Mount Pipe	5	66.577	5.297	0.005	1994
124.000	14' L.P. Platform	5	65.463	5.268	0.005	1911
111.000	(2) LPA-80063/4CF w/ Mount Pipe	5	51.664	4.744	0.003	1204
110.000	14' L.P. Platform	5	50.664	4.692	0.003	1166
90.000	6'x6"x4" Panel	5	33.189	3.608	0.001	1192
55.000	GPS	5	12.199	2.097	0.000	1352
50.000	GPS	5	10.120	1.879	0.000	1624

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P/P _a
L1	148 - 146.263	TP30.661x24x0.25	37.000	0.000	0.0	39.000	19.094	-2.433	744.656	0.003
	146.263 - 144.526					39.000	19.342	-2.581	754.332	0.003
	144.526 - 142.789					39.000	19.590	-2.731	764.008	0.004
	142.789 - 141.053					39.000	19.838	-2.882	773.685	0.004
	141.053 - 139.316					39.000	20.086	-4.748	783.361	0.006

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page	19 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date	10:55:49 11/07/13
	Client	AT&T Towers	Designed by	zsmith

Section No.	Elevation ft	Size	L ft	L _w ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
L2	139.316 - 137.579	TP31.232x29.441x0.25	15.500	0.000	0.0	39.000	20.334	-4.905	793.037	0.006
	137.579 - 135.842					39.000	20.582	-5.065	802.714	0.006
	135.842 - 134.105					39.000	20.830	-5.227	812.390	0.006
	134.105 - 132.368					39.000	21.079	-5.391	822.066	0.007
	132.368 - 130.632					39.000	21.327	-5.558	831.742	0.007
	130.632 - 128.895					39.000	21.575	-5.727	841.419	0.007
	128.895 - 127.158					39.000	21.823	-5.899	851.095	0.007
	127.158 - 125.421					39.000	22.071	-6.073	860.771	0.007
	125.421 - 123.684					39.000	22.319	-8.167	870.448	0.009
	123.684 - 121.947					39.000	22.567	-8.351	880.124	0.009
	121.947 - 120.211					39.000	22.815	-8.538	889.800	0.010
	120.211 - 118.474					39.000	23.063	-8.727	899.477	0.010
	118.474 - 116.737					39.000	23.312	-8.920	909.153	0.010
	116.737 - 115					39.000	23.560	-9.116	918.829	0.010
	115 - 111					39.000	24.131	-5.004	941.114	0.005
	115 - 111					39.000	23.530	-4.859	917.660	0.005
	111 - 109.955					39.000	23.626	-11.725	921.399	0.013
	109.955 - 108.909					39.000	23.722	-11.880	925.137	0.013
	108.909 - 107.864					39.000	23.817	-12.036	928.876	0.013
	107.864 - 106.818					39.000	23.913	-12.193	932.614	0.013
	106.818 - 105.773					39.000	24.009	-12.352	936.353	0.013
	105.773 - 104.727					39.000	24.105	-12.512	940.092	0.013
	104.727 - 103.682					39.000	24.201	-12.674	943.830	0.013
	103.682 - 102.636					39.000	24.297	-12.836	947.569	0.014
	102.636 - 101.591					39.000	24.392	-13.001	951.307	0.014
	101.591 - 100.545					39.000	24.488	-13.166	955.046	0.014
	100.545 - 99.5					39.000	24.584	-13.333	958.784	0.014
	99.5 - 98.5	TP33.852x31.232x0.352	9.000	0.000	0.0	31.380	34.816	-13.534	1092.530	0.012
	98.5 - 97.5					31.380	35.141	-13.731	1102.730	0.012
	97.5 - 96.5					31.380	35.466	-13.930	1112.940	0.013
	96.5 - 95.5					31.380	35.792	-14.130	1123.140	0.013
	95.5 - 94.5					31.380	36.117	-14.331	1133.340	0.013
	94.5 - 93.5					31.380	36.442	-14.534	1143.540	0.013
	93.5 - 92.5					31.380	36.767	-14.737	1153.750	0.013
	92.5 - 91.5	TP36.643x33.852x0.426	15.500	0.000	0.0	31.380	37.092	-14.942	1163.950	0.013
	91.5 - 90.5					31.380	37.417	-15.149	1174.150	0.013
	90.5 - 89.425					32.700	45.458	-15.492	1486.470	0.010
L4	89.425 - 88.35					32.700	45.720	-15.737	1495.030	0.011

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page	21 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date	10:55:49 11/07/13
	Client	AT&T Towers	Designed by	zsmith

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
L8	36.6667	TP49.02x43.742x0.621	30.500	0.000	0.0					
	36.6667 - 35.6389					33.240	80.330	-32.945	2670.170	0.012
	35.6389 - 34.6111					33.240	80.731	-33.309	2683.500	0.012
	34.6111 - 33.5833					33.240	81.132	-33.675	2696.830	0.012
	33.5833 - 32.5556					33.240	81.533	-34.042	2710.160	0.013
	32.5556 - 31.5278					33.240	81.934	-34.411	2723.490	0.013
	31.5278 - 30.5					33.240	82.335	-34.781	2736.820	0.013
	30.5 - 28.975					34.380	85.487	-35.325	2939.040	0.012
	28.975 - 27.45					34.380	86.007	-35.878	2956.910	0.012
	27.45 - 25.925					34.380	86.527	-36.433	2974.790	0.012
	25.925 - 24.4					34.380	87.047	-36.992	2992.670	0.012
	24.4 - 22.875					34.380	87.567	-37.553	3010.550	0.012
	22.875 - 21.35					34.380	88.087	-38.118	3028.420	0.013
	21.35 - 19.825					34.380	88.607	-38.685	3046.300	0.013
	19.825 - 18.3					34.380	89.127	-39.255	3064.180	0.013
	18.3 - 16.775					34.380	89.647	-39.829	3082.060	0.013
	16.775 - 15.25					34.380	90.167	-40.405	3099.930	0.013
	15.25 - 13.725					34.380	90.687	-40.984	3117.810	0.013
	13.725 - 12.2					34.380	91.207	-41.566	3135.690	0.013
	12.2 - 10.675					34.380	91.727	-42.152	3153.570	0.013
	10.675 - 9.15					34.380	92.247	-42.740	3171.440	0.013
	9.15 - 7.625					34.380	92.767	-43.331	3189.320	0.014
	7.625 - 6.1					34.380	93.287	-43.925	3207.200	0.014
	6.1 - 4.575					34.380	93.807	-44.522	3225.080	0.014
	4.575 - 3.05					34.380	94.327	-45.121	3242.950	0.014
	3.05 - 1.525					34.380	94.847	-45.724	3260.830	0.014
	1.525 - 0					34.380	95.367	-46.330	3278.710	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M _x kip-ft	Actual f _{bx} ksi	Allow. F _{bx} ksi	Ratio f _{bx} F _{bx}	Actual M _y kip-ft	Actual f _{by} ksi	Allow. F _{by} ksi	Ratio f _{by} F _{by}
L.1	148 - 146.263	TP30.661x24x0.25	17.597	1.867	39.000	0.048	0.000	0.000	39.000	0.000
	146.263 - 144.526		29.445	3.044	39.000	0.078	0.000	0.000	39.000	0.000
	144.526 - 142.789		41.561	4.188	39.000	0.107	0.000	0.000	39.000	0.000
	142.789 - 141.053		53.947	5.301	39.000	0.136	0.000	0.000	39.000	0.000
	141.053 - 139.316		71.213	6.825	39.000	0.175	0.000	0.000	39.000	0.000
	139.316 - 137.579		90.824	8.492	39.000	0.218	0.000	0.000	39.000	0.000
	137.579 - 135.842		110.708	10.102	39.000	0.259	0.000	0.000	39.000	0.000
	135.842 - 134.105		130.868	11.658	39.000	0.299	0.000	0.000	39.000	0.000
	134.105 - 132.368		151.306	13.161	39.000	0.337	0.000	0.000	39.000	0.000
	132.368 -		172.021	14.615	39.000	0.375	0.000	0.000	39.000	0.000

Page 22 of 32
Date 10:55:49 11/07/13
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Section No.	Elevation <i>ft</i>	Size	Actual <i>M_x</i> <i>kip-ft</i>	Actual <i>F_{bx}</i> <i>ksi</i>	Allow. <i>F_{bx}</i> <i>ksi</i>	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual <i>M_y</i> <i>kip-ft</i>	Actual <i>f_{by}</i> <i>ksi</i>	Allow. <i>F_{by}</i> <i>ksi</i>	Ratio $\frac{f_{by}}{F_{by}}$								
L2	130.632	TP31.232x29.441x0.25	193.017	16.022	39.000	0.411	0.000	0.000	39.000	0.000								
	130.632 - 128.895																	
	128.895 - 127.158										214.293	17.385	39.000	0.446	0.000	0.000	39.000	0.000
	127.158 - 125.421										235.852	18.704	39.000	0.480	0.000	0.000	39.000	0.000
	125.421 - 123.684										262.268	20.337	39.000	0.521	0.000	0.000	39.000	0.000
	123.684 - 121.947										292.546	22.187	39.000	0.569	0.000	0.000	39.000	0.000
	121.947 - 120.211										323.105	23.972	39.000	0.615	0.000	0.000	39.000	0.000
	120.211 - 118.474										353.948	25.696	39.000	0.659	0.000	0.000	39.000	0.000
	118.474 - 116.737										385.074	27.361	39.000	0.702	0.000	0.000	39.000	0.000
	116.737 - 115										416.485	28.970	39.000	0.743	0.000	0.000	39.000	0.000
	115 - 111										252.857	16.762	39.000	0.430	0.000	0.000	39.000	0.000
	115 - 111										237.136	16.537	39.000	0.424	0.000	0.000	39.000	0.000
	111 - 109.955										513.115	35.492	39.000	0.910	0.000	0.000	39.000	0.000
	109.955 - 108.909										537.873	36.904	39.000	0.946	0.000	0.000	39.000	0.000
	108.909 - 107.864										562.727	38.297	39.000	0.982	0.000	0.000	39.000	0.000
	107.864 - 106.818										587.678	39.674	39.000	1.017	0.000	0.000	39.000	0.000
	106.818 - 105.773										612.722	41.034	39.000	1.052	0.000	0.000	39.000	0.000
	105.773 - 104.727										637.862	42.377	39.000	1.087	0.000	0.000	39.000	0.000
	104.727 - 103.682										663.097	43.704	39.000	1.121	0.000	0.000	39.000	0.000
	L3										103.682 - 102.636	688.427	45.014	39.000	1.154	0.000	0.000	39.000
102.636 - 101.591		713.849	46.309	39.000	1.187	0.000	0.000	39.000	0.000									
101.591 - 100.545		739.366	47.588	39.000	1.220	0.000	0.000	39.000	0.000									
100.545 - 99.5		764.975	48.852	39.000	1.253	0.000	0.000	39.000	0.000									
99.5 - 98.5		789.556	35.500	31.380	1.131	0.000	0.000	31.380	0.000									
98.5 - 97.5		814.235	35.932	31.380	1.145	0.000	0.000	31.380	0.000									
97.5 - 96.5		839.017	36.346	31.380	1.158	0.000	0.000	31.380	0.000									
96.5 - 95.5		863.892	36.743	31.380	1.171	0.000	0.000	31.380	0.000									
95.5 - 94.5		888.875	37.124	31.380	1.183	0.000	0.000	31.380	0.000									
94.5 - 93.5		913.958	37.490	31.380	1.195	0.000	0.000	31.380	0.000									
93.5 - 92.5		939.142	37.841	31.380	1.206	0.000	0.000	31.380	0.000									
92.5 - 91.5		964.433	38.179	31.380	1.217	0.000	0.000	31.380	0.000									
L4	91.5 - 90.5	989.825	38.502	31.380	1.227	0.000	0.000	31.380	0.000									
	90.5 - 89.425	1017.64	32.536	32.700	0.995	0.000	0.000	32.700	0.000									
	89.425 - 88.35	1045.92	33.057	32.700	1.011	0.000	0.000	32.700	0.000									
	88.35 - 87.275	1074.34	33.567	32.700	1.027	0.000	0.000	32.700	0.000									
	87.275 - 86.2	1102.88	34.067	32.700	1.042	0.000	0.000	32.700	0.000									
	86.2 - 85.125	1131.55	34.558	32.700	1.057	0.000	0.000	32.700	0.000									
	85.125 - 84.05	1160.36	35.040	32.700	1.072	0.000	0.000	32.700	0.000									
	84.05 - 83.0	1189.22	35.522	32.700	1.087	0.000	0.000	32.700	0.000									
	83.0 - 82.0	1218.08	36.004	32.700	1.102	0.000	0.000	32.700	0.000									
	82.0 - 81.0	1246.94	36.486	32.700	1.117	0.000	0.000	32.700	0.000									

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page 23 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date 10:55:49 11/07/13
	Client	AT&T Towers	Designed by zsmith

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
	84.05 - 82.975		1189.30 0	35.513	32.700	1.086	0.000	0.000	32.700	0.000
	82.975 - 81.9		1218.37 5	35.977	32.700	1.100	0.000	0.000	32.700	0.000
	81.9 - 80.825		1247.57 5	36.432	32.700	1.114	0.000	0.000	32.700	0.000
	80.825 - 79.75		1276.90 8	36.879	32.700	1.128	0.000	0.000	32.700	0.000
L5	79.75 - 75	TP38.936x34.936x0.48	687.421	18.922	32.700	0.579	0.000	0.000	32.700	0.000
	79.75 - 75		720.883	18.428	32.580	0.566	0.000	0.000	32.580	0.000
	75 - 73.9643		1437.34 2	36.298	32.580	1.114	0.000	0.000	32.580	0.000
	73.9643 - 72.9286		1466.49 2	36.588	32.580	1.123	0.000	0.000	32.580	0.000
	72.9286 - 71.8929		1495.75 8	36.872	32.580	1.132	0.000	0.000	32.580	0.000
	71.8929 - 70.8571		1525.13 3	37.149	32.580	1.140	0.000	0.000	32.580	0.000
	70.8571 - 69.8214		1554.62 5	37.419	32.580	1.149	0.000	0.000	32.580	0.000
	69.8214 - 68.7857		1584.23 3	37.683	32.580	1.157	0.000	0.000	32.580	0.000
	68.7857 - 67.75		1613.95 8	37.942	32.580	1.165	0.000	0.000	32.580	0.000
	67.75 - 66.7143		1643.80 0	38.194	32.580	1.172	0.000	0.000	32.580	0.000
	66.7143 - 65.6786		1673.75 0	38.441	32.580	1.180	0.000	0.000	32.580	0.000
	65.6786 - 64.6429		1703.82 5	38.682	32.580	1.187	0.000	0.000	32.580	0.000
	64.6429 - 63.6071		1734.00 8	38.917	32.580	1.195	0.000	0.000	32.580	0.000
	63.6071 - 62.5714		1764.31 7	39.148	32.580	1.202	0.000	0.000	32.580	0.000
	62.5714 - 61.5357		1794.73 3	39.373	32.580	1.209	0.000	0.000	32.580	0.000
	61.5357 - 60.5		1825.27 5	39.593	32.580	1.215	0.000	0.000	32.580	0.000
L6	60.5 - 59.4667	TP42.849x38.936x0.541	1855.85 8	35.522	33.720	1.053	0.000	0.000	33.720	0.000
	59.4667 - 58.4333		1886.55 0	35.745	33.720	1.060	0.000	0.000	33.720	0.000
	58.4333 - 57.4		1917.35 0	35.964	33.720	1.067	0.000	0.000	33.720	0.000
	57.4 - 56.3667		1948.26 7	36.179	33.720	1.073	0.000	0.000	33.720	0.000
	56.3667 - 55.3333		1979.29 2	36.390	33.720	1.079	0.000	0.000	33.720	0.000
	55.3333 - 54.3		2010.36 7	36.595	33.720	1.085	0.000	0.000	33.720	0.000
	54.3 - 53.2667		2041.65 8	36.799	33.720	1.091	0.000	0.000	33.720	0.000
	53.2667 - 52.2333		2073.06 7	36.999	33.720	1.097	0.000	0.000	33.720	0.000
	52.2333 - 51.2		2104.58 3	37.196	33.720	1.103	0.000	0.000	33.720	0.000
	51.2 - 50.1667		2136.20 8	37.388	33.720	1.109	0.000	0.000	33.720	0.000
	50.1667 -		2167.89	37.577	33.720	1.114	0.000	0.000	33.720	0.000

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	Page
	86667.004 - Middletown, CT (USID# 14635)	24 of 32
	Project	Date
	148' PennSummit Monopole / Sprint Co-locate	10:55:49 11/07/13
	Client	Designed by
	AT&T Towers	zsmith

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
	49.1333		2							
	49.1333 - 48.1		2199.78	37.763	33.720	1.120	0.000	0.000	33.720	0.000
			3							
	48.1 - 47.0667		2231.79	37.946	33.720	1.125	0.000	0.000	33.720	0.000
			2							
	47.0667 - 46.0333		2263.91	38.126	33.720	1.131	0.000	0.000	33.720	0.000
			7							
	46.0333 - 45		2296.14	38.303	33.720	1.136	0.000	0.000	33.720	0.000
			2							
	45 - 39.75		1214.99	19.324	33.720	0.573	0.000	0.000	33.720	0.000
			2							
L7	45 - 39.75	TP43.742x40.777x0.601	1246.89	18.797	33.240	0.565	0.000	0.000	33.240	0.000
			2							
	39.75 - 38.7222		2494.70	37.225	33.240	1.120	0.000	0.000	33.240	0.000
			8							
	38.7222 - 37.6944		2527.63	37.334	33.240	1.123	0.000	0.000	33.240	0.000
			3							
	37.6944 - 36.6667		2560.65	37.440	33.240	1.126	0.000	0.000	33.240	0.000
			0							
	36.6667 - 35.6389		2593.76	37.544	33.240	1.129	0.000	0.000	33.240	0.000
			7							
	35.6389 - 34.6111		2626.97	37.645	33.240	1.133	0.000	0.000	33.240	0.000
			5							
	34.6111 - 33.5833		2660.27	37.744	33.240	1.135	0.000	0.000	33.240	0.000
			5							
	33.5833 - 32.5556		2693.67	37.840	33.240	1.138	0.000	0.000	33.240	0.000
			5							
	32.5556 - 31.5278		2727.17	37.934	33.240	1.141	0.000	0.000	33.240	0.000
			5							
	31.5278 - 30.5		2760.76	38.026	33.240	1.144	0.000	0.000	33.240	0.000
			7							
L8	30.5 - 28.975	TP49.02x43.742x0.621	2810.78	37.091	34.380	1.079	0.000	0.000	34.380	0.000
			3							
	28.975 - 27.45		2860.99	37.295	34.380	1.085	0.000	0.000	34.380	0.000
			2							
	27.45 - 25.925		2911.40	37.494	34.380	1.091	0.000	0.000	34.380	0.000
			0							
	25.925 - 24.4		2962.00	37.688	34.380	1.096	0.000	0.000	34.380	0.000
			8							
	24.4 - 22.875		3012.81	37.878	34.380	1.102	0.000	0.000	34.380	0.000
			7							
	22.875 - 21.35		3063.82	38.063	34.380	1.107	0.000	0.000	34.380	0.000
			5							
	21.35 - 19.825		3115.02	38.243	34.380	1.112	0.000	0.000	34.380	0.000
			5							
	19.825 - 18.3		3166.42	38.418	34.380	1.117	0.000	0.000	34.380	0.000
			5							
	18.3 - 16.775		3218.02	38.590	34.380	1.122	0.000	0.000	34.380	0.000
			5							
	16.775 - 15.25		3269.81	38.757	34.380	1.127	0.000	0.000	34.380	0.000
			7							
	15.25 - 13.725		3321.81	38.920	34.380	1.132	0.000	0.000	34.380	0.000
			7							
	13.725 - 12.2		3374.00	39.079	34.380	1.137	0.000	0.000	34.380	0.000
			0							
	12.2 - 10.675		3426.39	39.234	34.380	1.141	0.000	0.000	34.380	0.000
			2							
	10.675 - 9.15		3478.97	39.386	34.380	1.146	0.000	0.000	34.380	0.000
			5							
	9.15 - 7.625		3531.75	39.533	34.380	1.150	0.000	0.000	34.380	0.000

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page 25 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date 10:55:49 11/07/13
	Client	AT&T Towers	Designed by zsmith

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
			0							
	7.625 - 6.1		3584.72	39.677	34.380	1.154	0.000	0.000	34.380	0.000
			5							
	6.1 - 4.575		3637.90	39.818	34.380	1.158	0.000	0.000	34.380	0.000
			0							
	4.575 - 3.05		3691.26	39.955	34.380	1.162	0.000	0.000	34.380	0.000
			7							
	3.05 - 1.525		3744.83	40.088	34.380	1.166	0.000	0.000	34.380	0.000
			3							
	1.525 - 0		3798.59	40.219	34.380	1.170	0.000	0.000	34.380	0.000
			2							

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_t ksi	Allow. F_t ksi	Ratio $\frac{f_t}{F_t}$
L1	148 - 146.263	TP30.661x24x0.25	6.733	0.353	26.000	0.027	1.037	0.054	26.000	0.002
	146.263 - 144.526		6.887	0.356	26.000	0.027	1.037	0.052	26.000	0.002
	144.526 - 142.789		7.041	0.359	26.000	0.028	1.034	0.051	26.000	0.002
	142.789 - 141.053		7.197	0.363	26.000	0.028	1.031	0.049	26.000	0.002
	141.053 - 139.316		11.201	0.558	26.000	0.043	1.028	0.048	26.000	0.002
	139.316 - 137.579		11.358	0.559	26.000	0.043	1.025	0.047	26.000	0.002
	137.579 - 135.842		11.517	0.560	26.000	0.043	1.022	0.045	26.000	0.002
	135.842 - 134.105		11.676	0.561	26.000	0.043	1.019	0.044	26.000	0.002
	134.105 - 132.368		11.836	0.562	26.000	0.043	1.016	0.043	26.000	0.002
	132.368 - 130.632		11.997	0.563	26.000	0.043	1.012	0.042	26.000	0.002
	130.632 - 128.895		12.159	0.564	26.000	0.043	1.009	0.041	26.000	0.002
	128.895 - 127.158		12.322	0.565	26.000	0.043	1.006	0.040	26.000	0.002
	127.158 - 125.421		12.485	0.566	26.000	0.044	1.003	0.039	26.000	0.001
	125.421 - 123.684		17.343	0.777	26.000	0.060	0.999	0.038	26.000	0.001
	123.684 - 121.947		17.506	0.776	26.000	0.060	0.827	0.031	26.000	0.001
	121.947 - 120.211		17.669	0.774	26.000	0.060	0.823	0.030	26.000	0.001
	120.211 - 118.474		17.833	0.773	26.000	0.059	0.820	0.029	26.000	0.001
	118.474 - 116.737		17.997	0.772	26.000	0.059	0.817	0.028	26.000	0.001
	116.737 - 115		18.161	0.771	26.000	0.059	0.813	0.028	26.000	0.001
	115 - 111		9.675	0.401	26.000	0.031	0.420	0.014	26.000	0.001
L2	115 - 111	TP31.232x29.441x0.25	8.910	0.379	26.000	0.029	0.390	0.013	26.000	0.001
	111 - 109.955		23.629	1.000	26.000	0.077	0.802	0.027	26.000	0.001

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	Page
	86667.004 - Middletown, CT (USID# 14635)	26 of 32
	Project 148' PennSummit Monopole / Sprint Co-locate	Date 10:55:49 11/07/13
	Client AT&T Towers	Designed by zsmith

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_t ksi	Allow. F_t ksi	Ratio $\frac{f_t}{F_t}$
	109.955 - 108.909		23.721	1.000	26.000	0.077	0.800	0.027	26.000	0.001
	108.909 - 107.864		23.814	1.000	26.000	0.077	0.797	0.026	26.000	0.001
	107.864 - 106.818		23.905	1.000	26.000	0.077	0.795	0.026	26.000	0.001
	106.818 - 105.773		23.997	0.999	26.000	0.077	0.793	0.026	26.000	0.001
	105.773 - 104.727		24.087	0.999	26.000	0.077	0.791	0.026	26.000	0.001
	104.727 - 103.682		24.178	0.999	26.000	0.077	0.789	0.025	26.000	0.001
	103.682 - 102.636		24.268	0.999	26.000	0.077	0.786	0.025	26.000	0.001
	102.636 - 101.591		24.358	0.999	26.000	0.077	0.784	0.025	26.000	0.001
	101.591 - 100.545		24.448	0.998	26.000	0.077	0.782	0.025	26.000	0.001
L3	100.545 - 99.5	TP33.852x31.232x0.352	24.537	0.998	26.000	0.077	0.780	0.024	26.000	0.001
	99.5 - 98.5		24.633	0.708	20.920	0.068	0.777	0.017	20.920	0.001
	98.5 - 97.5		24.733	0.704	20.920	0.067	0.774	0.017	20.920	0.001
	97.5 - 96.5		24.834	0.700	20.920	0.067	0.771	0.016	20.920	0.001
	96.5 - 95.5		24.934	0.697	20.920	0.067	0.767	0.016	20.920	0.001
	95.5 - 94.5		25.036	0.693	20.920	0.066	0.764	0.016	20.920	0.001
	94.5 - 93.5		25.138	0.690	20.920	0.066	0.761	0.015	20.920	0.001
	93.5 - 92.5		25.241	0.687	20.920	0.066	0.757	0.015	20.920	0.001
	92.5 - 91.5		25.344	0.683	20.920	0.065	0.754	0.015	20.920	0.001
	91.5 - 90.5		25.448	0.680	20.920	0.065	0.750	0.014	20.920	0.001
L4	90.5 - 89.425	TP36.643x33.852x0.426	26.232	0.577	21.800	0.053	0.747	0.012	21.800	0.001
	89.425 - 88.35		26.354	0.576	21.800	0.053	0.741	0.011	21.800	0.001
	88.35 - 87.275		26.476	0.576	21.800	0.053	0.736	0.011	21.800	0.001
	87.275 - 86.2		26.597	0.575	21.800	0.053	0.730	0.011	21.800	0.001
	86.2 - 85.125		26.720	0.575	21.800	0.053	0.725	0.011	21.800	0.000
	85.125 - 84.05		26.842	0.574	21.800	0.053	0.720	0.011	21.800	0.000
	84.05 - 82.975		26.964	0.573	21.800	0.053	0.714	0.010	21.800	0.000
	82.975 - 81.9		27.087	0.573	21.800	0.053	0.708	0.010	21.800	0.000
	81.9 - 80.825		27.210	0.572	21.800	0.052	0.703	0.010	21.800	0.000
	80.825 - 79.75		27.333	0.572	21.800	0.052	0.697	0.010	21.800	0.000
L5	79.75 - 75	TP38.936x34.936x0.48	13.789	0.282	21.800	0.026	0.344	0.005	21.800	0.000
	79.75 - 75		14.185	0.263	21.720	0.024	0.348	0.004	21.720	0.000
	75 - 73.9643		28.073	0.517	21.720	0.048	0.667	0.008	21.720	0.000
	73.9643 - 72.9286		28.184	0.516	21.720	0.047	0.661	0.008	21.720	0.000
	72.9286 - 71.8929		28.294	0.515	21.720	0.047	0.656	0.008	21.720	0.000
	71.8929 - 70.8571		28.405	0.514	21.720	0.047	0.651	0.008	21.720	0.000
	70.8571 - 69.8214		28.516	0.513	21.720	0.047	0.646	0.008	21.720	0.000
	69.8214 - 68.7857		28.627	0.512	21.720	0.047	0.640	0.007	21.720	0.000
	68.7857 - 67.75		28.739	0.511	21.720	0.047	0.635	0.007	21.720	0.000
	67.75 - 66.7143		28.851	0.510	21.720	0.047	0.630	0.007	21.720	0.000
	66.7143 - 65.6786		28.963	0.509	21.720	0.047	0.624	0.007	21.720	0.000
	65.6786 - 64.6429		29.075	0.508	21.720	0.047	0.619	0.007	21.720	0.000
	64.6429 -		29.188	0.507	21.720	0.047	0.614	0.007	21.720	0.000

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page 27 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date 10:55:49 11/07/13
	Client	AT&T Towers	Designed by zsmith

Section No.	Elevation ft	Size	Actual V K	Actual f _v ksi	Allow. F _v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f _t ksi	Allow. F _t ksi	Ratio $\frac{f_t}{F_t}$
L6	63.6071	TP42.849x38.936x0.541								
	63.6071 - 62.5714		29.301	0.506	21.720	0.047	0.608	0.007	21.720	0.000
	62.5714 - 61.5357		29.414	0.505	21.720	0.046	0.603	0.006	21.720	0.000
	61.5357 - 60.5		29.527	0.504	21.720	0.046	0.597	0.006	21.720	0.000
	60.5 - 59.4667		29.633	0.447	22.480	0.040	0.592	0.005	22.480	0.000
	59.4667 - 58.4333		29.739	0.447	22.480	0.040	0.586	0.005	22.480	0.000
	58.4333 - 57.4		29.846	0.446	22.480	0.040	0.580	0.005	22.480	0.000
	57.4 - 56.3667		29.952	0.445	22.480	0.040	0.575	0.005	22.480	0.000
	56.3667 - 55.3333		30.059	0.445	22.480	0.040	0.569	0.005	22.480	0.000
	55.3333 - 54.3		30.215	0.445	22.480	0.040	0.563	0.005	22.480	0.000
	54.3 - 53.2667		30.322	0.444	22.480	0.040	0.472	0.004	22.480	0.000
	53.2667 - 52.2333		30.429	0.444	22.480	0.039	0.466	0.004	22.480	0.000
	52.2333 - 51.2		30.536	0.443	22.480	0.039	0.461	0.004	22.480	0.000
	51.2 - 50.1667		30.644	0.443	22.480	0.039	0.455	0.004	22.480	0.000
	50.1667 - 49.1333		30.798	0.443	22.480	0.039	0.449	0.004	22.480	0.000
	49.1333 - 48.1		30.906	0.442	22.480	0.039	0.358	0.003	22.480	0.000
	48.1 - 47.0667		31.014	0.441	22.480	0.039	0.352	0.003	22.480	0.000
	47.0667 - 46.0333		31.122	0.441	22.480	0.039	0.346	0.003	22.480	0.000
	46.0333 - 45		31.229	0.440	22.480	0.039	0.340	0.003	22.480	0.000
	45 - 39.75		15.885	0.219	22.480	0.019	0.173	0.001	22.480	0.000
L7	45 - 39.75	TP43.742x40.777x0.601	16.010	0.203	22.160	0.018	0.162	0.001	22.160	0.000
	39.75 - 38.7222		31.970	0.404	22.160	0.036	0.304	0.002	22.160	0.000
	38.7222 - 37.6944		32.063	0.403	22.160	0.036	0.298	0.002	22.160	0.000
	37.6944 - 36.6667		32.156	0.402	22.160	0.036	0.293	0.002	22.160	0.000
	36.6667 - 35.6389		32.249	0.401	22.160	0.036	0.287	0.002	22.160	0.000
	35.6389 - 34.6111		32.343	0.401	22.160	0.036	0.282	0.002	22.160	0.000
	34.6111 - 33.5833		32.436	0.400	22.160	0.036	0.277	0.002	22.160	0.000
	33.5833 - 32.5556		32.530	0.399	22.160	0.036	0.271	0.002	22.160	0.000
	32.5556 - 31.5278		32.624	0.398	22.160	0.036	0.266	0.002	22.160	0.000
	31.5278 - 30.5		32.717	0.397	22.160	0.036	0.260	0.002	22.160	0.000
L8	30.5 - 28.975	TP49.02x43.742x0.621	32.853	0.384	22.920	0.034	0.254	0.002	22.920	0.000
	28.975 - 27.45		32.984	0.384	22.920	0.033	0.247	0.002	22.920	0.000
	27.45 - 25.925		33.115	0.383	22.920	0.033	0.239	0.001	22.920	0.000
	25.925 - 24.4		33.245	0.382	22.920	0.033	0.232	0.001	22.920	0.000
	24.4 - 22.875		33.375	0.381	22.920	0.033	0.224	0.001	22.920	0.000
	22.875 - 21.35		33.505	0.380	22.920	0.033	0.216	0.001	22.920	0.000
	21.35 - 19.825		33.635	0.380	22.920	0.033	0.209	0.001	22.920	0.000
	19.825 - 18.3		33.765	0.379	22.920	0.033	0.201	0.001	22.920	0.000
	18.3 - 16.775		33.895	0.378	22.920	0.033	0.193	0.001	22.920	0.000
	16.775 - 15.25		34.025	0.377	22.920	0.033	0.185	0.001	22.920	0.000
	15.25 - 13.725		34.154	0.377	22.920	0.033	0.177	0.001	22.920	0.000
	13.725 - 12.2		34.284	0.376	22.920	0.033	0.169	0.001	22.920	0.000
	12.2 - 10.675		34.413	0.375	22.920	0.033	0.161	0.001	22.920	0.000
	10.675 - 9.15		34.542	0.374	22.920	0.033	0.153	0.001	22.920	0.000
	9.15 - 7.625		34.671	0.374	22.920	0.033	0.145	0.001	22.920	0.000

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page 28 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date 10:55:49 11/07/13
	Client	AT&T Towers	Designed by zsmith

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_t ksi	Allow. F_t ksi	Ratio $\frac{f_t}{F_t}$
	7.625 - 6.1		34.800	0.373	22.920	0.033	0.137	0.001	22.920	0.000
	6.1 - 4.575		34.929	0.372	22.920	0.032	0.129	0.001	22.920	0.000
	4.575 - 3.05		35.057	0.372	22.920	0.032	0.120	0.001	22.920	0.000
	3.05 - 1.525		35.185	0.371	22.920	0.032	0.112	0.001	22.920	0.000
	1.525 - 0		35.314	0.370	22.920	0.032	0.104	0.001	22.920	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P P_a	Ratio f_{bx} F_{bx}	Ratio f_{by} F_{by}	Ratio f_v F_v	Ratio f_t F_t	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	148 - 146.263	0.003	0.048	0.000	0.027	0.002	0.051	1.333	H1-3+VT ✓
	146.263 - 144.526	0.003	0.078	0.000	0.027	0.002	0.082	1.333	H1-3+VT ✓
	144.526 - 142.789	0.004	0.107	0.000	0.028	0.002	0.111	1.333	H1-3+VT ✓
	142.789 - 141.053	0.004	0.136	0.000	0.028	0.002	0.140	1.333	H1-3+VT ✓
	141.053 - 139.316	0.006	0.175	0.000	0.043	0.002	0.182	1.333	H1-3+VT ✓
	139.316 - 137.579	0.006	0.218	0.000	0.043	0.002	0.224	1.333	H1-3+VT ✓
	137.579 - 135.842	0.006	0.259	0.000	0.043	0.002	0.266	1.333	H1-3+VT ✓
	135.842 - 134.105	0.006	0.299	0.000	0.043	0.002	0.306	1.333	H1-3+VT ✓
	134.105 - 132.368	0.007	0.337	0.000	0.043	0.002	0.345	1.333	H1-3+VT ✓
	132.368 - 130.632	0.007	0.375	0.000	0.043	0.002	0.382	1.333	H1-3+VT ✓
	130.632 - 128.895	0.007	0.411	0.000	0.043	0.002	0.418	1.333	H1-3+VT ✓
	128.895 - 127.158	0.007	0.446	0.000	0.043	0.002	0.453	1.333	H1-3+VT ✓
	127.158 - 125.421	0.007	0.480	0.000	0.044	0.001	0.487	1.333	H1-3+VT ✓
	125.421 - 123.684	0.009	0.521	0.000	0.060	0.001	0.532	1.333	H1-3+VT ✓
	123.684 - 121.947	0.009	0.569	0.000	0.060	0.001	0.579	1.333	H1-3+VT ✓
	121.947 - 120.211	0.010	0.615	0.000	0.060	0.001	0.625	1.333	H1-3+VT ✓
	120.211 - 118.474	0.010	0.659	0.000	0.059	0.001	0.670	1.333	H1-3+VT ✓
	118.474 - 116.737	0.010	0.702	0.000	0.059	0.001	0.712	1.333	H1-3+VT ✓
	116.737 - 115	0.010	0.743	0.000	0.059	0.001	0.754	1.333	H1-3+VT ✓

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page	29 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date	10:55:49 11/07/13
	Client	AT&T Towers	Designed by	zsmith

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L2	115 - 111	0.005	0.430	0.000	0.031	0.001	0.435	1.333	H1-3+VT ✓
	115 - 111	0.005	0.424	0.000	0.029	0.001	0.430	1.333	H1-3+VT ✓
	111 - 109.955	0.013	0.910	0.000	0.077	0.001	0.924	1.333	H1-3+VT ✓
	109.955 - 108.909	0.013	0.946	0.000	0.077	0.001	0.961	1.333	H1-3+VT ✓
	108.909 - 107.864	0.013	0.982	0.000	0.077	0.001	0.996	1.333	H1-3+VT ✓
	107.864 - 106.818	0.013	1.017	0.000	0.077	0.001	1.032	1.333	H1-3+VT ✓
	106.818 - 105.773	0.013	1.052	0.000	0.077	0.001	1.067	1.333	H1-3+VT ✓
	105.773 - 104.727	0.013	1.087	0.000	0.077	0.001	1.101	1.333	H1-3+VT ✓
	104.727 - 103.682	0.013	1.121	0.000	0.077	0.001	1.136	1.333	H1-3+VT ✓
	103.682 - 102.636	0.014	1.154	0.000	0.077	0.001	1.169	1.333	H1-3+VT ✓
	102.636 - 101.591	0.014	1.187	0.000	0.077	0.001	1.203	1.333	H1-3+VT ✓
	101.591 - 100.545	0.014	1.220	0.000	0.077	0.001	1.236	1.333	H1-3+VT ✓
	100.545 - 99.5	0.014	1.253	0.000	0.077	0.001	1.268	1.333	H1-3+VT ✓
	99.5 - 98.5	0.012	1.131	0.000	0.068	0.001	1.145	1.333	H1-3+VT ✓
L3	98.5 - 97.5	0.012	1.145	0.000	0.067	0.001	1.159	1.333	H1-3+VT ✓
	97.5 - 96.5	0.013	1.158	0.000	0.067	0.001	1.172	1.333	H1-3+VT ✓
	96.5 - 95.5	0.013	1.171	0.000	0.067	0.001	1.185	1.333	H1-3+VT ✓
	95.5 - 94.5	0.013	1.183	0.000	0.066	0.001	1.197	1.333	H1-3+VT ✓
	94.5 - 93.5	0.013	1.195	0.000	0.066	0.001	1.209	1.333	H1-3+VT ✓
	93.5 - 92.5	0.013	1.206	0.000	0.066	0.001	1.220	1.333	H1-3+VT ✓
	92.5 - 91.5	0.013	1.217	0.000	0.065	0.001	1.231	1.333	H1-3+VT ✓
	91.5 - 90.5	0.013	1.227	0.000	0.065	0.001	1.241	1.333	H1-3+VT ✓
L4	90.5 - 89.425	0.010	0.995	0.000	0.053	0.001	1.006	1.333	H1-3+VT ✓
	89.425 - 88.35	0.011	1.011	0.000	0.053	0.001	1.022	1.333	H1-3+VT ✓
	88.35 - 87.275	0.011	1.027	0.000	0.053	0.001	1.038	1.333	H1-3+VT ✓
	87.275 - 86.2	0.011	1.042	0.000	0.053	0.001	1.053	1.333	H1-3+VT ✓

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	Page
	86667.004 - Middletown, CT (USID# 14635)	30 of 32
	Project 148' PennSummit Monopole / Sprint Co-locate	Date 10:55:49 11/07/13
	Client AT&T Towers	Designed by zsmith

Section No.	Elevation ft	Ratio P P_o	Ratio f_{bx} F_{bx}	Ratio f_{by} F_{by}	Ratio f_v F_v	Ratio f_t F_t	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L5	86.2 - 85.125	0.011	1.057	0.000	0.053	0.000	1.068	1.333	H1-3+VT ✓
	85.125 - 84.05	0.011	1.072	0.000	0.053	0.000	1.083	1.333	H1-3+VT ✓
	84.05 - 82.975	0.011	1.086	0.000	0.053	0.000	1.098	1.333	H1-3+VT ✓
	82.975 - 81.9	0.011	1.100	0.000	0.053	0.000	1.112	1.333	H1-3+VT ✓
	81.9 - 80.825	0.011	1.114	0.000	0.052	0.000	1.126	1.333	H1-3+VT ✓
	80.825 - 79.75	0.011	1.128	0.000	0.052	0.000	1.140	1.333	H1-3+VT ✓
	79.75 - 75	0.006	0.579	0.000	0.026	0.000	0.585	1.333	H1-3+VT ✓
	79.75 - 75	0.006	0.566	0.000	0.024	0.000	0.572	1.333	H1-3+VT ✓
	75 - 73.9643	0.011	1.114	0.000	0.048	0.000	1.126	1.333	H1-3+VT ✓
	73.9643 - 72.9286	0.011	1.123	0.000	0.047	0.000	1.135	1.333	H1-3+VT ✓
	72.9286 - 71.8929	0.011	1.132	0.000	0.047	0.000	1.144	1.333	H1-3+VT ✓
	71.8929 - 70.8571	0.012	1.140	0.000	0.047	0.000	1.152	1.333	H1-3+VT ✓
	70.8571 - 69.8214	0.012	1.149	0.000	0.047	0.000	1.161	1.333	H1-3+VT ✓
	69.8214 - 68.7857	0.012	1.157	0.000	0.047	0.000	1.169	1.333	H1-3+VT ✓
	68.7857 - 67.75	0.012	1.165	0.000	0.047	0.000	1.177	1.333	H1-3+VT ✓
	67.75 - 66.7143	0.012	1.172	0.000	0.047	0.000	1.185	1.333	H1-3+VT ✓
	66.7143 - 65.6786	0.012	1.180	0.000	0.047	0.000	1.192	1.333	H1-3+VT ✓
	65.6786 - 64.6429	0.012	1.187	0.000	0.047	0.000	1.200	1.333	H1-3+VT ✓
	64.6429 - 63.6071	0.012	1.195	0.000	0.047	0.000	1.207	1.333	H1-3+VT ✓
	63.6071 - 62.5714	0.012	1.202	0.000	0.047	0.000	1.214	1.333	H1-3+VT ✓
	62.5714 - 61.5357	0.012	1.209	0.000	0.046	0.000	1.221	1.333	H1-3+VT ✓
	61.5357 - 60.5	0.012	1.215	0.000	0.046	0.000	1.228	1.333	H1-3+VT ✓
	60.5 - 59.4667	0.011	1.053	0.000	0.040	0.000	1.065	1.333	H1-3+VT ✓
	59.4667 - 58.4333	0.011	1.060	0.000	0.040	0.000	1.071	1.333	H1-3+VT ✓
	58.4333 - 57.4	0.011	1.067	0.000	0.040	0.000	1.078	1.333	H1-3+VT ✓
	57.4 - 56.3667	0.011	1.073	0.000	0.040	0.000	1.084	1.333	H1-3+VT ✓

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page 31 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date 10:55:49 11/07/13
	Client	AT&T Towers	Designed by zsmith

Section No.	Elevation <i>ft</i>	Ratio P_a	Ratio f_{bx} F_{bx}	Ratio f_{by} F_{by}	Ratio f_v F_v	Ratio f_t F_t	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	56.3667 - 55.3333	0.011	1.079	0.000	0.040	0.000	1.091	1.333	H1-3+VT ✓
	55.3333 - 54.3	0.011	1.085	0.000	0.040	0.000	1.097	1.333	H1-3+VT ✓
	54.3 - 53.2667	0.011	1.091	0.000	0.040	0.000	1.103	1.333	H1-3+VT ✓
	53.2667 - 52.2333	0.011	1.097	0.000	0.039	0.000	1.109	1.333	H1-3+VT ✓
	52.2333 - 51.2	0.011	1.103	0.000	0.039	0.000	1.115	1.333	H1-3+VT ✓
	51.2 - 50.1667	0.011	1.109	0.000	0.039	0.000	1.121	1.333	H1-3+VT ✓
	50.1667 - 49.1333	0.012	1.114	0.000	0.039	0.000	1.126	1.333	H1-3+VT ✓
	49.1333 - 48.1	0.012	1.120	0.000	0.039	0.000	1.132	1.333	H1-3+VT ✓
	48.1 - 47.0667	0.012	1.125	0.000	0.039	0.000	1.137	1.333	H1-3+VT ✓
	47.0667 - 46.0333	0.012	1.131	0.000	0.039	0.000	1.143	1.333	H1-3+VT ✓
	46.0333 - 45	0.012	1.136	0.000	0.039	0.000	1.148	1.333	H1-3+VT ✓
	45 - 39.75	0.006	0.573	0.000	0.019	0.000	0.579	1.333	H1-3+VT ✓
L7	45 - 39.75	0.006	0.565	0.000	0.018	0.000	0.572	1.333	H1-3+VT ✓
	39.75 - 38.7222	0.012	1.120	0.000	0.036	0.000	1.132	1.333	H1-3+VT ✓
	38.7222 - 37.6944	0.012	1.123	0.000	0.036	0.000	1.136	1.333	H1-3+VT ✓
	37.6944 - 36.6667	0.012	1.126	0.000	0.036	0.000	1.139	1.333	H1-3+VT ✓
	36.6667 - 35.6389	0.012	1.129	0.000	0.036	0.000	1.142	1.333	H1-3+VT ✓
	35.6389 - 34.6111	0.012	1.133	0.000	0.036	0.000	1.145	1.333	H1-3+VT ✓
	34.6111 - 33.5833	0.012	1.135	0.000	0.036	0.000	1.148	1.333	H1-3+VT ✓
	33.5833 - 32.5556	0.013	1.138	0.000	0.036	0.000	1.151	1.333	H1-3+VT ✓
	32.5556 - 31.5278	0.013	1.141	0.000	0.036	0.000	1.154	1.333	H1-3+VT ✓
	31.5278 - 30.5	0.013	1.144	0.000	0.036	0.000	1.157	1.333	H1-3+VT ✓
L8	30.5 - 28.975	0.012	1.079	0.000	0.034	0.000	1.091	1.333	H1-3+VT ✓
	28.975 - 27.45	0.012	1.085	0.000	0.033	0.000	1.097	1.333	H1-3+VT ✓
	27.45 - 25.925	0.012	1.091	0.000	0.033	0.000	1.103	1.333	H1-3+VT ✓
	25.925 - 24.4	0.012	1.096	0.000	0.033	0.000	1.109	1.333	H1-3+VT ✓

tnxTower B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	86667.004 - Middletown, CT (USID# 14635)	Page	32 of 32
	Project	148' PennSummit Monopole / Sprint Co-locate	Date	10:55:49 11/07/13
	Client	AT&T Towers	Designed by	zsmith

Section No.	Elevation ft	Ratio P P_o	Ratio f_{bx}	Ratio f_{by}	Ratio f_v	Ratio f_{vt}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	24.4 - 22.875	0.012	1.102	0.000	0.033	0.000	1.114	1.333	H1-3+VT ✓
	22.875 - 21.35	0.013	1.107	0.000	0.033	0.000	1.120	1.333	H1-3+VT ✓
	21.35 - 19.825	0.013	1.112	0.000	0.033	0.000	1.125	1.333	H1-3+VT ✓
	19.825 - 18.3	0.013	1.117	0.000	0.033	0.000	1.131	1.333	H1-3+VT ✓
	18.3 - 16.775	0.013	1.122	0.000	0.033	0.000	1.136	1.333	H1-3+VT ✓
	16.775 - 15.25	0.013	1.127	0.000	0.033	0.000	1.141	1.333	H1-3+VT ✓
	15.25 - 13.725	0.013	1.132	0.000	0.033	0.000	1.145	1.333	H1-3+VT ✓
	13.725 - 12.2	0.013	1.137	0.000	0.033	0.000	1.150	1.333	H1-3+VT ✓
	12.2 - 10.675	0.013	1.141	0.000	0.033	0.000	1.155	1.333	H1-3+VT ✓
	10.675 - 9.15	0.013	1.146	0.000	0.033	0.000	1.159	1.333	H1-3+VT ✓
	9.15 - 7.625	0.014	1.150	0.000	0.033	0.000	1.164	1.333	H1-3+VT ✓
	7.625 - 6.1	0.014	1.154	0.000	0.033	0.000	1.168	1.333	H1-3+VT ✓
	6.1 - 4.575	0.014	1.158	0.000	0.032	0.000	1.172	1.333	H1-3+VT ✓
	4.575 - 3.05	0.014	1.162	0.000	0.032	0.000	1.176	1.333	H1-3+VT ✓
	3.05 - 1.525	0.014	1.166	0.000	0.032	0.000	1.180	1.333	H1-3+VT ✓
	1.525 - 0	0.014	1.170	0.000	0.032	0.000	1.184	1.333	H1-3+VT ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
L1	148 - 111	Pole	TP30.661x24x0.25	1	-9.116	1224.799	56.5	Pass
L2	111 - 99.5	Pole	TP31.232x29.441x0.25	2	-13.333	1278.059	95.1	Pass
L3	99.5 - 90.5	Pole	TP33.852x31.232x0.352	3	-15.149	1565.142	93.1	Pass
L4	90.5 - 75	Pole	TP36.643x33.852x0.426	4	-17.742	2084.145	85.5	Pass
L5	75 - 60.5	Pole	TP38.936x34.936x0.48	5	-23.590	2543.404	92.1	Pass
L6	60.5 - 39.75	Pole	TP42.849x38.936x0.541	6	-28.477	3187.883	86.1	Pass
L7	39.75 - 30.5	Pole	TP43.742x40.777x0.601	7	-34.781	3648.181	86.8	Pass
L8	30.5 - 0	Pole	TP49.02x43.742x0.621	8	-46.330	4370.520	88.8	Pass
							Summary	
							Pole (L2)	95.1
							RATING =	95.1
								Pass

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

Assumptions: 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
 2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
 3) Clear space between bottom of leveling nut and top of concrete not exceeding (1)*(Rod Diameter)

Site Data

Site#: *USID# 14635*
 Site Name: *Middletown, CT*
 Client: *AT&T Towers*

Anchor Rod Data

Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	56	in
Anchor Spacing:	6	in

Base Reactions

TIA Revision:	F	
Unfactored Moment, M:	3285.8	ft-kips
Unfactored Axial, P:	46	kips
Unfactored Shear, V:	35	kips

Anchor Rod Results

TIA F --> Maximum Rod Tension 173.2 Kips
 Allowable Tension: 195.0 Kips
 Anchor Rod Stress Ratio: 88.8% Pass

Plate Data

W=Side:	55	in
Thick:	3	in
Grade:	55	ksi
Clip Distance:	8.5	in

Base Plate Results

Base Plate Stress: 43.6 ksi
 Allowable PL Bending Stress: 55.0 ksi
 Base Plate Stress Ratio: 79.3% Pass

Flexural Check

PL Ref. Data

Yield Line (in):	28.76
Max PL Length:	28.76

Stiffener Data (Welding at both sides)

Configuration:	Unstiffened	
Weld Type:	**	
Groove Depth:	in **	
Groove Angle:	degrees	
Fillet H. Weld:	<-- Disregard	
Fillet V. Weld:	in	
Width:	in	
Height:	in	
Thick:	in	
Notch:	in	
Grade:	ksi	
Weld str.:	ksi	

N/A - Unstiffened

Stiffener Results

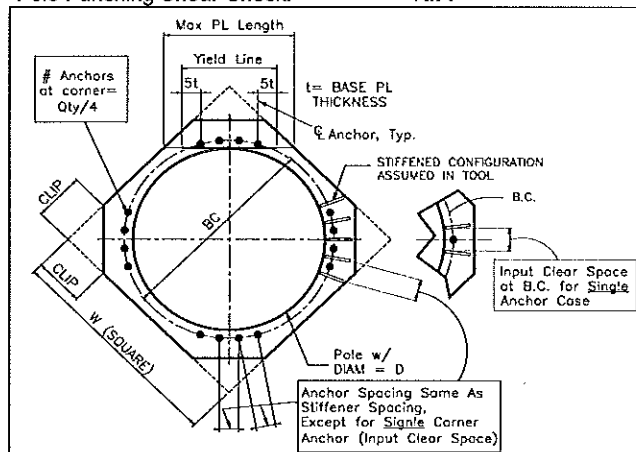
Horizontal Weld : N/A
 Vertical Weld: N/A
 Plate Flex+Shear, $f_b/F_b + (f_v/F_v)^2$: N/A
 Plate Tension+Shear, $f_t/F_t + (f_v/F_v)^2$: N/A
 Plate Comp. (AISC Bracket): N/A

Pole Results

Pole Punching Shear Check: N/A

Pole Data

Diam:	49.02	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round



Stress Increase Factor

ASD ASIF:	1.333	
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** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

(Bearing and Stability Checks) Tool for TIA Rev F or G - Application (MP, SST with unitbase)

Site Data

Site Number: 14635 (CT1142)

Site Name: Middletown SW

Enter Load Factors Below:

For P (DL)	1.2	<---- Enter Factor
For P,V, and M (WL)	1.35	<---- Enter Factor

Pad & Pier Data

Base PL Dist. Above Pier:	3	in
Pier Dist. Above Grade:	6	in
Pad Bearing Depth, D:	8	ft
Pad Thickness, T:	3	ft
Pad Width=Length, L:	22	ft
Pier Cross Section Shape:	Round	<--Pull Down
Enter Pier Diameter:	7	ft
Concrete Density:	150.0	pcf
Pier Cross Section Area:	38.48	ft^2
Pier Height:	5.50	ft
Soil (above pad) Height:	5.00	ft

Soil Parameters

Unit Weight, γ :	125.0	pcf
Ultimate Bearing Capacity, q_n :	16.00	ksf
Strength Reduct. factor, ϕ :	0.75	
Angle of Friction, Φ :	34.0	degrees
Undrained Shear Strength, C_u :	0.00	ksf
Allowable Bearing: ϕ^*q_n :	12.00	ksf
Passive Pres. Coeff., K_p :	3.54	

Forces/Moments due to Wind and Lateral Soil

Minimum of (ϕ^* Ultimate Pad Passive Force, V_u):	47.3	kips
Pad Force Location Above D:	1.38	ft
ϕ (Passive Pressure Moment):	65.42	ft-kips
Factored O.T. M(WL), "1.6W":	5554.2	ft-kips
Factored OT (MW-Msoil), M1	5488.81	ft-kips

Resistance due to Foundation Gravity

Soil Wedge Projection grade, a:	3.37	ft
Sum of Soil Wedges Wt:	65.38	kips
Soil Wedges ecc, K1:	6.40	ft
Ftg+Soil above Pad wt:	528.0	kips
Unfactored (Total ftg-soil Wt):	593.37	kips
1.2D. No Soil Wedges.	688.80	kips
0.9D. With Soil Wedges	575.44	kips

Resistance due to Cohesion (Vertical)

$\phi^*(1/2^*C_u)$ (Total Vert. Planes)	0.00	kips
Cohesion Force Eccentricity, K2	0.00	ft

Monopole Base Reaction Forces

TIA Revision:	F	<--Pull Down
Unfactored DL Axial, PD:	46	kips
Unfactored WL Axial, PW:	0	kips
Unfactored WL Shear, V:	35	kips
Unfactored WL Moment, M:	3808	ft-kips

Load Factor Shaft Factored Loads

1.20	1.2D+1.6W, Pu:	55.2	kips
0.90	0.9D+1.6W, Pu:	41.4	kips
1.35	Vu:	47.25	kips
	Mu:	5140.8	ft-kips

1.2D+1.6W Load Combination, Bearing Results:

(No Soil Wedges) [Reaction+Conc+Soil]	688.80	P1="1.2D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil), M1	5488.81	ft-kips

Orthogonal Direction:

$$\begin{aligned} ecc1 &= M1/P1 = 7.97 \text{ ft} \\ \text{Orthogonal } qu &= 5.16 \text{ ksf} \\ qu/\phi^*q_n \text{ Ratio} &= 43.04\% \text{ Pass} \end{aligned}$$

Diagonal Direction:

$$\begin{aligned} ecc2 &= (0.707M1)/P1 = 5.63 \text{ ft} \\ \text{Diagonal } qu &= 5.98 \text{ ksf} \\ qu/\phi^*q_n \text{ Ratio} &= 49.83\% \text{ Pass} \end{aligned}$$

Run

<-- Press Upon Completing All Input

Overturning Stability Check

0.9D+1.6W Load Combination, Bearing Results:

(w/ Soil Wedges) [Reaction+Conc+Soil]	575.44	P2="0.9D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil) - 0.9(M of Wedge + M of Cohesion), M2	5112.18	ft-kips

$$\begin{aligned} \text{Orthogonal } ecc3 &= M2/P2 = 8.88 \text{ ft} \\ \text{Ortho Non Bearing Length, NBL} &= 17.77 \text{ ft} \\ \text{Orthogonal } qu &= 6.18 \text{ ksf} \\ \text{Diagonal } qu &= 6.46 \text{ ksf} \end{aligned}$$

Max Reaction Moment (ft-kips) so that $qu=\phi^*q_n = 100\%$ Capacity Rating

Actual M:	3808.00		
M Orthogonal:	4248.34	89.63%	Pass
M Diagonal:	4248.34	89.63%	Pass



EBI Consulting

environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

Sprint Existing Facility

Site ID: CT43XC816

Middletown AT&T
290 Preston Avenue
Middletown, CT 06492

November 20, 2013

EBI Project Number: 69132173

November 20, 2013

Sprint
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Re: Emissions Values for Site: CT43XC816 – Middletown AT&T

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 290 Preston Avenue, Middletown, CT, for the purpose of determining whether the emissions from the proposed Sprint equipment upgrades on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the cellular band is approximately $567 \mu\text{W}/\text{cm}^2$, and the general population exposure limit for the PCS band is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed upgrades to the existing Sprint Wireless antenna facility located at 290 Preston Avenue, Middletown, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario. Actual values seen from this site will be dramatically less than those shown in this report. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all emissions were calculated using the following assumptions:

- 1) 2 CDMA Carriers (1900 MHz) were considered for each sector of the proposed installation.
- 2) 1 CDMA Carrier (850 MHz) was considered for each sector of the proposed installation
- 3) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 4) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
- 5) The antenna used in this modeling is the APXVSP18-C-A20. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.9 dBd gain value at its main lobe at 1900 MHz and 13.4 dBd at its main lobe for 850 MHz. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario.



- 6) The antenna mounting height centerline of the proposed antennas is **125 feet** above ground level (AGL)
- 7) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculation were done with respect to uncontrolled / general public threshold limits

Site ID	CT43/C315 - Middletown AT&T
Site Address	250 Preston Avenue, Middletown, CT, 06492
Site Type	Monopole

Sector 1

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain In direction of sample point (dBi)	Antenna Height (ft)	Analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	RFS	APXSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	2	40	15.9	125	119	1/2"	0.5	0	1386.9474	35.21049	3.52105%
1a	RFS	APXSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	125	119	1/2"	0.5	0	389.96892	9.900156	1.74606%
Sector total Power Density Value: 5.267%																	

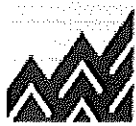
Sector 2

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain In direction of sample point (dBi)	Antenna Height (ft)	Analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
2a	RFS	APXSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	2	40	15.9	125	119	1/2"	0.5	0	1386.9474	35.21049	3.52105%
2a	RFS	APXSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	125	119	1/2"	0.5	0	389.96892	9.900156	1.74606%
Sector total Power Density Value: 5.267%																	

Sector 3

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain In direction of sample point (dBi)	Antenna Height (ft)	Analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
3a	RFS	APXSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	2	40	15.9	125	119	1/2"	0.5	0	1386.9474	35.21049	3.52105%
3a	RFS	APXSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	125	119	1/2"	0.5	0	389.96892	9.900156	1.74606%
Sector total Power Density Value: 5.267%																	

Site Composite MPE %	
Carrier	MPE %
Sprint	15.801%
MetroPCS	15.010%
Nexel	4.130%
Verizon Wireless	21.450%
AT&T	14.480%
Total Site MPE %	70.8704



Summary

All calculations performed for this analysis yielded results that were well within the allowable limits for general public exposure to RF Emissions.

The anticipated Maximum Composite contributions from the Sprint facility are **15.801% (5.267% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **70.871%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

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