



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

October 12, 2012

Eric Dahl
Nexlink Global Services
55 Lynn Road
Ivoryton, CT 06442

RE: **EM-AT&T-041-120926** – AT&T Mobility notice of intent to modify an existing telecommunications facility located at 135 Honey Hill Road, East Haddam, Connecticut.

Dear Mr. Dahl:

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

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

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated September 24, 2012. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the

closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,



Linda Roberts
Executive Director

LR/CDM/cm

c: The Honorable Mark B. Walter, First Selectman, Town of East Haddam
Crary H. Brownell, Chm, Planning and Zoning Comm, Town of East Haddam

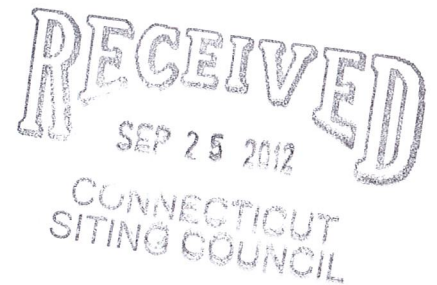


September 24, 2012

VIA OVERNIGHT DELIVERY

ORIGINAL

Ms. Linda Roberts, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051



RE: AT&T Mobility – Notice of Exempt Modification
135 Honey Hill Road, East Haddam, CT

Dear Ms. Roberts:

This letter and attachments are submitted on behalf of AT&T Mobility (“AT&T”). AT&T is enhancing the capabilities of its wireless system in Connecticut by implementing LTE technology. In order to do so, AT&T will modify antenna and equipment configurations at a number of existing sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which 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 First Selectman of East Haddam.

AT&T plans to modify the existing facility at 135 Honey Hill Road, East Haddam, owned by American Tower (coordinates 41°26'12.8"N, -72°21'58.0"W). Attached are drawings depicting the planned changes, and documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration. Also included is a power density calculation reflecting the modification to AT&T'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. The height of the overall structure will be unaffected. AT&T proposes to add three (3) new antennas, six (6) RRU's and one (1) surge arrester. Additionally, AT&T will install one (1) fiber cable and two (2) DC control cables within a 3" flex conduit inside the monopole.

2. The proposed changes will not extend the site boundaries. AT&T will install additional equipment on a concrete pad, adjacent to its existing equipment. Thus, there will be no effect on the site compound.

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 in the attached power density calculations, AT&T's operations at the site will result in a power density of 2.46%; the combined site operations will result in a total power density of 39.37%.

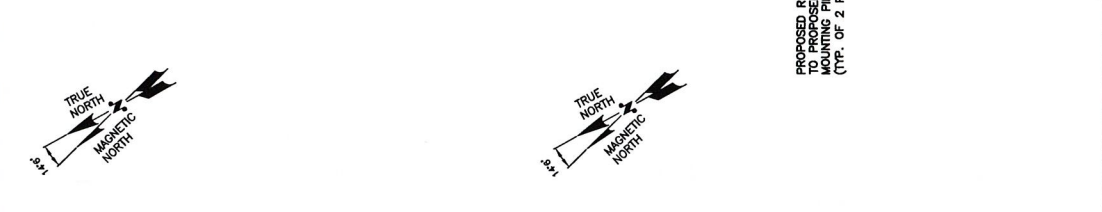
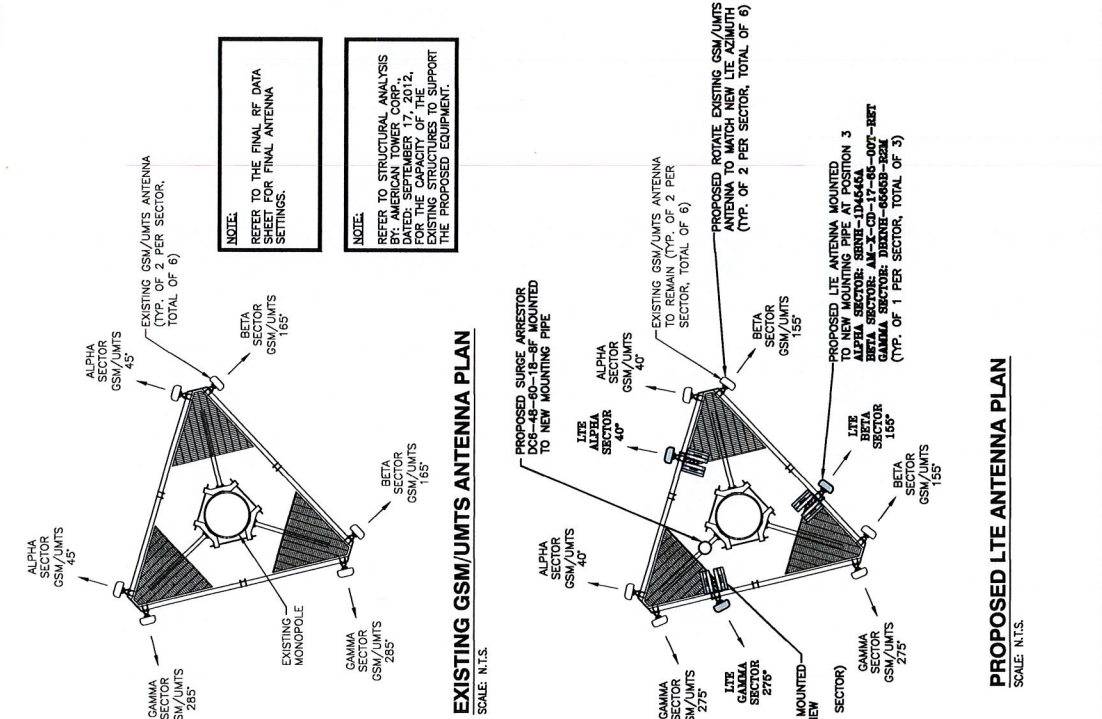
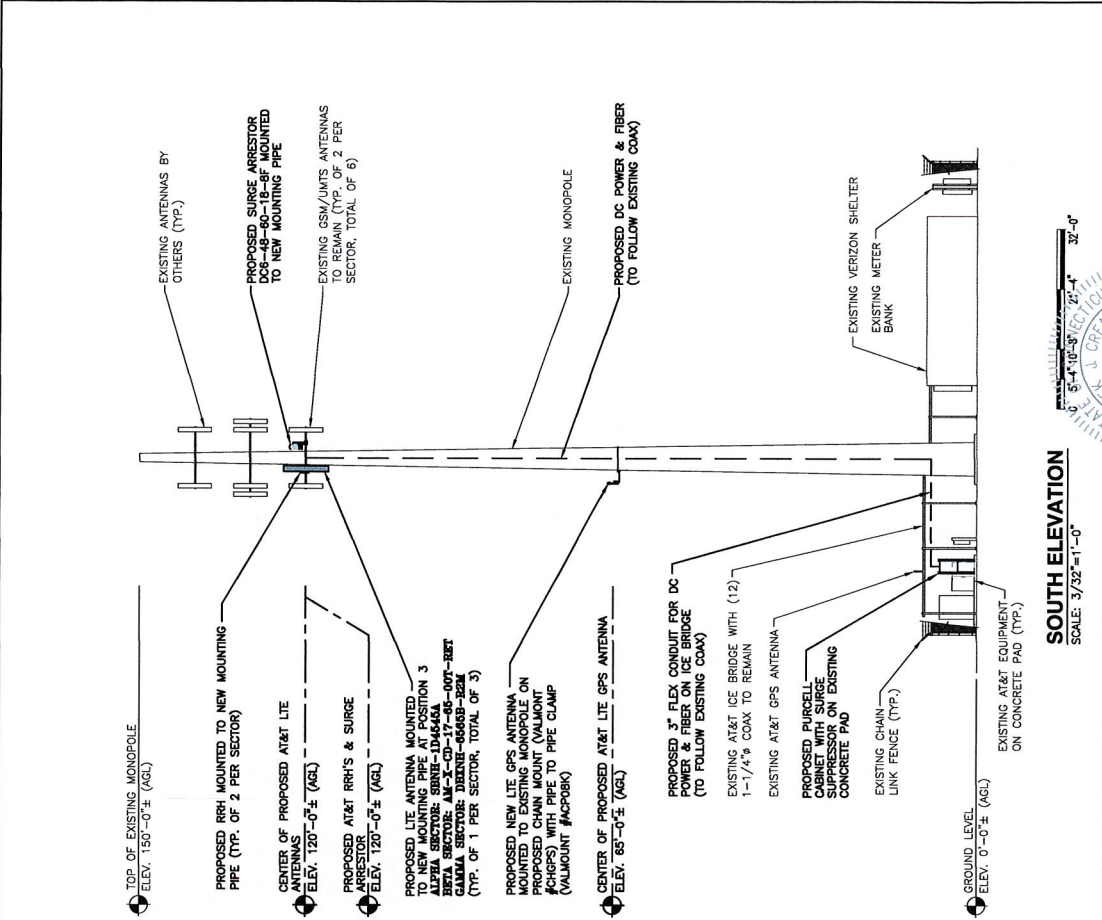
Please feel free to call me with any questions or concerns regarding this matter.
Thank you for your consideration.

Respectfully submitted,
AT&T Mobility

By: 
Eric Dahl, Consultant
edahl@comcast.net
860-227-1975

cc: Mark B. Walter, First Selectman, Town of East Haddam

Attachments



TRUE NORTH
MAGNETIC NORTH

TRUE NORTH
MAGNETIC NORTH

NO.	DATE	REVISIONS	BY	CHK	APP
1	09/20/12	ISSUED FOR PERMITTING	DC	DC	DC
2	07/18/12	ISSUED FOR REVIEW	RM	DC	DC

SCALE: AS SHOWN
DESIGNED BY: DC
DRAWN BY: RM

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

at&t
ELEVATION & ANTENNA PLAN (LIE)
JOB NUMBER: CT5540.01
DRAWING NUMBER: A-2

at&t
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ROCKY HILL, CT 06067

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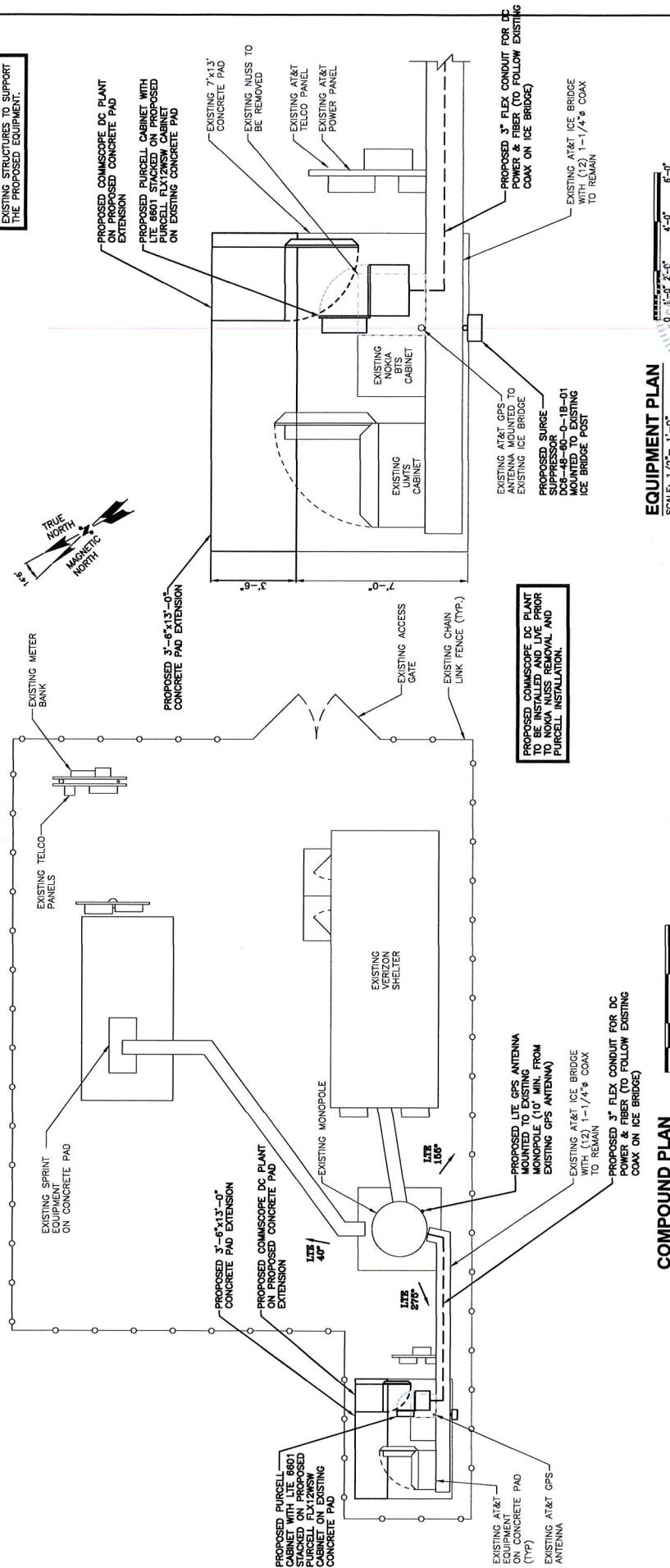
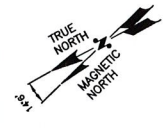
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NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:
REFER TO STRUCTURAL ANALYSIS BY: AMERICAN TOWER CORP. DATED: SEPTEMBER 17, 2012, FOR THE CAPACITY OF THE EXISTING CONCRETE PAD TO SUPPORT THE PROPOSED EQUIPMENT.



EQUIPMENT PLAN
SCALE: 1/2" = 1'-0"

COMPOUND PLAN
SCALE: 3/16" = 1'-0"

EQUIPMENT PLAN
SCALE: 1/2" = 1'-0"

PROPOSED COMMSCOPE DC PLANT TO BE INSTALLED AND LIVE PRIOR TO NUSS REMOVAL AND PURCELL INSTALLATION.

<p>500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067</p>		<p>800 MARSHALL PHELPS ROAD UNIT# 2A WINDSOR, CT 06095</p>		<p>800 MARSHALL PHELPS ROAD UNIT# 300 N. ANDOVER, MA 01854</p>	
<p>SITE NUMBER: CT5540 SITE NAME: EAST HADDAM SOUTH</p>		<p>SITE NUMBER: CT5540 SITE NAME: EAST HADDAM SOUTH</p>		<p>AT&T COMPOUND AND EQUIPMENT PLAN (LITE)</p>	
<p>1 09/29/12 ISSUED FOR PERMITTING</p>	<p>CS UC 20PH</p>	<p>0 07/19/12 ISSUED FOR REVIEW</p>	<p>RM UC 1204</p>	<p>DESIGNED BY: DC</p>	<p>DRAWN BY: RM</p>
<p>DATE</p>	<p>REVISIONS</p>	<p>DATE</p>	<p>REVISIONS</p>	<p>SCALE: AS SHOWN</p>	<p>SCALE: AS SHOWN</p>
<p>JOB NUMBER</p>	<p>5540.01</p>	<p>DATE</p>	<p>08/14/12</p>	<p>BY</p>	<p>CHK MPT</p>
<p>REV</p>	<p>1</p>	<p>DATE</p>	<p>08/14/12</p>	<p>BY</p>	<p>CHK MPT</p>

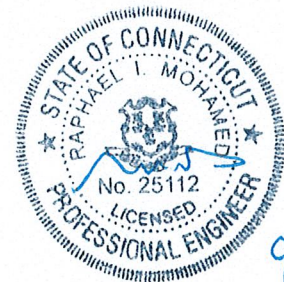


AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 150 ft Monopole
ATC Site Name : East Haddam, CT
ATC Site Number : 302527
Engineering Number : 50372721
Proposed Carrier : AT&T Mobility
Carrier Site Name : AWE-East Haddam South
Carrier Site Number : CT5540
Site Location : 135 Honey Hill Road
East Haddam, CT 06423-1714
41.436947,-72.366392
County : Middlesex
Date : September 17, 2012
Max Usage : 47%
Result : Pass

Madhukar Ozarker
Project Engineer



9/18/12



AMERICAN TOWER®
CORPORATION

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Madhukar Ozarker
Project Engineer



Eng. Number 50372721
September 17, 2012

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 150 ft monopole to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	Summit Manufacturing/PJF Job # 29201-0876, dated September 24, 2001
Foundation Drawing	Summit Manufacturing/PJF Job # 29201-0876, dated October 30, 2001
Geotechnical Report	Dr. Clarence Welti, P.E., P.C. letter dated June 28, 2001

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/EIA-222.

Basic Wind Speed:	95 mph (Fastest Mile)/110 mph(3 sec gust)
Basic Wind Speed w/ Ice:	82 mph (Fastest Mile)w/ 1/2" radial ice concurrent
Code:	ANSI/TIA/EIA-222-F / 2003 IBC , Sec. 1609.1.1, Exception (5) & Sec. 3108.4 w/ 2005 CT Supplement & 2009 CT Amendment

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact me via email at madhukar.ozarker@americantower.com or call 919-466-5184.



Existing and Reserved Equipment

Mount Elev. ¹ (ft)	Qty.	Antenna	Mount Type	Coax (in)	Carrier
150.0	9	48" x 12" Panels	Low Profile Platform	(12) 1 5/8	Sprint Nextel
	3	72" x 12" Panels			
140.0	12	Decibel DB980F65E-M	T-Arms	(24) 1 5/8	
130.0	3	Antel BXA-171063-8BF-EDIN-X	Low Profile Platform	(12) 1 5/8	
	3	Antel BXA-70063-4CF-EDIN-X			
	6	RFS APL868013-42T0			
	6	RFS FD9R6004/2C-3L			
120.0	3	14" x 9" TTA	Low Profile Platform	(12) 1 5/8	AT&T Mobility
	3	36" x 8" x 6" Panel			
	7	72" x 12" Panels			
	6	Powerwave LGP21401			
65.0	1	GPS	Side Arm	(1) 3/8	Sprint Nextel

Proposed Equipment

Elevation ¹ (ft)		Qty.	Antenna	Mount Type	Coax (in)	Carrier
Mount	RAD					
120.0	120.0	1	Andrew DBXNH-6565B-R2M	Low Profile Platform	(2) 19.7 mm (1) 10 mm	AT&T Mobility
		1	Commscope SBNH-1D4545A			
		6	Ericsson RRUS-11 1900 MHz			
		1	Raycap DC6-48-60-18-8F			
65.0	65.0	1	PCTEL GPS-TMG-HR-26N	Side Arm	(1) 1/2	

¹Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax inside the pole shaft.



Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	47%	Pass
Shaft	43%	Pass
Base Plate	38%	Pass

Foundations

Reaction Component	Original Design Reactions	Analysis Reactions	% of Design
Moment (Kips-Ft)	9,100.0	4112.5	45%
Shear (Kips)	69.0	39.8	58%

The structure base reactions resulting from this analysis are less than those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Deflection (ft)	Sway (Rotation) (°)
120.0	0.456	-0.395

*Deflection and Sway was evaluated considering a design wind speed of 50 mph (Fastest Mile) per ANSI/TIA/EIA-222-F.



Standard Conditions

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

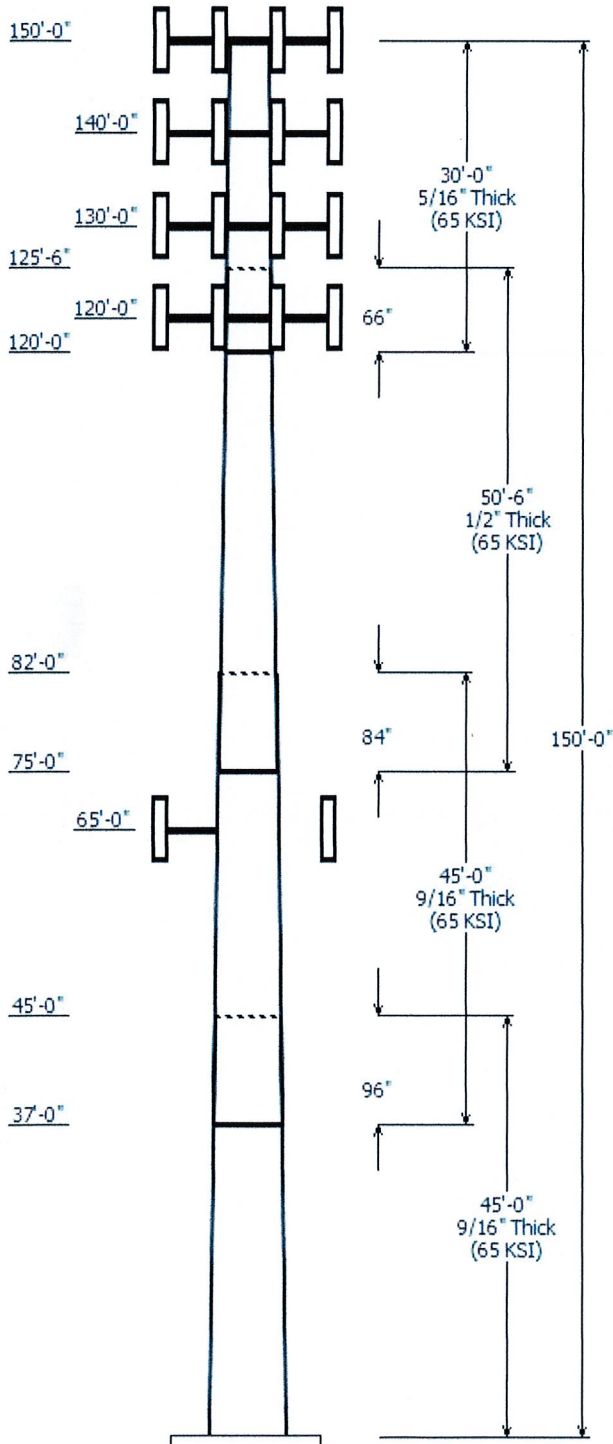
- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

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

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

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

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Job Information	
Pole :	302527
Code:	TIA/EIA-222 Rev F
Description :	150' Summit Monopole
Client :	AT&T Mobility
Location :	East Haddam, CT
Shape :	18 Sides
Height :	150.00 (ft)
Base Elev (ft):	0.00
Taper:	0.25362(in/ft)

Sections Properties								
Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Type	Overlap Length (in)	Steel Taper (in/ft)	Steel Grade (ksi)
		Across Top	Flats Bottom					
1	45.000	60.78	72.20	0.563		0.000	0.253625	65
2	45.000	52.52	63.94	0.563	Slip Joint	96.000	0.253625	65
3	50.500	42.49	55.30	0.500	Slip Joint	84.000	0.253625	65
4	30.000	36.90	44.51	0.313	Slip Joint	66.000	0.253625	65

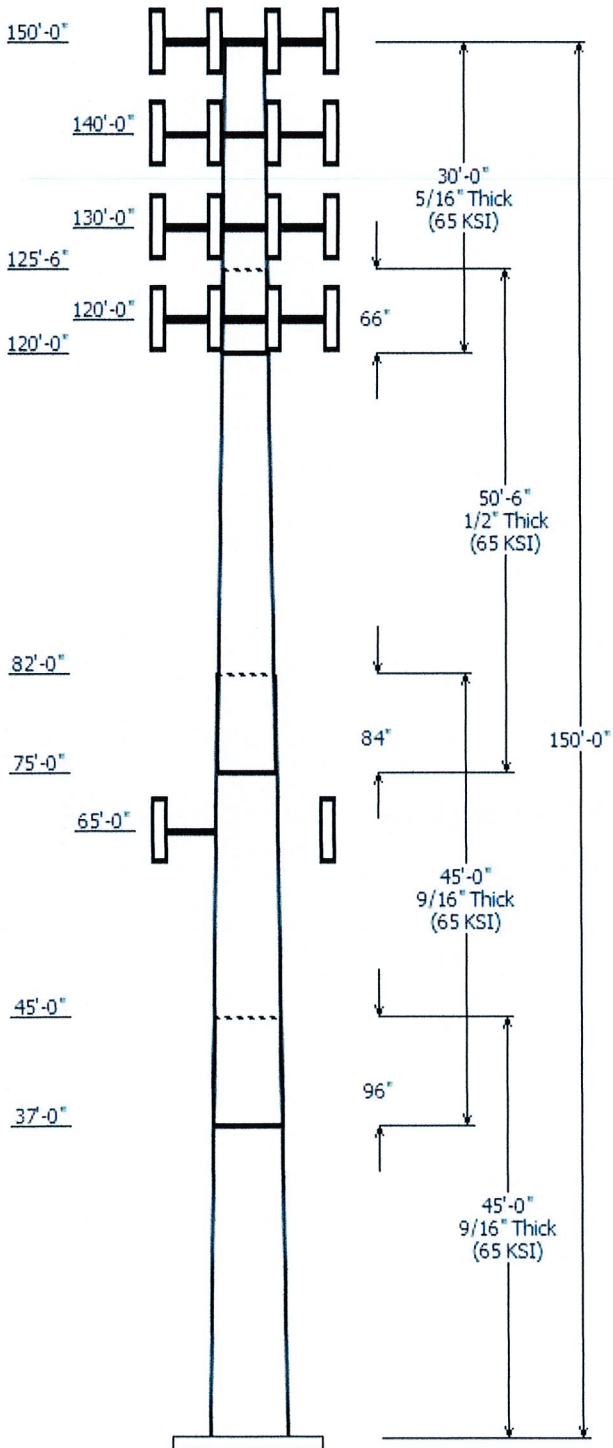
Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
150.000	150.000	1	Flat Low Profile Platform
150.000	150.000	9	48" x 12" Panels
150.000	150.000	3	72" x 12" Panels
140.000	140.000	3	Round T-Arms
140.000	140.000	12	Decibel DB980F65E-M
130.000	130.000	3	Antel BXA-70063-4CF-EDIN-X
130.000	130.000	6	RFS APL868013-42T0
130.000	130.000	1	Flat Low Profile Platform
130.000	130.000	6	RFS FD9R6004/2C-3L
130.000	130.000	3	Antel BXA-171063-8BF-EDIN-X
120.000	120.000	1	Andrew DBXNH-6565B-R2M
120.000	120.000	1	Commscope SBNH-1D4545A
120.000	120.000	6	Ericsson RRUS-11 1900 MHz
120.000	120.000	1	Raycap DC6-48-60-18-8F
120.000	120.000	3	36" x 8" x 6" Panel
120.000	120.000	7	72" x 12" Panels
120.000	120.000	6	Powerwave LGP21401
120.000	120.000	3	14" x 9" TTA
120.000	120.000	1	Flat Low Profile Platform
65.000	65.000	1	PCTEL GPS-TMG-HR-26N
65.000	65.000	1	GPS
65.000	65.000	1	Round Side Arm

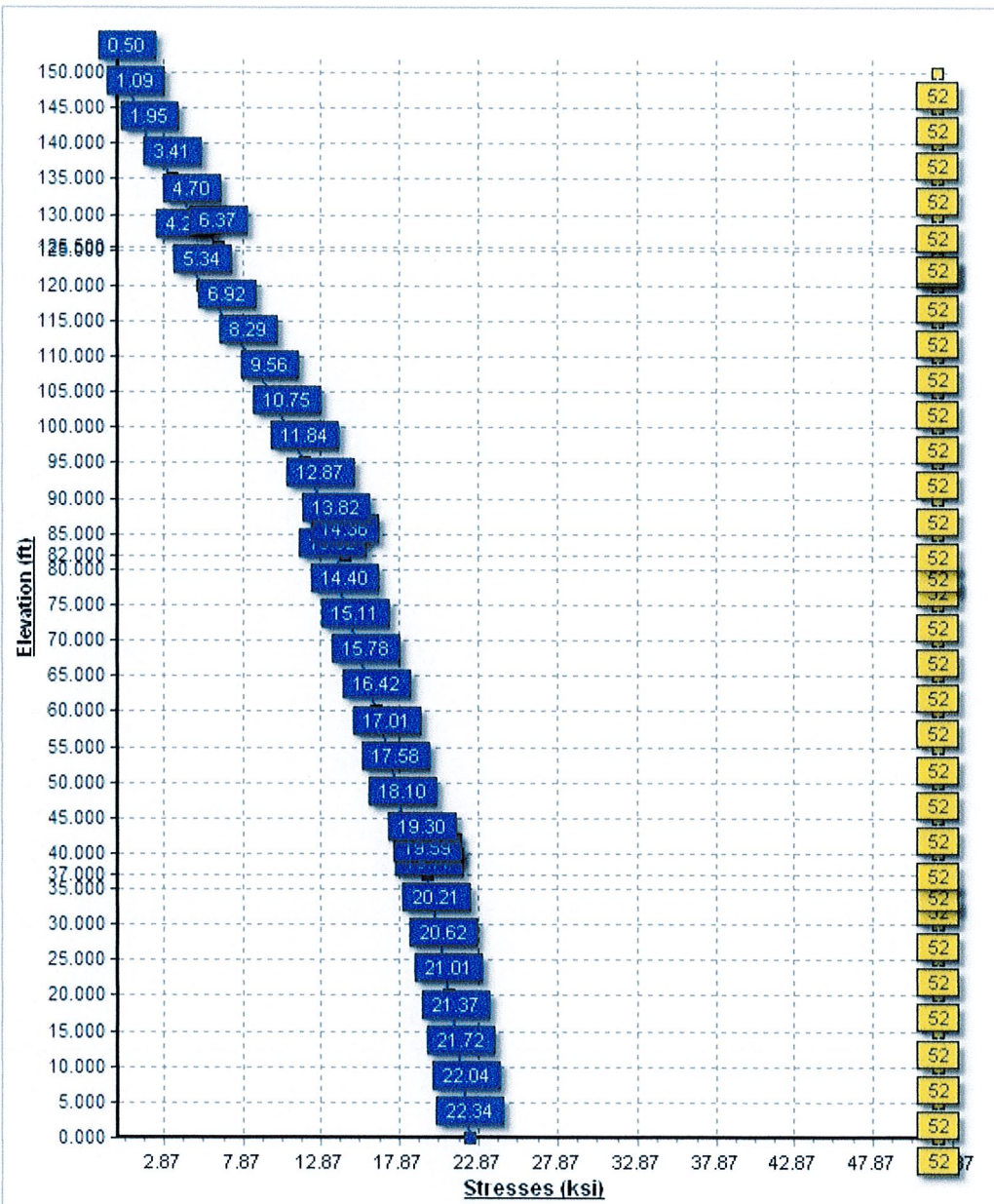
Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
10.000	65.000	1/2" Coax	No
10.000	65.000	3/8" Coax	No
10.000	120.0	1 5/8" Coax	No
10.000	120.0	10 mm Cable	No
10.000	120.0	19.7 mm Cable	No
10.000	130.0	1 5/8" Coax	No
10.000	140.0	1 5/8" Coax	No
10.000	150.0	1 5/8" Coax	No

Load Cases	
No Ice	95.00 mph Wind with No Ice
Ice	82.27 mph Wind with Ice
Twist/Sway	50.00 mph Wind with No Ice

Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
No Ice	4112.50	39.78	64.27
Ice	3408.32	32.30	71.79
Twist/Sway	1139.23	11.02	64.30

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000





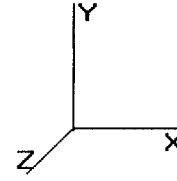
Pole : 302527
 Location : East Haddam, CT
 Height : 150.0 (ft)
 Base Dia : 72.20 (in)
 Top Dia : 36.90 (in)
 Shape : 18 Sides
 Taper : 0.253625 (in/ft)

Code: TIA/EIA-222 Rev F

9/17/2012 3:56:55 PM
 Page: 1

Base Elev : 0.000 (ft)

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Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Slip Joint Type	Joint Len (in)	Weight (lb)	Bottom						Top				Taper (in/ft)		
							Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)		W/t Ratio	D/t Ratio
1-18	45.000	0.5625	65		0.00	18,024	72.20	0.00	127.89	82924.1	21.22	128.35	60.78	45.00	107.52	49269.2	17.64	108.06	0.253625
2-18	45.000	0.5625	65	Slip	96.00	15,766	63.94	37.00	113.15	57422.3	18.63	113.67	52.52	82.00	92.77	31651.5	15.06	93.38	0.253625
3-18	50.500	0.5000	65	Slip	84.00	13,198	55.30	75.00	86.97	33000.5	18.09	110.61	42.49	125.50	66.64	14849.0	13.58	84.99	0.253625
4-18	30.000	0.3125	65	Slip	66.00	4,090	44.51	120.00	43.84	10822.4	23.71	142.45	36.90	150.00	36.29	6140.5	19.41	118.10	0.253625
Shaft Weight						51,078													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Weight (lb)	No Ice CaAa (sf)	CaAa Factor	Weight (lb)	Ice CaAa (sf)	CaAa Factor	Distance From Face (ft)	Vert Ecc (ft)
150.00	48" x 12" Panels	9	30.00	5.600	0.67	63.00	6.190	0.67	0.000	0.000
150.00	72" x 12" Panels	3	45.00	8.400	0.67	92.28	9.230	0.67	0.000	0.000
150.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	1,700.00	31.600	1.00	0.000	0.000
140.00	Decibel DB980F65E-M	12	9.50	3.750	0.81	25.00	4.320	0.83	0.000	0.000
140.00	Round T-Arms	3	250.00	9.700	0.67	314.00	12.100	0.67	0.000	0.000
130.00	Antel BXA-171063-8BF-EDIN-X	3	10.50	3.610	0.90	29.80	3.370	0.90	0.000	0.000
130.00	Antel BXA-70063-4CF-EDIN-X	3	9.90	4.710	0.77	39.00	5.740	0.77	0.000	0.000
130.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	1,700.00	31.600	1.00	0.000	0.000
130.00	RFS APL868013-42T0	6	6.30	3.610	0.90	32.00	4.290	0.90	0.000	0.000
130.00	RFS FD9R6004/2C-3L	6	3.10	0.360	0.50	5.40	0.500	0.50	0.000	0.000
120.00	14" x 9" TTA	3	10.00	1.230	0.50	18.00	1.460	0.50	0.000	0.000
120.00	36" x 8" x 6" Panel	3	25.00	2.800	0.77	44.54	3.240	0.77	0.000	0.000
120.00	72" x 12" Panels	7	45.00	8.400	0.67	92.28	9.230	0.67	0.000	0.000
120.00	Andrew DBXNH-6565B-R2M	1	46.30	8.410	1.00	96.80	9.240	1.00	0.000	0.000
120.00	Commscope SBNH-1D4545A	1	39.70	8.920	1.00	88.80	9.640	1.00	0.000	0.000
120.00	Ericsson RRUS-11 1900 MHz	6	44.00	2.940	1.00	63.30	3.290	1.00	0.000	0.000
120.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	1,700.00	31.600	1.00	0.000	0.000
120.00	Powerwave LGP21401	6	14.10	1.290	0.50	21.26	1.530	0.50	0.000	0.000
120.00	Raycap DC6-48-60-18-8F	1	31.80	1.470	1.00	49.50	1.670	1.00	0.000	0.000
65.00	GPS	1	10.00	1.000	1.00	18.00	1.300	1.00	0.000	0.000
65.00	PCTEL GPS-TMG-HR-26N	1	0.60	0.090	1.00	1.90	0.140	1.00	0.000	0.000
65.00	Round Side Arm	1	150.00	5.200	1.00	175.00	5.900	1.00	0.000	0.000
Totals		79	6933.60			9,387.58			Number of Loadings :	22

Linear Appurtenance Properties

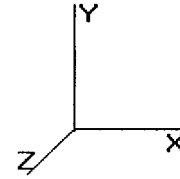
Elev From (ft)	Elev To (ft)	Description	No Ice Weight (lb/ft)	CaAa (sf/ft)	Ice Weight (lb/ft)	CaAa (sf/ft)	Exposed To Wind
10.00	150.00	(12) 1 5/8" Coax	9.84	0.00	0.00	0.00	N
10.00	140.00	(24) 1 5/8" Coax	19.70	0.00	0.00	0.00	N
10.00	130.00	(12) 1 5/8" Coax	9.84	0.00	0.00	0.00	N
10.00	120.00	(12) 1 5/8" Coax	9.84	0.00	0.00	0.00	N
10.00	120.00	(1) 10 mm Cable	0.07	0.00	0.00	0.00	N
10.00	120.00	(2) 19.7 mm Cable	0.59	0.00	0.00	0.00	N
10.00	65.00	(1) 1/2" Coax	0.15	0.00	0.00	0.00	N
10.00	65.00	(1) 3/8" Coax	0.08	0.00	0.00	0.00	N
Total Weight			6,287.04 (lb)		0.00 (lb)		

Pole : 302527
 Location : East Haddam, CT
 Height : 150.0 (ft)
 Base Dia : 72.20 (in)
 Top Dia : 36.90 (in)
 Shape : 18 Sides
 Taper : 0.253625 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)

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Segment Properties (Max Len : 5 ft)

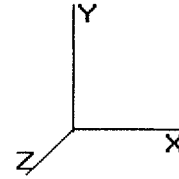
Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)
0.00		0.5625	72.200	127.894	82,924.1	21.22	128.35	65	52	0.0
5.00		0.5625	70.931	125.630	78,597.9	20.82	126.10	65	52	2,156.7
10.00		0.5625	69.663	123.366	74,424.7	20.43	123.85	65	52	2,118.2
15.00		0.5625	68.395	121.103	70,402.0	20.03	121.59	65	52	2,079.7
20.00		0.5625	67.127	118.839	66,526.9	19.63	119.34	65	52	2,041.2
25.00		0.5625	65.859	116.575	62,796.6	19.23	117.08	65	52	2,002.6
30.00		0.5625	64.591	114.311	59,208.5	18.84	114.83	65	52	1,964.1
35.00		0.5625	63.323	112.047	55,759.7	18.44	112.57	65	52	1,925.6
37.00	Bot - Section 2	0.5625	62.815	111.141	54,418.6	18.28	111.67	65	52	759.5
40.00		0.5625	62.055	109.783	52,447.5	18.04	110.32	65	52	2,275.8
45.00	Top - Section 1	0.5625	61.911	109.527	52,082.2	18.00	110.06	65	52	3,731.3
50.00		0.5625	60.643	107.263	48,918.8	17.60	107.81	65	52	1,844.2
55.00		0.5625	59.375	104.999	45,886.1	17.20	105.56	65	52	1,805.7
60.00		0.5625	58.107	102.735	42,981.5	16.80	103.30	65	52	1,767.2
65.00		0.5625	56.839	100.471	40,202.0	16.41	101.05	65	52	1,728.7
70.00		0.5625	55.571	98.207	37,545.1	16.01	98.79	65	52	1,690.1
75.00	Bot - Section 3	0.5625	54.303	95.943	35,007.9	15.61	96.54	65	52	1,651.6
80.00		0.5625	53.035	93.679	32,587.6	15.21	94.28	65	52	3,075.7
82.00	Top - Section 2	0.5000	53.527	84.151	29,896.1	17.47	107.05	65	52	1,209.9
85.00		0.5000	52.767	82.944	28,627.6	17.20	105.53	65	52	852.9
90.00		0.5000	51.498	80.932	26,594.0	16.75	103.00	65	52	1,394.1
95.00		0.5000	50.230	78.919	24,659.1	16.30	100.46	65	52	1,359.8
100.00		0.5000	48.962	76.907	22,820.3	15.86	97.92	65	52	1,325.6
105.00		0.5000	47.694	74.894	21,075.4	15.41	95.39	65	52	1,291.4
110.00		0.5000	46.426	72.882	19,421.7	14.96	92.85	65	52	1,257.1
115.00		0.5000	45.158	70.869	17,856.9	14.51	90.32	65	52	1,222.9
120.00	Bot - Section 4	0.5000	43.890	68.857	16,378.4	14.07	87.78	65	52	1,188.6
125.00		0.5000	42.622	66.844	14,984.0	13.62	85.24	65	52	1,889.6
125.50	Top - Section 3	0.3125	43.120	42.458	9,829.8	22.92	137.98	65	52	185.9
130.00		0.3125	41.978	41.326	9,064.3	22.28	134.33	65	52	641.5
135.00		0.3125	40.710	40.068	8,261.6	21.56	130.27	65	52	692.4
140.00		0.3125	39.442	38.810	7,507.8	20.84	126.21	65	52	671.0
145.00		0.3125	38.174	37.553	6,801.3	20.13	122.16	65	52	649.6
150.00		0.3125	36.906	36.295	6,140.5	19.41	118.10	65	52	628.2
										51,078.4

Pole : 302527
 Location : East Haddam, CT
 Height : 150.0 (ft)
 Base Dia : 72.20 (in)
 Top Dia : 36.90 (in)
 Shape : 18 Sides
 Taper : 0.253625 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)

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Load Case: No Ice	95.00 mph Wind with No Ice	17 Iterations
Gust Response Factor : 1.69		
Dead Load Factor : 1.00		
Wind Load Factor : 1.00		

Shaft Segment Forces

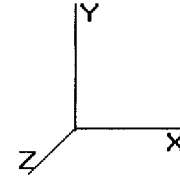
Seg Top Elev (ft)	Description	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load (lb)	Tot Dead Load (lb)
0.00		0.00	1.00 23.104	39.04 571.58	0.650	0.000	0.00	0.000	0.00	0.00	0.0	0.0	0.0
5.00		0.00	1.00 23.104	39.04 561.54	0.650	0.000	5.00	29.819	19.38	756.8	0.0	2,156.7	
10.00		0.00	1.00 23.104	39.04 551.50	0.650	0.000	5.00	29.291	19.04	743.4	0.0	2,118.2	
15.00		0.00	1.00 23.104	39.04 541.46	0.650	0.000	5.00	28.762	18.70	730.0	0.0	2,079.7	
20.00		0.00	1.00 23.104	39.04 531.42	0.650	0.000	5.00	28.234	18.35	716.6	0.0	2,041.2	
25.00		0.00	1.00 23.104	39.04 521.38	0.650	0.000	5.00	27.705	18.01	703.2	0.0	2,002.6	
30.00		0.00	1.00 23.104	39.04 511.34	0.650	0.000	5.00	27.177	17.67	689.7	0.0	1,964.1	
35.00		0.00	1.01 23.496	39.70 505.53	0.650	0.000	5.00	26.649	17.32	687.8	0.0	1,925.6	
37.00	Bot - Section 2	0.00	1.03 23.872	40.34 505.48	0.650	0.000	2.00	10.512	6.83	275.6	0.0	759.5	
40.00		0.00	1.05 24.409	41.25 504.95	0.650	0.000	3.00	15.890	10.33	426.1	0.0	2,275.8	
45.00	Top - Section 1	0.00	1.09 25.245	42.66 503.02	0.650	0.000	5.00	26.061	16.94	722.7	0.0	3,731.3	
50.00		0.00	1.12 26.016	43.96 509.45	0.650	0.000	5.00	25.532	16.60	729.7	0.0	1,844.2	
55.00		0.00	1.15 26.735	45.18 505.63	0.650	0.000	5.00	25.004	16.25	734.3	0.0	1,805.7	
60.00		0.00	1.18 27.407	46.31 501.02	0.650	0.000	5.00	24.475	15.91	736.9	0.0	1,767.2	
65.00	Appertunance(s)	0.00	1.21 28.042	47.39 495.73	0.650	0.000	5.00	23.947	15.57	737.7	0.0	1,728.7	
70.00		0.00	1.24 28.642	48.40 489.82	0.650	0.000	5.00	23.419	15.22	736.8	0.0	1,690.1	
75.00	Bot - Section 3	0.00	1.26 29.212	49.36 483.39	0.650	0.000	5.00	22.890	14.88	734.5	0.0	1,651.6	
80.00		0.00	1.28 29.755	50.28 476.47	0.650	0.000	5.00	22.779	14.81	744.5	0.0	3,075.7	
82.00	Top - Section 2	0.00	1.29 29.966	50.64 473.58	0.650	0.000	2.00	8.964	5.83	295.1	0.0	1,209.9	
85.00		0.00	1.31 30.275	51.16 478.19	0.650	0.000	3.00	13.287	8.64	441.9	0.0	852.9	
90.00		0.00	1.33 30.774	52.00 470.52	0.650	0.000	5.00	21.722	14.12	734.3	0.0	1,394.1	
95.00		0.00	1.35 31.253	52.81 462.49	0.650	0.000	5.00	21.193	13.78	727.6	0.0	1,359.8	
100.00		0.00	1.37 31.714	53.59 454.13	0.650	0.000	5.00	20.665	13.43	719.9	0.0	1,325.6	
105.00		0.00	1.39 32.159	54.34 445.46	0.650	0.000	5.00	20.137	13.09	711.4	0.0	1,291.4	
110.00		0.00	1.41 32.590	55.07 436.51	0.650	0.000	5.00	19.608	12.75	702.0	0.0	1,257.1	
115.00		0.00	1.42 33.006	55.78 427.29	0.650	0.000	5.00	19.080	12.40	691.8	0.0	1,222.9	
120.00	Bot - Section 4	0.00	1.44 33.410	56.46 417.83	0.650	0.000	5.00	18.552	12.06	680.9	0.0	1,188.6	
125.00		0.00	1.46 33.802	57.12 408.13	0.650	0.000	5.00	18.284	11.88	678.9	0.0	1,889.6	
125.50	Top - Section 3	0.00	1.46 33.841	57.19 407.14	0.650	0.000	0.50	1.799	1.17	66.9	0.0	185.9	
130.00	Appertunance(s)	0.00	1.48 34.183	57.76 404.23	0.650	0.000	4.50	15.956	10.37	599.1	0.0	641.5	
135.00		0.00	1.49 34.554	58.39 394.13	0.650	0.000	5.00	17.227	11.20	653.9	0.0	692.4	
140.00	Appertunance(s)	0.00	1.51 34.914	59.00 383.85	0.650	0.000	5.00	16.698	10.85	640.4	0.0	671.0	
145.00		0.00	1.52 35.266	59.60 373.37	0.650	0.000	5.00	16.170	10.51	626.4	0.0	649.6	
150.00	Appertunance(s)	0.00	1.54 35.610	60.18 362.72	0.650	0.000	5.00	15.642	10.17	611.9	0.0	628.2	
Totals:							150.00				21,188.6	0.0	51,078.4

Pole : 302527
 Location : East Haddam, CT
 Height : 150.0 (ft)
 Base Dia : 72.20 (in)
 Top Dia : 36.90 (in)
 Shape : 18 Sides
 Taper : 0.253625 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)

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Load Case: No Ice 95.00 mph Wind with No Ice 17 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Discrete Appurtenance Segment Forces

Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	Dead Load (lb)
65.00	GPS	1	28.042	47.390	1.00	1.00	0.000	0.000	47.39	0.00	0.00	10.00
65.00	PCTEL GPS-TMG-HR-	1	28.042	47.390	1.00	0.09	0.000	0.000	4.27	0.00	0.00	0.60
65.00	Round Side Arm	1	28.042	47.390	1.00	5.20	0.000	0.000	246.43	0.00	0.00	150.00
120.0	14" x 9" TTA	3	33.410	56.463	0.50	1.85	0.000	0.000	104.17	0.00	0.00	30.00
120.0	36" x 8" x 6" Panel	3	33.410	56.463	0.77	6.47	0.000	0.000	365.20	0.00	0.00	75.00
120.0	72" x 12" Panels	7	33.410	56.463	0.67	39.40	0.000	0.000	2,224.39	0.00	0.00	315.00
120.0	Andrew DBXNH-	1	33.410	56.463	1.00	8.41	0.000	0.000	474.85	0.00	0.00	46.30
120.0	Commscope SBNH-	1	33.410	56.463	1.00	8.92	0.000	0.000	503.65	0.00	0.00	39.70
120.0	Ericsson RRUS-11 190	6	33.410	56.463	1.00	17.64	0.000	0.000	996.01	0.00	0.00	264.00
120.0	Flat Low Profile Pla	1	33.410	56.463	1.00	26.10	0.000	0.000	1,473.69	0.00	0.00	1,500.00
120.0	Powerwave LGP21401	6	33.410	56.463	0.50	3.87	0.000	0.000	218.51	0.00	0.00	84.60
120.0	Raycap DC6-48-60-18-	1	33.410	56.463	1.00	1.47	0.000	0.000	83.00	0.00	0.00	31.80
130.0	Antel BXA-171063-8BF	3	34.183	57.769	0.90	9.75	0.000	0.000	563.08	0.00	0.00	31.50
130.0	Antel BXA-70063-4CF-	3	34.183	57.769	0.77	10.88	0.000	0.000	628.54	0.00	0.00	29.70
130.0	Flat Low Profile Pla	1	34.183	57.769	1.00	26.10	0.000	0.000	1,507.78	0.00	0.00	1,500.00
130.0	RFS APL868013-42T0	6	34.183	57.769	0.90	19.49	0.000	0.000	1,126.15	0.00	0.00	37.80
130.0	RFS FD9R6004/2C-3L	6	34.183	57.769	0.50	1.08	0.000	0.000	62.39	0.00	0.00	18.60
140.0	Decibel DB980F65E-M	12	34.914	59.005	0.81	36.45	0.000	0.000	2,150.75	0.00	0.00	114.00
140.0	Round T-Arms	3	34.914	59.005	0.67	19.50	0.000	0.000	1,150.42	0.00	0.00	750.00
150.0	48" x 12" Panels	9	35.610	60.180	0.67	33.77	0.000	0.000	2,032.16	0.00	0.00	270.00
150.0	72" x 12" Panels	3	35.610	60.180	0.67	16.88	0.000	0.000	1,016.08	0.00	0.00	135.00
150.0	Flat Low Profile Pla	1	35.610	60.180	1.00	26.10	0.000	0.000	1,570.70	0.00	0.00	1,500.00
									18,549.61			6,933.60

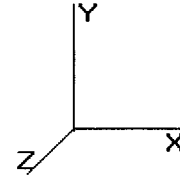
Pole : 302527
 Location : East Haddam, CT
 Height : 150.0 (ft)
 Base Dia : 72.20 (in)
 Top Dia : 36.90 (in)
 Shape : 18 Sides
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Code: TIA/EIA-222 Rev F

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Base Elev : 0.000 (ft)

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Load Case: No Ice 95.00 mph Wind with No Ice 17 Iterations
 Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Applied Segment Forces Summary

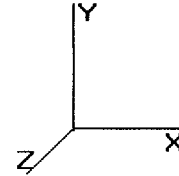
Seg Elev (ft)	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00	0.00	0.00	0.00	0.00
5.00	756.80	2,156.72	0.00	0.00
10.00	743.39	2,118.20	0.00	0.00
15.00	729.98	2,330.23	0.00	0.00
20.00	716.57	2,291.71	0.00	0.00
25.00	703.16	2,253.19	0.00	0.00
30.00	689.75	2,214.68	0.00	0.00
35.00	687.80	2,176.16	0.00	0.00
37.00	275.64	859.68	0.00	0.00
40.00	426.07	2,426.09	0.00	0.00
45.00	722.70	3,981.86	0.00	0.00
50.00	729.68	2,094.77	0.00	0.00
55.00	734.31	2,056.25	0.00	0.00
60.00	736.89	2,017.73	0.00	0.00
65.00	1,035.74	2,139.81	0.00	0.00
70.00	736.82	1,939.54	0.00	0.00
75.00	734.53	1,901.02	0.00	0.00
80.00	744.55	3,325.06	0.00	0.00
82.00	295.06	1,309.65	0.00	0.00
85.00	441.88	1,002.52	0.00	0.00
90.00	734.31	1,643.48	0.00	0.00
95.00	727.60	1,609.24	0.00	0.00
100.0	719.93	1,575.00	0.00	0.00
105.0	711.37	1,540.76	0.00	0.00
110.0	701.97	1,506.52	0.00	0.00
115.0	691.79	1,472.28	0.00	0.00
120.0	7,124.34	3,824.44	0.00	0.00
125.0	678.90	2,086.52	0.00	0.00
125.5	66.89	205.59	0.00	0.00
130.0	4,487.08	2,436.28	0.00	0.00
135.0	653.88	840.11	0.00	0.00
140.0	3,941.61	1,682.71	0.00	0.00
145.0	626.43	698.81	0.00	0.00
150.0	5,230.80	2,582.42	0.00	0.00
Totals:	39,738.21	64,299.06	0.00	0.00

Pole : 302527
 Location : East Haddam, CT
 Height : 150.0 (ft)
 Base Dia : 72.20 (in)
 Top Dia : 36.90 (in)
 Shape : 18 Sides
 Taper : 0.253625 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)

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Load Case: No Ice 95.00 mph Wind with No Ice 17 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Calculated Shaft Forces and Deflections

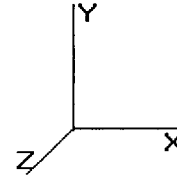
Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-39.778	-64.274	0.000	0.000	0.000	-4,112.498	0.000	0.000	0.000	0.000
5.00	-39.094	-62.071	0.000	0.000	0.000	-3,913.612	-0.038	0.000	0.038	-0.069
10.00	-38.420	-59.908	0.000	0.000	0.000	-3,718.143	-0.147	0.000	0.147	-0.138
15.00	-37.752	-57.534	0.000	0.000	0.000	-3,526.049	-0.330	0.000	0.330	-0.207
20.00	-37.093	-55.201	0.000	0.000	0.000	-3,337.291	-0.585	0.000	0.585	-0.276
25.00	-36.441	-52.907	0.000	0.000	0.000	-3,151.831	-0.912	0.000	0.912	-0.346
30.00	-35.798	-50.654	0.000	0.000	0.000	-2,969.627	-1.312	0.000	1.312	-0.415
35.00	-35.134	-48.454	0.000	0.000	0.000	-2,790.639	-1.785	0.000	1.785	-0.484
37.00	-34.880	-47.575	0.000	0.000	0.000	-2,720.372	-1.994	0.000	1.994	-0.513
40.00	-34.475	-45.120	0.000	0.000	0.000	-2,615.733	-2.330	0.000	2.330	-0.554
45.00	-33.761	-41.105	0.000	0.000	0.000	-2,443.361	-2.948	0.000	2.948	-0.623
50.00	-33.052	-38.981	0.000	0.000	0.000	-2,274.561	-3.638	0.000	3.638	-0.691
55.00	-32.332	-36.898	0.000	0.000	0.000	-2,109.304	-4.397	0.000	4.397	-0.755
60.00	-31.606	-34.857	0.000	0.000	0.000	-1,947.645	-5.222	0.000	5.222	-0.818
65.00	-30.573	-32.700	0.000	0.000	0.000	-1,789.619	-6.112	0.000	6.112	-0.880
70.00	-29.838	-30.741	0.000	0.000	0.000	-1,636.755	-7.067	0.000	7.067	-0.940
75.00	-29.101	-28.823	0.000	0.000	0.000	-1,487.568	-8.084	0.000	8.084	-0.999
80.00	-28.314	-25.492	0.000	0.000	0.000	-1,342.066	-9.162	0.000	9.162	-1.057
82.00	-28.007	-24.175	0.000	0.000	0.000	-1,285.439	-9.610	0.000	9.610	-1.080
85.00	-27.564	-23.159	0.000	0.000	0.000	-1,201.420	-10.300	0.000	10.300	-1.113
90.00	-26.818	-21.505	0.000	0.000	0.000	-1,063.601	-11.497	0.000	11.497	-1.170
95.00	-26.074	-19.888	0.000	0.000	0.000	-929.514	-12.752	0.000	12.752	-1.223
100.0	-25.336	-18.307	0.000	0.000	0.000	-799.143	-14.060	0.000	14.060	-1.273
105.0	-24.602	-16.764	0.000	0.000	0.000	-672.466	-15.419	0.000	15.419	-1.319
110.0	-23.876	-15.259	0.000	0.000	0.000	-549.455	-16.823	0.000	16.823	-1.360
115.0	-23.157	-13.790	0.000	0.000	0.000	-430.077	-18.268	0.000	18.268	-1.396
120.0	-15.945	-10.135	0.000	0.000	0.000	-314.295	-19.747	0.000	19.747	-1.425
125.0	-15.216	-8.063	0.000	0.000	0.000	-234.571	-21.254	0.000	21.254	-1.449
125.5	-15.145	-7.857	0.000	0.000	0.000	-226.964	-21.406	0.000	21.406	-1.451
130.0	-10.599	-5.532	0.000	0.000	0.000	-158.812	-22.783	0.000	22.783	-1.468
135.0	-9.925	-4.706	0.000	0.000	0.000	-105.818	-24.332	0.000	24.332	-1.489
140.0	-5.941	-3.126	0.000	0.000	0.000	-56.193	-25.900	0.000	25.900	-1.503
145.0	-5.297	-2.443	0.000	0.000	0.000	-26.485	-27.479	0.000	27.479	-1.511
150.0	-5.231	0.000	0.000	0.000	0.000	0.000	-29.063	0.000	29.063	-1.513

Pole : 302527
 Location : East Haddam, CT
 Height : 150.0 (ft)
 Base Dia : 72.20 (in)
 Top Dia : 36.90 (in)
 Shape : 18 Sides
 Taper : 0.253625 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)

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Load Case: No Ice 95.00 mph Wind with No Ice 17 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Calculated Stresses

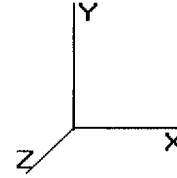
Seg Elev (ft)	Applied Stresses							Allowable Stress (Fb) (ksi)	Stress Ratio	
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)			
0.00	0.50	0.63	0.00	0.00	0.00	21.82	22.34	52.0	0.0	0.430
5.00	0.49	0.63	0.00	0.00	0.00	21.52	22.04	52.0	0.0	0.424
10.00	0.49	0.63	0.00	0.00	0.00	21.20	21.72	52.0	0.0	0.418
15.00	0.48	0.63	0.00	0.00	0.00	20.87	21.37	52.0	0.0	0.411
20.00	0.46	0.63	0.00	0.00	0.00	20.52	21.01	52.0	0.0	0.404
25.00	0.45	0.63	0.00	0.00	0.00	20.14	20.62	52.0	0.0	0.397
30.00	0.44	0.63	0.00	0.00	0.00	19.74	20.21	52.0	0.0	0.389
35.00	0.43	0.63	0.00	0.00	0.00	19.31	19.77	52.0	0.0	0.380
37.00	0.43	0.63	0.00	0.00	0.00	19.13	19.59	52.0	0.0	0.377
40.00	0.41	0.63	0.00	0.00	0.00	18.86	19.30	52.0	0.0	0.371
45.00	0.38	0.62	0.00	0.00	0.00	17.70	18.10	52.0	0.0	0.348
50.00	0.36	0.62	0.00	0.00	0.00	17.18	17.58	52.0	0.0	0.338
55.00	0.35	0.62	0.00	0.00	0.00	16.63	17.01	52.0	0.0	0.327
60.00	0.34	0.62	0.00	0.00	0.00	16.04	16.42	52.0	0.0	0.316
65.00	0.33	0.61	0.00	0.00	0.00	15.42	15.78	52.0	0.0	0.304
70.00	0.31	0.61	0.00	0.00	0.00	14.76	15.11	52.0	0.0	0.291
75.00	0.30	0.61	0.00	0.00	0.00	14.06	14.40	52.0	0.0	0.277
80.00	0.27	0.61	0.00	0.00	0.00	13.31	13.62	52.0	0.0	0.262
82.00	0.29	0.67	0.00	0.00	0.00	14.02	14.36	52.0	0.0	0.276
85.00	0.28	0.67	0.00	0.00	0.00	13.49	13.82	52.0	0.0	0.266
90.00	0.27	0.67	0.00	0.00	0.00	12.55	12.87	52.0	0.0	0.248
95.00	0.25	0.67	0.00	0.00	0.00	11.54	11.84	52.0	0.0	0.228
100.00	0.24	0.66	0.00	0.00	0.00	10.45	10.75	52.0	0.0	0.207
105.00	0.22	0.66	0.00	0.00	0.00	9.27	9.56	52.0	0.0	0.184
110.00	0.21	0.66	0.00	0.00	0.00	8.00	8.29	52.0	0.0	0.159
115.00	0.19	0.66	0.00	0.00	0.00	6.63	6.92	52.0	0.0	0.133
120.00	0.15	0.47	0.00	0.00	0.00	5.13	5.34	52.0	0.0	0.103
125.00	0.12	0.46	0.00	0.00	0.00	4.07	4.26	52.0	0.0	0.082
125.50	0.19	0.72	0.00	0.00	0.00	6.07	6.37	52.0	0.0	0.123
130.00	0.13	0.52	0.00	0.00	0.00	4.48	4.70	52.0	0.0	0.090
135.00	0.12	0.50	0.00	0.00	0.00	3.18	3.41	52.0	0.0	0.066
140.00	0.08	0.31	0.00	0.00	0.00	1.80	1.95	52.0	0.0	0.038
145.00	0.07	0.28	0.00	0.00	0.00	0.91	1.09	52.0	0.0	0.021
150.00	0.00	0.29	0.00	0.00	0.00	0.00	0.50	52.0	0.0	0.010

Pole : 302527
 Location : East Haddam, CT
 Height : 150.0 (ft)
 Base Dia : 72.20 (in)
 Top Dia : 36.90 (in)
 Shape : 18 Sides
 Taper : 0.253625 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)

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Load Case: Ice	82.27 mph Wind with Ice	17 Iterations
Gust Response Factor : 1.69		
Dead Load Factor : 1.00		
Wind Load Factor : 1.00		

Shaft Segment Forces

Seg Top Elev (ft)	Description	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load (lb)	Tot Dead Load (lb)
0.00		0.00	1.00 17.327	29.28 494.98	0.650	0.500	0.500	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00 17.327	29.28 486.29	0.650	0.500	5.00	30.236	19.65	575.5	220.4	2,377.1	
10.00		0.00	1.00 17.327	29.28 477.60	0.650	0.500	5.00	29.707	19.31	565.4	216.5	2,334.7	
15.00		0.00	1.00 17.327	29.28 468.90	0.650	0.500	5.00	29.179	18.97	555.4	212.6	2,292.3	
20.00		0.00	1.00 17.327	29.28 460.21	0.650	0.500	5.00	28.650	18.62	545.3	208.7	2,249.8	
25.00		0.00	1.00 17.327	29.28 451.51	0.650	0.500	5.00	28.122	18.28	535.3	204.8	2,207.4	
30.00		0.00	1.00 17.327	29.28 442.82	0.650	0.500	5.00	27.594	17.94	525.2	200.9	2,165.0	
35.00		0.00	1.01 17.621	29.77 437.79	0.650	0.500	5.00	27.065	17.59	523.9	196.9	2,122.5	
37.00	Bot - Section 2	0.00	1.03 17.903	30.25 437.74	0.650	0.500	2.00	10.678	6.94	210.0	78.1	837.6	
40.00		0.00	1.05 18.306	30.93 437.29	0.650	0.500	3.00	16.140	10.49	324.6	117.9	2,393.7	
45.00	Top - Section 1	0.00	1.09 18.933	31.99 435.62	0.650	0.500	5.00	26.477	17.21	550.7	192.6	3,923.9	
50.00		0.00	1.12 19.511	32.97 441.18	0.650	0.500	5.00	25.949	16.87	556.2	188.7	2,032.9	
55.00		0.00	1.15 20.050	33.88 437.88	0.650	0.500	5.00	25.421	16.52	559.9	184.8	1,990.5	
60.00		0.00	1.18 20.554	34.73 433.89	0.650	0.500	5.00	24.892	16.18	562.0	180.8	1,948.0	
65.00	Appertunance(s)	0.00	1.21 21.030	35.54 429.30	0.650	0.500	5.00	24.364	15.84	562.8	176.9	1,905.6	
70.00		0.00	1.24 21.480	36.30 424.19	0.650	0.500	5.00	23.835	15.49	562.4	173.0	1,863.2	
75.00	Bot - Section 3	0.00	1.26 21.908	37.02 418.61	0.650	0.500	5.00	23.307	15.15	560.9	169.1	1,820.7	
80.00		0.00	1.28 22.315	37.71 412.62	0.650	0.500	5.00	23.195	15.08	568.6	168.3	3,243.9	
82.00	Top - Section 2	0.00	1.29 22.473	37.98 410.12	0.650	0.500	2.00	9.130	5.93	225.4	66.7	1,276.6	
85.00		0.00	1.31 22.705	38.37 414.11	0.650	0.500	3.00	13.537	8.80	337.6	98.6	951.5	
90.00		0.00	1.33 23.079	39.00 407.47	0.650	0.500	5.00	22.139	14.39	561.3	160.5	1,554.5	
95.00		0.00	1.35 23.438	39.61 400.52	0.650	0.500	5.00	21.610	14.05	556.4	156.5	1,516.4	
100.00		0.00	1.37 23.784	40.19 393.28	0.650	0.500	5.00	21.082	13.70	550.8	152.6	1,478.2	
105.00		0.00	1.39 24.118	40.76 385.77	0.650	0.500	5.00	20.553	13.36	544.5	148.7	1,440.1	
110.00		0.00	1.41 24.441	41.30 378.02	0.650	0.500	5.00	20.025	13.02	537.6	144.8	1,401.9	
115.00		0.00	1.42 24.753	41.83 370.03	0.650	0.500	5.00	19.497	12.67	530.1	140.9	1,363.8	
120.00	Bot - Section 4	0.00	1.44 25.056	42.34 361.84	0.650	0.500	5.00	18.968	12.33	522.1	137.0	1,325.6	
125.00		0.00	1.46 25.350	42.84 353.44	0.650	0.500	5.00	18.700	12.16	520.7	135.0	2,024.6	
125.50	Top - Section 3	0.00	1.46 25.379	42.89 352.59	0.650	0.500	0.50	1.841	1.20	51.3	13.5	199.4	
130.00	Appertunance(s)	0.00	1.48 25.636	43.32 350.06	0.650	0.500	4.50	16.331	10.62	459.9	118.0	759.4	
135.00		0.00	1.49 25.914	43.79 341.32	0.650	0.500	5.00	17.643	11.47	502.2	127.2	819.6	
140.00	Appertunance(s)	0.00	1.51 26.184	44.25 332.41	0.650	0.500	5.00	17.115	11.12	492.3	123.3	794.3	
145.00		0.00	1.52 26.448	44.69 323.34	0.650	0.500	5.00	16.587	10.78	481.9	119.3	769.0	
150.00	Appertunance(s)	0.00	1.54 26.706	45.13 314.12	0.650	0.500	5.00	16.058	10.44	471.1	115.4	743.6	
Totals:							150.00				16,189.4	5,048.9	56,127.3

Pole : 302527
 Location : East Haddam, CT
 Height : 150.0 (ft)
 Base Dia : 72.20 (in)
 Top Dia : 36.90 (in)
 Shape : 18 Sides
 Taper : 0.253625 (in/ft)

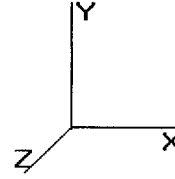
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Base Elev : 0.000 (ft)

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Load Case: Ice

82.27 mph Wind with Ice

17 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Discrete Appurtenance Segment Forces

Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	Dead Load (lb)
65.00	GPS	1	21.030	35.541	1.00	1.30	0.000	0.000	46.20	0.00	0.00	18.00
65.00	PCTEL GPS-TMG-HR-	1	21.030	35.541	1.00	0.14	0.000	0.000	4.98	0.00	0.00	1.90
65.00	Round Side Arm	1	21.030	35.541	1.00	5.90	0.000	0.000	209.69	0.00	0.00	175.00
120.0	14" x 9" TTA	3	25.056	42.345	0.50	2.19	0.000	0.000	92.74	0.00	0.00	54.00
120.0	36" x 8" x 6" Panel	3	25.056	42.345	0.77	7.48	0.000	0.000	316.93	0.00	0.00	133.62
120.0	72" x 12" Panels	7	25.056	42.345	0.67	43.29	0.000	0.000	1,833.03	0.00	0.00	645.96
120.0	Andrew DBXNH-	1	25.056	42.345	1.00	9.24	0.000	0.000	391.27	0.00	0.00	96.80
120.0	Commscope SBNH-	1	25.056	42.345	1.00	9.64	0.000	0.000	408.20	0.00	0.00	88.80
120.0	Ericsson RRUS-11 190	6	25.056	42.345	1.00	19.74	0.000	0.000	835.89	0.00	0.00	379.80
120.0	Flat Low Profile Pla	1	25.056	42.345	1.00	31.60	0.000	0.000	1,338.10	0.00	0.00	1,700.00
120.0	Powerwave LGP21401	6	25.056	42.345	0.50	4.59	0.000	0.000	194.36	0.00	0.00	127.56
120.0	Raycap DC6-48-60-18-	1	25.056	42.345	1.00	1.67	0.000	0.000	70.72	0.00	0.00	49.50
130.0	Antel BXA-171063-8BF	3	25.636	43.324	0.90	9.10	0.000	0.000	394.21	0.00	0.00	89.40
130.0	Antel BXA-70063-4CF-	3	25.636	43.324	0.77	13.26	0.000	0.000	574.46	0.00	0.00	117.00
130.0	Flat Low Profile Pla	1	25.636	43.324	1.00	31.60	0.000	0.000	1,369.05	0.00	0.00	1,700.00
130.0	RFS APL868013-42T0	6	25.636	43.324	0.90	23.17	0.000	0.000	1,003.65	0.00	0.00	192.00
130.0	RFS FD9R6004/2C-3L	6	25.636	43.324	0.50	1.50	0.000	0.000	64.99	0.00	0.00	32.40
140.0	Decibel DB980F65E-M	12	26.184	44.251	0.83	43.03	0.000	0.000	1,904.02	0.00	0.00	300.00
140.0	Round T-Arms	3	26.184	44.251	0.67	24.32	0.000	0.000	1,076.24	0.00	0.00	942.00
150.0	48" x 12" Panels	9	26.706	45.132	0.67	37.33	0.000	0.000	1,684.60	0.00	0.00	567.00
150.0	72" x 12" Panels	3	26.706	45.132	0.67	18.55	0.000	0.000	837.31	0.00	0.00	276.84
150.0	Flat Low Profile Pla	1	26.706	45.132	1.00	31.60	0.000	0.000	1,426.19	0.00	0.00	1,700.00
									16,076.80			9,387.58

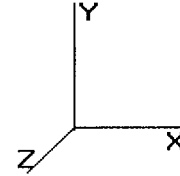
Pole : 302527
 Location : East Haddam, CT
 Height : 150.0 (ft)
 Base Dia : 72.20 (in)
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Code: TIA/EIA-222 Rev F

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Base Elev : 0.000 (ft)

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Load Case: Ice 82.27 mph Wind with Ice 17 Iterations
 Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Applied Segment Forces Summary

Seg Elev (ft)	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00	0.00	0.00	0.00	0.00
5.00	575.50	2,377.14	0.00	0.00
10.00	565.44	2,334.71	0.00	0.00
15.00	555.38	2,542.82	0.00	0.00
20.00	545.32	2,500.39	0.00	0.00
25.00	535.27	2,457.96	0.00	0.00
30.00	525.21	2,415.53	0.00	0.00
35.00	523.89	2,373.10	0.00	0.00
37.00	210.00	937.83	0.00	0.00
40.00	324.56	2,543.99	0.00	0.00
45.00	550.66	4,174.44	0.00	0.00
50.00	556.16	2,283.44	0.00	0.00
55.00	559.88	2,241.01	0.00	0.00
60.00	562.04	2,198.58	0.00	0.00
65.00	823.70	2,351.04	0.00	0.00
70.00	562.41	2,112.56	0.00	0.00
75.00	560.89	2,070.13	0.00	0.00
80.00	568.59	3,493.34	0.00	0.00
82.00	225.40	1,376.34	0.00	0.00
85.00	337.63	1,101.14	0.00	0.00
90.00	561.26	1,803.93	0.00	0.00
95.00	556.39	1,765.78	0.00	0.00
100.0	550.80	1,727.63	0.00	0.00
105.0	544.54	1,689.47	0.00	0.00
110.0	537.64	1,651.32	0.00	0.00
115.0	530.14	1,613.17	0.00	0.00
120.0	6,003.31	4,851.06	0.00	0.00
125.0	520.75	2,221.51	0.00	0.00
125.5	51.32	219.05	0.00	0.00
130.0	3,866.24	3,067.45	0.00	0.00
135.0	502.24	967.28	0.00	0.00
140.0	3,472.55	2,183.96	0.00	0.00
145.0	481.90	818.15	0.00	0.00
150.0	4,419.18	3,336.68	0.00	0.00
Totals:	32,266.20	71,801.93	0.00	0.00

Pole : 302527
 Location : East Haddam, CT
 Height : 150.0 (ft)
 Base Dia : 72.20 (in)
 Top Dia : 36.90 (in)
 Shape : 18 Sides
 Taper : 0.253625 (in/ft)

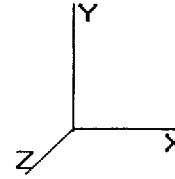
Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)

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Load Case: Ice

82.27 mph Wind with Ice

17 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-32.303	-71.785	0.000	0.000	0.000	-3,408.325	0.000	0.000	0.000	0.000
5.00	-31.796	-69.377	0.000	0.000	0.000	-3,246.813	-0.031	0.000	0.031	-0.057
10.00	-31.294	-67.011	0.000	0.000	0.000	-3,087.839	-0.122	0.000	0.122	-0.114
15.00	-30.797	-64.439	0.000	0.000	0.000	-2,931.373	-0.273	0.000	0.273	-0.172
20.00	-30.305	-61.910	0.000	0.000	0.000	-2,777.392	-0.485	0.000	0.485	-0.230
25.00	-29.819	-59.425	0.000	0.000	0.000	-2,625.870	-0.757	0.000	0.757	-0.287
30.00	-29.337	-56.982	0.000	0.000	0.000	-2,476.780	-1.090	0.000	1.090	-0.345
35.00	-28.837	-54.592	0.000	0.000	0.000	-2,330.095	-1.483	0.000	1.483	-0.403
37.00	-28.647	-53.642	0.000	0.000	0.000	-2,272.423	-1.657	0.000	1.657	-0.426
40.00	-28.344	-51.077	0.000	0.000	0.000	-2,186.483	-1.936	0.000	1.936	-0.461
45.00	-27.805	-46.880	0.000	0.000	0.000	-2,044.765	-2.451	0.000	2.451	-0.519
50.00	-27.270	-44.576	0.000	0.000	0.000	-1,905.744	-3.025	0.000	3.025	-0.576
55.00	-26.725	-42.316	0.000	0.000	0.000	-1,769.398	-3.658	0.000	3.658	-0.629
60.00	-26.175	-40.100	0.000	0.000	0.000	-1,635.773	-4.346	0.000	4.346	-0.682
65.00	-25.356	-37.737	0.000	0.000	0.000	-1,504.901	-5.089	0.000	5.089	-0.734
70.00	-24.797	-35.610	0.000	0.000	0.000	-1,378.122	-5.885	0.000	5.885	-0.785
75.00	-24.236	-33.527	0.000	0.000	0.000	-1,254.139	-6.735	0.000	6.735	-0.835
80.00	-23.632	-30.029	0.000	0.000	0.000	-1,132.962	-7.636	0.000	7.636	-0.883
82.00	-23.397	-28.646	0.000	0.000	0.000	-1,085.698	-8.010	0.000	8.010	-0.903
85.00	-23.061	-27.535	0.000	0.000	0.000	-1,015.507	-8.587	0.000	8.587	-0.931
90.00	-22.490	-25.723	0.000	0.000	0.000	-900.205	-9.589	0.000	9.589	-0.979
95.00	-21.921	-23.950	0.000	0.000	0.000	-787.755	-10.639	0.000	10.639	-1.024
100.0	-21.355	-22.218	0.000	0.000	0.000	-678.150	-11.735	0.000	11.735	-1.066
105.0	-20.792	-20.526	0.000	0.000	0.000	-571.377	-12.873	0.000	12.873	-1.105
110.0	-20.233	-18.874	0.000	0.000	0.000	-467.419	-14.050	0.000	14.050	-1.140
115.0	-19.678	-17.262	0.000	0.000	0.000	-366.258	-15.262	0.000	15.262	-1.171
120.0	-13.581	-12.531	0.000	0.000	0.000	-267.867	-16.502	0.000	16.502	-1.196
125.0	-13.015	-10.318	0.000	0.000	0.000	-199.962	-17.767	0.000	17.767	-1.216
125.5	-12.961	-10.098	0.000	0.000	0.000	-193.455	-17.894	0.000	17.894	-1.218
130.0	-9.032	-7.112	0.000	0.000	0.000	-135.130	-19.050	0.000	19.050	-1.232
135.0	-8.511	-6.154	0.000	0.000	0.000	-89.970	-20.351	0.000	20.351	-1.250
140.0	-4.992	-4.046	0.000	0.000	0.000	-47.418	-21.667	0.000	21.667	-1.262
145.0	-4.492	-3.238	0.000	0.000	0.000	-22.460	-22.993	0.000	22.993	-1.268
150.0	-4.419	0.000	0.000	0.000	0.000	0.000	-24.323	0.000	24.323	-1.271

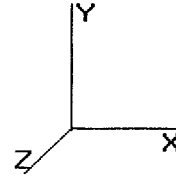
Pole : 302527
 Location : East Haddam, CT
 Height : 150.0 (ft)
 Base Dia : 72.20 (in)
 Top Dia : 36.90 (in)
 Shape : 18 Sides
 Taper : 0.253625 (in/ft)

Code: TIA/EIA-222 Rev F

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Base Elev : 0.000 (ft)

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Load Case: Ice 82.27 mph Wind with Ice 17 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Calculated Stresses

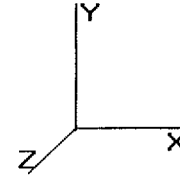
Seg Elev (ft)	Applied Stresses							Allowable Stress (Fb) (ksi)	Stress Ratio	
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)			
0.00	0.56	0.51	0.00	0.00	0.00	18.08	18.66	52.0	0.0	0.359
5.00	0.55	0.51	0.00	0.00	0.00	17.85	18.43	52.0	0.0	0.354
10.00	0.54	0.51	0.00	0.00	0.00	17.61	18.17	52.0	0.0	0.350
15.00	0.53	0.51	0.00	0.00	0.00	17.35	17.90	52.0	0.0	0.344
20.00	0.52	0.51	0.00	0.00	0.00	17.07	17.62	52.0	0.0	0.339
25.00	0.51	0.52	0.00	0.00	0.00	16.78	17.31	52.0	0.0	0.333
30.00	0.50	0.52	0.00	0.00	0.00	16.46	16.98	52.0	0.0	0.327
35.00	0.49	0.52	0.00	0.00	0.00	16.12	16.63	52.0	0.0	0.320
37.00	0.48	0.52	0.00	0.00	0.00	15.98	16.49	52.0	0.0	0.317
40.00	0.47	0.52	0.00	0.00	0.00	15.76	16.25	52.0	0.0	0.313
45.00	0.43	0.51	0.00	0.00	0.00	14.81	15.26	52.0	0.0	0.294
50.00	0.42	0.51	0.00	0.00	0.00	14.39	14.84	52.0	0.0	0.285
55.00	0.40	0.51	0.00	0.00	0.00	13.95	14.38	52.0	0.0	0.277
60.00	0.39	0.51	0.00	0.00	0.00	13.47	13.89	52.0	0.0	0.267
65.00	0.38	0.51	0.00	0.00	0.00	12.96	13.37	52.0	0.0	0.257
70.00	0.36	0.51	0.00	0.00	0.00	12.43	12.82	52.0	0.0	0.247
75.00	0.35	0.51	0.00	0.00	0.00	11.85	12.23	52.0	0.0	0.235
80.00	0.32	0.51	0.00	0.00	0.00	11.23	11.59	52.0	0.0	0.223
82.00	0.34	0.56	0.00	0.00	0.00	11.84	12.22	52.0	0.0	0.235
85.00	0.33	0.56	0.00	0.00	0.00	11.40	11.78	52.0	0.0	0.227
90.00	0.32	0.56	0.00	0.00	0.00	10.62	10.98	52.0	0.0	0.211
95.00	0.30	0.56	0.00	0.00	0.00	9.78	10.13	52.0	0.0	0.195
100.00	0.29	0.56	0.00	0.00	0.00	8.86	9.20	52.0	0.0	0.177
105.00	0.27	0.56	0.00	0.00	0.00	7.88	8.21	52.0	0.0	0.158
110.00	0.26	0.56	0.00	0.00	0.00	6.81	7.13	52.0	0.0	0.137
115.00	0.24	0.56	0.00	0.00	0.00	5.64	5.97	52.0	0.0	0.115
120.00	0.18	0.40	0.00	0.00	0.00	4.37	4.61	52.0	0.0	0.089
125.00	0.15	0.39	0.00	0.00	0.00	3.47	3.68	52.0	0.0	0.071
125.50	0.24	0.62	0.00	0.00	0.00	5.17	5.51	52.0	0.0	0.106
130.00	0.17	0.44	0.00	0.00	0.00	3.81	4.06	52.0	0.0	0.078
135.00	0.15	0.43	0.00	0.00	0.00	2.70	2.95	52.0	0.0	0.057
140.00	0.10	0.26	0.00	0.00	0.00	1.52	1.68	52.0	0.0	0.032
145.00	0.09	0.24	0.00	0.00	0.00	0.77	0.95	52.0	0.0	0.018
150.00	0.00	0.25	0.00	0.00	0.00	0.00	0.43	52.0	0.0	0.008

Pole : 302527
 Location : East Haddam, CT
 Height : 150.0 (ft)
 Base Dia : 72.20 (in)
 Top Dia : 36.90 (in)
 Shape : 18 Sides
 Taper : 0.253625 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)

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Load Case: Twist/Sway 50.00 mph Wind with No Ice 16 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Shaft Segment Forces

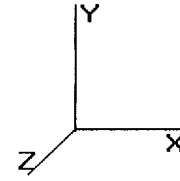
Seg Top Elev (ft)	Description	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	6.400	10.81	300.83	0.650	0.000	0.00	0.000	0.00	0.0	0.0
5.00		0.00	1.00	6.400	10.81	295.54	0.650	0.000	5.00	29.819	19.38	209.6	2,156.7
10.00		0.00	1.00	6.400	10.81	290.26	0.650	0.000	5.00	29.291	19.04	205.9	2,118.2
15.00		0.00	1.00	6.400	10.81	284.98	0.650	0.000	5.00	28.762	18.70	202.2	2,079.7
20.00		0.00	1.00	6.400	10.81	279.69	0.650	0.000	5.00	28.234	18.35	198.5	2,041.2
25.00		0.00	1.00	6.400	10.81	274.41	0.650	0.000	5.00	27.705	18.01	194.8	2,002.6
30.00		0.00	1.00	6.400	10.81	269.12	0.650	0.000	5.00	27.177	17.67	191.1	1,964.1
35.00		0.00	1.01	6.509	10.99	266.07	0.650	0.000	5.00	26.649	17.32	190.5	1,925.6
37.00	Bot - Section 2	0.00	1.03	6.613	11.17	266.04	0.650	0.000	2.00	10.512	6.83	76.4	759.5
40.00		0.00	1.05	6.762	11.42	265.76	0.650	0.000	3.00	15.890	10.33	118.0	2,275.8
45.00	Top - Section 1	0.00	1.09	6.993	11.81	264.75	0.650	0.000	5.00	26.061	16.94	200.2	3,731.3
50.00		0.00	1.12	7.207	12.17	268.13	0.650	0.000	5.00	25.532	16.60	202.1	1,844.2
55.00		0.00	1.15	7.406	12.51	266.12	0.650	0.000	5.00	25.004	16.25	203.4	1,805.7
60.00		0.00	1.18	7.592	12.83	263.69	0.650	0.000	5.00	24.475	15.91	204.1	1,767.2
65.00	Appertunance(s)	0.00	1.21	7.768	13.12	260.91	0.650	0.000	5.00	23.947	15.57	204.3	1,728.7
70.00		0.00	1.24	7.934	13.40	257.80	0.650	0.000	5.00	23.419	15.22	204.1	1,690.1
75.00	Bot - Section 3	0.00	1.26	8.092	13.67	254.41	0.650	0.000	5.00	22.890	14.88	203.5	1,651.6
80.00		0.00	1.28	8.242	13.93	250.77	0.650	0.000	5.00	22.779	14.81	206.2	3,075.7
82.00	Top - Section 2	0.00	1.29	8.301	14.02	249.25	0.650	0.000	2.00	8.964	5.83	81.7	1,209.9
85.00		0.00	1.31	8.387	14.17	251.67	0.650	0.000	3.00	13.287	8.64	122.4	852.9
90.00		0.00	1.33	8.525	14.40	247.64	0.650	0.000	5.00	21.722	14.12	203.4	1,394.1
95.00		0.00	1.35	8.657	14.63	243.42	0.650	0.000	5.00	21.193	13.78	201.6	1,359.8
100.00		0.00	1.37	8.785	14.84	239.01	0.650	0.000	5.00	20.665	13.43	199.4	1,325.6
105.00		0.00	1.39	8.908	15.05	234.45	0.650	0.000	5.00	20.137	13.09	197.1	1,291.4
110.00		0.00	1.41	9.028	15.25	229.74	0.650	0.000	5.00	19.608	12.75	194.5	1,257.1
115.00		0.00	1.42	9.143	15.45	224.89	0.650	0.000	5.00	19.080	12.40	191.6	1,222.9
120.00	Bot - Section 4	0.00	1.44	9.255	15.64	219.91	0.650	0.000	5.00	18.552	12.06	188.6	1,188.6
125.00		0.00	1.46	9.363	15.82	214.80	0.650	0.000	5.00	18.284	11.88	188.1	1,889.6
125.50	Top - Section 3	0.00	1.46	9.374	15.84	214.28	0.650	0.000	0.50	1.799	1.17	18.5	185.9
130.00	Appertunance(s)	0.00	1.48	9.469	16.00	212.75	0.650	0.000	4.50	15.956	10.37	166.0	641.5
135.00		0.00	1.49	9.572	16.17	207.44	0.650	0.000	5.00	17.227	11.20	181.1	692.4
140.00	Appertunance(s)	0.00	1.51	9.672	16.34	202.02	0.650	0.000	5.00	16.698	10.85	177.4	671.0
145.00		0.00	1.52	9.769	16.51	196.51	0.650	0.000	5.00	16.170	10.51	173.5	649.6
150.00	Appertunance(s)	0.00	1.54	9.864	16.67	190.90	0.650	0.000	5.00	15.642	10.17	169.5	628.2
Totals:								150.00			5,869.4	0.0	51,078.4

Pole : 302527
 Location : East Haddam, CT
 Height : 150.0 (ft)
 Base Dia : 72.20 (in)
 Top Dia : 36.90 (in)
 Shape : 18 Sides
 Taper : 0.253625 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)

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Load Case: Twist/Sway **50.00 mph Wind with No Ice** **16 Iterations**

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Discrete Appurtenance Segment Forces

Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	Dead Load (lb)
65.00	GPS	1	7.768	13.127	1.00	1.00	0.000	0.000	13.13	0.00	0.00	10.00
65.00	PCTEL GPS-TMG-HR-	1	7.768	13.127	1.00	0.09	0.000	0.000	1.18	0.00	0.00	0.60
65.00	Round Side Arm	1	7.768	13.127	1.00	5.20	0.000	0.000	68.26	0.00	0.00	150.00
120.0	14" x 9" TTA	3	9.255	15.641	0.50	1.85	0.000	0.000	28.86	0.00	0.00	30.00
120.0	36" x 8" x 6" Panel	3	9.255	15.641	0.77	6.47	0.000	0.000	101.16	0.00	0.00	75.00
120.0	72" x 12" Panels	7	9.255	15.641	0.67	39.40	0.000	0.000	616.18	0.00	0.00	315.00
120.0	Andrew DBXNH-	1	9.255	15.641	1.00	8.41	0.000	0.000	131.54	0.00	0.00	46.30
120.0	Commscope SBNH-	1	9.255	15.641	1.00	8.92	0.000	0.000	139.52	0.00	0.00	39.70
120.0	Ericsson RRUS-11 190	6	9.255	15.641	1.00	17.64	0.000	0.000	275.90	0.00	0.00	264.00
120.0	Flat Low Profile Pla	1	9.255	15.641	1.00	26.10	0.000	0.000	408.22	0.00	0.00	1,500.00
120.0	Powerwave LGP21401	6	9.255	15.641	0.50	3.87	0.000	0.000	60.53	0.00	0.00	84.60
120.0	Raycap DC6-48-60-18-	1	9.255	15.641	1.00	1.47	0.000	0.000	22.99	0.00	0.00	31.80
130.0	Antel BXA-171063-8BF	3	9.469	16.003	0.90	9.75	0.000	0.000	155.98	0.00	0.00	31.50
130.0	Antel BXA-70063-4CF-	3	9.469	16.003	0.77	10.88	0.000	0.000	174.11	0.00	0.00	29.70
130.0	Flat Low Profile Pla	1	9.469	16.003	1.00	26.10	0.000	0.000	417.67	0.00	0.00	1,500.00
130.0	RFS APL868013-42T0	6	9.469	16.003	0.90	19.49	0.000	0.000	311.95	0.00	0.00	37.80
130.0	RFS FD9R6004/2C-3L	6	9.469	16.003	0.50	1.08	0.000	0.000	17.28	0.00	0.00	18.60
140.0	Decibel DB980F65E-M	12	9.672	16.345	0.81	36.45	0.000	0.000	595.78	0.00	0.00	114.00
140.0	Round T-Arms	3	9.672	16.345	0.67	19.50	0.000	0.000	318.68	0.00	0.00	750.00
150.0	48" x 12" Panels	9	9.864	16.670	0.67	33.77	0.000	0.000	562.93	0.00	0.00	270.00
150.0	72" x 12" Panels	3	9.864	16.670	0.67	16.88	0.000	0.000	281.46	0.00	0.00	135.00
150.0	Flat Low Profile Pla	1	9.864	16.670	1.00	26.10	0.000	0.000	435.10	0.00	0.00	1,500.00
									5,138.40			6,933.60

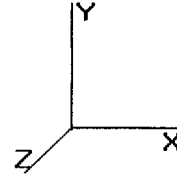
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 Location : East Haddam, CT
 Height : 150.0 (ft)
 Base Dia : 72.20 (in)
 Top Dia : 36.90 (in)
 Shape : 18 Sides
 Taper : 0.253625 (in/ft)

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Base Elev : 0.000 (ft)

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Load Case: Twist/Sway 50.00 mph Wind with No Ice 16 Iterations
 Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Applied Segment Forces Summary

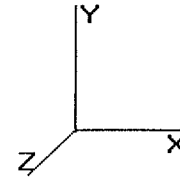
Seg Elev (ft)	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00	0.00	0.00	0.00	0.00
5.00	209.64	2,156.72	0.00	0.00
10.00	205.92	2,118.20	0.00	0.00
15.00	202.21	2,330.23	0.00	0.00
20.00	198.50	2,291.71	0.00	0.00
25.00	194.78	2,253.19	0.00	0.00
30.00	191.07	2,214.68	0.00	0.00
35.00	190.53	2,176.16	0.00	0.00
37.00	76.36	859.68	0.00	0.00
40.00	118.03	2,426.09	0.00	0.00
45.00	200.19	3,981.86	0.00	0.00
50.00	202.13	2,094.77	0.00	0.00
55.00	203.41	2,056.25	0.00	0.00
60.00	204.12	2,017.73	0.00	0.00
65.00	286.91	2,139.81	0.00	0.00
70.00	204.10	1,939.54	0.00	0.00
75.00	203.47	1,901.02	0.00	0.00
80.00	206.25	3,325.06	0.00	0.00
82.00	81.73	1,309.65	0.00	0.00
85.00	122.41	1,002.52	0.00	0.00
90.00	203.41	1,643.48	0.00	0.00
95.00	201.55	1,609.24	0.00	0.00
100.0	199.43	1,575.00	0.00	0.00
105.0	197.06	1,540.76	0.00	0.00
110.0	194.45	1,506.52	0.00	0.00
115.0	191.63	1,472.28	0.00	0.00
120.0	1,973.50	3,824.44	0.00	0.00
125.0	188.06	2,086.52	0.00	0.00
125.5	18.53	205.59	0.00	0.00
130.0	1,242.96	2,436.28	0.00	0.00
135.0	181.13	840.11	0.00	0.00
140.0	1,091.86	1,682.71	0.00	0.00
145.0	173.53	698.81	0.00	0.00
150.0	1,448.98	2,582.42	0.00	0.00
Totals:	11,007.82	64,299.06	0.00	0.00

Pole : 302527
 Location : East Haddam, CT
 Height : 150.0 (ft)
 Base Dia : 72.20 (in)
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Load Case: Twist/Sway 50.00 mph Wind with No Ice 16 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-11.018	-64.297	0.000	0.000	0.000	-1,139.231	0.000	0.000	0.000	0.000
5.00	-10.829	-62.137	0.000	0.000	0.000	-1,084.142	-0.010	0.000	0.010	-0.019
10.00	-10.642	-60.015	0.000	0.000	0.000	-1,029.999	-0.041	0.000	0.041	-0.038
15.00	-10.457	-57.682	0.000	0.000	0.000	-976.792	-0.091	0.000	0.091	-0.057
20.00	-10.274	-55.387	0.000	0.000	0.000	-924.508	-0.162	0.000	0.162	-0.077
25.00	-10.094	-53.130	0.000	0.000	0.000	-873.137	-0.253	0.000	0.253	-0.096
30.00	-9.916	-50.913	0.000	0.000	0.000	-822.668	-0.364	0.000	0.364	-0.115
35.00	-9.732	-48.735	0.000	0.000	0.000	-773.090	-0.494	0.000	0.494	-0.134
37.00	-9.662	-47.874	0.000	0.000	0.000	-753.626	-0.552	0.000	0.552	-0.142
40.00	-9.550	-45.445	0.000	0.000	0.000	-724.642	-0.646	0.000	0.646	-0.154
45.00	-9.352	-41.461	0.000	0.000	0.000	-676.895	-0.817	0.000	0.817	-0.173
50.00	-9.155	-39.364	0.000	0.000	0.000	-630.137	-1.008	0.000	1.008	-0.191
55.00	-8.956	-37.306	0.000	0.000	0.000	-584.361	-1.218	0.000	1.218	-0.209
60.00	-8.755	-35.286	0.000	0.000	0.000	-539.580	-1.447	0.000	1.447	-0.227
65.00	-8.469	-33.145	0.000	0.000	0.000	-495.805	-1.693	0.000	1.693	-0.244
70.00	-8.266	-31.204	0.000	0.000	0.000	-453.459	-1.958	0.000	1.958	-0.260
75.00	-8.062	-29.302	0.000	0.000	0.000	-412.131	-2.239	0.000	2.239	-0.277
80.00	-7.844	-25.976	0.000	0.000	0.000	-371.824	-2.538	0.000	2.538	-0.293
82.00	-7.759	-24.666	0.000	0.000	0.000	-356.136	-2.662	0.000	2.662	-0.299
85.00	-7.636	-23.662	0.000	0.000	0.000	-332.860	-2.853	0.000	2.853	-0.308
90.00	-7.430	-22.018	0.000	0.000	0.000	-294.680	-3.185	0.000	3.185	-0.324
95.00	-7.224	-20.408	0.000	0.000	0.000	-257.532	-3.533	0.000	3.533	-0.339
100.0	-7.019	-18.833	0.000	0.000	0.000	-221.413	-3.895	0.000	3.895	-0.353
105.0	-6.816	-17.292	0.000	0.000	0.000	-186.317	-4.272	0.000	4.272	-0.365
110.0	-6.615	-15.785	0.000	0.000	0.000	-152.236	-4.661	0.000	4.661	-0.377
115.0	-6.416	-14.313	0.000	0.000	0.000	-119.161	-5.061	0.000	5.061	-0.387
120.0	-4.418	-10.502	0.000	0.000	0.000	-87.082	-5.471	0.000	5.471	-0.395
125.0	-4.216	-8.417	0.000	0.000	0.000	-64.994	-5.888	0.000	5.888	-0.401
125.5	-4.196	-8.211	0.000	0.000	0.000	-62.886	-5.930	0.000	5.930	-0.402
130.0	-2.937	-5.783	0.000	0.000	0.000	-44.003	-6.312	0.000	6.312	-0.407
135.0	-2.750	-4.944	0.000	0.000	0.000	-29.320	-6.741	0.000	6.741	-0.412
140.0	-1.646	-3.269	0.000	0.000	0.000	-15.570	-7.176	0.000	7.176	-0.416
145.0	-1.468	-2.572	0.000	0.000	0.000	-7.339	-7.613	0.000	7.613	-0.418
150.0	-1.449	0.000	0.000	0.000	0.000	0.000	-8.052	0.000	8.052	-0.419

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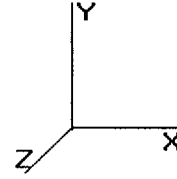
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Base Elev : 0.000 (ft)

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Load Case: Twist/Sway 50.00 mph Wind with No Ice 16 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses							Combined (ksi)	Allowable Stress (Fb) (ksi)	Stress Ratio
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)				
0.00	0.50	0.17	0.00	0.00	0.00	6.04	6.55	52.0	0.0	0.126
5.00	0.49	0.17	0.00	0.00	0.00	5.96	6.46	52.0	0.0	0.124
10.00	0.49	0.17	0.00	0.00	0.00	5.87	6.37	52.0	0.0	0.122
15.00	0.48	0.17	0.00	0.00	0.00	5.78	6.27	52.0	0.0	0.121
20.00	0.47	0.17	0.00	0.00	0.00	5.68	6.16	52.0	0.0	0.118
25.00	0.46	0.17	0.00	0.00	0.00	5.58	6.04	52.0	0.0	0.116
30.00	0.45	0.17	0.00	0.00	0.00	5.47	5.92	52.0	0.0	0.114
35.00	0.43	0.18	0.00	0.00	0.00	5.35	5.79	52.0	0.0	0.111
37.00	0.43	0.18	0.00	0.00	0.00	5.30	5.74	52.0	0.0	0.110
40.00	0.41	0.18	0.00	0.00	0.00	5.22	5.65	52.0	0.0	0.109
45.00	0.38	0.17	0.00	0.00	0.00	4.90	5.29	52.0	0.0	0.102
50.00	0.37	0.17	0.00	0.00	0.00	4.76	5.13	52.0	0.0	0.099
55.00	0.36	0.17	0.00	0.00	0.00	4.61	4.97	52.0	0.0	0.096
60.00	0.34	0.17	0.00	0.00	0.00	4.44	4.80	52.0	0.0	0.092
65.00	0.33	0.17	0.00	0.00	0.00	4.27	4.61	52.0	0.0	0.089
70.00	0.32	0.17	0.00	0.00	0.00	4.09	4.42	52.0	0.0	0.085
75.00	0.31	0.17	0.00	0.00	0.00	3.89	4.21	52.0	0.0	0.081
80.00	0.28	0.17	0.00	0.00	0.00	3.69	3.97	52.0	0.0	0.076
82.00	0.29	0.19	0.00	0.00	0.00	3.88	4.19	52.0	0.0	0.081
85.00	0.29	0.19	0.00	0.00	0.00	3.74	4.04	52.0	0.0	0.078
90.00	0.27	0.19	0.00	0.00	0.00	3.48	3.76	52.0	0.0	0.072
95.00	0.26	0.18	0.00	0.00	0.00	3.20	3.47	52.0	0.0	0.067
100.00	0.24	0.18	0.00	0.00	0.00	2.89	3.16	52.0	0.0	0.061
105.00	0.23	0.18	0.00	0.00	0.00	2.57	2.82	52.0	0.0	0.054
110.00	0.22	0.18	0.00	0.00	0.00	2.22	2.45	52.0	0.0	0.047
115.00	0.20	0.18	0.00	0.00	0.00	1.84	2.06	52.0	0.0	0.040
120.00	0.15	0.13	0.00	0.00	0.00	1.42	1.59	52.0	0.0	0.031
125.00	0.13	0.13	0.00	0.00	0.00	1.13	1.27	52.0	0.0	0.024
125.50	0.19	0.20	0.00	0.00	0.00	1.68	1.91	52.0	0.0	0.037
130.00	0.14	0.14	0.00	0.00	0.00	1.24	1.40	52.0	0.0	0.027
135.00	0.12	0.14	0.00	0.00	0.00	0.88	1.03	52.0	0.0	0.020
140.00	0.08	0.09	0.00	0.00	0.00	0.50	0.60	52.0	0.0	0.012
145.00	0.07	0.08	0.00	0.00	0.00	0.25	0.35	52.0	0.0	0.007
150.00	0.00	0.08	0.00	0.00	0.00	0.00	0.14	52.0	0.0	0.003

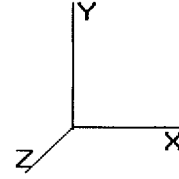
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 Location : East Haddam, CT
 Height : 150.0 (ft)
 Base Dia : 72.20 (in)
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Base Elev : 0.000 (ft)

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Analysis Summary

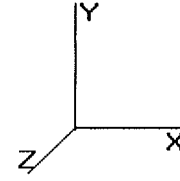
Load Case	Reactions						Max Stresses			
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
No Ice	39.8	0.00	64.27	0.00	0.00	4112.50	22.34	52.0	0.00	0.430
Ice	32.3	0.00	71.79	0.00	0.00	3408.32	18.66	52.0	0.00	0.359
Twist/Sway	11.0	0.00	64.30	0.00	0.00	1139.23	6.55	52.0	0.00	0.126

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Base Summary

Reactions

Original Design			Analysis			Moment
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	Design %
9,100.00	79.00	69.00	4,112.50	71.79	39.78	45.19

Base Plate

Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Moment (kip-in)	Allow Stress (ksi)	Applied Stress (ksi)	Stress Ratio
55.0	3.500	81.000	Clipped	0	20.00	8.184	353.70	55.00	21.17	0.38

Anchor Bolts

Bolt Circle	Num Bolts	Bolt Type	Bolt Dia (in)	Yield (ksi)	Ultimate (ksi)	Cluster Arrange	Cluster Dist (in)	Start Angle (deg)	Compression			Tension		
									Force (kip)	Allow (kip)	Ratio	Force (kip)	Allow (kip)	Ratio
80.00	28	2.25" 18J	2.25	75.00	100.00	Clustered	5.00	45.0	90.69	195.00	0.47	85.56	195.00	0.44



C Squared Systems, LLC
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Auburn, NH 03032
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support@csquaredsystems.com

Calculated Radio Frequency Emissions



CT5540

(East Haddam South)

135 Honey Hill Road, East Haddam, CT 06423

September 20, 2012

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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modifications to the existing AT&T antenna arrays mounted on the monopole tower located at 135 Honey Hill Road in East Haddam, CT. The coordinates of the tower are 41° 26' 12.8" N, 72° 21' 58.0" W.

AT&T is proposing the following modifications:

- 1) Install three multi-band (700/850/1900/2100 MHz) antennas for their LTE network (one per sector).

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \frac{1.6^2 \cdot \text{EIRP}}{4\pi \cdot R^2} \times \text{Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

$$R = \text{Radial Distance} = \sqrt{(H^2 + V^2)}$$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the finished modifications.

4. Calculation Results

Table 1 below outlines the power density information for the site. Because the proposed AT&T antennas are directional in nature, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm ²)	Limit	%MPE
<i>Cingular GSM</i>	120	1900	2	427	0.0213	1.0000	2.13%
<i>Cingular GSM</i>	120	880	2	296	0.0148	0.5867	2.52%
<i>Cingular UMTS</i>	120	880	1	500	0.0125	0.5867	2.13%
Verizon cellular	130	869	9	261	0.0500	0.5793	8.63%
Verizon PCS	130	1970	11	256	0.0599	1.0000	5.99%
Verizon AWS	130	2145	1	675	0.0144	1.0000	1.44%
Verizon LTE	130	698	1	852	0.0181	0.4653	3.90%
Nextel	150	851	24	100	0.0384	0.5673	6.76%
Sprint	140	1950	11	505.36	0.1020	1.0000	10.20%
AT&T UMTS	120	880	2	565	0.0028	0.5867	0.48%
AT&T UMTS	120	1900	2	875	0.0044	1.0000	0.44%
AT&T LTE	120	734	1	1771	0.0044	0.4893	0.90%
AT&T GSM	120	880	1	283	0.0007	0.5867	0.12%
AT&T GSM	120	1900	4	525	0.0052	1.0000	0.52%
						Total	39.37%

Table 1: Carrier Information^{1 2 3}

¹ The existing CSC filing for Cingular should be removed and replaced with the updated AT&T technologies and values provided in Table 1. The power density information for carriers other than AT&T was taken directly from the CSC database dated 7/26/2012. Please note that %MPE values listed are rounded to two decimal points. The total %MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table.

² In the case where antenna models are not uniform across all 3 sectors for the same frequency band, the antenna model with the highest gain was used for the calculations to present a worse-case scenario.

³ Antenna height listed for AT&T is in reference to the American Tower Corp. Structural Analysis dated September 17, 2012.

5. Conclusion

The above analysis verifies that emissions from the existing site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed transmit antennas at the existing facility is well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at ground level is **39.37% of the FCC limit**.

As noted previously, obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the finished modifications.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.

A handwritten signature in black ink, appearing to read 'Daniel L. Goulet', written in a cursive style.

Daniel L. Goulet
C Squared Systems, LLC

September 20, 2012

Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz. IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave. IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure⁴

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure⁵

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

⁴ Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure

⁵ General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure

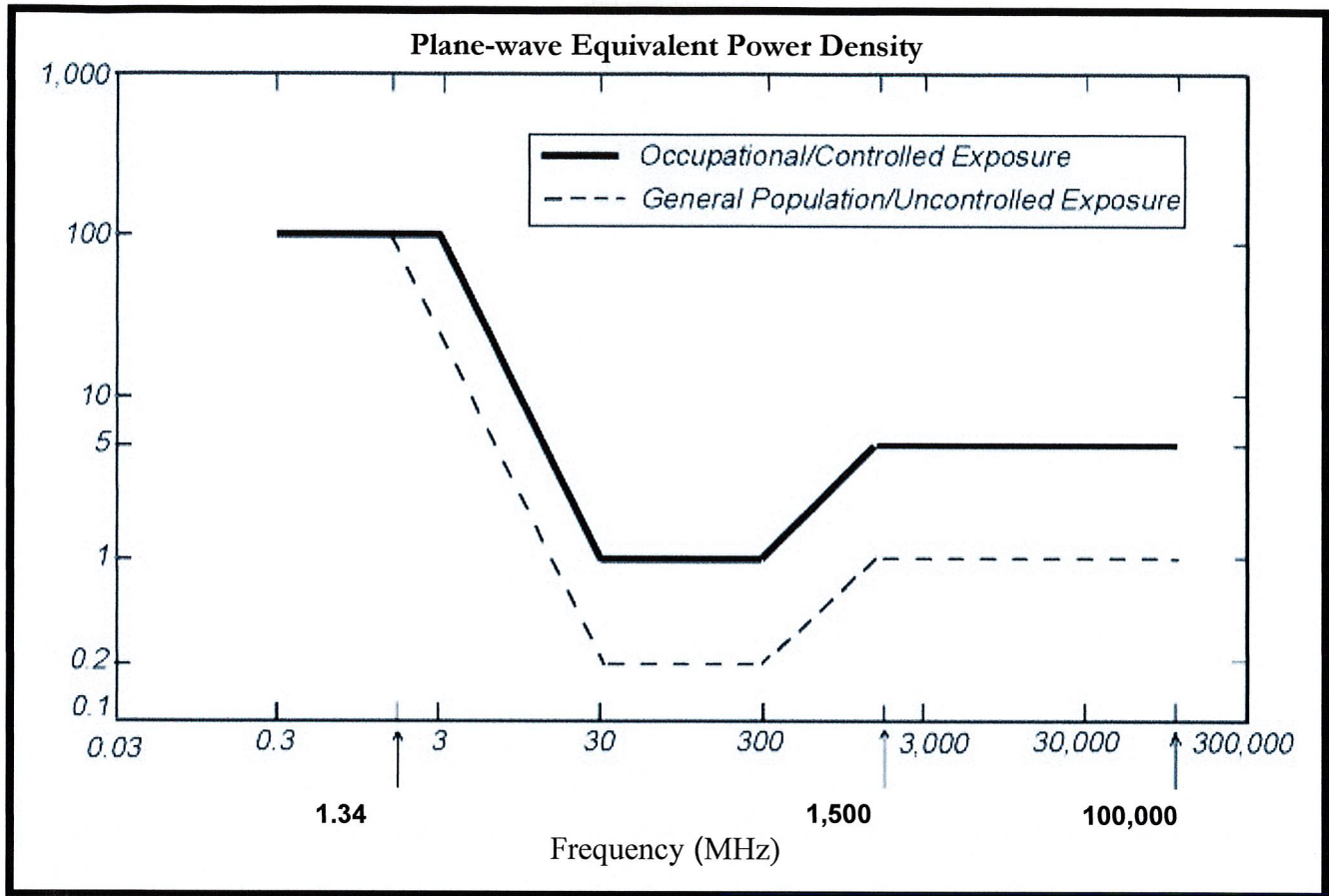
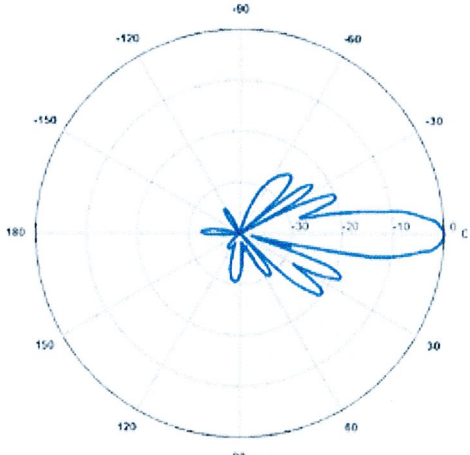
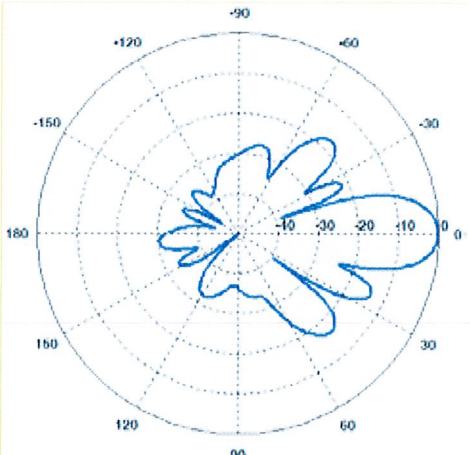


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: AT&T Antenna Data Sheets and Electrical Patterns

<p>700 MHz</p> <p>Manufacturer: KMW Communications Model #: AM-X-CD-17-65-00T-RET Frequency Band: 698-894 MHz Gain: 14.7 dBd Vertical Beamwidth: 10° Horizontal Beamwidth: 66° Polarization: Dual Slant ± 45° Size L x W x D: 96.0" x 11.8" x 6.0"</p>	
<p>850 MHz</p> <p>Manufacturer: Powerwave Model #: 7770 Frequency Band: 824-896 MHz Gain: 11.5 dBd Vertical Beamwidth: 15° Horizontal Beamwidth: 82° Polarization: Dual Linear ± 45° Size L x W x D: 55.0" x 11.0" x 5.0"</p>	
<p>1900 MHz</p> <p>Manufacturer: Powerwave Model #: 7770 Frequency Band: 1850-1990 MHz Gain: 13.4 dBd Vertical Beamwidth: 7° Horizontal Beamwidth: 86° Polarization: Dual Linear ± 45° Size L x W x D: 55.0" x 11.0" x 5.0"</p>	