ROBINSON & COLE LLP

KENNETH C. BALDWIN

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

June 27, 2012

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

Re: **EM-VER-119-120514 – 699 Old Main Street, Rocky Hill, Connecticut**
EM-VER-011-120123 – 785 Park Avenue, Bloomfield, Connecticut
EM-VER-014-120110 – 405 Brushy Hill Road, Branford, Connecticut
EM-VER-014-120106 – 180 North Main Street, Branford, Connecticut
EM-VER-030-120106 – 330 Middletown Road, Columbia, Connecticut
EM-VER-054-111108 – 374 Three Mile Road, Glastonbury, Connecticut

Completion of Construction Activity

Dear Ms. Roberts:

The purpose of this letter is to notify the Siting Council that construction activity associated with the above-referenced Cellco Partnership d/b/a Verizon Wireless telecommunications facilities has been completed.

If you have any questions or need any additional information regarding this facility please do not hesitate to contact me.

Sincerely,

Kenneth C. Baldwin

Copy to:
Sandy M. Carter

11754237-v1

ROBINSON & COLE LLP

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
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May 17, 2012

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

Re: **EM-VER-007-120125 – 1684 Chamberlain Highway, Berlin, Connecticut**
EM-VER-014-120110 – 405 Brushy Hill Road, Branford, Connecticut
EM-VER-026-111130 – Wig Hill Road, Chester, Connecticut
EM-VER-070-120202 – 78 Route 81, Killingworth, Connecticut
EM-VER-030-120106 – 330 Middletown Road, Columbia, Connecticut
EM-VER-046-120123 – 206 Everett Road, Easton, Connecticut
EM-VER-049-120214 – Town Farm Road, Enfield, Connecticut
EM-VER-013-111220 – 12 Polly Lane, Bozrah, Connecticut

Completion of Construction Activity

Dear Ms. Roberts:

The purpose of this letter is to notify you and the Connecticut Siting Council that construction activity associated with each of the above-referenced modification filings has been completed.

If you have any questions or need any additional information regarding these facilities please do not hesitate to contact me.

Sincerely,

Kenneth C. Baldwin

Copy to:
Sandy M. Carter

11525985-v1

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

January 27, 2012

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

RE: **EM-VER-014-120110**- Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 405 Brushy Plain Road, Branford, Connecticut.

Dear Attorney Baldwin:

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

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

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated January 6, 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/laf

c: The Honorable Anthony "Unk" DaRos, First Selectman, Town of Branford
Diana Ross, Inland Wetland Enforcement Officer, Town of Branford
Laura Magaraci, Zoning Enforcement Officer, Town of Branford
American Tower Corporation

CONNECTICUT SITING COUNCIL

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

January 11, 2012

The Honorable Anthony "Unk" DaRos
First Selectman
Town of Branford
Town Hall
1019 Main Street
P. O. Box 150
Branford, CT 06405-0150

RE: **EM-VER-014-120110**- Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 405 Brushy Plain Road, Branford, Connecticut.

Dear First Selectman DaRos:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

If you have any questions or comments regarding this proposal, please call me or inform the Council by January 26, 2012.

Thank you for your cooperation and consideration.

Very truly yours,

LRoberts

Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: Diana Ross, Inland Wetland Enforcement Officer, Town of Branford
Laura Magaraci, Zoning Enforcement Officer, Town of Branford

ROBINSON & COI

EM-VER-014-120110

KENNETH C. BALDWIN

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Direct (860) 275-8345

ORIGINAL

January 6, 2012

RECEIVED
JAN 10 2012
CONNECTICUT
SITING COUNCIL

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

Re: **Notice of Exempt Modification – Antenna Swap**
405 Brushy Plain Road, Branford, Connecticut

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 113-foot level on the existing 150-foot tower at the above-referenced address. The tower is owned by American Tower Corporation. The Council approved Cellco's shared use of the existing tower in 2000. Cellco now intends to modify its installation by replacing all of its antennas with four (4) model APL868013-42T0 cellular antennas; two (2) model APL866513-42T0 cellular antennas; three (3) model BXA-171085/8BF PCS antennas; and three (3) model BXA-70063/6CF LTE antennas. Cellco also intends to install six (6) coax cable diplexers on its existing antenna platform. Attached behind Tab 1 are the specifications for the proposed replacement antennas and cable diplexers.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Anthony DaRos, First Selectman of the Town of Branford. A copy of this letter is also being sent to Kristin L. and Edward F. Jaconette, Jr., the owners of the property on which the tower is located.

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

1. The proposed modifications will not result in an increase in the overall height of the existing tower. Cellco's replacement antennas and diplexers will be located at the 113-foot level on the 150-foot tower.

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

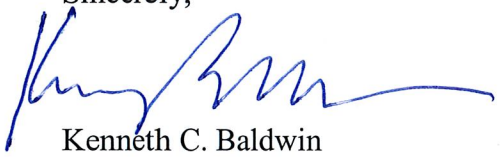
3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

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

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

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

Sincerely,



Kenneth C. Baldwin

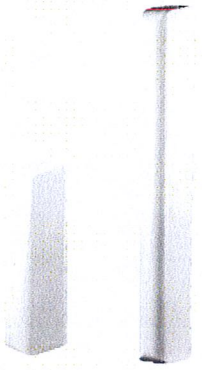
Enclosures
Copy to:
Anthony DaRos, Branford First Selectman
Kristin L. and Edward F. Jaconette, Jr.
Sandy M. Carter

Product Data Sheet APL868013-42T0

Maximizer® Log Periodic Antenna, 806-894, 80deg, 14.1dBi, 1.2m, FET, 0deg

Product Description

The Celwave® Maximizer series is a log periodic dipole array which uses a patented design to achieve a front-to-back ratio of 45 dB, the highest front-to-back ratio in the industry. Maximizers are available to cover ESMR, AMPS, PCS and DCS frequency ranges. They use RFS's patented monolithic CELlite® technology, which eliminates cable and soldered joints to reduce the possibility of inter-modulation products. The CELlite technology assures high reliability and excellent repeatability of electrical characteristics. The cellular Maximizers are available in 65°, 80° and 90° horizontal beamwidths and the PCS/DCS Maximizers are available in 65° and 90° horizontal beamwidths. Patent number 6,133,889.



Features/Benefits

- **45 dB front-to-back ratio reduces co-channel interference.• Monolithic construction reduces IM.• No solder joints, high reliability.• Surface treated components prevent galvanic corrosion.• UV stabilized radome assures long life without radome deterioration due to UV exposure.**

Technical Specifications

Electrical Specifications

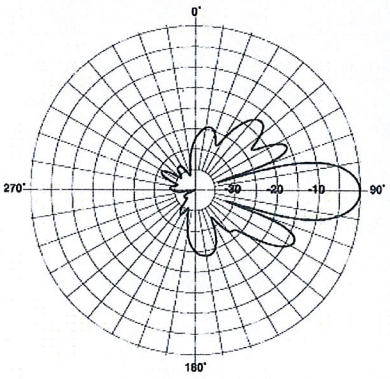
Frequency Range, MHz	806-894
Horizontal Beamwidth, deg	80
Vertical Beamwidth, deg	15
Electrical Downtilt, deg	0
Gain, dBi (dBd)	14.1 (12)
Front-To-Back Ratio, dB	45
Polarization	Vertical
VSWR	< 1.5:1
Impedance, Ohms	50
Maximum Power Input, W	500
Lightning Protection	Direct Ground
Connector Type	7-16 DIN Female

Mechanical Specifications

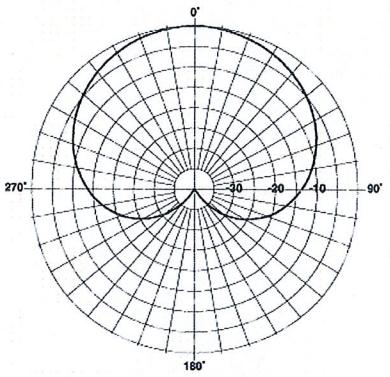
Dimensions - HxWxD, mm (in)	1219 x 152 x 203 (48 x 6 x 8)
Weight w/o Mtg Hardware, kg (lb)	2.8 (6.32)
Survival Wind Speed, km/h (mph)	200 (125)
Rated Wind Speed, km/h (mph)	200 (125)
Max Wind Loading Area, m² (ft²)	0.307 (3.3)
Maximum Thrust @ Rated Wind, N (lbf)	916 (206)
Wind Load - Side @ Rated Wind, N (lbf)	743 (167)
Radome Material	UV Stabilized High Impact ABS
Shipping Weight, kg (lb)	7.9 (17.5)
Packing Dimensions, HxWxD, mm (in)	1270 x 305 x 203 (50 x 12 x 8)

Ordering Information

Mounting Hardware	APM21-3



Vertical Pattern



Horizontal Pattern

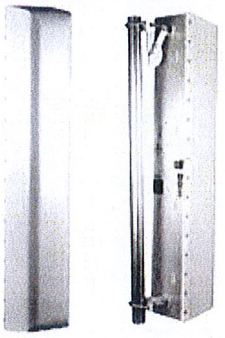
Other Documentation

Product Data Sheet APL866513-42T0

Maximizer® Log Periodic Antenna, 806-894, 65deg, 15.1dBi, 1.2m, FET, 0deg

Product Description

The Celwave® Maximizer series is a log periodic dipole array which uses a patented design to achieve a front-to-back ratio of 45 dB, the highest front-to-back ratio in the industry. Maximizers are available to cover ESMR, AMPS, PCS and DCS frequency ranges. They use RFS's patented monolithic CELlite® technology, which eliminates cable and soldered joints to reduce the possibility of inter-modulation products. The CELlite technology assures high reliability and excellent repeatability of electrical characteristics. The cellular Maximizers are available in 65°, 80° and 90° horizontal beamwidths and the PCS/DCS Maximizers are available in 65° and 90° horizontal beamwidths. Patent number 6,133,889.



FRONT BACK

Features/Benefits

• 45 dB front-to-back ratio reduces co-channel interference.• Monolithic construction reduces IM.• No solder joints, high reliability.• Surface treated components prevent galvanic corrosion.• UV stabilized radome assures long life without radome deterioration due to UV exposure.

Technical Specifications

Electrical Specifications

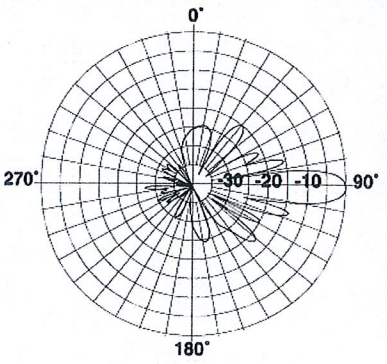
Frequency Range, MHz	806-894
Horizontal Beamwidth, deg	65
Vertical Beamwidth, deg	15
Electrical Downtilt, deg	0
Gain, dBi (dBd)	15.1 (13)
1st Upper Sidelobe Suppression, dB	>20
Upper Sidelobe Suppression, dB	>20
Front-To-Back Ratio, dB	45
Polarization	Vertical
VSWR	< 1.5:1
Impedance, Ohms	50
Maximum Power Input, W	500
Lightning Protection	Direct Ground
Connector Type	7-16 DIN Female

Mechanical Specifications

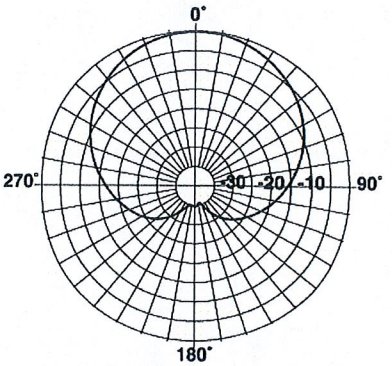
Dimensions - HxWxD, mm (in)	1219 x 234 x 203 (48 x 9.2 x 8)
Weight w/o Mtg Hardware, kg (lb)	7 (15.7)
Survival Wind Speed, km/h (mph)	200 (125)
Rated Wind Speed, km/h (mph)	180 (112)
Max Wind Loading Area, m² (ft²)	0.376 (4.05)
Maximum Thrust @ Rated Wind, N (lbf)	903 (203)
Wind Load - Side @ Rated Wind, N (lbf)	594 (133.5)
Radome Material	UV Stabilized High Impact ABS
Shipping Weight, kg (lb)	9.1 (20)
Packing Dimensions, HxWxD, mm (in)	1594 x 343 x 349 (62.75 x 13.5 x 13.75)

Ordering Information

Mounting Hardware	APM21-3



Vertical Pattern



Horizontal Pattern

Other Documentation

BXA-171085-8BF-EDIN-X

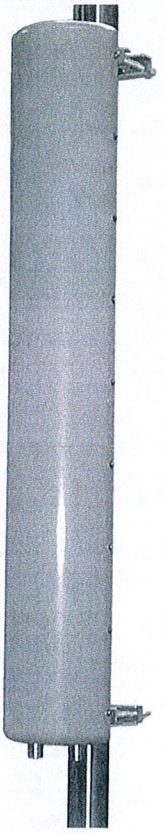
Replace "X" with desired electrical downtilt.

X-Pol | FET Panel | 85° | 16.4 dBi

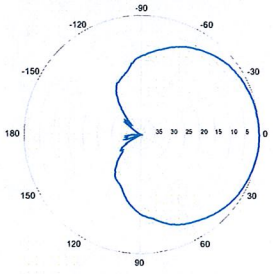
Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	88°	85°	80°
Vertical beamwidth	7°	7°	7°
Gain	13.5 dBd / 15.6 dBi	13.9 dBd / 16.0 dBi	14.3 dBd / 16.4 dBi
Electrical downtilt (X)	0, 2, 4		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back isolation	> 30 dB		
In-band isolation	> 28 dB		
IM3 (20W carrier)	< -150 dBc		
Input power	300 W		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN / Female / Bottom		
Operating temperature	-40° to +60° C / -40° to +140° F		

Mechanical Characteristics		
Dimensions Length x Width x Depth	1232 x 154 x 105 mm	48.5 x 6.1 x 4.1 in
Depth with t-brackets	133 mm	5.2 in
Weight without mounting brackets	4.8 kg	10.5 lbs
Survival wind speed	296 km/hr	184 mph
Wind area	Front: 0.19 m² Side: 0.14 m²	Front: 2.0 ft² Side: 1.5 ft²
Wind load @ 161 km/hr (100 mph)	Front: 281 N Side: 223 N	Front: 63 lbf Side: 50 lbf

Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171085-8BF-EDIN-X-FP		

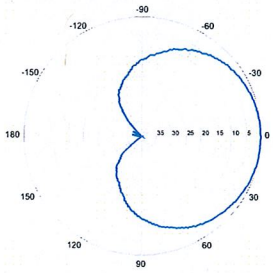


BXA-171085-8BF-EDIN-X



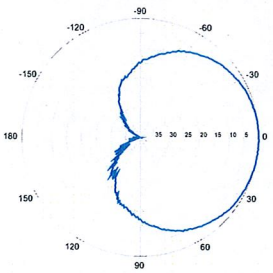
Horizontal | 1710-1880 MHz

BXA-171085-8BF-EDIN-X



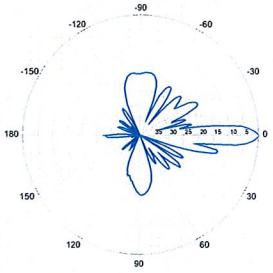
Horizontal | 1850-1990 MHz

BXA-171085-8BF-EDIN-X



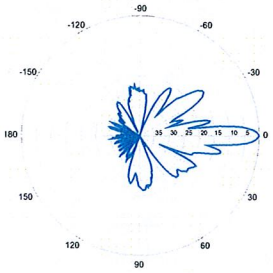
Horizontal | 1920-2170 MHz

BXA-171085-8BF-EDIN-0



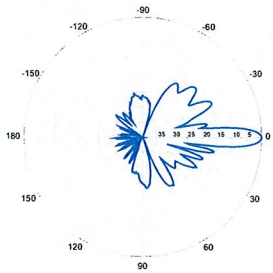
0° | Vertical | 1710-1880 MHz

BXA-171085-8BF-EDIN-0



0° | Vertical | 1850-1990 MHz

BXA-171085-8BF-EDIN-0

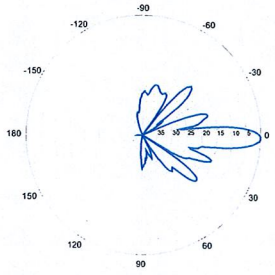


0° | Vertical | 1920-2170 MHz

BXA-171085-8BF-EDIN-X

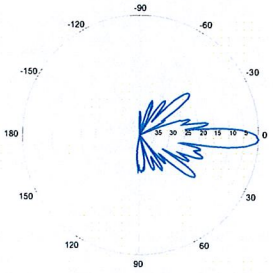
X-Pol | FET Panel | 85° | 16.4 dBi

BXA-171085-8BF-EDIN-2



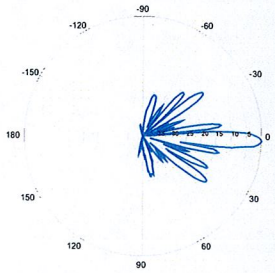
2° | Vertical | 1710-1880 MHz

BXA-171085-8BF-EDIN-2



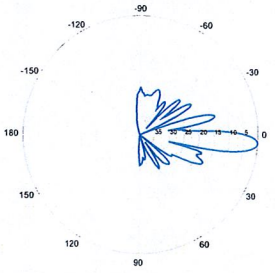
2° | Vertical | 1850-1990 MHz

BXA-171085-8BF-EDIN-2



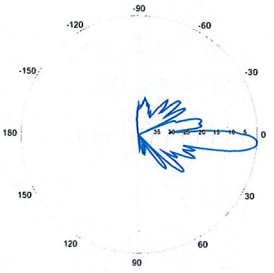
2° | Vertical | 1920-2170 MHz

BXA-171085-8BF-EDIN-4



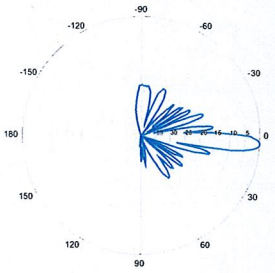
4° | Vertical | 1710-1880 MHz

BXA-171085-8BF-EDIN-4



4° | Vertical | 1850-1990 MHz

BXA-171085-8BF-EDIN-4



4° | Vertical | 1920-2170 MHz

Amphenol ANTENNA SOLUTIONS

BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

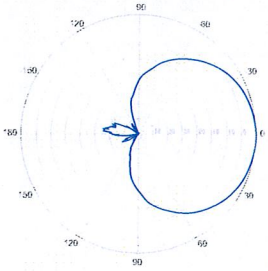
Replace "X" with desired electrical downtilt.

Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.

Electrical Characteristics	696-900 MHz	
Frequency bands	696-806 MHz	806-900 MHz
Polarization	±45°	
Horizontal beamwidth	65°	63°
Vertical beamwidth	13°	11°
Gain	14.0 dBd (16.1 dBi)	14.5 dBd (16.6 dBi)
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 10	
Impedance	50Ω	
VSWR	≤1.35:1	
Upper sidelobe suppression (0°)	-18.3 dB	-18.2 dB
Front-to-back ratio (+/-30°)	-33.4 dB	-36.3 dB
Null fill	5% (-26.02 dB)	
Isolation between ports	< -25 dB	
Input power with EDIN connectors	500 W	
Input power with NE connectors	300 W	
Lightning protection	Direct Ground	
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)	
Mechanical Characteristics		
Dimensions Length x Width x Depth	1804 x 285 x 132 mm	71.0 x 11.2 x 5.2 in
Depth with z-brackets	172 mm	6.8 in
Weight without mounting brackets	7.9 kg	17 lbs
Survival wind speed	> 201 km/hr	> 125 mph
Wind area	Front: 0.51 m² Side: 0.24 m²	Front: 5.5 ft² Side: 2.6 ft²
Wind load @ 161 km/hr (100 mph)	Front: 759 N Side: 391 N	Front: 169 lbf Side: 89 lbf

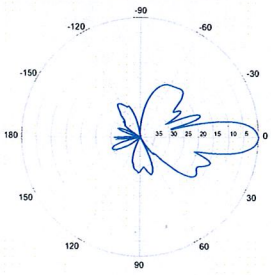
Mounting Options	Part Number	Fits Pipe Diameter	Weight
3-Point Mounting & Downtilt Bracket Kit	36210008	40-115 mm 1.57-4.5 in	6.9 kg 15.2 lbs
Concealment Configurations	For concealment configurations, order BXA-70063-6CF-EDIN-X-FP		

BXA-70063-6CF-EDIN-X



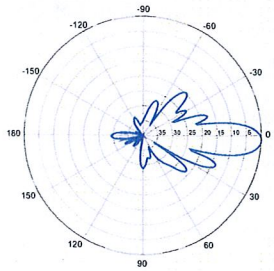
Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0

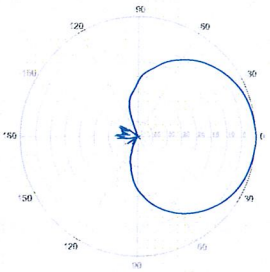


0° | Vertical | 750 MHz

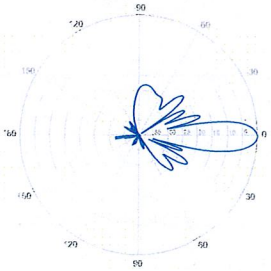
BXA-70063-6CF-EDIN-2



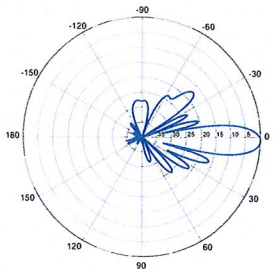
2° | Vertical | 750 MHz



Horizontal | 850 MHz



0° | Vertical | 850 MHz

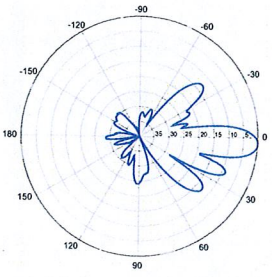


2° | Vertical | 850 MHz

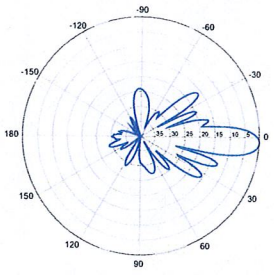
BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

BXA-70063-6CF-EDIN-3

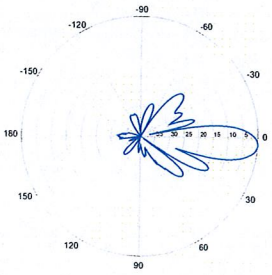


3° | Vertical | 750 MHz

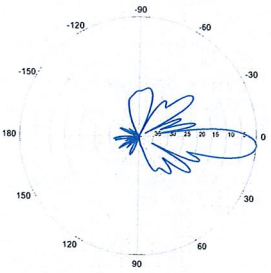


3° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-4

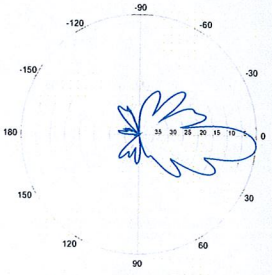


4° | Vertical | 750 MHz

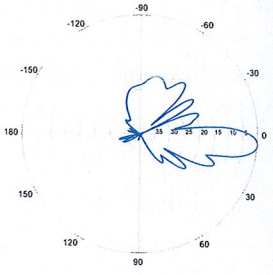


4° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-5

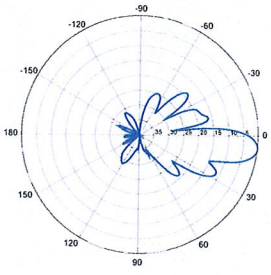


5° | Vertical | 750 MHz

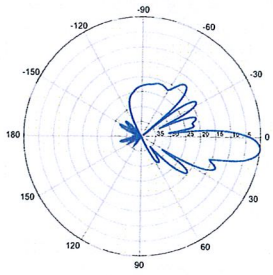


5° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-6

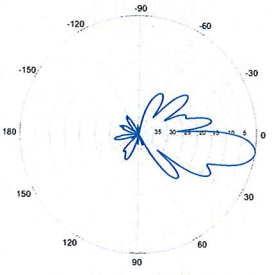


6° | Vertical | 750 MHz

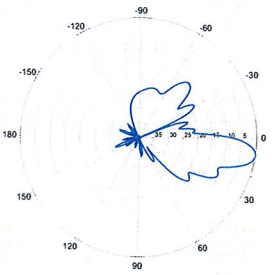


6° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-8

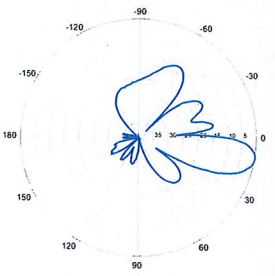


8° | Vertical | 750 MHz

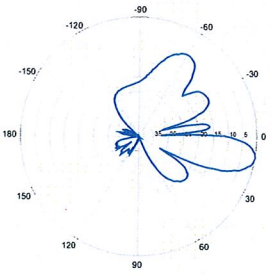


8° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-10



10° | Vertical | 750 MHz



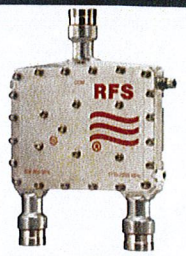
10° | Vertical | 850 MHz

Product Data Sheet **FD9R6004/2C-3L**

ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

Product Description

The ShareLite FD9R6004 Series of diplexers are designed to enable feeder sharing between systems in the 698-960 MHz range and in the 1710-2200 MHz range. The diplexer is equipped with in-line connector placement so it can be installed in the BTS cabinet or at the tower top. This is especially valuable in crowded sites or when the feeders are not easily accessible. Due to its wideband design, the FD9R6004 Series can accommodate many combining solutions between 698-960 MHz and 1710-2200 MHz systems such as LTE 700 MHz, Cellular 800 MHz with PCS, GSM900 with GSM1800, or GSM900 with UMTS. This diplexer features a highly selective filter. It provides a high level of isolation between ports, while keeping the insertion loss on both paths at an extremely low level. The FD9R6004 diplexers are available with various DC pass options, helpful in configurations with or without the Tower Mount Amplifiers installed.



Features/Benefits

- **LTE ready design**
- **Extremely Low Insertion Loss**
- **High level of Rejection between bands – Protection against interferences**
- **Extremely High Power Handling Capability**
- **Integrated DC block/bypass versions available**
- **Very compact & small size design – Easy installation and reduced tower load**
- **In-line long-neck connectors for easy connection & waterproofing**
- **Exceptional reliability & environmental protection (IP 67)**
- **Equipped with 1 * Breathable Vent – Prevent any humidity inside the product**
- **Mounting hardware for Wall and Pole mount provided (P/N SEM2-1A)**
- **Grounding already provided through the mounting bracket**
- **Kit available for easy dual mount**

Technical Specifications

Product Type	Diplexer/Cross Band Coupler
Frequency Range 1, MHz	698-960
Frequency Range 2, MHz	1710-2200
Application	LTE700, GSM900, UMTS, GSM1800, Cellular 800, PCS
Configuration	Sharelite Single diplexer, outdoor, DC pass in the 1710-2170MHz path, with mounting hardware SEM2-1A
Mounting	Wall Mounting: With 4 screws (maximum 6mm diameter); Pole Mounting: With included clamp set 40-110mm (1.57-4.33)
Return Loss All Ports Min/Typ, dB	19/23
Power Handling Continuous, Max, W	1250 at common port; 750 in low frequency path & 500 in high frequency path
Power Handling Peak, Max, W	15000 in low frequency path & 8000 in high frequency path
Impedance, Ohms	50
Insertion Loss, Path 1, dB	0.07 typ.
Insertion Loss, Path 2, dB	0.13 typ.
Rejection Between Bands Min/Typ, dB	58/64@698-960MHz; 60/70@1710-2200MHz
IMP Level at the COM Port, Typ, dBm	-112 @ 2x43
DC Pass in Low Frequency Path	No
DC Pass in High Frequency Path	Yes
Temperature Range, °C (°F)	-40 to +60 (-40 to +140)
Environmental	ETSI 300-019-2-4 Class 4.1E
Ingress Protection	IP 67
Lightning Protection	EN/IEC61000-4-5 Level 4
Connectors	In-line long-neck 7-16-Female
Weight, kg (lb)	1.2 (2.6)
Shipping Weight, kg (lb)	3.2 (7) for 2 * single units in 1 * box, 9.8 (21.6) for 6 * units = 3 * Boxes in 1 * overwrap
Dimensions, H x W x D, mm (in)	147 x 164 x 37 (5.8 x 6.5 x 1.5)
Shipping Dimensions, H x W x D, mm (in)	254 x 406 x 82 (10 x 16 x 3.2) for 2 * Single Units in 1 * box, 280 x 406 x 241 (11 x 16 x 9.5) for 6 * units = 3 * Boxes in 1 * overwrap
Volume, L	0.43
Housing	Aluminum

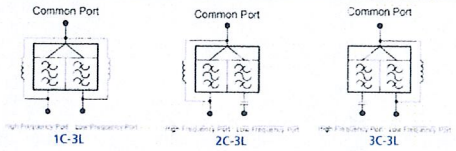
Notes

ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

Other Documentation

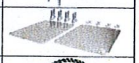
FD9R6004/2C-3L Installation Instructions: Wideband_Diplexer_Installation_Rev5.pdf

Selection Guide Diplexer 698-960 / 1710-2200MHz					
	Model Number	Full DC Pass	DC Pass High Band	DC Pass Low Band	Mounting Hardware Included
Single	FD9R6004/1C-3L				X
	FD9R6004/2C-3L				X
	FD9R6004/3C-3L				X
Dual	KIT-FD9R6004/1C-DL				X
	KIT-FD9R6004/2C-DL				X
	KIT-FD9R6004/3C-DL				X



1C-3L 2C-3L 3C-3L

The FD9R6004 Series is upgradeable to a Dual Diplexer kit by means of 2 diplexers and mounting hardware kits SEM2-1A and SEM2-3

Mounting Hardware and Ground Cable Ordering Information		
Model Number	Description	
SEM2-1A	Mounting Hardware, Pole mount ø40-110mm (Included with the Single and Dual Diplexer) Wall Screws M6 (Not included with the product)	
SEM2-3	Assembly kit for 2 pcs of FD9R6004/xC-3L (Can be ordered separately but included with the Dual Diplexer Kit)	
CA020-2	Ground Cable, 2m, includes lugs (Optional)	
CA030-2	Ground Cable, 2m, includes lugs (Optional)	
SEM6	Mounting Hardware for 6 Diplexers, Tower Base (Optional)	

	General	Power	Density					
Site Name: Branford 2								
Tower Height: Verizon @ 113ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*Cingular UMTS	1	500	153	0.0077	880	0.5867	1.31%	
*Cingular GSM	3	296	153	0.0136	880	0.5867	2.32%	
*Cingular GSM	2	427	153	0.0131	1900	1.0000	1.31%	
*Clearwire	2	153	130	0.0065	2496	1.0000	0.65%	
*Clearwire	1	211	130	0.0045	11 GHz	1.0000	0.45%	
*Branf PD				0.0055		0.2	2.75%	
*PageNet				0.0633		0.621	10.19%	
*T-Mobile UMTS	2	646	140	0.0237	2100	1.0000	2.37%	
*T-Mobile GSM	8	162	140	0.0238	1945	1.0000	2.38%	
Verizon PCS	**7**	**190**	**1134**	**0.0375**	**1970**	**1.0000**	**3.75%**	
Verizon Cellular	**9**	**280**	**1134**	**0.0710**	**869**	**0.5793**	**12.26%**	
Verizon AWS	**1**	**475**	**113**	**0.0189**	**2145**	**1.0000**	**1.89%**	
Verizon 700	**2**	**821**	**113**	**0.0462**	**698**	**0.4653**	**9.93%**	
								51.56%
* Source: Siting Council								

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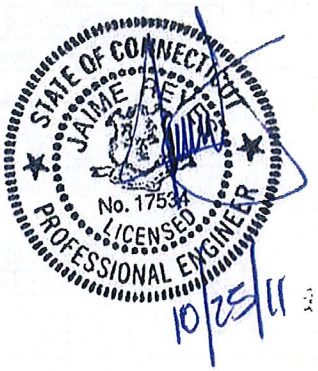
AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**150 ft. monopole**
ATC Site Name	:	**Branford CT 6, CT**
ATC Site Number	:	**302484**
Proposed Carrier	:	**Verizon Wireless**
Carrier Site Name	:	**Branford 2**
Carrier Site Number	:	**N/A**
County	:	**New Haven**
Eng. Number	:	**48071222**
Date	:	**October 25, 2011**
Usage	:	**91% Pole shaft, 65% Anchor bolts, 66% Base plate**

Submitted by:
Robert Keith
Project Engineer

American Tower Engineering Services
8505 Freeport Parkway
Suite 135
Irving, TX 75063
Phone: 972-999-8900



Introduction

The purpose of this report is to summarize results of the structural analysis performed on the 150 ft. monopole named Branford CT 6, CT, located in New Haven County (ATC site# 302484). The tower was originally designed by Paul J. Ford and Company (Job# 29297-629, dated Oct 2, 1997) and manufactured by ITT Meyer (Type "B" per AT&T Spec dated April 13, 1984). The pole base has been modified per SpectraSite Modification Drawing CT-0020 M1. The pole shaft has been structurally modified per ATC Modification Job# 26487334 dated 9/15/06.

Analysis

The existing tower was analyzed using Semaan Engineering Solutions, Inc., Software.

Basic Wind Speed:	90.0 mph (Fastest Mile)
Radial Ice:	77.9 mph (Fastest Mile) w/ ½" ice Concurrent
Standard/Code:	TIA/EIA-222-F / 2003 IBC Section 1609.1.1, Exception (4) and Section 3108.4 / 2005 & 2008 CT Supplement

Antenna Loads

The following antenna loads were used in the tower analysis.

Existing Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax (I/O)	Carrier
150.0	1	4' Omni	Platform w/ Rails	(1) 1 5/8 (I)	USA Mobility
	1	Yagi		(1) 1 /2 (I)	
	2	Decibel DB408		(2) 7/8 (I)	Town of Branford
	3	Diplexer		-	AT&T Mobility
	6	ADC DD1900		-	
	6	Powerwave 7770.00		(6) 1 5/8 (I)	
	1	GPS		(1) 1 /2 (I)	Verizon Wireless
140.0	3	RFS ATMAP1412D-1A20	(3) T-Arm	-	T-Mobile
	3	RFS ATMAA1412D-1A20		-	
	3	RFS APXV18-206516S-C-A20		(6) 1 5/8 (O)	
	3	RFS APXV18-206516L-C-00		(6) 1 5/8 (O)	
130.0	3	NextNet BTS-2500	Clearwire Mount	-	Clearwire Corporation
	3	Argus LLPX310R		(6) 5/16 (O)	
	1	DragonWave A-ANT-23G-1-C		(1) 1/2 (O)	
	1	DragonWave A-ANT-18G-2.5-C		(1) 1/2 (O)	
	2	DragonWave Horizon Compact		-	
	1	12" x 12" Junction Box		-	

Antenna Loads (continued)

Existing Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax (I/O)	Carrier
103.0	2	Decibel DB408	(1) Standoff	(2) 7/8 (I)	Town of Branford
93.0	1	Decibel DB408	(1) Standoff	(1) 7/8 (I)	
69.0	1	Channel Master 1.2 M Dish	Dish Mount	(1) RG6 (O)	USA Mobility

Proposed Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax (I/O)	Carrier
113.0	3	Antel BXA-171085-8BF-EDIN-X	(3) T-Arm	(3) 1 1/4 (I)	Verizon Wireless
	3	Antel BXA-70063/6CF_4		(3) 1 1/4 (I)	
	2	RFS APL866513-42T0		(2) 1 1/4 (I)	
	4	RFS APL868013-12T0		(4) 1 1/4 (I)	
	6	RFS FD9R6004/1C-3L		-	

The proposed antennas will use existing Verizon lines installed inside the pole.

Results

The existing 150 ft. ITT Meyer monopole with the existing and the proposed antennas is structurally acceptable per TIA/EIA-222 Rev F standards. The maximum structure usage is: 91% Pole shaft, 65% Anchor bolts, 66% Base plate.

Additional exit and/or entry ports may be required to accommodate the running of the proposed lines to the proposed antennas. These additional ports may not be installed without installation drawings providing the location, size and welding requirements of each port. To ensure compliance with all conditions of this structural analysis, port installation drawings shall be provided by American Tower's Engineering Department under a subsequent project.

Pole Reactions	Original Design Reactions	Current Analysis Reactions	% Of Design
Moment (ft-kips)	2,130.7	2,656.5	124.7
Shear (kips)	23.3	26.9	115.5

The structure base reactions resulting from this analysis exceed the ones shown on the original structural drawings. However, upon reviewing the foundation and the soil documents, the existing foundation was found to be adequate to resist the new reactions.

The foundation and connections to the tower have factors of safety exceeding 2.0 with respect to wind.

Conclusion

The existing tower and its foundations were found to be adequate to support the existing and proposed antennas with the transmission line distribution as described above while meeting the requirements of the code or standard as specified in this report.

If you have any questions or require additional information, please call (972) 999-8900.

Standard Conditions

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

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

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

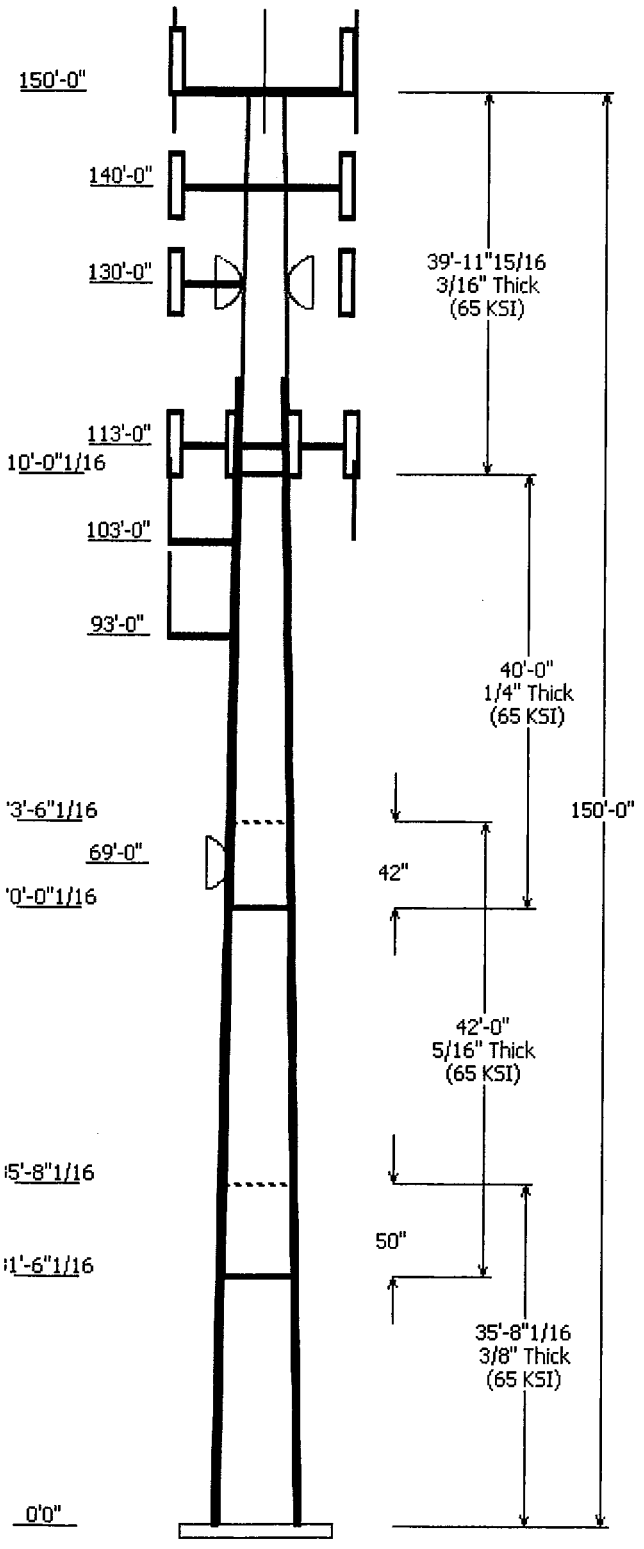
It is the responsibility of the client to ensure that the information provided to ATC Engineering Services and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with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

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

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

Job Information

Pole :	302484 Code: TIA/EIA-222 Rev F
Description :	150 ft. ITT Meyer - Model verified 10/25/11
Client :	Verizon Wireless
Location :	Branford CT 6, CT
Shape :	12 Sides Base Elev (ft): 0.00
Height :	150.00 (ft) Taper: 0.156705(in/ft)



Sections Properties

Shaft Section	Length (ft)	Diameter (in) Across Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
1	35.670	31.79	37.38	0.375		0.000	0.156705	65
2	42.000	26.48	33.06	0.313	Slip Joint	50.000	0.156705	65
3	40.000	21.26	27.53	0.250	Slip Joint	42.000	0.156705	65
4	39.997	15.00	21.26	0.188	Butt Joint	0.000	0.156705	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
150.000	153.000	6	Powerwave 7770.00
150.000	153.000	3	Diplexer
150.000	156.000	1	Yagi
150.000	159.000	2	Decibel DB408
150.000	153.000	6	ADC DD1900
150.000	150.000	1	GPS
150.000	159.000	1	4' Omni
150.000	150.000	1	Platform w/ Rails
140.000	140.000	3	RFS ATMAP1412D-1A20
140.000	140.000	3	RFS ATMAA1412D-1A20
140.000	140.000	3	RFS APXV18-206516S-C-A20
140.000	140.000	3	RFS APXV18-206516L-C-00
140.000	140.000	3	T-Arm
130.000	130.000	1	12" x 12" Junction Box
130.000	130.000	1	Clearwire Mount
130.000	130.000	3	NextNet BTS-2500
130.000	130.000	2	DragonWave Horizon Compact
130.000	130.000	1	DragonWave A-ANT-18G-2.5-C
130.000	130.000	1	DragonWave A-ANT-23G-1-C
130.000	130.000	3	Argus LLPX310R
113.000	113.000	6	RFS FD9R6004/1C-3L
113.000	113.000	2	RFS APL866513-42T0
113.000	113.000	4	RFS APL868013-12T0
113.000	113.000	3	Antel BXA-171085-8BF-EDIN-X
113.000	113.000	3	Antel BXA-70063/6CF_4
113.000	113.000	3	T-Arm
103.000	103.000	1	Standoff
103.000	107.710	2	Decibel DB408
93.000	93.000	1	Standoff
93.000	97.710	1	Decibel DB408
69.000	69.000	1	Channel Master 1.2 M Dish

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
123.0	140.0	1 5/8" Coax	No
123.0	140.0	1 5/8" Coax	No
123.0	140.0	1 5/8" Coax	No
0.000	150.0	1 5/8" Coax	No
0.000	150.0	1 5/8" Coax	No
0.000	150.0	1/2" Coax	No
0.000	150.0	1/2" Coax	No
0.000	150.0	7/8" Coax	No
0.000	69.000	RG6	No

0.000	93.000	7/8" Coax	No
0.000	103.0	7/8" Coax	No
0.000	113.0	1 1/4" Coax	No
0.000	123.0	#18 Dywidag bars	No
0.000	123.0	1 5/8" Coax	Yes
0.000	130.0	1/2" Coax	No
0.000	130.0	5/16" Coax	No

Load Cases

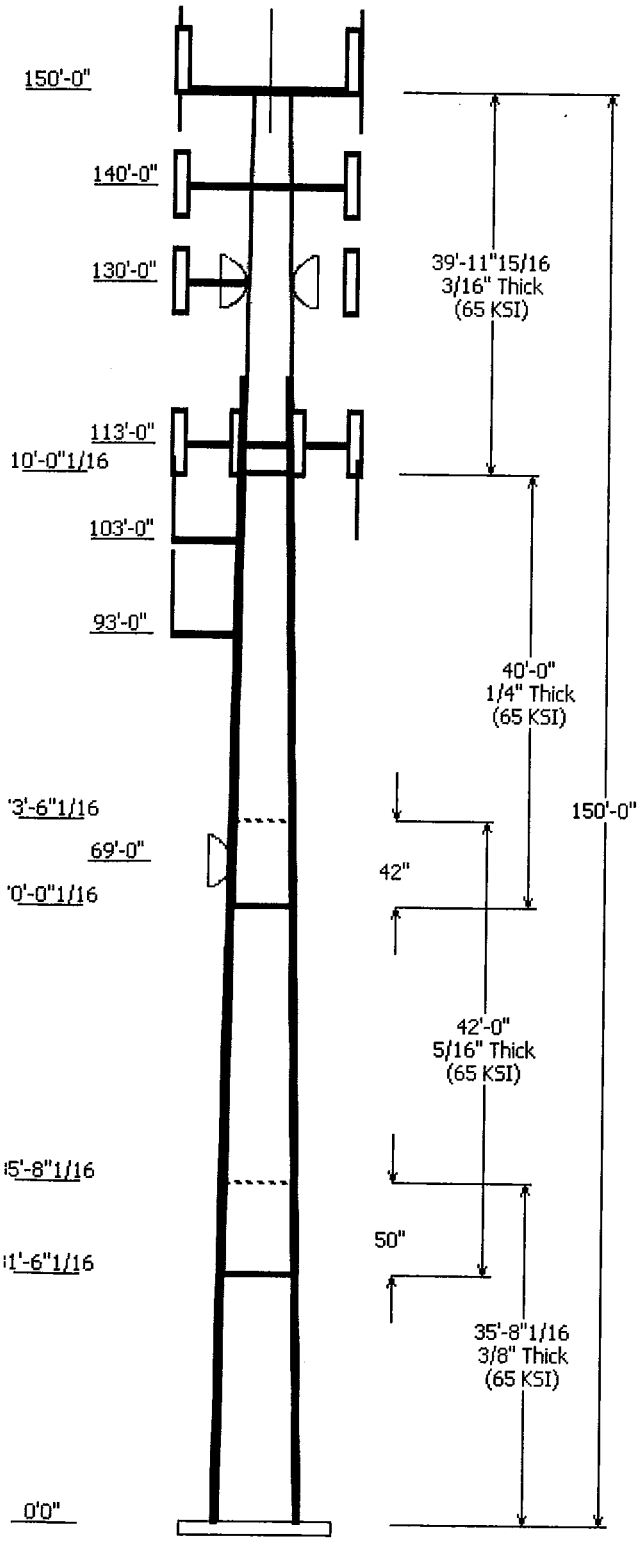
No Ice	90.00 mph Wind with No Ice
Ice	77.94 mph Wind with Ice
Twist/Sway	50.00 mph Wind with No Ice

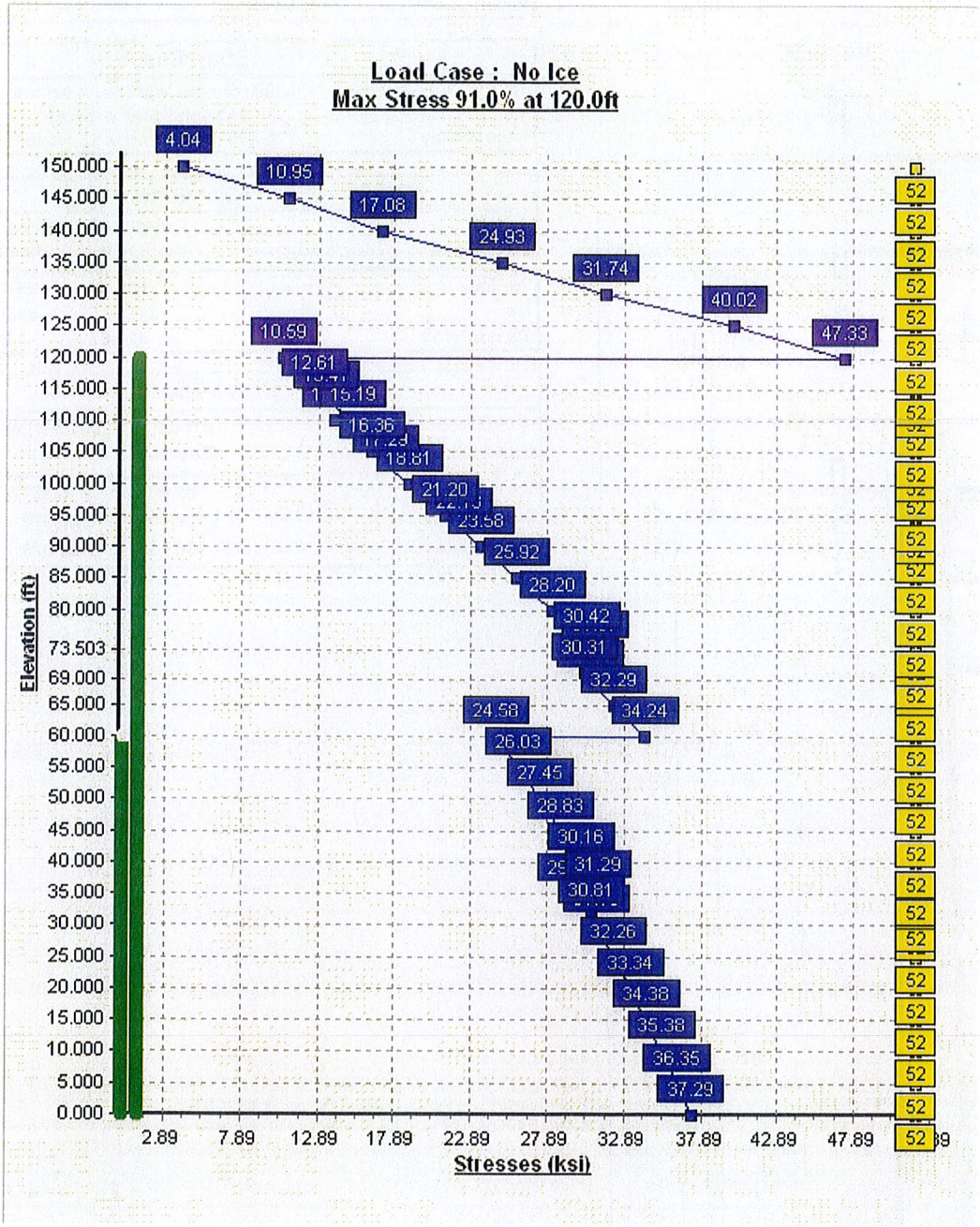
Reactions

Load Case	Moment (Kip-ft)	Shear (Kips)	Axial (Kips)
No Ice	2656.50	26.87	31.21
Ice	2456.16	23.69	38.91
Twist/Sway	820.82	8.29	31.26

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
Twist/Sway	69.00	6.567	0.896
Twist/Sway	130.00	23.073	1.663
Twist/Sway	130.00	23.073	1.663

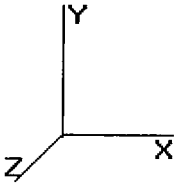



Load Case : No Ice
Max Stress 91.0% at 120.0ft
Elevation (ft)
Stresses (ksi)
150.000
145.000
140.000
135.000
130.000
125.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
73.503
69.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
2.89
7.89
12.89
17.89
22.89
27.89
32.89
37.89
42.89
47.89
4.04
10.95
17.08
24.93
31.74
40.02
47.33
10.59
12.61
15.19
16.36
18.81
21.20
23.58
25.92
28.20
30.42
30.31
32.29
34.24
24.58
26.03
27.45
28.83
30.16
31.29
30.81
32.26
33.34
34.38
35.38
36.35
37.29
52

Pole : 302484
Location : Branford CT 6, CT
Height : 150.0 (ft)
Base Dia : 37.38 (in)
Top Dia : 15.00 (in)
Shape : 12 Sides
Taper : 0.156705 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)



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Shaft Section Properties

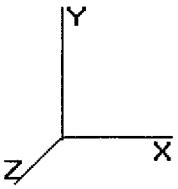
Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Slip Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (sqin)	Bottom Ix (in^4)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (sqin)	Top Ix (in^4)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-12	35.670	0.3750	65		0.00	5,014	37.38	0.00	44.68	7810.1	24.57	99.68	31.79	35.67	37.93	4778.6	20.57	84.77	0.156705
2-12	42.000	0.3130	65	Slip	50.00	4,244	33.06	31.50	33.01	4521.4	26.17	105.65	26.48	73.50	26.38	2306.9	20.53	84.62	0.156705
3-12	40.000	0.2500	65	Slip	42.00	2,646	27.53	70.00	21.97	2087.4	27.37	110.14	21.26	110.00	16.92	954.0	20.65	85.07	0.156705
4-12	39.997	0.1880	65	Butt	0.00	1,479	21.26	110.00	12.76	723.8	28.17	113.13	15.00	150.00	8.97	251.1	19.24	79.79	0.156705
				Shaft Weight		13,383													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Distance From Face (ft)	Vert Ecc (ft)
150.00	4' Omni	1	5.00	1.500	1.00	12.00	2.000	1.00	0.000	9.000
150.00	ADC DD1900	6	15.00	1.340	0.50	25.00	1.540	0.50	0.000	3.000
150.00	Decibel DB408	2	17.00	2.970	1.00	41.00	5.550	1.00	0.000	9.000
150.00	Diplexer	3	10.00	0.500	0.67	15.00	0.700	0.67	0.000	3.000
150.00	GPS	1	1.50	0.600	1.00	3.50	0.800	1.00	0.000	0.000
150.00	Platform w/ Rails	1	1950.00	26.000	1.00	2,800.00	38.000	1.00	0.000	0.000
150.00	Powerwave 7770.00	6	35.00	5.880	0.73	67.63	6.530	0.73	0.000	3.000
150.00	Yagi	1	45.00	4.000	1.00	90.00	7.000	1.00	0.000	6.000
140.00	RFS APXV18-206516L-C-00	3	14.00	3.400	0.67	35.00	4.070	0.67	0.000	0.000
140.00	RFS APXV18-206516S-C-A20	3	18.70	3.500	0.67	38.70	4.160	0.67	0.000	0.000
140.00	RFS ATMAA1412D-1A20	3	13.00	1.170	0.50	20.60	1.390	0.50	0.000	0.000
140.00	RFS ATMAP1412D-1A20	3	13.00	1.170	0.50	20.60	1.390	0.50	0.000	0.000
140.00	T-Arm	3	333.00	5.000	0.67	433.00	8.100	0.67	0.000	0.000
130.00	12" x 12" Junction Box	1	10.00	1.400	1.00	21.90	1.640	1.00	0.000	0.000
130.00	Argus LLPX310R	3	28.60	4.830	0.69	54.50	5.360	1.00	0.000	0.000
130.00	Clearwire Mount	1	40.00	8.500	1.00	50.00	10.500	1.00	0.000	0.000
130.00	DragonWave A-ANT-18G-2.5-	1	47.60	8.430	1.00	97.10	8.920	1.00	0.000	0.000
130.00	DragonWave A-ANT-23G-1-C	1	15.00	1.610	1.00	25.10	1.830	1.00	0.000	0.000
130.00	DragonWave Horizon	2	10.60	0.430	1.00	17.00	0.580	1.00	0.000	0.000
130.00	NextNet BTS-2500	3	35.00	2.120	0.72	48.30	2.430	1.00	0.000	0.000
113.00	Antel BXA-171085-8BF-EDIN-X	3	10.00	2.944	0.84	27.08	3.500	0.84	0.000	0.000
113.00	Antel BXA-70063/6CF_4	3	17.00	7.730	0.70	58.00	8.540	0.70	0.000	0.000
113.00	RFS APL866513-42T0	2	18.00	4.293	0.93	39.49	4.859	0.93	0.000	0.000
113.00	RFS APL868013-12T0	4	6.30	3.730	0.87	31.68	4.290	0.87	0.000	0.000
113.00	RFS FD9R6004/1C-3L	6	3.10	0.370	0.50	5.40	0.500	0.50	0.000	0.000
113.00	T-Arm	3	333.00	5.000	0.67	433.00	8.100	0.67	0.000	0.000
103.00	Decibel DB408	2	17.00	2.970	1.00	41.00	5.550	1.00	0.000	4.710
103.00	Standoff	1	200.00	2.500	1.00	300.00	3.500	1.00	0.000	0.000
93.00	Decibel DB408	1	28.00	2.700	1.00	50.00	4.860	1.00	0.000	4.710
93.00	Standoff	1	200.00	2.500	1.00	300.00	3.500	1.00	0.000	0.000
69.00	Channel Master 1.2 M Dish	1	188.00	20.910	1.00	277.00	21.790	1.00	0.000	0.000
	Totals	75	5675.00			8,569.81			Number of Loadings :	31

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	No Ice Weight (lb/ft)	No Ice CaAa (sf/ft)	Ice Weight (lb/ft)	Ice CaAa (sf/ft)	Exposed To Wind
0.00	150.00	(1) 1 5/8" Coax	0.82	0.00	0.00	0.00	N
0.00	150.00	(6) 1 5/8" Coax	0.82	0.00	0.00	0.00	N
0.00	150.00	(1) 1/2" Coax	0.15	0.00	0.00	0.00	N
0.00	150.00	(1) 1/2" Coax	0.15	0.00	0.00	0.00	N



0.00	150.00	(2) 7/8" Coax	0.66	0.00	0.00	0.00	N
123.00	140.00	(4) 1 5/8" Coax	0.82	0.20	0.00	0.00	N
123.00	140.00	(4) 1 5/8" Coax	0.82	0.20	0.00	0.00	N
123.00	140.00	(4) 1 5/8" Coax	0.82	0.20	0.00	0.00	N
0.00	130.00	(2) 1/2" Coax	0.15	0.06	0.00	0.00	N
0.00	130.00	(6) 5/16" Coax	0.05	0.06	0.00	0.00	N
0.00	123.00	(8) #18 Dywidag bars	0.00	1.10	0.00	0.00	N
0.00	123.00	(12) 1 5/8" Coax	9.84	0.20	28.56	0.30	Y
0.00	113.00	(12) 1 1/4" Coax	5.67	0.00	0.00	0.00	N
0.00	103.00	(2) 7/8" Coax	0.66	0.00	0.00	0.00	N
0.00	93.00	(1) 7/8" Coax	0.33	0.00	0.00	0.00	N
0.00	69.00	(1) RG6	0.08	0.03	0.16	0.14	N
		Total Weight	2,412.35 (lb)		3,523.91 (lb)		

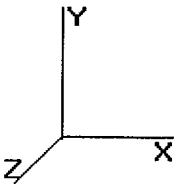
Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	— Intermediate Connections — Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	60.00	4	SOL #18 All Thread	75	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	No
0.00	120.0	4	SOL #18 All Thread	75	5.15	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	No

Pole : 302484
Location : Branford CT 6, CT
Height : 150.0 (ft)
Base Dia : 37.38 (in)
Top Dia : 15.00 (in)
Shape : 12 Sides
Taper : 0.156705 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)



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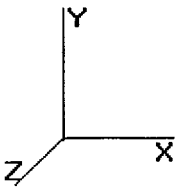
Segment Properties (Max Len : 5 ft)

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)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.3750	37.380	44.684	7,810.1	24.57	99.68	65	52	0.0	32.00	8,940	0.0
5.00		0.3750	36.596	43.737	7,324.4	24.01	97.59	65	52	752.2	32.00	8,647	544.0
10.00		0.3750	35.813	42.791	6,859.3	23.45	95.50	65	52	736.1	32.00	8,359	544.0
15.00		0.3750	35.029	41.845	6,414.3	22.89	93.41	65	52	720.0	32.00	8,075	544.0
20.00		0.3750	34.246	40.899	5,989.0	22.33	91.32	65	52	703.9	32.00	7,797	544.0
25.00		0.3750	33.462	39.953	5,582.9	21.77	89.23	65	52	687.8	32.00	7,523	544.0
30.00		0.3750	32.679	39.007	5,195.6	21.21	87.14	65	52	671.7	32.00	7,255	544.0
31.50	Bot - Section 2	0.3750	32.443	38.722	5,082.8	21.04	86.52	65	52	198.8	32.00	7,175	163.6
35.00		0.3750	31.895	38.061	4,826.6	20.65	85.05	65	52	846.3	32.00	7,202	380.4
35.67	Top - Section 1	0.3130	32.416	32.356	4,256.3	25.61	103.57	65	52	160.5	32.00	7,166	72.9
40.00		0.3130	31.738	31.672	3,992.1	25.03	101.40	65	52	471.7	32.00	6,939	471.1
45.00		0.3130	30.954	30.882	3,700.9	24.36	98.90	65	52	532.1	32.00	6,681	544.0
50.00		0.3130	30.171	30.092	3,424.2	23.68	96.39	65	52	518.7	32.00	6,428	544.0
55.00		0.3130	29.387	29.303	3,161.6	23.01	93.89	65	52	505.3	32.00	6,180	544.0
60.00	Reinf. Top	0.3130	28.604	28.513	2,912.8	22.34	91.39	65	52	491.8	32.00	5,937	544.0
65.00		0.3130	27.820	27.723	2,677.5	21.67	88.88	65	52	478.4	16.00	3,294	272.0
69.00		0.3130	27.193	27.092	2,498.6	21.14	86.88	65	52	373.0	16.00	3,194	217.6
70.00		0.3130	27.037	26.934	2,455.1	21.00	86.38	65	52	91.9	16.00	3,169	54.4
70.00	Bot - Section 3	0.3130	27.036	26.933	2,455.0	21.00	86.38	65	52	0.3	16.00	3,169	0.2
73.50	Top - Section 2	0.2500	26.988	21.524	1,964.0	26.78	107.95	65	52	576.4	16.00	3,161	190.4
75.00		0.2500	26.753	21.335	1,912.8	26.53	107.01	65	52	109.1	16.00	3,124	81.4
80.00		0.2500	25.970	20.704	1,748.1	25.69	103.88	65	52	357.6	16.00	3,001	272.0
85.00		0.2500	25.186	20.074	1,593.2	24.85	100.74	65	52	346.9	16.00	2,881	272.0
90.00		0.2500	24.403	19.443	1,447.7	24.01	97.61	65	52	336.2	16.00	2,763	272.0
93.00		0.2500	23.932	19.064	1,364.8	23.51	95.73	65	52	196.5	16.00	2,694	163.2
95.00		0.2500	23.619	18.812	1,311.3	23.17	94.48	65	52	128.9	16.00	2,648	108.8
100.0		0.2500	22.836	18.181	1,183.8	22.33	91.34	65	52	314.7	16.00	2,535	272.0
103.0		0.2500	22.365	17.803	1,111.4	21.83	89.46	65	52	183.7	16.00	2,469	163.2
105.0		0.2500	22.052	17.551	1,064.8	21.49	88.21	65	52	120.3	16.00	2,425	108.8
110.0		0.2500	21.268	16.920	954.1	20.65	85.07	65	52	293.2	16.00	2,317	272.0
110.0	Top - Section 3	0.2500	21.268	16.919	954.0	20.65	85.07	65	52	0.2	16.00	2,317	0.2
110.0	Bot - Section 4	0.1880	21.268	12.761	723.8	28.17	113.13	65	52		16.00	2,317	
113.0		0.1880	20.798	12.477	676.5	27.50	110.63	65	52	128.7	16.00	2,254	163.0
115.0		0.1880	20.485	12.287	646.1	27.05	108.96	65	52	84.3	16.00	2,212	108.8
120.0	Reinf. Top	0.1880	19.701	11.813	574.1	25.94	104.79	65	52	205.0	16.00	2,109	272.0
125.0		0.1880	18.918	11.338	507.7	24.82	100.63	65	52	196.9			
130.0		0.1880	18.134	10.864	446.6	23.70	96.46	65	52	188.9			
135.0		0.1880	17.351	10.390	390.6	22.59	92.29	65	52	180.8			
140.0		0.1880	16.567	9.915	339.5	21.47	88.12	65	52	172.7			
145.0		0.1880	15.784	9.441	293.1	20.35	83.96	65	52	164.7			
150.0		0.1880	15.000	8.967	251.1	19.24	79.79	65	52	156.6			
										13,383.0			9,792.0

Pole :	302484	Code: TIA/EIA-222 Rev F	10/25/2011 4:51:41 PM
Location :	Branford CT 6, CT		Page: 4
Height :	150.0 (ft)		
Base Dia :	37.38 (in)		
Top Dia :	15.00 (in)	Base Elev : 0.000 (ft)	
Shape :	12 Sides		
Taper :	0.156705 (in/ft)		

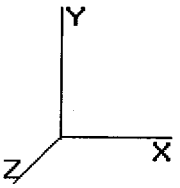


Load Case: No Ice — 90.00 mph Wind with No Ice — 24 Iterations

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	20.736	35.04	280.35	1.030	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	20.736	35.04	274.47	1.030	0.000	5.00	15.412	15.87	556.3	0.0	1,296.2
10.00		0.00	1.00	20.736	35.04	268.59	1.030	0.000	5.00	15.085	15.54	544.5	0.0	1,280.1
15.00		0.00	1.00	20.736	35.04	262.72	1.030	0.000	5.00	14.759	15.20	532.7	0.0	1,264.0
20.00		0.00	1.00	20.736	35.04	256.84	1.030	0.000	5.00	14.432	14.87	520.9	0.0	1,247.9
25.00		0.00	1.00	20.736	35.04	250.96	1.030	0.000	5.00	14.106	14.53	509.2	0.0	1,231.8
30.00		0.00	1.00	20.736	35.04	245.09	1.030	0.000	5.00	13.779	14.19	497.4	0.0	1,215.7
31.50	Bot - Section 2	0.00	1.00	20.736	35.04	243.32	1.030	0.000	1.50	4.079	4.20	147.2	0.0	362.4
35.00		0.00	1.01	21.088	35.63	241.23	1.030	0.000	3.50	9.556	9.84	350.8	0.0	1,226.8
35.67	Top - Section 1	0.00	1.02	21.202	35.83	241.09	1.030	0.000	0.67	1.813	1.87	66.9	0.0	233.4
40.00		0.00	1.05	21.908	37.02	244.66	1.030	0.000	4.33	11.574	11.92	441.4	0.0	942.8
45.00		0.00	1.09	22.657	38.29	242.67	1.030	0.000	5.00	13.061	13.45	515.1	0.0	1,076.1
50.00		0.00	1.12	23.350	39.46	240.11	1.030	0.000	5.00	12.734	13.12	517.6	0.0	1,062.7
55.00		0.00	1.15	23.994	40.55	237.09	1.030	0.000	5.00	12.408	12.78	518.2	0.0	1,049.3
60.00	Reinf. Top	0.00	1.18	24.598	41.57	233.65	1.030	0.000	5.00	12.081	12.44	517.3	0.0	1,035.8
65.00		0.00	1.21	25.167	42.53	229.86	1.030	0.000	5.00	11.755	12.11	515.0	0.0	750.4
69.00	Appertunance(s)	0.00	1.23	25.601	43.26	226.61	1.030	0.000	4.00	9.169	9.44	408.6	0.0	590.6
70.00		0.00	1.24	25.706	43.44	225.77	1.030	0.000	1.00	2.260	2.33	101.1	0.0	146.3
70.00	Bot - Section 3	0.00	1.24	25.706	43.44	225.76	1.030	0.000	0.00	0.008	0.01	0.3	0.0	0.5
73.50	Top - Section 2	0.00	1.25	26.067	44.05	222.73	1.030	0.000	3.50	7.951	8.19	360.8	0.0	766.8
75.00		0.00	1.26	26.218	44.30	225.61	1.030	0.000	1.50	3.351	3.45	152.9	0.0	190.6
80.00		0.00	1.28	26.706	45.13	221.03	1.030	0.000	5.00	10.984	11.31	510.6	0.0	629.6
85.00		0.00	1.31	27.172	45.92	216.23	1.030	0.000	5.00	10.657	10.98	504.1	0.0	618.9
90.00		0.00	1.33	27.620	46.67	211.22	1.030	0.000	5.00	10.331	10.64	496.7	0.0	608.2
93.00	Appertunance(s)	0.00	1.34	27.880	47.11	208.12	1.030	0.000	3.00	6.042	6.22	293.2	0.0	359.7
95.00		0.00	1.35	28.050	47.40	206.02	1.030	0.000	2.00	3.963	4.08	193.5	0.0	237.7
100.0		0.00	1.37	28.464	48.10	200.65	1.030	0.000	5.00	9.678	9.97	479.5	0.0	586.7
103.0	Appertunance(s)	0.00	1.38	28.705	48.51	197.35	1.030	0.000	3.00	5.650	5.82	282.3	0.0	346.9
105.0		0.00	1.39	28.863	48.77	195.12	1.030	0.000	2.00	3.701	3.81	186.0	0.0	229.1
110.0		0.00	1.41	29.250	49.43	189.45	1.030	0.000	5.00	9.025	9.30	459.5	0.0	565.2
110.0	Top - Section 3	0.00	1.41	29.250	49.43	189.44	1.030	0.000	0.00	0.006	0.01	0.3	0.0	0.4
113.0	Appertunance(s)	0.00	1.42	29.475	49.81	185.97	1.030	0.000	3.00	5.252	5.41	269.5	0.0	291.7
115.0		0.00	1.42	29.623	50.06	183.63	1.030	0.000	2.00	3.440	3.54	177.4	0.0	193.1
120.0	Reinf. Top	0.00	1.44	29.986	50.67	177.68	1.030	0.000	5.00	8.372	8.62	437.0	0.0	477.0
125.0		0.00	1.46	30.338	51.27	171.61	1.030	0.000	5.00	8.046	8.29	424.9	0.0	196.9
130.0	Appertunance(s)	0.00	1.48	30.679	51.84	165.43	1.030	0.000	5.00	7.719	7.95	412.2	0.0	188.9
135.0		0.00	1.49	31.012	52.41	159.14	1.030	0.000	5.00	7.393	7.61	399.1	0.0	180.8
140.0	Appertunance(s)	0.00	1.51	31.336	52.95	152.74	1.030	0.000	5.00	7.066	7.28	385.4	0.0	172.7
145.0		0.00	1.52	31.652	53.49	146.25	1.030	0.000	5.00	6.740	6.94	371.3	0.0	164.7
150.0	Appertunance(s)	0.00	1.54	31.960	54.01	139.66	1.030	0.000	5.00	6.413	6.61	356.8	0.0	156.6
							Totals:		150.00			14,413.6	0.0	23,175.0

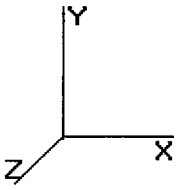


Load Case: No Ice — 90.00 mph Wind with No Ice — 24 Iterations

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)
69.00	Channel Master 1.2 M	1	25.601	43.265	1.00	20.91	0.000	0.000	904.67	0.00	0.00	188.00
93.00	Decibel DB408	1	28.276	47.786	1.00	2.70	0.000	4.710	129.02	0.00	607.70	28.00
93.00	Standoff	1	27.880	47.117	1.00	2.50	0.000	0.000	117.79	0.00	0.00	200.00
103.0	Decibel DB408	2	29.074	49.135	1.00	5.94	0.000	4.710	291.86	0.00	1,374.68	34.00
103.0	Standoff	1	28.705	48.512	1.00	2.50	0.000	0.000	121.28	0.00	0.00	200.00
113.0	Antel BXA-171085-8BF	3	29.475	49.813	0.84	7.42	0.000	0.000	369.56	0.00	0.00	30.00
113.0	Antel BXA-70063/6CF_	3	29.475	49.813	0.70	16.23	0.000	0.000	808.62	0.00	0.00	51.00
113.0	RFS APL866513-42T0	2	29.475	49.813	0.93	7.98	0.000	0.000	397.76	0.00	0.00	36.00
113.0	RFS APL868013-12T0	4	29.475	49.813	0.87	12.98	0.000	0.000	646.60	0.00	0.00	25.20
113.0	RFS FD9R6004/1C-3L	6	29.475	49.813	0.50	1.11	0.000	0.000	55.29	0.00	0.00	18.60
113.0	T-Arm	3	29.475	49.813	0.67	10.05	0.000	0.000	500.62	0.00	0.00	999.00
130.0	12" x 12" Junction B	1	30.679	51.848	1.00	1.40	0.000	0.000	72.59	0.00	0.00	10.00
130.0	Argus LLPX310R	3	30.679	51.848	0.69	10.00	0.000	0.000	518.38	0.00	0.00	85.80
130.0	Clearwire Mount	1	30.679	51.848	1.00	8.50	0.000	0.000	440.71	0.00	0.00	40.00
130.0	DragonWave A-ANT-	1	30.679	51.848	1.00	8.43	0.000	0.000	437.08	0.00	0.00	47.60
130.0	DragonWave A-ANT-	1	30.679	51.848	1.00	1.61	0.000	0.000	83.48	0.00	0.00	15.00
130.0	DragonWave Horizon	2	30.679	51.848	1.00	0.86	0.000	0.000	44.59	0.00	0.00	21.20
130.0	NextNet BTS-2500	3	30.679	51.848	0.72	4.58	0.000	0.000	237.42	0.00	0.00	105.00
140.0	RFS APXV18-206516L-	3	31.336	52.958	0.67	6.83	0.000	0.000	361.91	0.00	0.00	42.00
140.0	RFS APXV18-206516S-	3	31.336	52.958	0.67	7.04	0.000	0.000	372.56	0.00	0.00	56.10
140.0	RFS ATMAA1412D-	3	31.336	52.958	0.50	1.75	0.000	0.000	92.94	0.00	0.00	39.00
140.0	RFS ATMAP1412D-	3	31.336	52.958	0.50	1.75	0.000	0.000	92.93	0.00	0.00	39.00
140.0	T-Arm	3	31.336	52.958	0.67	10.05	0.000	0.000	532.23	0.00	0.00	999.00
150.0	4' Omni	1	32.496	54.919	1.00	1.50	0.000	9.000	82.38	0.00	741.40	5.00
150.0	ADC DD1900	6	32.141	54.319	0.50	4.02	0.000	3.000	218.36	0.00	655.08	90.00
150.0	Decibel DB408	2	32.496	54.919	1.00	5.94	0.000	9.000	326.22	0.00	2,935.96	34.00
150.0	Diplexer	3	32.141	54.319	0.67	1.00	0.000	3.000	54.59	0.00	163.77	30.00
150.0	GPS	1	31.960	54.012	1.00	0.60	0.000	0.000	32.41	0.00	0.00	1.50
150.0	Platform w/ Rails	1	31.960	54.012	1.00	26.00	0.000	0.000	1,404.31	0.00	0.00	1,950.00
150.0	Powerwave 7770.00	6	32.141	54.319	0.73	25.75	0.000	3.000	1,398.94	0.00	4,196.83	210.00
150.0	Yagi	1	32.320	54.621	1.00	4.00	0.000	6.000	218.48	0.00	1,310.90	45.00
									11,365.59			5,675.00



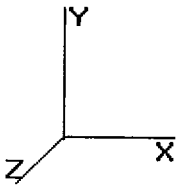
Load Case: No Ice — 90.00 mph Wind with No Ice — 24 Iterations

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

Linear Appurtenance Segment Forces

Seg Top Elev (ft)	Description	Exposed To Wind	Length (ft)	Weight (lb/ft)	CaAa (sf/ft)	qz (psf)	FX (lb)	Dead Load (lb)
5.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	20.736	35.04	49.20
10.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	20.736	35.04	49.20
15.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	20.736	35.04	49.20
20.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	20.736	35.04	49.20
25.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	20.736	35.04	49.20
30.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	20.736	35.04	49.20
31.50	(12) 1 5/8" Coax	Yes	1.50	9.84	0.20	20.736	10.54	14.79
35.00	(12) 1 5/8" Coax	Yes	3.50	9.84	0.20	21.088	24.92	34.41
35.67	(12) 1 5/8" Coax	Yes	0.67	9.84	0.20	21.202	4.80	6.59
40.00	(12) 1 5/8" Coax	Yes	4.33	9.84	0.20	21.908	32.06	42.61
45.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	22.657	38.29	49.20
50.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	23.350	39.46	49.20
55.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	23.994	40.55	49.20
60.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	24.598	41.57	49.20
65.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	25.167	42.53	49.20
69.00	(12) 1 5/8" Coax	Yes	4.00	9.84	0.20	25.601	34.61	39.36
70.00	(12) 1 5/8" Coax	Yes	1.00	9.84	0.20	25.706	8.69	9.84
70.00	(12) 1 5/8" Coax	Yes	0.00	9.84	0.20	25.706	0.03	0.03
73.50	(12) 1 5/8" Coax	Yes	3.50	9.84	0.20	26.067	30.84	34.44
75.00	(12) 1 5/8" Coax	Yes	1.50	9.84	0.20	26.218	13.26	14.73
80.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	26.706	45.13	49.20
85.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	27.172	45.92	49.20
90.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	27.620	46.68	49.20
93.00	(12) 1 5/8" Coax	Yes	3.00	9.84	0.20	27.880	28.27	29.52
95.00	(12) 1 5/8" Coax	Yes	2.00	9.84	0.20	28.050	18.96	19.68
100.0	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	28.464	48.10	49.20
103.0	(12) 1 5/8" Coax	Yes	3.00	9.84	0.20	28.705	29.11	29.52
105.0	(12) 1 5/8" Coax	Yes	2.00	9.84	0.20	28.863	19.51	19.68
110.0	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	29.250	49.43	49.20
110.0	(12) 1 5/8" Coax	Yes	0.00	9.84	0.20	29.250	0.03	0.03
113.0	(12) 1 5/8" Coax	Yes	3.00	9.84	0.20	29.475	29.85	29.49
115.0	(12) 1 5/8" Coax	Yes	2.00	9.84	0.20	29.623	20.03	19.68
120.0	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	29.986	50.68	49.20
125.0	(12) 1 5/8" Coax	Yes	3.00	9.84	0.20	30.338	30.76	29.52
						Totals:	1,034.89	1,210.32

Pole :	302484	Code: TIA/EIA-222 Rev F	10/25/2011 4:51:41 PM
Location :	Branford CT 6, CT		Page: 7
Height :	150.0 (ft)		
Base Dia :	37.38 (in)		
Top Dia :	15.00 (in)	Base Elev : 0.000 (ft)	
Shape :	12 Sides		
Taper :	0.156705 (in/ft)		



Load Case: No Ice — 90.00 mph Wind with No Ice — 24 Iterations

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

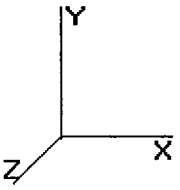
Applied Segment Forces Summary

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	591.33	1,393.07	0.00	0.00
10.00	579.55	1,376.97	0.00	0.00
15.00	567.77	1,360.87	0.00	0.00
20.00	555.98	1,344.78	0.00	0.00
25.00	544.20	1,328.68	0.00	0.00
30.00	532.41	1,312.58	0.00	0.00
31.50	157.78	391.50	0.00	0.00
35.00	375.70	1,294.51	0.00	0.00
35.67	71.71	246.39	0.00	0.00
40.00	473.45	1,026.69	0.00	0.00
45.00	553.41	1,173.02	0.00	0.00
50.00	557.05	1,159.58	0.00	0.00
55.00	558.79	1,146.15	0.00	0.00
60.00	558.88	1,132.71	0.00	0.00
65.00	557.51	847.27	0.00	0.00
69.00	1,347.87	856.15	0.00	0.00
70.00	109.80	165.61	0.00	0.00
70.00	0.37	0.55	0.00	0.00
73.50	391.63	834.38	0.00	0.00
75.00	166.21	219.43	0.00	0.00
80.00	555.74	726.10	0.00	0.00
85.00	550.01	715.37	0.00	0.00
90.00	543.37	704.64	0.00	0.00
93.00	568.30	645.63	0.00	607.70
95.00	212.44	275.61	0.00	0.00
100.0	527.62	681.52	0.00	0.00
103.0	724.57	637.76	0.00	1,374.68
105.0	205.48	265.71	0.00	0.00
110.0	508.94	656.76	0.00	0.00
110.0	0.33	0.43	0.00	0.00
113.0	3,077.79	1,506.35	0.00	0.00
115.0	197.42	218.33	0.00	0.00
120.0	487.67	540.19	0.00	0.00
125.0	455.64	245.36	0.00	0.00
130.0	2,246.49	539.75	0.00	0.00
135.0	399.08	206.10	0.00	0.00
140.0	1,838.01	1,373.13	0.00	0.00
145.0	371.34	177.66	0.00	0.00
150.0	4,092.48	2,535.09	0.00	10,003.94
Totals:	26,814.11	31,262.38	0.00	11,986.32

Pole : 302484
Location : Branford CT 6, CT
Height : 150.0 (ft)
Base Dia : 37.38 (in)
Top Dia : 15.00 (in)
Shape : 12 Sides
Taper : 0.156705 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)



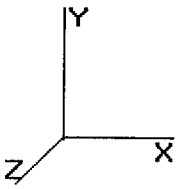
Load Case: No Ice — 90.00 mph Wind with No Ice — 24 Iterations

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	-26.875	-31.209	0.000	0.000	0.000	-2,656.504	0.000	0.000	0.000	0.000
5.00	-26.395	-29.717	0.000	0.000	0.000	-2,522.132	-0.119	0.000	0.119	-0.220
10.00	-25.915	-28.245	0.000	0.000	0.000	-2,390.161	-0.467	0.000	0.467	-0.439
15.00	-25.435	-26.793	0.000	0.000	0.000	-2,260.589	-1.044	0.000	1.044	-0.656
20.00	-24.957	-25.363	0.000	0.000	0.000	-2,133.414	-1.847	0.000	1.847	-0.872
25.00	-24.479	-23.953	0.000	0.000	0.000	-2,008.632	-2.875	0.000	2.875	-1.085
30.00	-23.973	-22.595	0.000	0.000	0.000	-1,886.240	-4.126	0.000	4.126	-1.297
31.50	-23.847	-22.163	0.000	0.000	0.000	-1,850.200	-4.545	0.000	4.545	-1.361
35.00	-23.471	-20.843	0.000	0.000	0.000	-1,766.815	-5.598	0.000	5.598	-1.508
35.67	-23.429	-20.556	0.000	0.000	0.000	-1,751.090	-5.812	0.000	5.812	-1.536
40.00	-22.992	-19.466	0.000	0.000	0.000	-1,649.641	-7.287	0.000	7.287	-1.711
45.00	-22.467	-18.231	0.000	0.000	0.000	-1,534.680	-9.191	0.000	9.191	-1.918
50.00	-21.929	-17.016	0.000	0.000	0.000	-1,422.344	-11.309	0.000	11.309	-2.121
55.00	-21.380	-15.820	0.000	0.000	0.000	-1,312.698	-13.637	0.000	13.637	-2.318
60.00	-20.823	-14.643	0.000	0.000	0.000	-1,205.797	-16.169	0.000	16.169	-2.510
65.00	-20.274	-13.754	0.000	0.000	0.000	-1,101.686	-18.898	0.000	18.898	-2.695
69.00	-18.914	-12.923	0.000	0.000	0.000	-1,020.592	-21.243	0.000	21.243	-2.897
70.00	-18.801	-12.755	0.000	0.000	0.000	-1,001.678	-21.856	0.000	21.856	-2.948
70.00	-18.820	-12.726	0.000	0.000	0.000	-1,001.615	-21.858	0.000	21.858	-2.948
73.50	-18.410	-11.875	0.000	0.000	0.000	-935.745	-24.083	0.000	24.083	-3.120
75.00	-18.265	-11.614	0.000	0.000	0.000	-908.191	-25.073	0.000	25.073	-3.192
80.00	-17.713	-10.848	0.000	0.000	0.000	-816.869	-28.546	0.000	28.546	-3.435
85.00	-17.159	-10.100	0.000	0.000	0.000	-728.305	-32.268	0.000	32.268	-3.666
90.00	-16.599	-9.384	0.000	0.000	0.000	-642.508	-36.225	0.000	36.225	-3.884
93.00	-16.003	-8.750	0.000	0.000	0.000	-592.105	-38.705	0.000	38.705	-4.010
95.00	-15.792	-8.453	0.000	0.000	0.000	-560.099	-40.402	0.000	40.402	-4.090
100.0	-15.235	-7.774	0.000	0.000	0.000	-481.141	-44.785	0.000	44.785	-4.277
103.0	-14.476	-7.171	0.000	0.000	0.000	-434.060	-47.506	0.000	47.506	-4.382
105.0	-14.264	-6.894	0.000	0.000	0.000	-405.109	-49.355	0.000	49.355	-4.449
110.0	-13.712	-6.262	0.000	0.000	0.000	-333.792	-54.094	0.000	54.094	-4.600
110.0	-13.717	-6.252	0.000	0.000	0.000	-333.746	-54.097	0.000	54.097	-4.600
113.0	-10.533	-4.987	0.000	0.000	0.000	-292.642	-57.009	0.000	57.009	-4.681
115.0	-10.326	-4.770	0.000	0.000	0.000	-271.577	-58.981	0.000	58.981	-4.736
120.0	-9.803	-4.253	0.000	0.000	0.000	-219.948	-64.004	0.000	64.004	-4.858
125.0	-9.347	-4.004	0.000	0.000	0.000	-170.933	-69.146	0.000	69.146	-4.962
130.0	-7.085	-3.623	0.000	0.000	0.000	-124.199	-74.566	0.000	74.566	-5.376
135.0	-6.686	-3.421	0.000	0.000	0.000	-88.776	-80.376	0.000	80.376	-5.715
140.0	-4.726	-2.225	0.000	0.000	0.000	-55.348	-86.501	0.000	86.501	-5.977
145.0	-4.343	-2.077	0.000	0.000	0.000	-31.719	-92.854	0.000	92.854	-6.160
150.0	-4.092	0.000	0.000	0.000	0.000	-10.004	-99.355	0.000	99.355	-6.261

Pole :	302484	Code: TIA/EIA-222 Rev F	10/25/2011 4:51:41 PM
Location :	Branford CT 6, CT		Page: 9
Height :	150.0 (ft)		
Base Dia :	37.38 (in)		
Top Dia :	15.00 (in)	Base Elev : 0.000 (ft)	
Shape :	12 Sides		
Taper :	0.156705 (in/ft)		



Load Case: No Ice — 90.00 mph Wind with No Ice — 24 Iterations

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

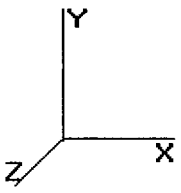
Calculated Stresses

Seg Elev (ft)	Applied Stresses Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)	Allowable Stress (Fb) (ksi)		Stress Ratio
0.00	0.41	1.22	0.00	0.00	0.00	36.82	37.29	52.0	0.0	0.717
5.00	0.39	1.23	0.00	0.00	0.00	35.90	36.35	52.0	0.0	0.699
10.00	0.38	1.23	0.00	0.00	0.00	34.94	35.38	52.0	0.0	0.680
15.00	0.36	1.24	0.00	0.00	0.00	33.95	34.38	52.0	0.0	0.661
20.00	0.35	1.24	0.00	0.00	0.00	32.92	33.34	52.0	0.0	0.641
25.00	0.33	1.24	0.00	0.00	0.00	31.85	32.26	52.0	0.0	0.620
30.00	0.32	1.25	0.00	0.00	0.00	30.75	31.15	52.0	0.0	0.599
31.50	0.31	1.25	0.00	0.00	0.00	30.42	30.81	52.0	0.0	0.593
35.00	0.30	1.25	0.00	0.00	0.00	29.10	29.48	52.0	0.0	0.567
35.67	0.32	1.47	0.00	0.00	0.00	30.87	31.29	52.0	0.0	0.602
40.00	0.31	1.48	0.00	0.00	0.00	29.75	30.16	52.0	0.0	0.580
45.00	0.29	1.48	0.00	0.00	0.00	28.42	28.83	52.0	0.0	0.554
50.00	0.27	1.48	0.00	0.00	0.00	27.05	27.45	52.0	0.0	0.528
55.00	0.26	1.48	0.00	0.00	0.00	25.65	26.03	52.0	0.0	0.501
60.00	0.24	1.48	0.00	0.00	0.00	24.21	24.58	52.0	0.0	0.473
60.00	0.33	1.48	0.00	0.00	0.00	33.81	34.24	52.0	0.0	0.658
65.00	0.31	1.49	0.00	0.00	0.00	31.88	32.29	52.0	0.0	0.621
69.00	0.30	1.42	0.00	0.00	0.00	30.28	30.68	52.0	0.0	0.590
70.00	0.30	1.42	0.00	0.00	0.00	29.91	30.31	52.0	0.0	0.583
70.00	0.30	1.42	0.00	0.00	0.00	29.91	30.31	52.0	0.0	0.583
73.50	0.32	1.74	0.00	0.00	0.00	30.61	31.07	52.0	0.0	0.598
75.00	0.31	1.74	0.00	0.00	0.00	29.96	30.42	52.0	0.0	0.585
80.00	0.30	1.74	0.00	0.00	0.00	27.74	28.20	52.0	0.0	0.542
85.00	0.28	1.74	0.00	0.00	0.00	25.46	25.92	52.0	0.0	0.498
90.00	0.26	1.73	0.00	0.00	0.00	23.13	23.58	52.0	0.0	0.454
93.00	0.25	1.71	0.00	0.00	0.00	21.68	22.13	52.0	0.0	0.426
95.00	0.24	1.71	0.00	0.00	0.00	20.75	21.20	52.0	0.0	0.408
100.00	0.23	1.70	0.00	0.00	0.00	18.35	18.81	52.0	0.0	0.362
103.00	0.21	1.65	0.00	0.00	0.00	16.84	17.29	52.0	0.0	0.333
105.00	0.21	1.65	0.00	0.00	0.00	15.90	16.36	52.0	0.0	0.315
110.00	0.19	1.65	0.00	0.00	0.00	13.48	13.96	52.0	0.0	0.269
110.00	0.19	1.65	0.00	0.00	0.00	13.48	13.96	52.0	0.0	0.268
110.00	0.22	2.18	0.00	0.00	0.00	14.50	15.19	52.0	0.0	0.292
113.00	0.18	1.72	0.00	0.00	0.00	12.90	13.41	52.0	0.0	0.258
115.00	0.17	1.71	0.00	0.00	0.00	12.09	12.61	52.0	0.0	0.243
120.00	0.15	1.69	0.00	0.00	0.00	10.03	10.59	52.0	0.0	0.204
120.00	0.36	1.69	0.00	0.00	0.00	46.88	47.33	52.0	0.0	0.910
125.00	0.35	1.67	0.00	0.00	0.00	39.56	40.02	52.0	0.0	0.770
130.00	0.33	1.33	0.00	0.00	0.00	31.33	31.74	52.0	0.0	0.610
135.00	0.33	1.31	0.00	0.00	0.00	24.49	24.93	52.0	0.0	0.479
140.00	0.22	0.97	0.00	0.00	0.00	16.78	17.08	52.0	0.0	0.329
145.00	0.22	0.93	0.00	0.00	0.00	10.61	10.95	52.0	0.0	0.211
150.00	0.00	0.93	0.00	0.00	0.00	3.71	4.04	52.0	0.0	0.078

Pole : 302484
Location : Branford CT 6, CT
Height : 150.0 (ft)
Base Dia : 37.38 (in)
Top Dia : 15.00 (in)
Shape : 12 Sides
Taper : 0.156705 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)



Load Case: Ice — 77.94 mph Wind with Ice — 24 Iterations

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

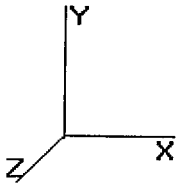
Shaft Segment Forces

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	15.551	26.28	242.78	1.030	0.500	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	15.551	26.28	237.69	1.030	0.500	5.00	15.828	16.30	428.5	116.1	1,412.3
10.00		0.00	1.00	15.551	26.28	232.60	1.030	0.500	5.00	15.502	15.97	419.6	113.7	1,393.8
15.00		0.00	1.00	15.551	26.28	227.51	1.030	0.500	5.00	15.175	15.63	410.8	111.2	1,375.2
20.00		0.00	1.00	15.551	26.28	222.42	1.030	0.500	5.00	14.849	15.29	402.0	108.8	1,356.7
25.00		0.00	1.00	15.551	26.28	217.33	1.030	0.500	5.00	14.523	14.96	393.1	106.3	1,338.1
30.00		0.00	1.00	15.551	26.28	212.24	1.030	0.500	5.00	14.196	14.62	384.3	103.9	1,319.6
31.50	Bot - Section 2	0.00	1.00	15.551	26.28	210.71	1.030	0.500	1.50	4.204	4.33	113.8	31.0	393.4
35.00		0.00	1.01	15.815	26.72	208.90	1.030	0.500	3.50	9.848	10.14	271.1	72.3	1,299.1
35.67	Top - Section 1	0.00	1.02	15.901	26.87	208.78	1.030	0.500	0.67	1.869	1.92	51.7	13.8	247.2
40.00		0.00	1.05	16.430	27.76	211.88	1.030	0.500	4.33	11.935	12.29	341.3	87.4	1,030.2
45.00		0.00	1.09	16.992	28.71	210.15	1.030	0.500	5.00	13.478	13.88	398.6	98.5	1,174.6
50.00		0.00	1.12	17.511	29.59	207.94	1.030	0.500	5.00	13.151	13.55	400.9	96.0	1,158.7
55.00		0.00	1.15	17.995	30.41	205.31	1.030	0.500	5.00	12.825	13.21	401.7	93.6	1,142.8
60.00	Reinf. Top	0.00	1.18	18.448	31.17	202.34	1.030	0.500	5.00	12.498	12.87	401.3	91.1	1,126.9
65.00		0.00	1.21	18.874	31.89	199.06	1.030	0.500	5.00	12.172	12.54	399.9	88.7	839.1
69.00	Appertunance(s)	0.00	1.23	19.199	32.44	196.24	1.030	0.500	4.00	9.502	9.79	317.6	69.4	660.0
70.00		0.00	1.24	19.278	32.58	195.51	1.030	0.500	1.00	2.343	2.41	78.6	17.2	163.6
70.00	Bot - Section 3	0.00	1.24	19.279	32.58	195.51	1.030	0.500	0.00	0.008	0.01	0.3	0.1	0.5
73.50	Top - Section 2	0.00	1.25	19.549	33.03	192.88	1.030	0.500	3.50	8.243	8.49	280.5	60.2	827.1
75.00		0.00	1.26	19.662	33.22	195.38	1.030	0.500	1.50	3.476	3.58	119.0	25.5	216.1
80.00		0.00	1.28	20.028	33.84	191.41	1.030	0.500	5.00	11.401	11.74	397.5	82.9	712.5
85.00		0.00	1.31	20.378	34.43	187.25	1.030	0.500	5.00	11.074	11.41	392.8	80.4	699.3
90.00		0.00	1.33	20.714	35.00	182.92	1.030	0.500	5.00	10.748	11.07	387.5	78.0	686.1
93.00	Appertunance(s)	0.00	1.34	20.908	35.33	180.23	1.030	0.500	3.00	6.292	6.48	229.0	45.9	405.6
95.00		0.00	1.35	21.036	35.55	178.41	1.030	0.500	2.00	4.129	4.25	151.2	30.2	267.9
100.0		0.00	1.37	21.347	36.07	173.76	1.030	0.500	5.00	10.095	10.40	375.1	73.1	659.8
103.0	Appertunance(s)	0.00	1.38	21.528	36.38	170.91	1.030	0.500	3.00	5.900	6.08	221.1	42.9	389.8
105.0		0.00	1.39	21.646	36.58	168.98	1.030	0.500	2.00	3.868	3.98	145.7	28.2	257.3
110.0		0.00	1.41	21.936	37.07	164.06	1.030	0.500	5.00	9.442	9.73	360.5	68.1	633.4
110.0	Top - Section 3	0.00	1.41	21.936	37.07	164.06	1.030	0.500	0.00	0.006	0.01	0.2	0.0	0.4
113.0	Appertunance(s)	0.00	1.42	22.105	37.35	161.05	1.030	0.500	3.00	5.502	5.67	211.7	40.0	331.7
115.0		0.00	1.42	22.216	37.54	159.02	1.030	0.500	2.00	3.607	3.72	139.5	26.3	219.3
120.0	Reinf. Top	0.00	1.44	22.488	38.00	153.87	1.030	0.500	5.00	8.789	9.05	344.0	63.2	540.3
125.0		0.00	1.46	22.752	38.45	148.62	1.030	0.500	5.00	8.462	8.72	335.1	60.8	257.7
130.0	Appertunance(s)	0.00	1.48	23.008	38.88	143.26	1.030	0.500	5.00	8.136	8.38	325.8	58.3	247.2
135.0		0.00	1.49	23.258	39.30	137.81	1.030	0.500	5.00	7.809	8.04	316.2	55.9	236.7
140.0	Appertunance(s)	0.00	1.51	23.501	39.71	132.27	1.030	0.500	5.00	7.483	7.71	306.1	53.4	226.2
145.0		0.00	1.52	23.737	40.11	126.65	1.030	0.500	5.00	7.156	7.37	295.7	51.0	215.6
150.0	Appertunance(s)	0.00	1.54	23.968	40.50	120.95	1.030	0.500	5.00	6.830	7.03	285.0	48.5	205.1
							Totals:		150.00			11,234.5	2,491.9	25,667.0

Pole : 302484
Location : Branford CT 6, CT
Height : 150.0 (ft)
Base Dia : 37.38 (in)
Top Dia : 15.00 (in)
Shape : 12 Sides
Taper : 0.156705 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)



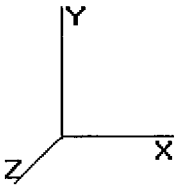
Load Case: Ice — 77.94 mph Wind with Ice — 24 Iterations

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)
69.00	Channel Master 1.2 M	1	19.199	32.447	1.00	21.79	0.000	0.000	707.01	0.00	0.00	277.00
93.00	Decibel DB408	1	21.206	35.838	1.00	4.86	0.000	4.710	174.17	0.00	820.34	50.00
93.00	Standoff	1	20.908	35.335	1.00	3.50	0.000	0.000	123.67	0.00	0.00	300.00
103.0	Decibel DB408	2	21.804	36.849	1.00	11.10	0.000	4.710	409.03	0.00	1,926.52	82.00
103.0	Standoff	1	21.528	36.382	1.00	3.50	0.000	0.000	127.34	0.00	0.00	300.00
113.0	Antel BXA-171085-8BF	3	22.105	37.358	0.84	8.82	0.000	0.000	329.49	0.00	0.00	81.24
113.0	Antel BXA-70063/6CF_	3	22.105	37.358	0.70	17.93	0.000	0.000	669.96	0.00	0.00	174.00
113.0	RFS APL866513-42T0	2	22.105	37.358	0.93	9.04	0.000	0.000	337.63	0.00	0.00	78.97
113.0	RFS APL868013-12T0	4	22.105	37.358	0.87	14.93	0.000	0.000	557.72	0.00	0.00	126.72
113.0	RFS FD9R6004/1C-3L	6	22.105	37.358	0.50	1.50	0.000	0.000	56.04	0.00	0.00	32.40
113.0	T-Arm	3	22.105	37.358	0.67	16.21	0.000	0.000	605.50	0.00	0.00	1,299.00
130.0	12" x 12" Junction B	1	23.008	38.884	1.00	1.64	0.000	0.000	63.77	0.00	0.00	21.90
130.0	Argus LLPX310R	3	23.008	38.884	1.00	16.08	0.000	0.000	625.25	0.00	0.00	163.50
130.0	Clearwire Mount	1	23.008	38.884	1.00	10.50	0.000	0.000	408.28	0.00	0.00	50.00
130.0	DragonWave A-ANT-	1	23.008	38.884	1.00	8.92	0.000	0.000	346.84	0.00	0.00	97.10
130.0	DragonWave A-ANT-	1	23.008	38.884	1.00	1.83	0.000	0.000	71.16	0.00	0.00	25.10
130.0	DragonWave Horizon	2	23.008	38.884	1.00	1.16	0.000	0.000	45.11	0.00	0.00	34.00
130.0	NextNet BTS-2500	3	23.008	38.884	1.00	7.29	0.000	0.000	283.46	0.00	0.00	144.90
140.0	RFS APXV18-206516L-	3	23.501	39.716	0.67	8.18	0.000	0.000	324.90	0.00	0.00	105.00
140.0	RFS APXV18-206516S-	3	23.501	39.716	0.67	8.36	0.000	0.000	332.09	0.00	0.00	116.10
140.0	RFS ATMAA1412D-	3	23.501	39.716	0.50	2.09	0.000	0.000	82.81	0.00	0.00	61.80
140.0	RFS ATMAP1412D-	3	23.501	39.716	0.50	2.08	0.000	0.000	82.80	0.00	0.00	61.80
140.0	T-Arm	3	23.501	39.716	0.67	16.28	0.000	0.000	646.62	0.00	0.00	1,299.00
150.0	4' Omni	1	24.371	41.187	1.00	2.00	0.000	9.000	82.37	0.00	741.36	12.00
150.0	ADC DD1900	6	24.104	40.736	0.50	4.62	0.000	3.000	188.20	0.00	564.61	150.00
150.0	Decibel DB408	2	24.371	41.187	1.00	11.10	0.000	9.000	457.17	0.00	4,114.54	82.00
150.0	Diplexer	3	24.104	40.736	0.67	1.41	0.000	3.000	57.32	0.00	171.95	45.00
150.0	GPS	1	23.968	40.507	1.00	0.80	0.000	0.000	32.41	0.00	0.00	3.50
150.0	Platform w/ Rails	1	23.968	40.507	1.00	38.00	0.000	0.000	1,539.25	0.00	0.00	2,800.00
150.0	Powerwave 7770.00	6	24.104	40.736	0.73	28.60	0.000	3.000	1,165.12	0.00	3,495.36	405.78
150.0	Yagi	1	24.238	40.963	1.00	7.00	0.000	6.000	286.74	0.00	1,720.45	90.00
									11,219.22			8,569.81

Pole :	302484	Code: TIA/EIA-222 Rev F	10/25/2011 4:51:41 PM
Location :	Branford CT 6, CT		Page: 12
Height :	150.0 (ft)		
Base Dia :	37.38 (in)		
Top Dia :	15.00 (in)	Base Elev : 0.000 (ft)	
Shape :	12 Sides		
Taper :	0.156705 (in/ft)		

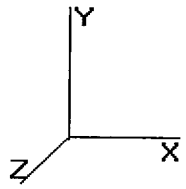


Load Case: Ice — 77.94 mph Wind with Ice — 24 Iterations

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

Linear Appurtenance Segment Forces

Seg Top Elev (ft)	Description	Exposed To Wind	Length (ft)	Weight (lb/ft)	CaAa (sf/ft)	qz (psf)	FX (lb)	Dead Load (lb)
5.00	(12) 1 5/8" Coax	Yes	5.00	28.56	0.30	15.551	39.42	142.80
10.00	(12) 1 5/8" Coax	Yes	5.00	28.56	0.30	15.551	39.42	142.80
15.00	(12) 1 5/8" Coax	Yes	5.00	28.56	0.30	15.551	39.42	142.80
20.00	(12) 1 5/8" Coax	Yes	5.00	28.56	0.30	15.551	39.42	142.80
25.00	(12) 1 5/8" Coax	Yes	5.00	28.56	0.30	15.551	39.42	142.80
30.00	(12) 1 5/8" Coax	Yes	5.00	28.56	0.30	15.551	39.42	142.80
31.50	(12) 1 5/8" Coax	Yes	1.50	28.56	0.30	15.551	11.85	42.94
35.00	(12) 1 5/8" Coax	Yes	3.50	28.56	0.30	15.815	28.04	99.86
35.67	(12) 1 5/8" Coax	Yes	0.67	28.56	0.30	15.901	5.40	19.14
40.00	(12) 1 5/8" Coax	Yes	4.33	28.56	0.30	16.430	36.07	123.66
45.00	(12) 1 5/8" Coax	Yes	5.00	28.56	0.30	16.992	43.07	142.80
50.00	(12) 1 5/8" Coax	Yes	5.00	28.56	0.30	17.511	44.39	142.80
55.00	(12) 1 5/8" Coax	Yes	5.00	28.56	0.30	17.995	45.62	142.80
60.00	(12) 1 5/8" Coax	Yes	5.00	28.56	0.30	18.448	46.76	142.80
65.00	(12) 1 5/8" Coax	Yes	5.00	28.56	0.30	18.874	47.85	142.80
69.00	(12) 1 5/8" Coax	Yes	4.00	28.56	0.30	19.199	38.94	114.24
70.00	(12) 1 5/8" Coax	Yes	1.00	28.56	0.30	19.278	9.77	28.56
70.00	(12) 1 5/8" Coax	Yes	0.00	28.56	0.30	19.279	0.03	0.10
73.50	(12) 1 5/8" Coax	Yes	3.50	28.56	0.30	19.549	34.69	99.96
75.00	(12) 1 5/8" Coax	Yes	1.50	28.56	0.30	19.662	14.92	42.74
80.00	(12) 1 5/8" Coax	Yes	5.00	28.56	0.30	20.028	50.77	142.80
85.00	(12) 1 5/8" Coax	Yes	5.00	28.56	0.30	20.378	51.66	142.80
90.00	(12) 1 5/8" Coax	Yes	5.00	28.56	0.30	20.714	52.51	142.80
93.00	(12) 1 5/8" Coax	Yes	3.00	28.56	0.30	20.908	31.80	85.68
95.00	(12) 1 5/8" Coax	Yes	2.00	28.56	0.30	21.036	21.33	57.12
100.0	(12) 1 5/8" Coax	Yes	5.00	28.56	0.30	21.347	54.11	142.80
103.0	(12) 1 5/8" Coax	Yes	3.00	28.56	0.30	21.528	32.74	85.68
105.0	(12) 1 5/8" Coax	Yes	2.00	28.56	0.30	21.646	21.95	57.12
110.0	(12) 1 5/8" Coax	Yes	5.00	28.56	0.30	21.936	55.61	142.80
110.0	(12) 1 5/8" Coax	Yes	0.00	28.56	0.30	21.936	0.04	0.10
113.0	(12) 1 5/8" Coax	Yes	3.00	28.56	0.30	22.105	33.58	85.58
115.0	(12) 1 5/8" Coax	Yes	2.00	28.56	0.30	22.216	22.53	57.12
120.0	(12) 1 5/8" Coax	Yes	5.00	28.56	0.30	22.488	57.01	142.80
125.0	(12) 1 5/8" Coax	Yes	3.00	28.56	0.30	22.752	34.61	85.68
						Totals:	1,164.18	3,512.87



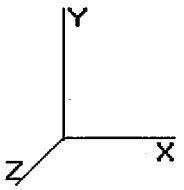
Load Case: Ice — 77.94 mph Wind with Ice — 24 Iterations

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	467.89	1,602.80	0.00	0.00
10.00	459.06	1,584.25	0.00	0.00
15.00	450.22	1,565.70	0.00	0.00
20.00	441.38	1,547.15	0.00	0.00
25.00	432.54	1,528.60	0.00	0.00
30.00	423.71	1,510.05	0.00	0.00
31.50	125.67	450.65	0.00	0.00
35.00	299.13	1,432.26	0.00	0.00
35.67	57.12	272.74	0.00	0.00
40.00	377.41	1,195.14	0.00	0.00
45.00	441.71	1,365.09	0.00	0.00
50.00	445.26	1,349.20	0.00	0.00
55.00	447.33	1,333.31	0.00	0.00
60.00	448.10	1,317.42	0.00	0.00
65.00	447.74	1,029.53	0.00	0.00
69.00	1,063.51	1,089.38	0.00	0.00
70.00	88.40	201.57	0.00	0.00
70.00	0.29	0.67	0.00	0.00
73.50	315.20	960.13	0.00	0.00
75.00	133.89	272.99	0.00	0.00
80.00	448.23	902.56	0.00	0.00
85.00	444.48	889.38	0.00	0.00
90.00	440.03	876.20	0.00	0.00
93.00	558.64	869.68	0.00	820.34
95.00	172.53	343.26	0.00	0.00
100.0	429.21	848.18	0.00	0.00
103.0	790.20	884.87	0.00	1,926.52
105.0	167.70	331.39	0.00	0.00
110.0	416.13	818.51	0.00	0.00
110.0	0.27	0.54	0.00	0.00
113.0	2,801.64	2,234.94	0.00	0.00
115.0	162.01	282.05	0.00	0.00
120.0	401.04	697.03	0.00	0.00
125.0	369.75	362.31	0.00	0.00
130.0	2,169.72	809.98	0.00	0.00
135.0	316.16	261.98	0.00	0.00
140.0	1,775.33	1,895.16	0.00	0.00
145.0	295.70	228.64	0.00	0.00
150.0	4,093.54	3,806.40	0.00	10,808.26
Totals:	23,617.86	38,951.68	0.00	13,555.12

Pole :	302484	Code: TIA/EIA-222 Rev F	10/25/2011 4:51:42 PM
Location :	Branford CT 6, CT		Page: 14
Height :	150.0 (ft)		
Base Dia :	37.38 (in)		
Top Dia :	15.00 (in)	Base Elev : 0.000 (ft)	
Shape :	12 Sides		
Taper :	0.156705 (in/ft)		



Load Case: Ice — 77.94 mph Wind with Ice — 24 Iterations

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

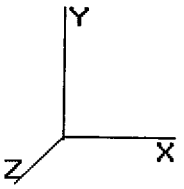
Calculated Shaft Forces and Deflections

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	-23.688	-38.908	0.000	0.000	0.000	-2,456.164	0.000	0.000	0.000	0.000
5.00	-23.349	-37.224	0.000	0.000	0.000	-2,337.727	-0.110	0.000	0.110	-0.204
10.00	-23.008	-35.561	0.000	0.000	0.000	-2,220.983	-0.432	0.000	0.432	-0.407
15.00	-22.663	-33.920	0.000	0.000	0.000	-2,105.947	-0.967	0.000	0.967	-0.609
20.00	-22.316	-32.300	0.000	0.000	0.000	-1,992.634	-1.713	0.000	1.713	-0.810
25.00	-21.966	-30.703	0.000	0.000	0.000	-1,881.057	-2.669	0.000	2.669	-1.010
30.00	-21.578	-29.153	0.000	0.000	0.000	-1,771.231	-3.834	0.000	3.834	-1.208
31.50	-21.493	-28.668	0.000	0.000	0.000	-1,738.793	-4.224	0.000	4.224	-1.268
35.00	-21.199	-27.213	0.000	0.000	0.000	-1,663.641	-5.205	0.000	5.205	-1.406
35.67	-21.180	-26.906	0.000	0.000	0.000	-1,649.439	-5.405	0.000	5.405	-1.433
40.00	-20.853	-25.655	0.000	0.000	0.000	-1,557.729	-6.782	0.000	6.782	-1.598
45.00	-20.453	-24.235	0.000	0.000	0.000	-1,453.467	-8.561	0.000	8.561	-1.794
50.00	-20.039	-22.835	0.000	0.000	0.000	-1,351.204	-10.544	0.000	10.544	-1.986
55.00	-19.613	-21.455	0.000	0.000	0.000	-1,251.010	-12.726	0.000	12.726	-2.174
60.00	-19.177	-20.096	0.000	0.000	0.000	-1,152.945	-15.101	0.000	15.101	-2.357
65.00	-18.747	-19.026	0.000	0.000	0.000	-1,057.063	-17.666	0.000	17.666	-2.535
69.00	-17.672	-17.950	0.000	0.000	0.000	-982.075	-19.873	0.000	19.873	-2.729
70.00	-17.582	-17.745	0.000	0.000	0.000	-964.403	-20.450	0.000	20.450	-2.777
70.00	-17.608	-17.719	0.000	0.000	0.000	-964.344	-20.452	0.000	20.452	-2.778
73.50	-17.279	-16.740	0.000	0.000	0.000	-902.719	-22.550	0.000	22.550	-2.943
75.00	-17.175	-16.428	0.000	0.000	0.000	-876.858	-23.484	0.000	23.484	-3.012
80.00	-16.741	-15.485	0.000	0.000	0.000	-790.982	-26.765	0.000	26.765	-3.248
85.00	-16.301	-14.561	0.000	0.000	0.000	-707.279	-30.287	0.000	30.287	-3.472
90.00	-15.846	-13.668	0.000	0.000	0.000	-625.777	-34.037	0.000	34.037	-3.684
93.00	-15.254	-12.810	0.000	0.000	0.000	-577.419	-36.391	0.000	36.391	-3.806
95.00	-15.088	-12.444	0.000	0.000	0.000	-546.911	-38.002	0.000	38.002	-3.885
100.0	-14.630	-11.592	0.000	0.000	0.000	-471.471	-42.168	0.000	42.168	-4.068
103.0	-13.794	-10.746	0.000	0.000	0.000	-425.656	-44.757	0.000	44.757	-4.171
105.0	-13.622	-10.402	0.000	0.000	0.000	-398.069	-46.517	0.000	46.517	-4.236
110.0	-13.158	-9.601	0.000	0.000	0.000	-329.960	-51.033	0.000	51.033	-4.385
110.0	-13.164	-9.591	0.000	0.000	0.000	-329.916	-51.036	0.000	51.036	-4.385
113.0	-10.207	-7.567	0.000	0.000	0.000	-290.468	-53.813	0.000	53.813	-4.466
115.0	-10.035	-7.282	0.000	0.000	0.000	-270.054	-55.694	0.000	55.694	-4.520
120.0	-9.593	-6.601	0.000	0.000	0.000	-219.878	-60.492	0.000	60.492	-4.642
125.0	-9.224	-6.227	0.000	0.000	0.000	-171.915	-65.407	0.000	65.407	-4.746
130.0	-7.029	-5.561	0.000	0.000	0.000	-125.796	-70.603	0.000	70.603	-5.163
135.0	-6.719	-5.294	0.000	0.000	0.000	-90.651	-76.194	0.000	76.194	-5.507
140.0	-4.779	-3.564	0.000	0.000	0.000	-57.058	-82.106	0.000	82.106	-5.776
145.0	-4.471	-3.355	0.000	0.000	0.000	-33.161	-88.254	0.000	88.254	-5.965
150.0	-4.093	0.000	0.000	0.000	0.000	-10.808	-94.556	0.000	94.556	-6.072

Pole : 302484
Location : Branford CT 6, CT
Height : 150.0 (ft)
Base Dia : 37.38 (in)
Top Dia : 15.00 (in)
Shape : 12 Sides
Taper : 0.156705 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)



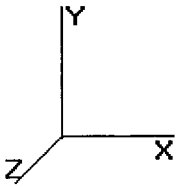
Load Case: Ice — 77.94 mph Wind with Ice — 24 Iterations

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

Calculated Stresses

Seg Elev (ft)	Applied Stresses Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)	Allowable Stress (Fb) (ksi)		Stress Ratio
0.00	0.51	1.08	0.00	0.00	0.00	34.05	34.60	52.0	0.0	0.666
5.00	0.49	1.08	0.00	0.00	0.00	33.27	33.82	52.0	0.0	0.650
10.00	0.48	1.09	0.00	0.00	0.00	32.47	33.00	52.0	0.0	0.635
15.00	0.46	1.10	0.00	0.00	0.00	31.62	32.14	52.0	0.0	0.618
20.00	0.44	1.11	0.00	0.00	0.00	30.75	31.25	52.0	0.0	0.601
25.00	0.43	1.12	0.00	0.00	0.00	29.83	30.32	52.0	0.0	0.583
30.00	0.41	1.12	0.00	0.00	0.00	28.88	29.35	52.0	0.0	0.565
31.50	0.41	1.13	0.00	0.00	0.00	28.59	29.06	52.0	0.0	0.559
35.00	0.39	1.13	0.00	0.00	0.00	27.40	27.86	52.0	0.0	0.536
35.67	0.42	1.33	0.00	0.00	0.00	29.08	29.58	52.0	0.0	0.569
40.00	0.40	1.34	0.00	0.00	0.00	28.09	28.59	52.0	0.0	0.550
45.00	0.39	1.35	0.00	0.00	0.00	26.92	27.40	52.0	0.0	0.527
50.00	0.37	1.35	0.00	0.00	0.00	25.70	26.17	52.0	0.0	0.503
55.00	0.35	1.36	0.00	0.00	0.00	24.44	24.91	52.0	0.0	0.479
60.00	0.33	1.37	0.00	0.00	0.00	23.15	23.60	52.0	0.0	0.454
60.00	0.45	1.37	0.00	0.00	0.00	32.33	32.87	52.0	0.0	0.632
65.00	0.44	1.37	0.00	0.00	0.00	30.59	31.11	52.0	0.0	0.598
69.00	0.42	1.33	0.00	0.00	0.00	29.14	29.65	52.0	0.0	0.570
70.00	0.41	1.33	0.00	0.00	0.00	28.80	29.30	52.0	0.0	0.564
70.00	0.41	1.33	0.00	0.00	0.00	28.80	29.30	52.0	0.0	0.564
73.50	0.45	1.63	0.00	0.00	0.00	29.53	30.11	52.0	0.0	0.579
75.00	0.44	1.64	0.00	0.00	0.00	28.93	29.51	52.0	0.0	0.567
80.00	0.42	1.64	0.00	0.00	0.00	26.86	27.43	52.0	0.0	0.528
85.00	0.40	1.65	0.00	0.00	0.00	24.73	25.29	52.0	0.0	0.486
90.00	0.39	1.66	0.00	0.00	0.00	22.52	23.09	52.0	0.0	0.444
93.00	0.37	1.63	0.00	0.00	0.00	21.15	21.70	52.0	0.0	0.417
95.00	0.36	1.63	0.00	0.00	0.00	20.26	20.81	52.0	0.0	0.400
100.00	0.34	1.63	0.00	0.00	0.00	17.98	18.54	52.0	0.0	0.356
103.00	0.32	1.57	0.00	0.00	0.00	16.51	17.05	52.0	0.0	0.328
105.00	0.31	1.58	0.00	0.00	0.00	15.62	16.16	52.0	0.0	0.311
110.00	0.29	1.58	0.00	0.00	0.00	13.32	13.89	52.0	0.0	0.267
110.00	0.29	1.58	0.00	0.00	0.00	13.32	13.89	52.0	0.0	0.267
110.00	0.33	2.10	0.00	0.00	0.00	14.33	15.11	52.0	0.0	0.291
113.00	0.27	1.66	0.00	0.00	0.00	12.80	13.38	52.0	0.0	0.257
115.00	0.26	1.66	0.00	0.00	0.00	12.02	12.61	52.0	0.0	0.243
120.00	0.24	1.65	0.00	0.00	0.00	10.03	10.65	52.0	0.0	0.205
120.00	0.56	1.65	0.00	0.00	0.00	46.87	47.51	52.0	0.0	0.914
125.00	0.55	1.65	0.00	0.00	0.00	39.79	40.44	52.0	0.0	0.778
130.00	0.51	1.31	0.00	0.00	0.00	31.73	32.32	52.0	0.0	0.622
135.00	0.51	1.31	0.00	0.00	0.00	25.01	25.62	52.0	0.0	0.493
140.00	0.36	0.98	0.00	0.00	0.00	17.29	17.73	52.0	0.0	0.341
145.00	0.36	0.96	0.00	0.00	0.00	11.09	11.57	52.0	0.0	0.222
150.00	0.00	0.93	0.00	0.00	0.00	4.01	4.32	52.0	0.0	0.083

Pole :	302484	Code: TIA/EIA-222 Rev F	10/25/2011 4:51:42 PM
Location :	Branford CT 6, CT		Page: 16
Height :	150.0 (ft)		
Base Dia :	37.38 (in)		
Top Dia :	15.00 (in)	Base Elev : 0.000 (ft)	
Shape :	12 Sides		
Taper :	0.156705 (in/ft)		



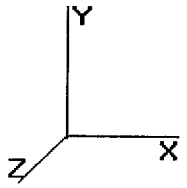
Load Case: Twist/Sway — 50.00 mph Wind with No Ice — 23 Iterations

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	155.75	1.030	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		0.00	1.00	6.400	10.81	152.48	1.030	0.000	5.00	15.412	15.87	171.7	0.0	1,296.2
10.00		0.00	1.00	6.400	10.81	149.22	1.030	0.000	5.00	15.085	15.54	168.1	0.0	1,280.1
15.00		0.00	1.00	6.400	10.81	145.95	1.030	0.000	5.00	14.759	15.20	164.4	0.0	1,264.0
20.00		0.00	1.00	6.400	10.81	142.69	1.030	0.000	5.00	14.432	14.87	160.8	0.0	1,247.9
25.00		0.00	1.00	6.400	10.81	139.42	1.030	0.000	5.00	14.106	14.53	157.1	0.0	1,231.8
30.00		0.00	1.00	6.400	10.81	136.16	1.030	0.000	5.00	13.779	14.19	153.5	0.0	1,215.7
31.50	Bot - Section 2	0.00	1.00	6.400	10.81	135.18	1.030	0.000	1.50	4.079	4.20	45.4	0.0	362.4
35.00		0.00	1.01	6.509	10.99	134.01	1.030	0.000	3.50	9.556	9.84	108.3	0.0	1,226.8
35.67	Top - Section 1	0.00	1.02	6.544	11.05	133.94	1.030	0.000	0.67	1.813	1.87	20.6	0.0	233.4
40.00		0.00	1.05	6.762	11.42	135.92	1.030	0.000	4.33	11.574	11.92	136.2	0.0	942.8
45.00		0.00	1.09	6.993	11.81	134.81	1.030	0.000	5.00	13.061	13.45	159.0	0.0	1,076.1
50.00		0.00	1.12	7.207	12.17	133.40	1.030	0.000	5.00	12.734	13.12	159.7	0.0	1,062.7
55.00		0.00	1.15	7.406	12.51	131.71	1.030	0.000	5.00	12.408	12.78	160.0	0.0	1,049.3
60.00	Reinf. Top	0.00	1.18	7.592	12.83	129.80	1.030	0.000	5.00	12.081	12.44	159.7	0.0	1,035.8
65.00		0.00	1.21	7.768	13.12	127.70	1.030	0.000	5.00	11.755	12.11	158.9	0.0	750.4
69.00	Appertunance(s)	0.00	1.23	7.901	13.35	125.89	1.030	0.000	4.00	9.169	9.44	126.1	0.0	590.6
70.00		0.00	1.24	7.934	13.40	125.42	1.030	0.000	1.00	2.260	2.33	31.2	0.0	146.3
70.00	Bot - Section 3	0.00	1.24	7.934	13.40	125.42	1.030	0.000	0.00	0.008	0.01	0.1	0.0	0.5
73.50	Top - Section 2	0.00	1.25	8.045	13.59	123.74	1.030	0.000	3.50	7.951	8.19	111.4	0.0	766.8
75.00		0.00	1.26	8.092	13.67	125.34	1.030	0.000	1.50	3.351	3.45	47.2	0.0	190.6
80.00		0.00	1.28	8.242	13.93	122.79	1.030	0.000	5.00	10.984	11.31	157.6	0.0	629.6
85.00		0.00	1.31	8.387	14.17	120.13	1.030	0.000	5.00	10.657	10.98	155.6	0.0	618.9
90.00		0.00	1.33	8.525	14.40	117.34	1.030	0.000	5.00	10.331	10.64	153.3	0.0	608.2
93.00	Appertunance(s)	0.00	1.34	8.605	14.54	115.62	1.030	0.000	3.00	6.042	6.22	90.5	0.0	359.7
95.00		0.00	1.35	8.657	14.63	114.46	1.030	0.000	2.00	3.963	4.08	59.7	0.0	237.7
100.0		0.00	1.37	8.785	14.84	111.47	1.030	0.000	5.00	9.678	9.97	148.0	0.0	586.7
103.0	Appertunance(s)	0.00	1.38	8.860	14.97	109.64	1.030	0.000	3.00	5.650	5.82	87.1	0.0	346.9
105.0		0.00	1.39	8.908	15.05	108.40	1.030	0.000	2.00	3.701	3.81	57.4	0.0	229.1
110.0		0.00	1.41	9.028	15.25	105.25	1.030	0.000	5.00	9.025	9.30	141.8	0.0	565.2
110.0	Top - Section 3	0.00	1.41	9.028	15.25	105.24	1.030	0.000	0.00	0.006	0.01	0.1	0.0	0.4
113.0	Appertunance(s)	0.00	1.42	9.097	15.37	103.32	1.030	0.000	3.00	5.252	5.41	83.2	0.0	291.7
115.0		0.00	1.42	9.143	15.45	102.01	1.030	0.000	2.00	3.440	3.54	54.8	0.0	193.1
120.0	Reinf. Top	0.00	1.44	9.255	15.64	98.715	1.030	0.000	5.00	8.372	8.62	134.9	0.0	477.0
125.0		0.00	1.46	9.363	15.82	95.343	1.030	0.000	5.00	8.046	8.29	131.1	0.0	196.9
130.0	Appertunance(s)	0.00	1.48	9.469	16.00	91.908	1.030	0.000	5.00	7.719	7.95	127.2	0.0	188.9
135.0		0.00	1.49	9.572	16.17	88.412	1.030	0.000	5.00	7.393	7.61	123.2	0.0	180.8
140.0	Appertunance(s)	0.00	1.51	9.672	16.34	84.859	1.030	0.000	5.00	7.066	7.28	119.0	0.0	172.7
145.0		0.00	1.52	9.769	16.51	81.252	1.030	0.000	5.00	6.740	6.94	114.6	0.0	164.7
150.0	Appertunance(s)	0.00	1.54	9.864	16.67	77.594	1.030	0.000	5.00	6.413	6.61	110.1	0.0	156.6
							Totals:		150.00			4,448.7	0.0	23,175.0

Pole :	302484	Code: TIA/EIA-222 Rev F	10/25/2011 4:51:42 PM
Location :	Branford CT 6, CT		Page: 17
Height :	150.0 (ft)		
Base Dia :	37.38 (in)		
Top Dia :	15.00 (in)	Base Elev : 0.000 (ft)	
Shape :	12 Sides		
Taper :	0.156705 (in/ft)		

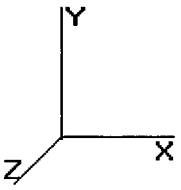


Load Case: Twist/Sway — 50.00 mph Wind with No Ice — 23 Iterations

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)
69.00	Channel Master 1.2 M	1	7.901	13.353	1.00	20.91	0.000	0.000	279.22	0.00	0.00	188.00
93.00	Decibel DB408	1	8.727	14.749	1.00	2.70	0.000	4.710	39.82	0.00	187.56	28.00
93.00	Standoff	1	8.605	14.542	1.00	2.50	0.000	0.000	36.36	0.00	0.00	200.00
103.0	Decibel DB408	2	8.974	15.165	1.00	5.94	0.000	4.710	90.08	0.00	424.28	34.00
103.0	Standoff	1	8.860	14.973	1.00	2.50	0.000	0.000	37.43	0.00	0.00	200.00
113.0	Antel BXA-171085-8BF	3	9.097	15.374	0.84	7.42	0.000	0.000	114.06	0.00	0.00	30.00
113.0	Antel BXA-70063/6CF_	3	9.097	15.374	0.70	16.23	0.000	0.000	249.57	0.00	0.00	51.00
113.0	RFS APL866513-42T0	2	9.097	15.374	0.93	7.98	0.000	0.000	122.76	0.00	0.00	36.00
113.0	RFS APL868013-12T0	4	9.097	15.374	0.87	12.98	0.000	0.000	199.57	0.00	0.00	25.20
113.0	RFS FD9R6004/1C-3L	6	9.097	15.374	0.50	1.11	0.000	0.000	17.07	0.00	0.00	18.60
113.0	T-Arm	3	9.097	15.374	0.67	10.05	0.000	0.000	154.51	0.00	0.00	999.00
130.0	12" x 12" Junction B	1	9.469	16.003	1.00	1.40	0.000	0.000	22.40	0.00	0.00	10.00
130.0	Argus LLPX310R	3	9.469	16.003	0.69	10.00	0.000	0.000	160.00	0.00	0.00	85.80
130.0	Clearwire Mount	1	9.469	16.003	1.00	8.50	0.000	0.000	136.02	0.00	0.00	40.00
130.0	DragonWave A-ANT-	1	9.469	16.003	1.00	8.43	0.000	0.000	134.90	0.00	0.00	47.60
130.0	DragonWave A-ANT-	1	9.469	16.003	1.00	1.61	0.000	0.000	25.76	0.00	0.00	15.00
130.0	DragonWave Horizon	2	9.469	16.003	1.00	0.86	0.000	0.000	13.76	0.00	0.00	21.20
130.0	NextNet BTS-2500	3	9.469	16.003	0.72	4.58	0.000	0.000	73.28	0.00	0.00	105.00
140.0	RFS APXV18-206516L-	3	9.672	16.345	0.67	6.83	0.000	0.000	111.70	0.00	0.00	42.00
140.0	RFS APXV18-206516S-	3	9.672	16.345	0.67	7.04	0.000	0.000	114.99	0.00	0.00	56.10
140.0	RFS ATMAA1412D-	3	9.672	16.345	0.50	1.75	0.000	0.000	28.69	0.00	0.00	39.00
140.0	RFS ATMAP1412D-	3	9.672	16.345	0.50	1.75	0.000	0.000	28.68	0.00	0.00	39.00
140.0	T-Arm	3	9.672	16.345	0.67	10.05	0.000	0.000	164.27	0.00	0.00	999.00
150.0	4' Omni	1	10.030	16.950	1.00	1.50	0.000	9.000	25.43	0.00	228.83	5.00
150.0	ADC DD1900	6	9.920	16.765	0.50	4.02	0.000	3.000	67.40	0.00	202.19	90.00
150.0	Decibel DB408	2	10.030	16.950	1.00	5.94	0.000	9.000	100.68	0.00	906.16	34.00
150.0	Diplexer	3	9.920	16.765	0.67	1.00	0.000	3.000	16.85	0.00	50.55	30.00
150.0	GPS	1	9.864	16.670	1.00	0.60	0.000	0.000	10.00	0.00	0.00	1.50
150.0	Platform w/ Rails	1	9.864	16.670	1.00	26.00	0.000	0.000	433.43	0.00	0.00	1,950.00
150.0	Powerwave 7770.00	6	9.920	16.765	0.73	25.75	0.000	3.000	431.77	0.00	1,295.32	210.00
150.0	Yagi	1	9.975	16.858	1.00	4.00	0.000	6.000	67.43	0.00	404.60	45.00
									3,507.90			5,675.00



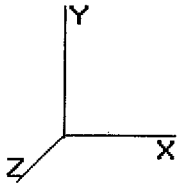
Load Case: Twist/Sway — 50.00 mph Wind with No Ice — 23 Iterations

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

Linear Appurtenance Segment Forces

Seg Top Elev (ft)	Description	Exposed To Wind	Length (ft)	Weight (lb/ft)	CaAa (sf/ft)	qz (psf)	FX (lb)	Dead Load (lb)
5.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	6.400	10.82	49.20
10.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	6.400	10.82	49.20
15.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	6.400	10.82	49.20
20.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	6.400	10.82	49.20
25.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	6.400	10.82	49.20
30.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	6.400	10.82	49.20
31.50	(12) 1 5/8" Coax	Yes	1.50	9.84	0.20	6.400	3.25	14.79
35.00	(12) 1 5/8" Coax	Yes	3.50	9.84	0.20	6.509	7.69	34.41
35.67	(12) 1 5/8" Coax	Yes	0.67	9.84	0.20	6.544	1.48	6.59
40.00	(12) 1 5/8" Coax	Yes	4.33	9.84	0.20	6.762	9.90	42.61
45.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	6.993	11.82	49.20
50.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	7.207	12.18	49.20
55.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	7.406	12.52	49.20
60.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	7.592	12.83	49.20
65.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	7.768	13.13	49.20
69.00	(12) 1 5/8" Coax	Yes	4.00	9.84	0.20	7.901	10.68	39.36
70.00	(12) 1 5/8" Coax	Yes	1.00	9.84	0.20	7.934	2.68	9.84
70.00	(12) 1 5/8" Coax	Yes	0.00	9.84	0.20	7.934	0.01	0.03
73.50	(12) 1 5/8" Coax	Yes	3.50	9.84	0.20	8.045	9.52	34.44
75.00	(12) 1 5/8" Coax	Yes	1.50	9.84	0.20	8.092	4.09	14.73
80.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	8.242	13.93	49.20
85.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	8.387	14.17	49.20
90.00	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	8.525	14.41	49.20
93.00	(12) 1 5/8" Coax	Yes	3.00	9.84	0.20	8.605	8.73	29.52
95.00	(12) 1 5/8" Coax	Yes	2.00	9.84	0.20	8.657	5.85	19.68
100.0	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	8.785	14.85	49.20
103.0	(12) 1 5/8" Coax	Yes	3.00	9.84	0.20	8.860	8.98	29.52
105.0	(12) 1 5/8" Coax	Yes	2.00	9.84	0.20	8.908	6.02	19.68
110.0	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	9.028	15.26	49.20
110.0	(12) 1 5/8" Coax	Yes	0.00	9.84	0.20	9.028	0.01	0.03
113.0	(12) 1 5/8" Coax	Yes	3.00	9.84	0.20	9.097	9.21	29.49
115.0	(12) 1 5/8" Coax	Yes	2.00	9.84	0.20	9.143	6.18	19.68
120.0	(12) 1 5/8" Coax	Yes	5.00	9.84	0.20	9.255	15.64	49.20
125.0	(12) 1 5/8" Coax	Yes	3.00	9.84	0.20	9.363	9.49	29.52
						Totals:	319.41	1,210.32

Pole :	302484	Code: TIA/EIA-222 Rev F	10/25/2011 4:51:42 PM
Location :	Branford CT 6, CT		Page: 19
Height :	150.0 (ft)		
Base Dia :	37.38 (in)		
Top Dia :	15.00 (in)	Base Elev : 0.000 (ft)	
Shape :	12 Sides		
Taper :	0.156705 (in/ft)		



Load Case: Twist/Sway — 50.00 mph Wind with No Ice — 23 Iterations

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

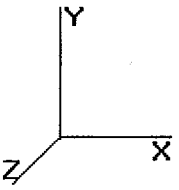
Applied Segment Forces Summary

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	182.51	1,393.07	0.00	0.00
10.00	178.87	1,376.97	0.00	0.00
15.00	175.24	1,360.87	0.00	0.00
20.00	171.60	1,344.78	0.00	0.00
25.00	167.96	1,328.68	0.00	0.00
30.00	164.33	1,312.58	0.00	0.00
31.50	48.70	391.50	0.00	0.00
35.00	115.96	1,294.51	0.00	0.00
35.67	22.13	246.39	0.00	0.00
40.00	146.13	1,026.69	0.00	0.00
45.00	170.80	1,173.02	0.00	0.00
50.00	171.93	1,159.58	0.00	0.00
55.00	172.47	1,146.15	0.00	0.00
60.00	172.49	1,132.71	0.00	0.00
65.00	172.07	847.27	0.00	0.00
69.00	416.01	856.15	0.00	0.00
70.00	33.89	165.61	0.00	0.00
70.00	0.11	0.55	0.00	0.00
73.50	120.87	834.38	0.00	0.00
75.00	51.30	219.43	0.00	0.00
80.00	171.52	726.10	0.00	0.00
85.00	169.75	715.37	0.00	0.00
90.00	167.71	704.64	0.00	0.00
93.00	175.40	645.63	0.00	187.56
95.00	65.57	275.61	0.00	0.00
100.0	162.85	681.52	0.00	0.00
103.0	223.63	637.76	0.00	424.28
105.0	63.42	265.71	0.00	0.00
110.0	157.08	656.76	0.00	0.00
110.0	0.10	0.43	0.00	0.00
113.0	949.93	1,506.35	0.00	0.00
115.0	60.93	218.33	0.00	0.00
120.0	150.52	540.19	0.00	0.00
125.0	140.63	245.36	0.00	0.00
130.0	693.36	539.75	0.00	0.00
135.0	123.17	206.10	0.00	0.00
140.0	567.29	1,373.13	0.00	0.00
145.0	114.61	177.66	0.00	0.00
150.0	1,263.11	2,535.09	0.00	3,087.64
Totals:	8,275.96	31,262.38	0.00	3,699.48

Pole : 302484
Location : Branford CT 6, CT
Height : 150.0 (ft)
Base Dia : 37.38 (in)
Top Dia : 15.00 (in)
Shape : 12 Sides
Taper : 0.156705 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)

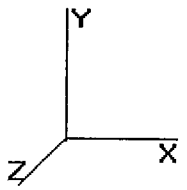


Load Case: Twist/Sway — 50.00 mph Wind with No Ice — 23 Iterations

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	-8.294	-31.257	0.000	0.000	0.000	-820.822	0.000	0.000	0.000	0.000
5.00	-8.146	-29.855	0.000	0.000	0.000	-779.353	-0.037	0.000	0.037	-0.068
10.00	-7.998	-28.469	0.000	0.000	0.000	-738.625	-0.144	0.000	0.144	-0.136
15.00	-7.850	-27.099	0.000	0.000	0.000	-698.635	-0.322	0.000	0.322	-0.203
20.00	-7.703	-25.746	0.000	0.000	0.000	-659.384	-0.571	0.000	0.571	-0.269
25.00	-7.556	-24.410	0.000	0.000	0.000	-620.869	-0.889	0.000	0.889	-0.335
30.00	-7.400	-23.093	0.000	0.000	0.000	-583.090	-1.275	0.000	1.275	-0.401
31.50	-7.362	-22.698	0.000	0.000	0.000	-571.965	-1.405	0.000	1.405	-0.421
35.00	-7.246	-21.401	0.000	0.000	0.000	-546.223	-1.730	0.000	1.730	-0.466
35.67	-7.233	-21.150	0.000	0.000	0.000	-541.369	-1.796	0.000	1.796	-0.475
40.00	-7.099	-20.118	0.000	0.000	0.000	-510.049	-2.252	0.000	2.252	-0.529
45.00	-6.938	-18.939	0.000	0.000	0.000	-474.554	-2.841	0.000	2.841	-0.593
50.00	-6.772	-17.774	0.000	0.000	0.000	-439.865	-3.496	0.000	3.496	-0.656
55.00	-6.604	-16.623	0.000	0.000	0.000	-406.004	-4.215	0.000	4.215	-0.717
60.00	-6.432	-15.486	0.000	0.000	0.000	-372.986	-4.998	0.000	4.998	-0.776
65.00	-6.264	-14.635	0.000	0.000	0.000	-340.826	-5.842	0.000	5.842	-0.833
69.00	-5.844	-13.781	0.000	0.000	0.000	-315.772	-6.567	0.000	6.567	-0.896
70.00	-5.809	-13.615	0.000	0.000	0.000	-309.928	-6.757	0.000	6.757	-0.911
70.00	-5.816	-13.612	0.000	0.000	0.000	-309.909	-6.757	0.000	6.757	-0.911
73.50	-5.689	-12.776	0.000	0.000	0.000	-289.554	-7.446	0.000	7.446	-0.965
75.00	-5.645	-12.552	0.000	0.000	0.000	-281.039	-7.752	0.000	7.752	-0.987
80.00	-5.476	-11.822	0.000	0.000	0.000	-252.813	-8.826	0.000	8.826	-1.062
85.00	-5.306	-11.104	0.000	0.000	0.000	-225.433	-9.978	0.000	9.978	-1.134
90.00	-5.134	-10.398	0.000	0.000	0.000	-198.903	-11.202	0.000	11.202	-1.201
93.00	-4.950	-9.754	0.000	0.000	0.000	-183.315	-11.970	0.000	11.970	-1.240
95.00	-4.885	-9.476	0.000	0.000	0.000	-173.415	-12.495	0.000	12.495	-1.265
100.0	-4.714	-8.795	0.000	0.000	0.000	-148.989	-13.852	0.000	13.852	-1.323
103.0	-4.479	-8.160	0.000	0.000	0.000	-134.423	-14.694	0.000	14.694	-1.355
105.0	-4.414	-7.894	0.000	0.000	0.000	-125.464	-15.266	0.000	15.266	-1.376
110.0	-4.244	-7.239	0.000	0.000	0.000	-103.393	-16.734	0.000	16.734	-1.423
110.0	-4.246	-7.238	0.000	0.000	0.000	-103.379	-16.735	0.000	16.735	-1.423
113.0	-3.261	-5.755	0.000	0.000	0.000	-90.656	-17.636	0.000	17.636	-1.448
115.0	-3.197	-5.536	0.000	0.000	0.000	-84.135	-18.247	0.000	18.247	-1.465
120.0	-3.035	-4.998	0.000	0.000	0.000	-68.151	-19.802	0.000	19.802	-1.503
125.0	-2.895	-4.753	0.000	0.000	0.000	-52.974	-21.394	0.000	21.394	-1.535
130.0	-2.196	-4.228	0.000	0.000	0.000	-38.498	-23.073	0.000	23.073	-1.663
135.0	-2.073	-4.022	0.000	0.000	0.000	-27.519	-24.874	0.000	24.874	-1.768
140.0	-1.466	-2.666	0.000	0.000	0.000	-17.154	-26.772	0.000	26.772	-1.850
145.0	-1.347	-2.491	0.000	0.000	0.000	-9.825	-28.741	0.000	28.741	-1.906
150.0	-1.263	0.000	0.000	0.000	0.000	-3.088	-30.757	0.000	30.757	-1.937

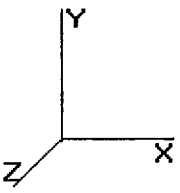


Load Case: Twist/Sway — 50.00 mph Wind with No Ice — 23 Iterations

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

Calculated Stresses

Seg Elev (ft)	Applied Stresses Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)	Allowable Stress (Fb) (ksi)		Stress Ratio
0.00	0.41	0.38	0.00	0.00	0.00	11.38	11.80	52.0	0.0	0.227
5.00	0.39	0.38	0.00	0.00	0.00	11.09	11.51	52.0	0.0	0.221
10.00	0.38	0.38	0.00	0.00	0.00	10.80	11.20	52.0	0.0	0.215
15.00	0.37	0.38	0.00	0.00	0.00	10.49	10.88	52.0	0.0	0.209
20.00	0.35	0.38	0.00	0.00	0.00	10.17	10.55	52.0	0.0	0.203
25.00	0.34	0.38	0.00	0.00	0.00	9.85	10.21	52.0	0.0	0.196
30.00	0.33	0.39	0.00	0.00	0.00	9.51	9.85	52.0	0.0	0.190
31.50	0.32	0.39	0.00	0.00	0.00	9.40	9.75	52.0	0.0	0.187
35.00	0.31	0.39	0.00	0.00	0.00	9.00	9.33	52.0	0.0	0.179
35.67	0.33	0.45	0.00	0.00	0.00	9.54	9.90	52.0	0.0	0.190
40.00	0.32	0.46	0.00	0.00	0.00	9.20	9.55	52.0	0.0	0.184
45.00	0.30	0.46	0.00	0.00	0.00	8.79	9.12	52.0	0.0	0.175
50.00	0.29	0.46	0.00	0.00	0.00	8.37	8.69	52.0	0.0	0.167
55.00	0.27	0.46	0.00	0.00	0.00	7.93	8.24	52.0	0.0	0.159
60.00	0.26	0.46	0.00	0.00	0.00	7.49	7.78	52.0	0.0	0.150
60.00	0.35	0.46	0.00	0.00	0.00	10.46	10.84	52.0	0.0	0.208
65.00	0.33	0.46	0.00	0.00	0.00	9.86	10.23	52.0	0.0	0.197
69.00	0.32	0.44	0.00	0.00	0.00	9.37	9.72	52.0	0.0	0.187
70.00	0.32	0.44	0.00	0.00	0.00	9.25	9.60	52.0	0.0	0.185
70.00	0.32	0.44	0.00	0.00	0.00	9.25	9.60	52.0	0.0	0.185
73.50	0.34	0.54	0.00	0.00	0.00	9.47	9.86	52.0	0.0	0.190
75.00	0.34	0.54	0.00	0.00	0.00	9.27	9.65	52.0	0.0	0.186
80.00	0.32	0.54	0.00	0.00	0.00	8.59	8.96	52.0	0.0	0.172
85.00	0.31	0.54	0.00	0.00	0.00	7.88	8.24	52.0	0.0	0.159
90.00	0.29	0.54	0.00	0.00	0.00	7.16	7.51	52.0	0.0	0.144
93.00	0.28	0.53	0.00	0.00	0.00	6.71	7.05	52.0	0.0	0.136
95.00	0.27	0.53	0.00	0.00	0.00	6.42	6.76	52.0	0.0	0.130
100.00	0.26	0.53	0.00	0.00	0.00	5.68	6.01	52.0	0.0	0.116
103.00	0.24	0.51	0.00	0.00	0.00	5.22	5.53	52.0	0.0	0.106
105.00	0.24	0.51	0.00	0.00	0.00	4.92	5.23	52.0	0.0	0.101
110.00	0.22	0.51	0.00	0.00	0.00	4.17	4.48	52.0	0.0	0.086
110.00	0.22	0.51	0.00	0.00	0.00	4.17	4.48	52.0	0.0	0.086
110.00	0.25	0.68	0.00	0.00	0.00	4.49	4.88	52.0	0.0	0.094
113.00	0.20	0.53	0.00	0.00	0.00	4.00	4.30	52.0	0.0	0.083
115.00	0.20	0.53	0.00	0.00	0.00	3.75	4.05	52.0	0.0	0.078
120.00	0.18	0.52	0.00	0.00	0.00	3.11	3.41	52.0	0.0	0.066
120.00	0.42	0.52	0.00	0.00	0.00	14.53	14.98	52.0	0.0	0.288
125.00	0.42	0.52	0.00	0.00	0.00	12.26	12.71	52.0	0.0	0.244
130.00	0.39	0.41	0.00	0.00	0.00	9.71	10.12	52.0	0.0	0.195
135.00	0.39	0.41	0.00	0.00	0.00	7.59	8.01	52.0	0.0	0.154
140.00	0.27	0.30	0.00	0.00	0.00	5.20	5.49	52.0	0.0	0.106
145.00	0.26	0.29	0.00	0.00	0.00	3.29	3.59	52.0	0.0	0.069
150.00	0.00	0.29	0.00	0.00	0.00	1.15	1.25	52.0	0.0	0.024



Analysis Summary

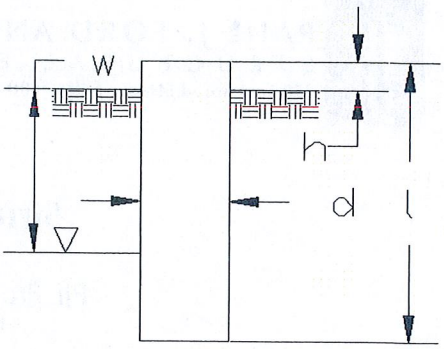
	Reactions						Max Stresses			
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
No Ice	26.9	0.00	31.21	0.00	0.00	2656.50	47.33	52.0	120.00	0.910
Ice	23.7	0.00	38.91	0.00	0.00	2456.16	47.51	52.0	120.00	0.914
Twist/Sway	8.3	0.00	31.26	0.00	0.00	820.82	14.98	52.0	120.00	0.288

Additional Steel Summary

			Intermediate Connectors			Upper Termination Connectors				Lower Termination Connectors				Max Member		
Elev From (ft)	Elev To (ft)	Member	VQ/I (lb/in)	Shear Applied (kips)	Shear Allow (kips)	MQ/I (kips)	Allow (kips)	Num Reqd	Num Actual	MQ/I (kips)	Allow (kips)	Num Reqd	Num Actual	fb (ksi)	Fb (ksi)	Ratio
0.00	60.0	(4) SOL-#18 All Thre	166.7	5.0	12.9	115.8	8.1	15	18	0.0	8.1	0	0	44.8	53.6	0.835
0.00	120.	(4) SOL-#18 All Thre	292.8	8.8	12.9	63.8	8.1	8	10	0.0	8.1	0	0	50.4	53.6	0.940

Site Name:	**Branford CT 6, CT**
Site Number:	**302484**
Engineer:	**R. Keith**
Engineering Number:	**48071222**
Date:	**10/25/2011**

Program Last 5/26/2010
American Tower Corporation



Design Base Loads (Unfactored) - Analysis per TIA-222-F Standards

Foundation Mapped:	Y	
Moment (M):	2656.5	k-ft
Shear/Leg (V):	26.9	k
Compression/Leg (P):	31.2	k
Uplift/Leg (U):	0.0	k
Tower Type (GT / SST / MP):	MP	
Diameter of Caisson (d):	5.0	ft
Caisson Embedment (L-h):	22.0	ft
Caisson Height Above Ground (h):	0.5	ft
Depth Below Ground Surface to Water Table (w):	4.0	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Water:	62.4	pcf
Tension Skin Friction/Compression Skin Friction:	1.00	
Pullout Angle:	30.0	degrees

Soil Mechanical Properties

Depth (ft) Top	Depth (ft) Bottom	γ_{Soil} (pcf)	Cohesion (psf)	ϕ (degree)	Allowable Skin Friction (psf)	Allowable Bearing Pressure (psf)
0.0	5.0	125	0	30	100	2000
5.0	7.0	125	0	33	100	2000
7.0	23.0	125	8000	40	100	4000
23.0	28.0	125	8000	40	100	4000

Required Embedment:	14.4	ft - OK, Caisson Embedment Satisfactor
Volume of Concrete:	441.8 ft^3 =	16.4 yd^3
Weight of Concrete (Buoyancy Effect Considered):	44.2	k
Average Soil Unit Weight:	73.9	pcf
Skin Friction Resistance:	34.6	k
Compressive Bearing Resistance:	78.5	k
Pullout Weight (Minus Concrete Weight):	437.1	k
Allowable Uplift Capacity (U_{Allow}):	69.9	k
Allowable Compressive Capacity (P_{Allow}):	113.1	k
Compressive Design Load (P):	42.0	k
U / U_{Allow}:	0.00	Result: OK
P / P_{Allow}:	0.37	Result: OK
Total Lateral Resistance:	8682.2	k
Inflection Point (Below Ground Surface):	15.1	ft
Design Overturning Moment At Inflection Point (M_D):	3076.9	k-ft
Nominal Moment Capacity (M_{Allow}):	30823.4	k-ft
M_{Allow} / M_D Factor of Safety:	10.02	Result: OK

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street · Suite 1500 · Columbus, Ohio 43215

Structural Analysis Report

PJF Project No.: **29207-122**
PennSummit: 70071 / 21533

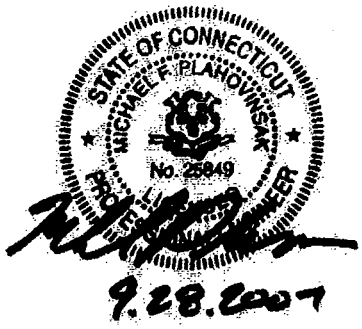
Structure: Existing 149-ft Monopole

Owner: AT&T Wireless
Manufacturer: PennSummit Tubular, LLC (2004)
Location: New Haven Co., Connecticut
Site Name: Seymour West

Prepared For:

Natcomm, Inc.
63-2 North Branford Road
Branford, CT 06405
Attn: Dan Bolan

September 28, 2007



Analyzed by:
Michael F. Plahovinsak, P.E.
Project Manager
mplahovinsak@pjfweb.com

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 1500 • Columbus, Ohio 43215

Executive Summary

Design Standard:

Paul J. Ford and Company has analyzed the existing monopole in accordance with the 2000-2006 International Building Code and the Telecommunications Industry Association Standard TIA/EIA-222-F for the following *fastest mile* design wind velocities:

80 mph Basic Wind Velocity without ice
69 mph Basic Wind Velocity with 1/2" radial ice
50 mph (Operational) Basic Wind Velocity without ice

Antenna Loads:

The existing monopole was analyzed for the following antenna loading:

Status	Elevation	Description	Coax	Owner
Existing	150'	(6) Allgon 7920 Panel Flush Mounts	(6) 1 5/8"	Cingular
Existing	140'	(6) Allgon 7920 Panel Flush Mounts	(6) 1 5/8"	Cingular
Existing	130'	(3) RFS APX16DWV-16DWV Panel w/ (12) TMA Flush Mounts	(12) 1 5/8"	T-Mobile
Proposed	120'	(3) Antel BXA-80080/6 + (3) 185085/12 w/ (3) TMA Flush Mounts	(6) 1 5/8"	Verizon
Existing	109'	<empty> Flush Mounts		Future
Existing	99'	<empty> Flush Mounts		Future

Coaxial cable for this analysis was assumed internally mounted and not exposed to the wind.

Results:

The monopole and foundation have sufficient capacity to support the above antenna loading while meeting the local minimum wind requirements.

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Project Description:

Paul J. Ford and Company has analyzed the existing monopole in accordance with the 2000-2006 International Building Code (Sec. 3108.4) and the Telecommunications Industry Association / Electronic Industry Association, TIA/EIA-222-F, "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures." The TIA/EIA standard was developed by professional engineers experienced in the design of communication structures.

Pole History:

Paul J. Ford and Company designed the monopole and foundation for PennSummit Tubular, LLC in 2004 per PJF #29205-063. The monopole was designed in accordance with TIA/EIA-222-F for an 85 mph design wind for the following antenna loading:

Elevation	Description
149'	(6) Allgon 7820 Panel 10' T-Arm Mounts
139'	(9) 48" x 12" x 3" Panel 10' T-Arm Mounts
129'	(9) 48" x 12" x 3" Panel 10' T-Arm Mounts
119'	(9) 48" x 12" x 3" Panel 10' T-Arm Mounts
109'	(6) 48" x 12" x 3" Panel Tri-Arm Support Assembly
99'	(6) 48" x 12" x 3" Panel Tri-Arm Support Assembly

Paul J. Ford and Company completed a subsequent analysis of the structure in 2006 per PJF #31206-105.

Structural Analysis:

Our analysis was completed according to the requirements of the 2000-2006 International Building Code (Sec. 3108.4) and the recommendations of the TIA/EIA-222-F 1996. This standard recommends a minimum design wind velocity of 80 mph (no ice) for New Haven County. If ice accumulation is considered, the TIA/EIA standard allows the design wind pressure reduced by 25% in conjunction with ½" radial ice. Our analysis was completed in compliance with the minimum wind requirements under the following load cases:

80 mph Basic Wind Velocity without ice
69 mph Basic Wind Velocity with 1/2" radial ice
50 mph (Operational) Basic Wind Velocity without ice

Existing & Proposed Antenna Loading:

Our analysis was completed using the following existing and proposed antenna loading:

Status	Elevation	Description	Coax	Owner
Existing	150'	(6) Allgon 7920 Panel Flush Mounts	(6) 1 5/8"	Cingular
Existing	140'	(6) Allgon 7920 Panel Flush Mounts	(6) 1 5/8"	Cingular
Existing	130'	(3) RFS APX16DWV-16DWV Panel w/ (12) TMA Flush Mounts	(12) 1 5/8"	T-Mobile
Proposed	120'	(3) Antel BXA-80080/6 + (3) 185085/12 w/ (3) TMA Flush Mounts	(6) 1 5/8"	Verizon
Existing	109'	<empty> Flush Mounts		Future
Existing	99'	<empty> Flush Mounts		Future

Coaxial cable for this analysis was assumed internally mounted and not exposed to the wind.

Results:

When the new antenna configuration is considered, the monopole has the following stress characteristics under the minimum wind criteria:

Member	Percent Capacity
Shaft #1	26.2%
Shaft #2	51.6%
Shaft #3	54.8%
Shaft #4	51.7%
Base Plate	33.8%
Anchor Bolts	54.4%

The existing pad & pier foundation has sufficient capacity to support the new loading while maintaining the minimum required safety factors. ☑

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Conclusion:

The existing monopole and foundation have sufficient capacity to support the new antenna loading while meeting the minimum wind requirements of this analysis.

If you have any questions concerning our analysis, or if we can be of further service to you, please feel free to contact us at (614) 221-6679.

Sincerely,

Paul J. Ford and Company

Michael F. Plahovinsak, P.E.
Project Manager

PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street • Suite 1500 • Columbus, Ohio 43215

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON EXISTING STRUCTURES BY PAUL J. FORD AND COMPANY

1. Paul J. Ford and Company has not made a field inspection to verify the monopole dimensions or the antenna/coax loading. If the existing conditions are not as represented on these sketches, we should be contacted immediately to reevaluate any conclusions stated in this report.

2. No allowance was made for any damaged, missing, or rusted monopole parts. The analysis of this pole assumes that no physical deterioration has occurred in any of the structural components of the pole and that all the pole members have the same capacity as the day the pole was erected.

3. It is not possible to have all of the very detailed information to perform a thorough analysis of every structural sub-component of an existing monopole. The structural analysis provided by Paul J. Ford and Company verifies the adequacy of the main structural members of the monopole. Paul J. Ford and Company provides a limited scope of service in that we cannot verify the adequacy of every weld, plate, connection detail, etc.

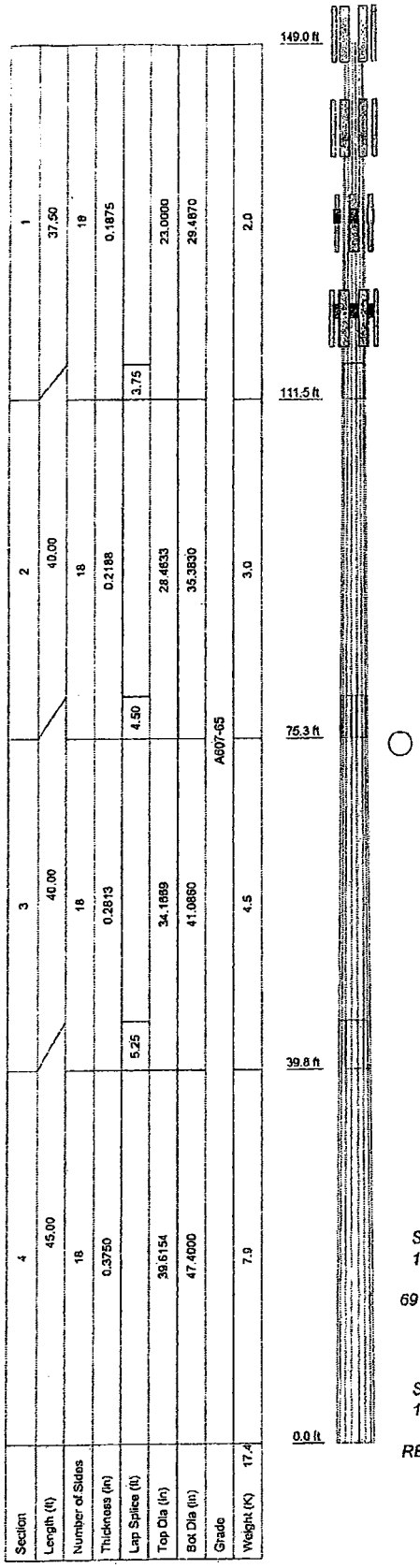
4. It is the owner's responsibility to determine the amount of ice accumulation, if any, that shall be used in the structural analysis.

5. The monopole has been analyzed according to the minimum basic design wind velocity recommended by the Electronics Industry Association Standard ANSI/EIA-222-F. If the owner or local or state agencies require a higher design wind velocity, Paul J. Ford and Company should be made aware of this requirement.

6. The enclosed sketches are a schematic representation of the monopole we have analyzed. If any material is fabricated from these sketches, the fabricator shall be responsible for field verifying the existing conditions and for proper fit and clearance in the field.

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

8. Installation of new hand hole ports and/or cable access ports will not reduce the structural capacity of the monopole shaft, if the hand hole frames and/or cable access ports are properly designed and installed in accordance to proper procedures. Paul J. Ford and Company recommends that new hand holes and/or cable access port hole frames be purchased from the original pole manufacturer. The new hand hole and/or cable access frames shall be installed per the original manufacturer's installation procedures. Paul J. Ford and Company will design and provide installation procedures for new hand holes and/or cable access ports if required, as an additional scope of services.



Section	1	2	3	4
Length (ft)	37.50	40.00	40.00	45.00
Number of Sides	18	18	18	18
Thickness (in)	0.1875	0.2188	0.2813	0.3750
Lap Splice (ft)	3.75	4.50	5.25	
Top Dia (in)	23.0000	28.4633	34.1889	39.6154
Bot Dia (in)	29.4870	35.3830	41.0860	47.4000
Grade			A607-65	
Weight (K)	2.0	3.0	4.5	7.9

17.4

DESIGNED APPURTENANCE LOADING

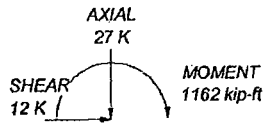
TYPE	ELEVATION	TYPE	ELEVATION
Allgon 7920.xx (Cingular)	150	(4) Remec G20057A1 (T-Mobile)	130
Allgon 7920.xx (Cingular)	150	RFS APX16DWV-16DWVL (T-Mobile)	130
Allgon 7920.xx (Cingular)	150	(4) Remec G20057A1 (T-Mobile)	130
Allgon 7920.xx (Cingular)	150	(3) Antenna Flush Mount	130
Allgon 7920.xx (Cingular)	150	Antel BXA-80080/6CF (Verizon)	120
Allgon 7920.xx (Cingular)	150	Antel BXA-185085/12CF (Verizon)	120
(3) Antenna Flush Mount	150	TMA (Verizon)	120
Allgon 7920.xx (Cingular)	140	Antel BXA-80080/6CF (Verizon)	120
Allgon 7920.xx (Cingular)	140	Antel BXA-185085/12CF (Verizon)	120
Allgon 7920.xx (Cingular)	140	TMA (Verizon)	120
Allgon 7920.xx (Cingular)	140	Antel BXA-80080/6CF (Verizon)	120
Allgon 7920.xx (Cingular)	140	Antel BXA-185085/12CF (Verizon)	120
(3) Antenna Flush Mount	140	TMA (Verizon)	120
RFS APX16DWV-16DWVL (T-Mobile)	130	(3) Antenna Flush Mount	120
(4) Remec G20057A1 (T-Mobile)	130	(3) Antenna Flush Mount	109
RFS APX16DWV-16DWVL (T-Mobile)	130	(3) 2.5" OD X 6' Antenna Mount Pipe	109
		(3) Antenna Flush Mount	99
		(3) 2.5" OD X 6' Antenna Mount Pipe	99

MATERIAL STRENGTH

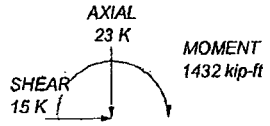
GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 54.8%



69 mph WIND - 0.5000 in ICE



REACTIONS - 80 mph WIND

Paul J Ford and Company
250 E. Broad Street Suite 1500
Columbus, OH 43215
Phone: 614.221.6679
FAX: 614.448.4105

Job: *149-ft Monopole / 29207-122*		
Project: *Seymour West*		
Client: PennSummit (70071 / 21533)	Drawn by: Michael Plahovinsak	App'd:
Code: TIA/EIA-222-F	Date: 09/28/07	Scale: NTS
Path: G:\TOWER\292 PennSummit\29207-122.eri		Dwg No. E-1

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

Tapered Pole Section Geometry

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
L1	149.00-111.50	37.50	3.75	18	23.0000	29.4870	0.1875	0.7500	A607-65 (65 ksi)
L2	111.50-75.25	40.00	4.50	18	28.4633	35.3830	0.2188	0.8752	A607-65 (65 ksi)
L3	75.25-39.75	40.00	5.25	18	34.1669	41.0860	0.2813	1.1250	A607-65 (65 ksi)
L4	39.75-0.00	45.00		18	39.6154	47.4000	0.3750	1.5000	A607-65 (65 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	Il/Q in^2	w in	w/t
L1	23.3548	13.5763	892.6152	8.0984	11.6840	76.3964	1786.4050	6.7894	3.7180	19.829
	29.9419	17.4369	1891.1513	10.4013	14.9794	126.2502	3784.7910	8.7201	4.8597	25.918
L2	29.5611	19.6150	1976.9394	10.0268	14.4594	136.7239	3956.4802	9.8094	4.6245	21.136
	35.9288	24.4205	3814.9945	12.4833	17.9746	212.2441	7635.0088	12.2126	5.8423	26.702
L3	35.4844	30.2493	4388.1924	12.0294	17.3568	252.8226	8782.1590	15.1275	5.5184	19.621
	41.7198	36.4259	7662.4750	14.4857	20.8717	367.1229	15335.0324	18.2164	6.7361	23.951
L4	41.1487	46.7059	9086.0476	13.9303	20.1246	451.4894	18184.0508	23.3574	6.3123	16.833
	48.1312	55.9715	15637.3103	16.6939	24.0792	649.4115	31295.1965	27.9911	7.6824	20.486

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 149.00-111.50				1	1	1		
L2 111.50-75.25				1	1	1		
L3 75.25-39.75				1	1	1		
L4 39.75-0.00				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft²/ft	Weight plf
LDF7-50A (1 5/8" foam) (Cingular) ***	C	No	Inside Pole	149.00 - 0.00	6	No Ice	0.00	0.92
						1/2" Ice	0.00	0.92
LDF7-50A (1 5/8" foam) (Cingular) ***	C	No	Inside Pole	140.00 - 0.00	6	No Ice	0.00	0.92
						1/2" Ice	0.00	0.92
LDF7-50A (1 5/8" foam) (T-Mobile) ***	C	No	Inside Pole	130.00 - 0.00	12	No Ice	0.00	0.92
						1/2" Ice	0.00	0.92
LDF7-50A (1 5/8" foam) (Verizon)	C	No	Inside Pole	120.00 - 0.00	6	No Ice	0.00	0.92
						1/2" Ice	0.00	0.92

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
L1	149.00-111.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.62
L2	111.50-75.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1.00
L3	75.25-39.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.98
L4	39.75-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1.10

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
L1	149.00-111.50	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
		C		0.000	0.000	0.000	0.000	0.62
L2	111.50-75.25	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1.00
L3	75.25-39.75	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.98
L4	39.75-0.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1.10

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight K
Allgon 7920.xx (Cingular)	A	From Face	1.00 1.00 0.00	0.0000	150.00	No Ice 1/2" Ice	7.95 8.39	2.07 2.39	0.06 0.10
Allgon 7920.xx (Cingular)	A	From Face	1.00 -1.00 0.00	0.0000	150.00	No Ice 1/2" Ice	7.95 8.39	2.07 2.39	0.06 0.10
Allgon 7920.xx (Cingular)	B	From Face	1.00 1.00 0.00	0.0000	150.00	No Ice 1/2" Ice	7.95 8.39	2.07 2.39	0.06 0.10
Allgon 7920.xx (Cingular)	B	From Face	1.00 -1.00 0.00	0.0000	150.00	No Ice 1/2" Ice	7.95 8.39	2.07 2.39	0.06 0.10
Allgon 7920.xx (Cingular)	C	From Face	1.00 1.00 0.00	0.0000	150.00	No Ice 1/2" Ice	7.95 8.39	2.07 2.39	0.06 0.10
Allgon 7920.xx (Cingular)	C	From Face	1.00 -1.00 0.00	0.0000	150.00	No Ice 1/2" Ice	7.95 8.39	2.07 2.39	0.06 0.10
(3) Antenna Flush Mount	C	None		0.0000	150.00	No Ice 1/2" Ice	0.30 0.40	0.30 0.40	0.02 0.02
***									
Allgon 7920.xx (Cingular)	A	From Face	1.00 1.00 0.00	0.0000	140.00	No Ice 1/2" Ice	7.95 8.39	2.07 2.39	0.06 0.10
Allgon 7920.xx (Cingular)	A	From Face	1.00 -1.00 0.00	0.0000	140.00	No Ice 1/2" Ice	7.95 8.39	2.07 2.39	0.06 0.10
Allgon 7920.xx (Cingular)	B	From Face	1.00 1.00 0.00	0.0000	140.00	No Ice 1/2" Ice	7.95 8.39	2.07 2.39	0.06 0.10
Allgon 7920.xx (Cingular)	B	From Face	1.00 -1.00 0.00	0.0000	140.00	No Ice 1/2" Ice	7.95 8.39	2.07 2.39	0.06 0.10
Allgon 7920.xx (Cingular)	C	From Face	1.00 1.00 0.00	0.0000	140.00	No Ice 1/2" Ice	7.95 8.39	2.07 2.39	0.06 0.10
Allgon 7920.xx	C	From Face	1.00	0.0000	140.00	No Ice	7.95	2.07	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(Cingular)			-1.00 0.00			1/2" Ice	8.39	2.39	0.10
(3) Antenna Flush Mount	C	None		0.0000	140.00	No Ice 1/2" Ice	0.30 0.40	0.30 0.40	0.02 0.02
***									
RFS APX16DWV-16DWVL (T-Mobile)	A	From Face	1.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	6.65 7.08	2.80 3.13	0.04 0.07
(4) Remec G20057A1 (T-Mobile)	A	From Face	1.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	0.82 0.95	0.39 0.49	0.01 0.02
RFS APX16DWV-16DWVL (T-Mobile)	B	From Face	1.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	6.65 7.08	2.80 3.13	0.04 0.07
(4) Remec G20057A1 (T-Mobile)	B	From Face	1.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	0.82 0.95	0.39 0.49	0.01 0.02
RFS APX16DWV-16DWVL (T-Mobile)	C	From Face	1.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	6.65 7.08	2.80 3.13	0.04 0.07
(4) Remec G20057A1 (T-Mobile)	C	From Face	1.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	0.82 0.95	0.39 0.49	0.01 0.02
(3) Antenna Flush Mount	C	None		0.0000	130.00	No Ice 1/2" Ice	0.30 0.40	0.30 0.40	0.02 0.02
***									
Antel BXA-80080/6CF (Verizon)	A	From Face	1.00 1.00 0.00	0.0000	120.00	No Ice 1/2" Ice	7.91 8.45	3.93 4.37	0.02 0.06
Antel BXA-185085/12CF (Verizon)	A	From Face	1.00 -1.00 0.00	0.0000	120.00	No Ice 1/2" Ice	4.77 5.22	3.64 4.08	0.02 0.04
TMA (Verizon)	A	From Face	1.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice	1.50 2.00	1.50 2.00	0.05 0.07
Antel BXA-80080/6CF (Verizon)	B	From Face	1.00 1.00 0.00	0.0000	120.00	No Ice 1/2" Ice	7.91 8.45	3.93 4.37	0.02 0.06
Antel BXA-185085/12CF (Verizon)	B	From Face	1.00 -1.00 0.00	0.0000	120.00	No Ice 1/2" Ice	4.77 5.22	3.64 4.08	0.02 0.04
TMA (Verizon)	B	From Face	1.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice	1.50 2.00	1.50 2.00	0.05 0.07
Antel BXA-80080/6CF (Verizon)	C	From Face	1.00 1.00 0.00	0.0000	120.00	No Ice 1/2" Ice	7.91 8.45	3.93 4.37	0.02 0.06
Antel BXA-185085/12CF (Verizon)	C	From Face	1.00 -1.00 0.00	0.0000	120.00	No Ice 1/2" Ice	4.77 5.22	3.64 4.08	0.02 0.04
TMA (Verizon)	C	From Face	1.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice	1.50 2.00	1.50 2.00	0.05 0.07
(3) Antenna Flush Mount	C	None		0.0000	120.00	No Ice 1/2" Ice	0.30 0.40	0.30 0.40	0.02 0.02
***									
(3) Antenna Flush Mount	C	None		0.0000	109.00	No Ice	0.30	0.30	0.02

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(3) 2.5" OD X 6' Antenna Mount Pipe ***	C	None		0.0000	109.00	1/2" Ice	0.40	0.40	0.02
						No Ice	1.50	1.50	0.05
						1/2" Ice	1.97	1.97	0.06
(3) Antenna Flush Mount	C	None		0.0000	99.00	No Ice	0.30	0.30	0.02
						1/2" Ice	0.40	0.40	0.02
(3) 2.5" OD X 6' Antenna Mount Pipe	C	None		0.0000	99.00	No Ice	1.50	1.50	0.05
						1/2" Ice	1.97	1.97	0.06

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 90 deg - No Ice
4	Dead+Wind 180 deg - No Ice
5	Dead+Ice+Temp
6	Dead+Wind 0 deg+Ice+Temp
7	Dead+Wind 90 deg+Ice+Temp
8	Dead+Wind 180 deg+Ice+Temp
9	Dead+Wind 0 deg - Service
10	Dead+Wind 90 deg - Service
11	Dead+Wind 180 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	149 - 111.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-5.28	0.00	0.00
			Max. Mx	3	-3.40	-133.86	0.00
			Max. My	2	-3.40	0.00	133.86
			Max. Vy	3	7.10	-133.86	0.00
			Max. Vx	2	-7.10	0.00	133.86
L2	111.5 - 75.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-10.28	0.00	0.00
			Max. Mx	3	-7.62	-438.45	0.00
			Max. My	4	-7.62	0.00	-438.45
			Max. Vy	3	9.90	-438.45	0.00
			Max. Vx	4	9.90	0.00	-438.45
L3	75.25 - 39.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-16.31	0.00	0.00
			Max. Mx	3	-12.97	-822.74	0.00
			Max. My	2	-12.97	0.00	822.74
			Max. Vy	3	12.18	-822.74	0.00
			Max. Vx	2	-12.18	0.00	822.74

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L4	39.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	5	-27.28	0.00	0.00
			Max. Mx	3	-22.95	-1432.37	0.00
			Max. My	2	-22.95	0.00	1432.37
			Max. Vy	3	14.90	-1432.37	0.00
			Max. Vx	2	-14.90	0.00	1432.37

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	5	27.28	0.00	0.00
	Max. H_x	11	22.96	0.00	-5.82
	Max. H_z	2	22.96	0.00	14.89
	Max. M_x	2	1432.37	0.00	14.89
	Max. M_z	3	1432.37	-14.89	0.00
	Max. Torsion	10	0.00	-5.82	0.00
	Min. Vert	4	22.96	0.00	-14.89
	Min. H_x	3	22.96	-14.89	0.00
	Min. H_z	4	22.96	0.00	-14.89
	Min. M_x	4	-1432.37	0.00	-14.89
	Min. M_z	2	0.00	0.00	14.89
	Min. Torsion	3	0.00	-14.89	0.00

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	22.96	0.00	0.00	0.00	0.00	0.00
Dead+Wind 0 deg - No Ice	22.96	0.00	-14.89	-1432.37	0.00	0.00
Dead+Wind 90 deg - No Ice	22.96	14.89	0.00	0.00	-1432.37	0.00
Dead+Wind 180 deg - No Ice	22.96	0.00	14.89	1432.37	0.00	0.00
Dead+Ice+Temp	27.28	0.00	0.00	0.00	0.00	0.00
Dead+Wind 0 deg+Ice+Temp	27.28	0.00	-11.86	-1162.49	0.00	0.00
Dead+Wind 90 deg+Ice+Temp	27.28	11.86	0.00	0.00	-1162.49	0.00
Dead+Wind 180 deg+Ice+Temp	27.28	0.00	11.86	1162.49	0.00	0.00
Dead+Wind 0 deg - Service	22.96	0.00	-5.82	-559.77	0.00	0.00
Dead+Wind 90 deg - Service	22.96	5.82	0.00	0.00	-559.77	0.00
Dead+Wind 180 deg - Service	22.96	0.00	5.82	559.77	0.00	0.00

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-22.96	0.00	0.00	22.96	0.00	0.000%
2	0.00	-22.96	-14.89	0.00	22.96	14.89	0.009%
3	14.89	-22.96	0.00	-14.89	22.96	0.00	0.009%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
4	0.00	-22.96	14.89	0.00	22.96	-14.89	0.009%
5	0.00	-27.28	0.00	0.00	27.28	0.00	0.000%
6	0.00	-27.28	-11.87	0.00	27.28	11.86	0.002%
7	11.87	-27.28	0.00	-11.86	27.28	0.00	0.002%
8	0.00	-27.28	11.87	0.00	27.28	-11.86	0.002%
9	0.00	-22.96	-5.82	0.00	22.96	5.82	0.004%
10	5.82	-22.96	0.00	-5.82	22.96	0.00	0.004%
11	0.00	-22.96	5.82	0.00	22.96	-5.82	0.004%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	14	0.00010820	0.00012714
3	Yes	14	0.00010820	0.00012714
4	Yes	14	0.00010820	0.00012714
5	Yes	6	0.00000001	0.00000001
6	Yes	16	0.00000001	0.00009124
7	Yes	16	0.00000001	0.00009124
8	Yes	16	0.00000001	0.00009124
9	Yes	14	0.00011053	0.00006311
10	Yes	14	0.00011053	0.00006311
11	Yes	14	0.00011053	0.00006311

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	149 - 111.5	23.881	9	1.3435	0.0000
L2	115.25 - 75.25	14.678	9	1.2130	0.0000
L3	79.75 - 39.75	6.886	9	0.8343	0.0000
L4	45 - 0	2.156	9	0.4361	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	Allgon 7920.xx	9	23.881	1.3435	0.0000	48348
140.00	Allgon 7920.xx	9	21.348	1.3216	0.0000	26860
130.00	RFS APX16DWV-16DWVL	9	18.577	1.2901	0.0000	12723
120.00	Antel BXA-80080/6CF	9	15.902	1.2431	0.0000	8335
109.00	(3) Antenna Flush Mount	9	13.125	1.1643	0.0000	6625
99.00	(3) Antenna Flush Mount	9	10.790	1.0675	0.0000	5915

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	149 - 111.5	61.066	2	3.4361	0.0000
L2	115.25 - 75.25	37.540	2	3.1025	0.0000
L3	79.75 - 39.75	17.616	2	2.1343	0.0000
L4	45 - 0	5.517	2	1.1159	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	Allgon 7920.xx	2	61.066	3.4361	0.0000	19024
140.00	Allgon 7920.xx	2	54.591	3.3822	0.0000	10568
130.00	RFS APX16DWV-16DWVL	2	47.510	3.3027	0.0000	5005
120.00	Antel BXA-80080/6CF	2	40.669	3.1812	0.0000	3277
109.00	(3) Antenna Flush Mount	2	33.570	2.9746	0.0000	2603
99.00	(3) Antenna Flush Mount	2	27.600	2.7216	0.0000	2322

Compression Checks

Pole Design Data

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 $\frac{P}{P_a}$
L1	149 - 111.5 (1)	TP29.487x23x0.1875	37.50	0.00	0.0	38.694	17.0508	-3.40	659.77	0.005
L2	111.5 - 75.25 (2)	TP35.383x28.4633x0.2188	40.00	0.00	0.0	38.207	23.8799	-7.62	912.38	0.008
L3	75.25 - 39.75 (3)	TP41.086x34.1669x0.2813	40.00	0.00	0.0	39.000	35.6152	-12.97	1388.99	0.009
L4	39.75 - 0 (4)	TP47.4x39.6154x0.375	45.00	0.00	0.0	39.000	55.9715	-22.95	2182.89	0.011

Pole Bending Design Data

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 $\frac{f_{by}}{F_{by}}$
L1	149 - 111.5 (1)	TP29.487x23x0.1875	133.86	13.308	38.694	0.344	0.00	0.000	38.694	0.000
L2	111.5 - 75.25 (2)	TP35.383x28.4633x0.2188	438.45	25.928	38.207	0.679	0.00	0.000	38.207	0.000
L3	75.25 - 39.75 (3)	TP41.086x34.1669x0.2813	822.74	28.135	39.000	0.721	0.00	0.000	39.000	0.000
L4	39.75 - 0 (4)	TP47.4x39.6154x0.375	1432.37	26.468	39.000	0.679	0.00	0.000	39.000	0.000

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 $\frac{f_{by}}{F_{by}}$

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_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	149 - 111.5 (1)	TP29.487x23x0.1875	7.10	0.417	26.000	0.032	0.00	0.000	26.000	0.000
L2	111.5 - 75.25 (2)	TP35.383x28.4633x0.2188	9.90	0.415	26.000	0.032	0.00	0.000	26.000	0.000
L3	75.25 - 39.75 (3)	TP41.086x34.1669x0.2813	12.18	0.342	26.000	0.026	0.00	0.000	26.000	0.000
L4	39.75 - 0 (4)	TP47.4x39.6154x0.375	14.90	0.266	26.000	0.020	0.00	0.000	26.000	0.000

Pole Interaction Design Data

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
L1	149 - 111.5 (1)	0.005	0.344	0.000	0.032	0.000	0.349 ✓	1.333	H1-3+VT ✓
L2	111.5 - 75.25 (2)	0.008	0.679	0.000	0.032	0.000	0.687 ✓	1.333	H1-3+VT ✓
L3	75.25 - 39.75 (3)	0.009	0.721	0.000	0.026	0.000	0.731 ✓	1.333	H1-3+VT ✓
L4	39.75 - 0 (4)	0.011	0.679	0.000	0.020	0.000	0.689 ✓	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	149 - 111.5	Pole	TP29.487x23x0.1875	1	-3.40	879.47	26.2	Pass
L2	111.5 - 75.25	Pole	TP35.383x28.4633x0.2188	2	-7.62	1216.20	51.6	Pass
L3	75.25 - 39.75	Pole	TP41.086x34.1669x0.2813	3	-12.97	1851.52	54.8	Pass
L4	39.75 - 0	Pole	TP47.4x39.6154x0.375	4	-22.95	2909.79	51.7	Pass
							Summary	
						Pole (L3)	54.8	Pass
						RATING =	54.8	Pass

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MONOPOLE BASE PLATE ANALYSIS

TITLE:
SITE:
OWNER:
COMM. NO:
DATE: 28-Sep-07

Number of Sides	18	Stress Increase	1.33
Shaft Dia, DF	47.400 in.	Base Plate Shape	SQUARE
PT-to-PT, DP	48.131 in.		
Min Bolt Circle	51.40 in.	Actual Bolt Circle	54.00 in.

Base Reactions

Moment	1432.0 ft-kips
Axial Load	23.0 kips
Base Elevation	0.0 ft

Bolt Details

Number of Bolts	12
Bolt Diameter	2 1/4 inches
Bolt Type	A615 #18J
Mom. Of Inertia	4374.00 inches^4
Bolt Tension, T	106.07 kips
Allowable Tension	195.00 kips
Bolt Compression, C	107.99 kips
Actual / Allowable Ratio	54.4% ☑

Base Plate Details

Plate Moment, MPL	704.64 inch-kips
Bend Plane, W	27.55 inches
Plate Thickness, t	2.75 inches
Plate Width	53.00 inches
Plate Steel Spec.	ASTM A572 GRADE 60
Plate Steel Grade	60.00 ksi
Actual Stress	20.29 ksi
Allowable Stress	60.00 ksi
Actual / Allowable Ratio	33.8% ☑

Base Plate Analysis Summary

Plate Thickness	2.75 in.	Bolt Circle	54.00 in.
Plate Length	53.00 in.	Bolt Diameter	2.25 in.
Number of Bolts	12	Bolt Type	A615 #18J

SPREAD FOOTING FOR POLES PROGRAM BY PAUL J. FORD and COMPANY

JOB NO. 29207-122 DATE 09-28-2007

INPUT: SPREAD FOOTING (PAD and PIER) FOR POLES

POLE LOADS:
POLE WEIGHT = 23.00 kips (pole,antenna,ice,mounts,etc.)
OVERTURNING MOMENT = 1432.00 ft-k (at the top of the pier)
TOTAL HORIZONTAL = 15.00 kips (at the top of the pier)
DESIGN SAFETY FACTOR AGAINST OVERTURNING = 1.50

CONCRETE:
CONCRETE STRENGTH = 3000 psi at 28 days
REINFORCING STEEL STRENGTH = 60000 psi (ASTM A615 grade 60)

SOIL:
WATER TABLE BELOW BOTTOM OF FOOTING
SOIL WT = 100 pcf (dry)
ALLOWABLE SOIL BEARING = 4000 psf

FOOTING SIZE:
WIDTH = 21.5 ft
LENGTH = 21.5 ft
THICKNESS = 3.00 ft
DEPTH = 7.00 ft to bottom
PIERS = 7.00 ft square
PIER 0.5 ft above grade
CONCRETE WEIGHT = 150 pcf

OUTPUT: SPREAD FOOTING (PAD and PIER) FOR POLES

VOLUME OF CONCRETE = 1607 ft^3 (59.53 cubic yards)

WEIGHT OF POLE =====> 23.00 kips
WEIGHT OF CONCRETE => 241.09 kips (1607 x 0.150)
WEIGHT OF SOIL =====> 165.30 kips (1653 x 0.100)
TOTAL WEIGHT = 429.39 kips

OVERTURNING MOMENT = 1432.00 ft-k + (15.00 k x 7.50 ft) = 1545 ft-kips
RESISTING MOMENT = 429.39 k x (21.50 ft / 2) = 4616 ft-kips

SAFETY FACTOR = Mresist / O.T.M. = 4616 / 1545 = 2.99 > 1.50 O.K. 50% ✓

ULTIMATE OVERTURNING MOMENT = 1545 ft-k x 1.50 = 2317 ft-kips
ULTIMATE NET SOIL BEARING PRESSURE = 1787 psf

GROSS SOIL BEARING = 2248 psf (includes soil overburden)
SOIL OVERBURDEN = 700 psf (soil overburden)
NET SOIL BEARING = 1548 psf < 4000 psf O.K. 39% ✓

BENDING MOMENT IN PIER = 1432 ft-k +(15.00 k x 4.50 ft) = 1500 ft-kips
AREA OF REINF STEEL REQUIRED IN THE PIER = 15.72 sq in
(.5 % = 35.28 sq in) (24) # 11 42% ✓

BENDING MOMENT IN FOOTING = 1384 ft-kips
FOOTING REINFORCING = 0.60 in^2/ft =
(.18 % = 0.78 in^2/ft)
10 @ 12" c.c 47% ✓

BENDING SHEAR IN THE FOOTING = 322.45 kips
ALLOWABLE BENDING SHEAR = 582.10 kips O.K. 55% ✓