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

May 25, 2012

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

RE: **EM-VER-018-120508**- Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at Carmen Hill Road, Brookfield, 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 May 7, 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/jbw

c: The Honorable Bill Davidson, First Selectman, Town of Brookfield
Katherine Daniel, Community Development Director, Town of Brookfield
Alice Dew, Zoning Enforcement Officer, Town of Brookfield
Charter Communications

STATE OF CONNECTICUT
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May 9, 2012

The Honorable Bill Davidson
First Selectman
Town of Brookfield
Brookfield Municipal Center
Pocono Road
P. O. Box 5106
Brookfield, CT 06804-5106

RE: **EM-VER-018-120508**- Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at Carmen Hill Road, Brookfield, Connecticut.

Dear First Selectman Davidson:

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 May 23, 2012.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts

Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: Katherine Daniel, Community Development Director, Town of Brookfield
Alice Dew, Zoning Enforcement Officer, Town of Brookfield

CSC
CONNECTICUT SITING COUNCIL

ROBINSON & COLE

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

EM-VER-018-120508

ORIGINAL

May 7, 2012

RECEIVED
MAY - 8 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**
Carmen Hill Road, Brookfield, Connecticut

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains eight (8) wireless telecommunications antennas on the existing 80-foot tower at the above-referenced address. Three (3) antennas are located at the 79-foot level; and five (5) antennas are located at the 71-foot level. The tower and underlying property are owned by Charter Communications. The Council approved Cellco's use of the tower in 1995. Cellco now intends to modify its facility by replacing all of its existing antennas with three (3) BXA-171063-8BF PCS antennas at the 79-foot level; and two (2) model BXA-80063-6CF cellular antennas; one (1) model BXA-80063-4CF cellular antenna; two (2) model BXA-70063-6CF LTE antennas; and one (1) model BXA-70063-4CF LTE antenna, at the same 71-foot level on the tower, for a total of nine (9) antennas. Cellco also intends to install four (4) additional coaxial cables and six (6) coax cable diplexers on its antenna platform at the 71-foot level. Attached behind Tab 1 are the specifications for the 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 William R. Davidson, First Selectman of the Town of Brookfield.

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 79-foot and 71-foot levels on the existing 80-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) emissions levels at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A power density table for Cellco's modified facility is included behind Tab 2.

Also attached is a Structural Analysis Report confirming that the tower 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:
William R. Davidson, Brookfield First Selectman
Sandy M. Carter

Slant +/- 45° Dual Polarized, Panel 63° / 14.5 dBd

BXA-80063/6CF ___

When ordering replace "___" with connector type.

Mechanical specifications

Length	1804 mm	71.1 in
Width	285 mm	11.2 in
Depth	126 mm	5.0 in
Depth with z-bracket	166 mm	6.5 in
[4] Weight	6.8 kg	14.9 lbs
Wind Area		
Fore/Aft	0.51 m^2	5.53 ft^2
Side	0.23 m^2	2.45 ft^2
Rated Wind Velocity (Safety factor 2.0)	>318 km/hr	>198 mph
Wind Load @ 100 mph (161 km/hr)		
Fore/Aft	753 N	169.2 lbs
Side	378 N	85 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting and Downtilting

Mounting brackets attach to a pipe diameter of Ø50-160 mm (2.0-6.3 in).

Mounting bracket kit #36210002
Downtilt bracket kit #36114003

Electrical specifications

	Frequency Range	806-900 MHz*
	Impedance	50Ω
[3]	Connector(s)	NE or E-DIN 2 ports / center
[1]	VSWR	≤ 1.4:1
	Polarization	Slant ± 45°
[1]	Isolation Between Ports	< -30 dB
[1]	Gain	14.5 dBd
[2]	Power Rating	500 W
[1]	Half Power Angle	
	H-Plane	63°
	E-Plane	11°
[1]	Electrical Downtilt	0°
[1]	Null Fill	5%
	Lightning Protection	Direct Ground

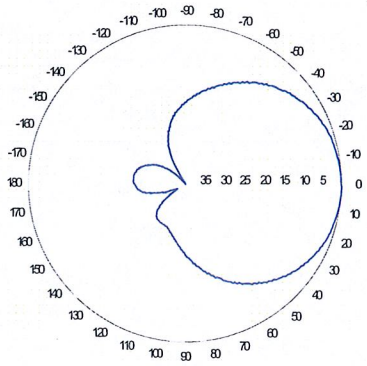
*Also available for 870-960 MHz. Refer to model BXA-87063/6CF _.

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

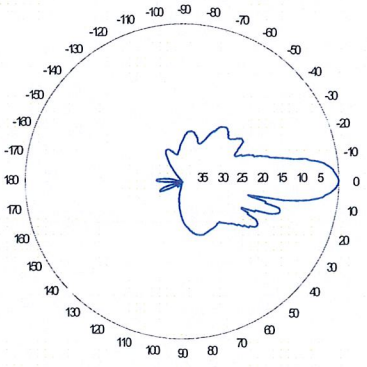
1) Typical values.
2) Power rating limited by connector only.
3) NE indicates an elongated N connector. E-DIN indicates an elongated DIN connector.
4) The antenna weight listed above does not include the bracket weight.

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

Radiation pattern[1]



Horizontal



Vertical

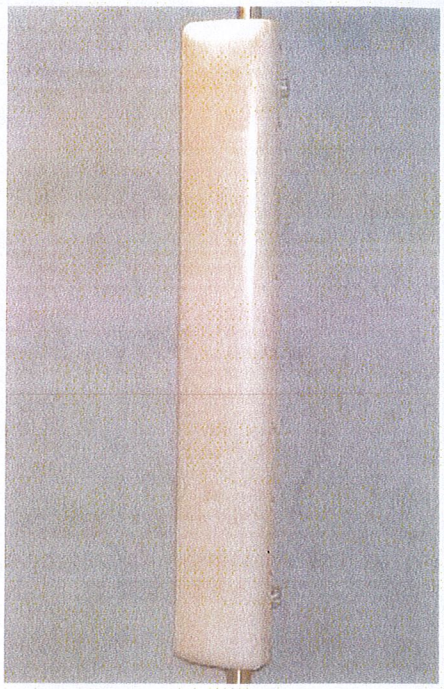
Featuring upper side lobe suppression.

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back ratio.

CF Denotes a Center-Fed Connector.

806-900 MHz



Amphenol Antel's Exclusive 3T (True Transmission Line Technology) Antenna Design:

- Watercut brass feedline assembly for consistent performance.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad band-width and superior performance.
- Air as insulation for virtually no internal signal loss.

This Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna available with center-fed connectors only.

Amphenol Antel, Inc.
The Antenna Technology Company

Revision Date: 11/21/07

Amphenol Antel, Inc. 1300 Capital Drive Rockford, Illinois 61109 USA Tel. (815) 399-0001
Toll-Free (888) 417-9562 Fax. (815) 399-0156 antel@antelinc.com www.antelinc.com

Slant +/- 45° Dual Polarized, Panel 63° / 13 dBd

BXA-80063/4CF ___

When ordering replace "___" with connector type.

Mechanical specifications

Length	1205 mm	47.4 in
Width	285 mm	11.2 in
Depth	126 mm	5.0 in
Depth with z-bracket	166 mm	6.5 in
[4] Weight	4.5 kg	9.9 lbs
Wind Area		
Fore/Aft	0.36 m^2	3.9 ft^2
Side	0.15 m^2	1.7 ft^2
Rated Wind Velocity (Safety factor 2.0)	>653 km/hr	>406 mph
Wind Load @ 100 mph (161 km/hr)		
Fore/Aft	522 N	117 lbs
Side	244 N	54.5 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting and Downtilting

Mounting brackets attach to a pipe diameter of Ø50-160 mm (2.0-6.3 in).

Mounting bracket kit #36210002
Downtilt bracket kit #36114003

Electrical specifications

	Frequency Range	806-900 MHz*
	Impedance	50Ω
[3]	Connector(s)	NE or E-DIN 2 ports / center
[1]	VSWR	≤ 1.4:1
	Polarization	Slant ± 45°
[1]	Isolation Between Ports	< -30 dB
[1]	Gain	13 dBd
[2]	Power Rating	500 W
[1]	Half Power Angle	
	H-Plane	63°
	E-Plane	15°
[1]	Electrical Downtilt	0°
[1]	Null Fill	5%
	Lightning Protection	Direct Ground

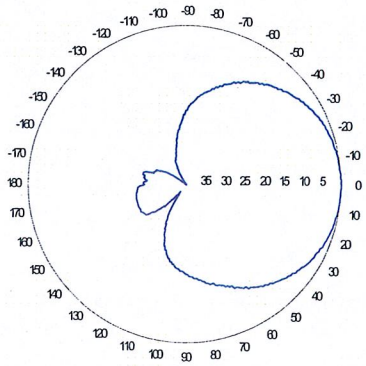
*Also available for 870-960 MHz. Refer to model BXA-87063/4CF _.

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

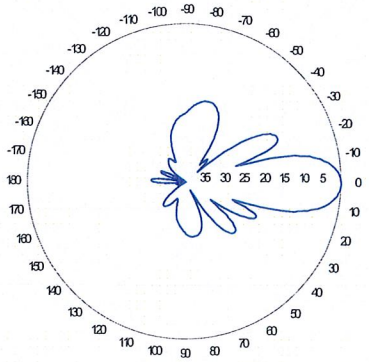
1) Typical values.
2) Power rating limited by connector only.
3) NE indicates an elongated N connector.
   E-DIN indicates an elongated DIN connector.
4) The antenna weight listed above does not include the bracket weight.

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

Radiation pattern[1]



Horizontal



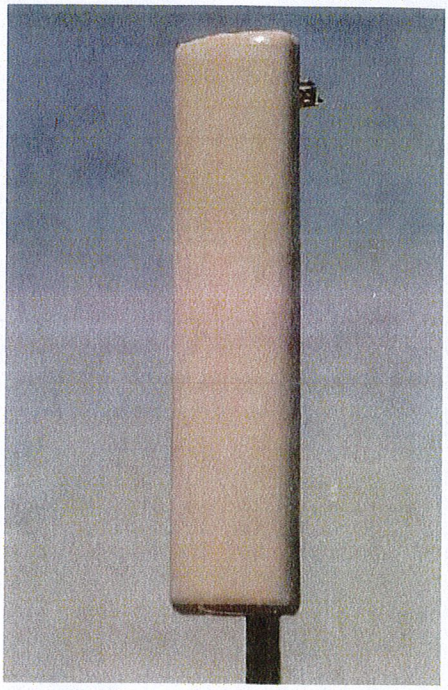
Vertical

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back ratio.

CF Denotes a Center-Fed Connector.

806-900 MHz



Amphenol Antel's Exclusive 3T (True Transmission Line Technology) Antenna Design:

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- Air as insulation for virtually no internal signal loss.

This Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna available with center-fed connectors only.

Amphenol Antel, Inc. 1300 Capital Drive Rockford, Illinois 61109 USA Tel. (815) 399-0001
Toll-Free (888) 417-9562 Fax. (815) 399-0156 antel@antelinc.com www.antelinc.com

Amphenol Antel, Inc. The Antenna Technology Company

Revision Date: 7/3/07

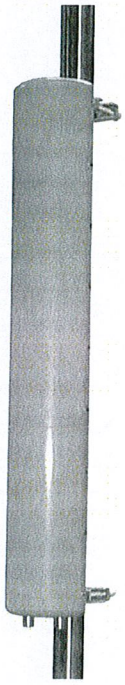
BXA-171063-8BF-EDIN-X

Replace "X" with desired electrical downtilt.

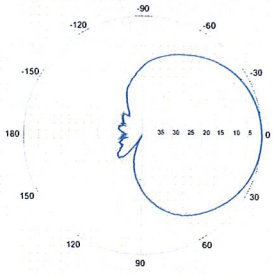
X-Pol | FET Panel | 63° | 17.4 dBi

Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	68°	65°	60°
Vertical beamwidth	7°	7°	7°
Gain	14.5 dBd / 16.6 dBi	14.9 dBd / 17.0 dBi	15.3 dBd / 17.4 dBi
Electrical downtilt (X)	0, 2, 4, 8		
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-171063-8BF-EDIN-X-FP		

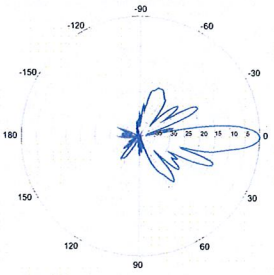


BXA-171063-8BF-EDIN-X



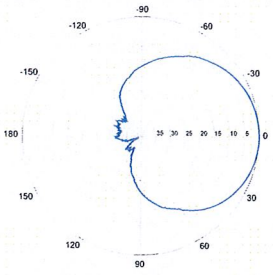
Horizontal | 1710-1880 MHz

BXA-171063-8BF-EDIN-0



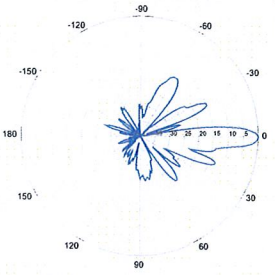
0° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-X



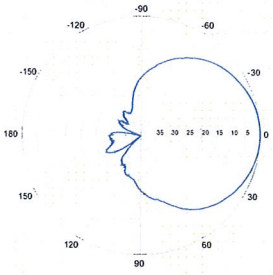
Horizontal | 1850-1990 MHz

BXA-171063-8BF-EDIN-0



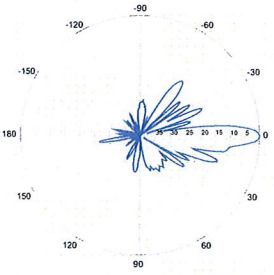
0° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-X



Horizontal | 1920-2170 MHz

BXA-171063-8BF-EDIN-0

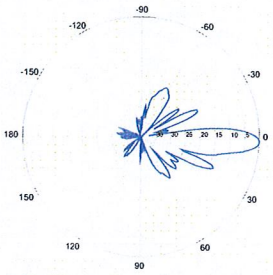


0° | Vertical | 1920-2170 MHz

BXA-171063-8BF-EDIN-X

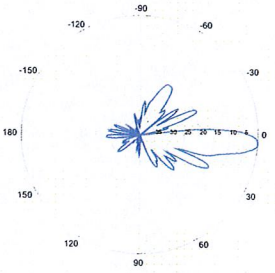
X-Pol | FET Panel | 63° | 17.4 dBi

BXA-171063-8BF-EDIN-2



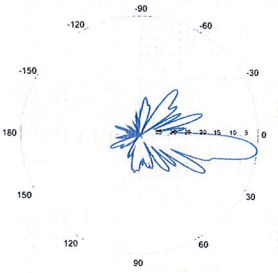
2° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-4



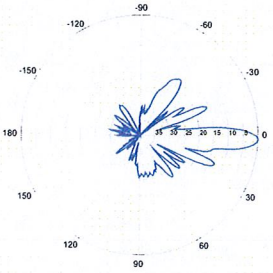
4° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-8



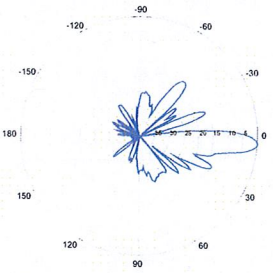
8° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-2



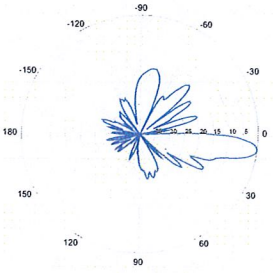
2° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-4



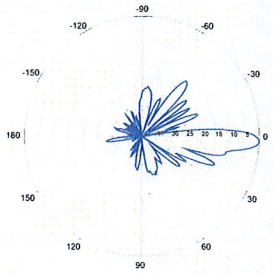
4° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-8



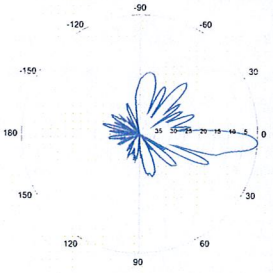
8° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-2



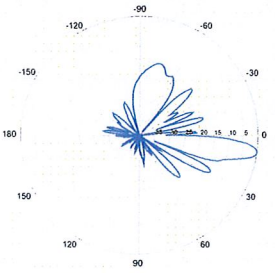
2° | Vertical | 1920-2170 MHz

BXA-171063-8BF-EDIN-4



4° | Vertical | 1920-2170 MHz

BXA-171063-8BF-EDIN-8



8° | 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.

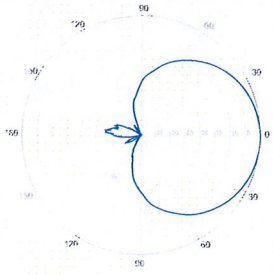
Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.

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

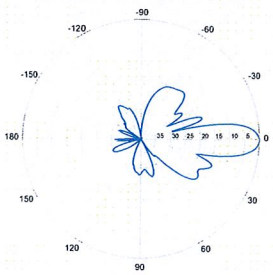
Mounting Options	Part Number	Fits Pipe Diameter	Weight
3-Point Mounting & Downtilt Bracket Kit	36210008	40-115 mm 1.57-4.5 in	6.9 kg 15.2 lbs
Concealment Configurations	For concealment configurations, order BXA-70063-6CF-EDIN-X-FP		

BXA-70063-6CF-EDIN-X



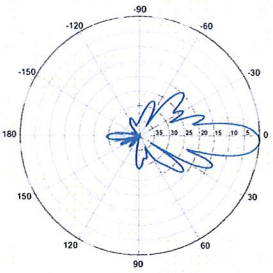
Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0

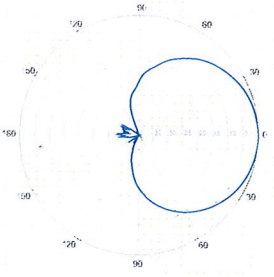


0° | Vertical | 750 MHz

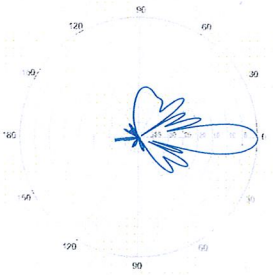
BXA-70063-6CF-EDIN-2



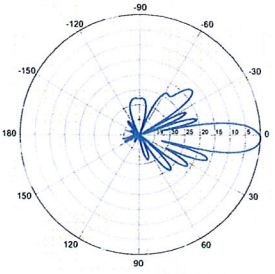
2° | Vertical | 750 MHz



Horizontal | 850 MHz



0° | Vertical | 850 MHz

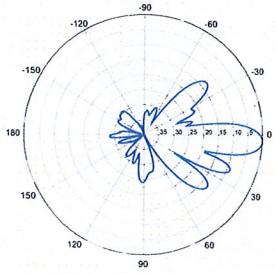


2° | Vertical | 850 MHz

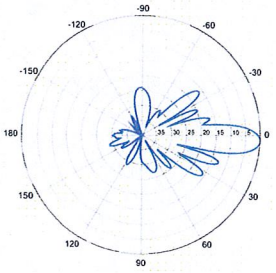
BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

BXA-70063-6CF-EDIN-3

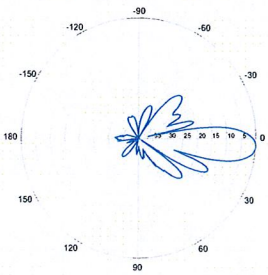


3° | Vertical | 750 MHz

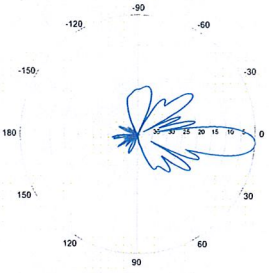


3° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-4

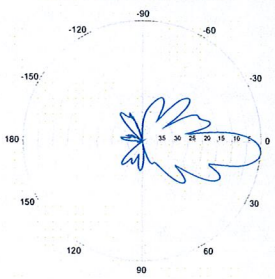


4° | Vertical | 750 MHz

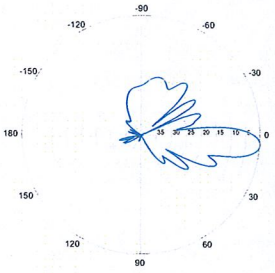


4° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-5

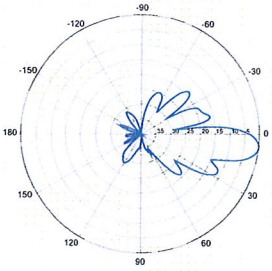


5° | Vertical | 750 MHz

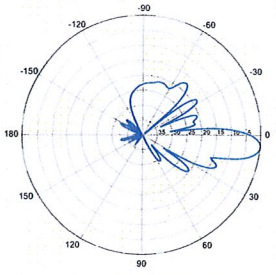


5° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-6

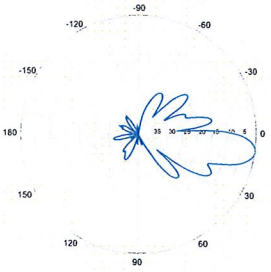


6° | Vertical | 750 MHz

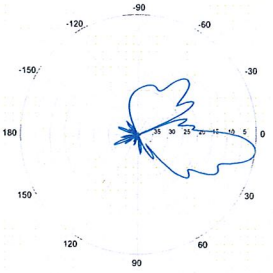


6° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-8

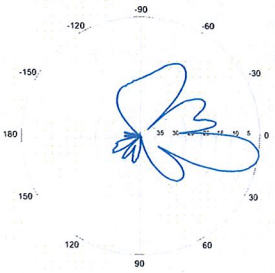


8° | Vertical | 750 MHz

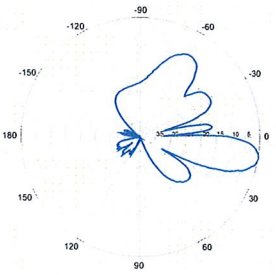


8° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-10



10° | Vertical | 750 MHz



10° | Vertical | 850 MHz

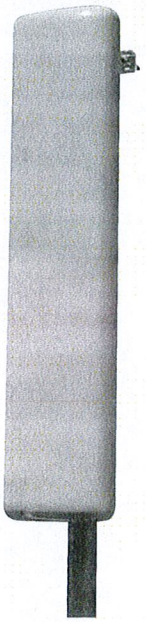
Amphenol ANTENNA SOLUTIONS

BXA-70063-4CF-EDIN-X

X-Pol | FET Panel | 63° | 13.0 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.

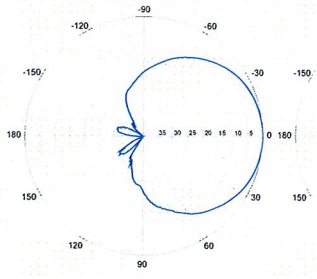


Electrical Characteristics	696-900 MHz	
Frequency bands	696-806 MHz	806-900 MHz
Polarization	±45°	
Horizontal beamwidth	65°	63°
Vertical beamwidth	17°	15°
Gain	12.5 dBd (14.6 dBi)	13.0 dBd (15.1 dBi)
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 9, 10, 12, 14	
Impedance	50Ω	
VSWR	≤1.35:1	
Upper sidelobe suppression (0°)	-16.3 dB	-22.1 dB
Front-to-back ratio (+/-30°)	-36.1 dB	-34.9 dB
Null fill	5% (-26.02 dB)	
Isolation between ports	< -30 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	1205 x 285 x 133 mm	47.4 x 11.2 x 5.2 in
Depth with z-brackets	173 mm	6.8 in
Weight without mounting brackets	4.5 kg	9.9 lbs
Survival wind speed	> 201 km/hr	> 125 mph
Wind area	Front: 0.34 m² Side: 0.16 m²	Front: 3.7 ft² Side: 1.7 ft²
Wind load @ 161 km/hr (100 mph)	Front: 498 N Side: 260 N	Front: 111 lbf Side: 55 lbf

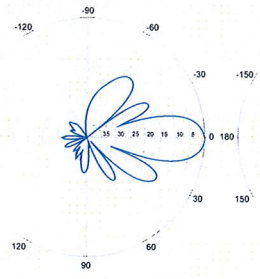
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	36210002	50-160 mm 2.0-6.3 in	4.5 kg 10 lbs
2-Point Downtilt Bracket Kit (0-20°)	36114003	50-160 mm 2.0-6.3 in	4.9 kg 11 lbs
Downtilt Mounting Applications	A mounting bracket and downtilt bracket kit must be ordered for downtilt applications		
Concealment Configurations	For concealment configurations, order BXA-70063-4CF-EDIN-X-FP		

BXA-70063-4CF-EDIN-X



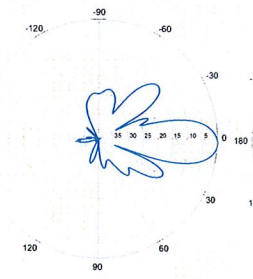
Horizontal | 750 MHz

BXA-70063-4CF-EDIN-0



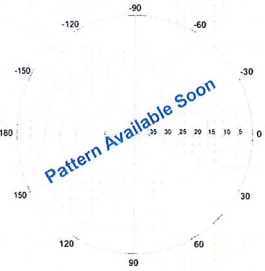
0° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-2



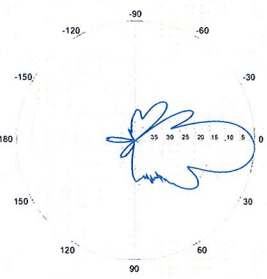
2° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-3

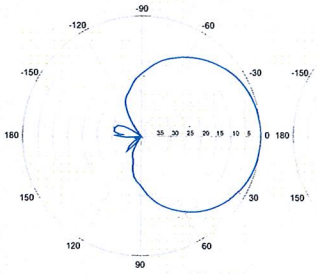


3° | Vertical | 750 MHz

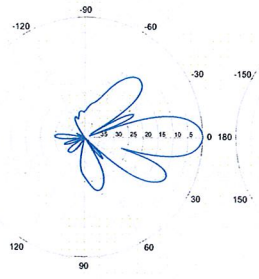
BXA-70063-4CF-EDIN-4



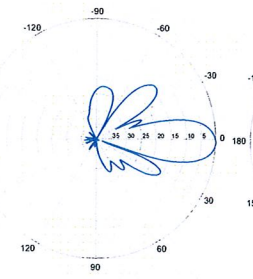
4° | Vertical | 750 MHz



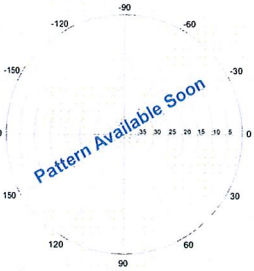
Horizontal | 850 MHz



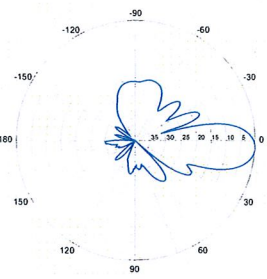
0° | Vertical | 850 MHz



2° | Vertical | 850 MHz



3° | Vertical | 850 MHz

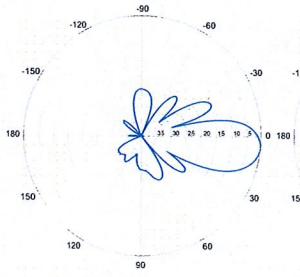


4° | Vertical | 850 MHz

BXA-70063-4CF-EDIN-X

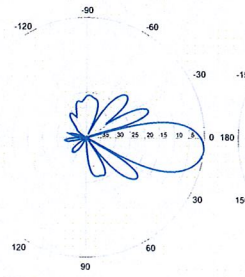
X-Pol | FET Panel | 63° | 13.0 dBd

BXA-70063-4CF-EDIN-5



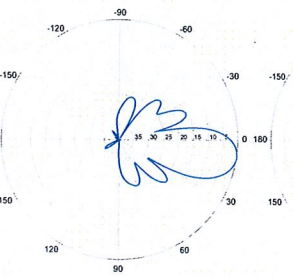
5° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-6



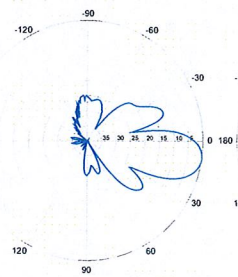
6° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-8



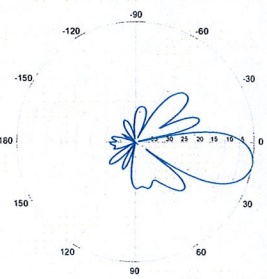
8° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-9

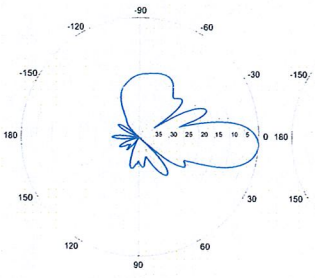


9° | Vertical | 750 MHz

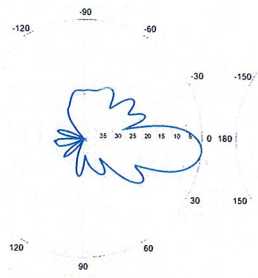
BXA-70063-4CF-EDIN-10



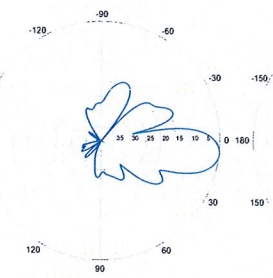
10° | Vertical | 750 MHz



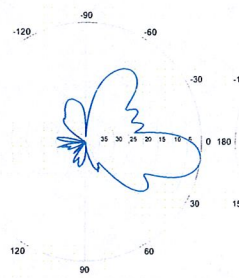
5° | Vertical | 850 MHz



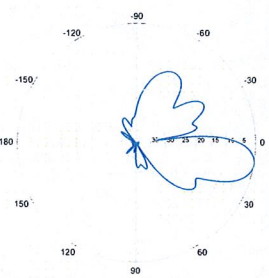
6° | Vertical | 850 MHz



8° | Vertical | 850 MHz

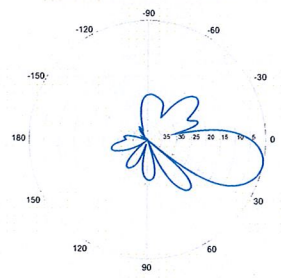


9° | Vertical | 850 MHz



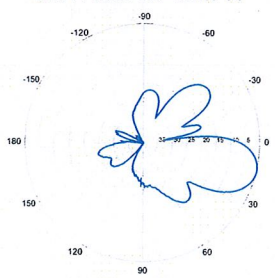
10° | Vertical | 850 MHz

BXA-70063-4CF-EDIN-12

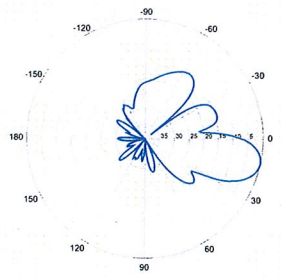


12° | Vertical | 750 MHz

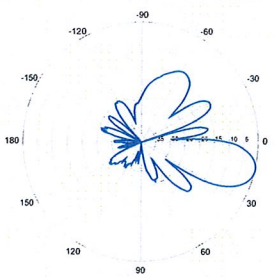
BXA-70063-4CF-EDIN-14



14° | Vertical | 750 MHz



12° | Vertical | 850 MHz



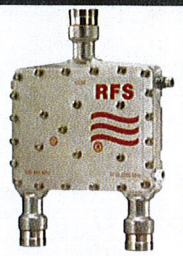
14° | Vertical | 850 MHz

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

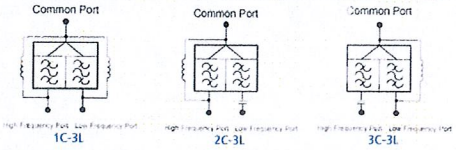
Notes

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

Other Documentation

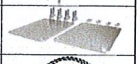
FD9R6004/2C-3L Installation Instructions: Wideband_Diplexer_Installation_Rev5.pdf

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)	

Site Name: BROOKFIELD, CT
Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissable Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
VZW PCS	1970	15	331	4965	79	0.2861	1.0	28.61%
VZW Cellular	869	9	426	3834	71	0.2735	0.579333333	47.21%
VZW AWS	2145	1	828	828	79	0.0477	1.0	4.77%
VZW 700	698	1	876	876	71	0.0625	0.465333333	13.43%

Total Percentage of Maximum Permissible Exposure 94.02%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz
mW/cm^2 = milliwatts per square centimeter
ERP = Effective Radiated Power

Absolute worst case maximum values used.

SEMAAN
ENGINEERING SOLUTIONS, LLC

Structural Analysis Report

Prepared for:

KGI
805 Las Cimas Parkway
Building Three, Suite 370
Austin, TX 78746

ATTN: Mr. Mike Kampen

Structure	:	**80 ft Rohn Self Supported Tower**
Proposed Carrier	:	**Verizon**
Site ID	:	**11464**
Site Location	:	**Brookfield, CT**
County	:	**Fairfield**
Date	:	**April 25, 2012**
Usage	:	**92.0% Legs, 88.0% Diagonals, 18.0% Horizontals.**

Semaan Engineering Solutions, LLC
1079 N. 205th Street, Elkhorn, NE 68022
Phone: 402-289-1888

Introduction

The purpose of this report is to summarize results of the structural analysis performed on the 80 ft Rohn Self Supported Tower located at Brookfield, CT, Fairfield County (site # 11464). The tower was originally designed and manufactured by Rohn (refer to HTS mapping dated February 21, 2008 for a detailed description of the structure).

Analysis

The tower was analyzed using Semaan Engineering Solutions, Inc., Software. The analysis assumes that the tower is in good, undamaged, and non-corroded condition. The analysis was performed in conformance with **TIA/EIA-222 Rev F and local building codes for a basic wind speed of 85 mph no ice and 74 mph with 1/2" radial ice (fastest mile). This wind speed is equivalent to a 105 mph 3-second gust per the IBC 2003.** This is in conformance with the IBC 2003: Section 1609.1.1, Exception (5) and Section 3108.4, and the 2005 Connecticut State Building Code.

Basic Wind Speed:	85.0 mph
Radial Ice:	74 mph w/ 0.50" ice
Code:	TIA/EIA-222 Rev F

Antenna Loads

The following antenna loads were used in the tower analysis.

Existing Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax (in)	Carrier
79.0	3	DB854DG90ESX	(3) Sidearm	(3) 1 5/8"	-
71.0	3	BXA-80063/4CF_5	(3) Sidearm	(3) 1 5/8"	-
	2	Allgon 7486.00		(2) 1 5/8"	

Proposed Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax (in)	Carrier
79.0	3	BXA-171063/8BF	On existing (3) Sidearm	(6) 1 5/8" (stacked 3 on 3)	Verizon
71.0	1	BXA-80063/4CF	On existing (3) Sidearm	(6) 1 5/8" (stacked 3 on 3)	
	2	BXA-80063/6CF			
	1	BXA-70063/4CF			
	2	BXA-70063/6CF			
	6	Diplexer			

The transmission lines for the proposed antennas shall be stacked 3 on 3.

Results

The existing Self Supported Tower is structurally capable of supporting the existing and proposed antennas. The maximum structure usage is: 92.0% Legs, 88.0% Diagonals, and 18.0% Horizontals.

Leg Forces	Original Design Reactions	Current Analysis Reactions
Uplift (Kips)	N/A	48.45
Axial (Kips)	N/A	53.58
Shear (Kips)	N/A	5.54

The foundation was not investigated due to the lack of design drawings and documents and is not part of this analysis.

Conclusion

Based on the analysis results, the existing structure meets the requirements per the TIA/EIA-222 Rev F standards for a basic wind speed of 85 mph no ice and 74 mph with 1/2" radial ice.

If you have any questions or require additional information, please call 402-289-1888.

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 Semaan Engineering Solutions, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Semaan Engineering Solutions and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated; and we, therefore, assume that their capacity has not significantly changed from the "as new" condition.

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

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

Loads: 85 mph no ice
74 mph w / 1/2" radial ice
50 mph no ice

Job Information

Tower : 11464	Location : Brookfield, CT	
Code: TIA/EIA-222 Rev F	Shape : Triangle	Base Width : 10.58 ft
Client : KGI		Top Width : 4.52 ft

Sections Properties

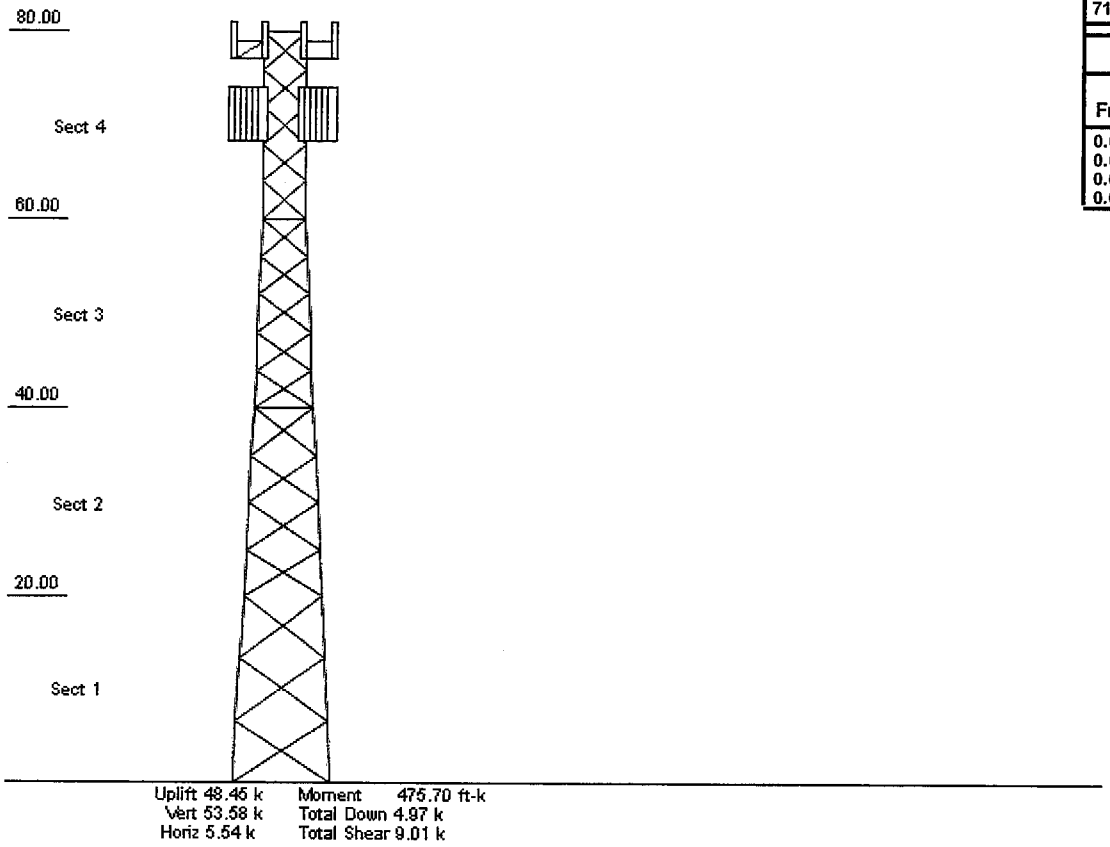
Section	Leg Members		Diagonal Members	Horizontal Members
1	PX 50 ksi	2-1/2" DIA PIPE	SAE 36 ksi 1.75X1.75X.01563	
2	PST 50 ksi	2-1/2" DIA PIPE	SAE 36 ksi 1.5X1.5X0.1563	SAE 36 ksi 1.75X1.75X0.1875
3	PX 50 ksi	2" DIA PIPE	SAE 36 ksi 1.5X1.5X0.1563	SAE 36 ksi 1.5X1.5X0.1875
4	PST 50 ksi	2" DIA PIPE	SAE 36 ksi 1.5X1.5X0.1563	SAE 36 ksi 1.5X1.5X0.1563

Discrete Appurtenance

Elev (ft)	Type	Qty	Description
79.00	Panel	3	DB854DG90ESX
79.00	Straight Arm	3	Sidearm
79.00	Panel	3	BXA-171063/8BF
71.00	Panel	6	Diplexer
71.00	Panel	3	BXA-80063/4CF_5
71.00	Panel	2	Allgon 7486.00
71.00	Straight Arm	3	Sidearm
71.00	Panel	2	BXA-70063/6CF
71.00	Panel	1	BXA-70063/4CF
71.00	Panel	2	BXA-80063/6CF
71.00	Panel	1	BXA-80063/4CF

Linear Appurtenance

Elev (ft) From	To	Qty	Description
0.000	79.000	3	1 5/8" Coax
0.000	79.000	6	1 5/8" Coax
0.000	71.000	5	1 5/8" Coax
0.000	71.000	6	1 5/8" Coax



Site Number: 11464
Location: Brookfield, CT

Code: TIA/EIA-222 Rev F

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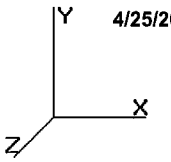

Gh : 1.18

Section Forces

LoadCase Normal No Ice — 85.00 mph Wind Normal To Face with No Ice

Allow Stress Inc: 1.333
Dead LF: 1.000
Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
4	70.00	22.93	8.11	22.77	0.00	0.34	2.19	1.00	1.00	0.63	22.44	0.00	0.00	818.6	0.0	1,329.32	0.00	1,329.32	1
3	50.00	20.83	9.09	27.73	0.00	0.33	2.21	1.00	1.00	0.63	26.47	0.00	0.00	1,053.1	0.0	1,436.22	0.00	1,436.22	1
2	30.00	18.50	9.99	29.40	0.00	0.26	2.40	1.00	1.00	0.60	27.77	0.00	0.00	1,135.1	0.0	1,454.77	0.00	1,454.77	1
1	10.00	18.50	10.20	29.40	0.00	0.21	2.57	1.00	1.00	0.59	27.60	0.00	0.00	1,230.8	0.0	1,548.01	0.00	1,548.01	1
														4,237.7	0.0			5,768.33	

LoadCase 60 deg No Ice — 85.00 mph Wind at 60 deg From Face with No Ice

Allow Stress Inc: 1.333
Dead LF: 1.000
Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
4	70.00	22.93	8.11	22.77	0.00	0.34	2.19	0.80	1.00	0.63	20.82	0.00	0.00	818.6	0.0	1,233.23	0.00	1,233.23	1
3	50.00	20.83	9.09	27.73	0.00	0.33	2.21	0.80	1.00	0.63	24.66	0.00	0.00	1,053.1	0.0	1,337.57	0.00	1,337.57	1
2	30.00	18.50	9.99	29.40	0.00	0.26	2.40	0.80	1.00	0.60	25.78	0.00	0.00	1,135.1	0.0	1,350.14	0.00	1,350.14	1
1	10.00	18.50	10.20	29.40	0.00	0.21	2.57	0.80	1.00	0.59	25.56	0.00	0.00	1,230.8	0.0	1,433.58	0.00	1,433.58	1
														4,237.7	0.0			5,354.51	

LoadCase 90 deg No Ice — 85.00 mph Wind at 90 deg From Face with No Ice

Allow Stress Inc: 1.333
Dead LF: 1.000
Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
4	70.00	22.93	8.11	22.77	0.00	0.34	2.19	0.85	1.00	0.63	21.23	0.00	0.00	818.6	0.0	1,257.25	0.00	1,257.25	1
3	50.00	20.83	9.09	27.73	0.00	0.33	2.21	0.85	1.00	0.63	25.11	0.00	0.00	1,053.1	0.0	1,362.24	0.00	1,362.24	1
2	30.00	18.50	9.99	29.40	0.00	0.26	2.40	0.85	1.00	0.60	26.28	0.00	0.00	1,135.1	0.0	1,376.29	0.00	1,376.29	1
1	10.00	18.50	10.20	29.40	0.00	0.21	2.57	0.85	1.00	0.59	26.07	0.00	0.00	1,230.8	0.0	1,462.19	0.00	1,462.19	1
														4,237.7	0.0			5,457.97	

Site Number: 11464
Location: Brookfield, CT

Code: TIA/EIA-222 Rev F

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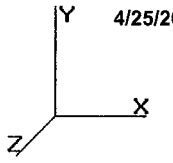

Gh : 1.18

Section Forces

LoadCase Normal Ice — 73.61 mph Wind Normal To Face with Ice

Allow Stress Inc: 1.333
Dead LF: 1.000
Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
4	70.00	17.20	8.11	39.01	16.24	0.52	1.87	1.00	1.00	0.71	35.75	0.00	0.00	1,631.3	812.7	1,357.93	0.00	1,357.93	1
3	50.00	15.62	9.09	47.13	19.40	0.51	1.89	1.00	1.00	0.70	42.20	0.00	0.00	2,061.7	1,008.5	1,466.65	0.00	1,466.65	1
2	30.00	13.87	9.99	49.31	19.91	0.39	2.08	1.00	1.00	0.65	42.00	0.00	0.00	2,190.6	1,055.5	1,425.41	0.00	1,425.41	1
1	10.00	13.87	10.20	48.57	19.17	0.31	2.28	1.00	1.00	0.62	40.23	0.00	0.00	2,287.2	1,056.4	1,497.28	0.00	1,497.28	1
														8,170.8	3,933.2			5,747.27	

LoadCase 60 deg Ice — 73.61 mph Wind at 60 deg From Face with Ice

Allow Stress Inc: 1.333
Dead LF: 1.000
Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
4	70.00	17.20	8.11	39.01	16.24	0.52	1.87	0.80	1.00	0.71	34.12	0.00	0.00	1,631.3	812.7	1,296.30	0.00	1,296.30	1
3	50.00	15.62	9.09	47.13	19.40	0.51	1.89	0.80	1.00	0.70	40.38	0.00	0.00	2,061.7	1,008.5	1,403.46	0.00	1,403.46	1
2	30.00	13.87	9.99	49.31	19.91	0.39	2.08	0.80	1.00	0.65	40.00	0.00	0.00	2,190.6	1,055.5	1,357.61	0.00	1,357.61	1
1	10.00	13.87	10.20	48.57	19.17	0.31	2.28	0.80	1.00	0.62	38.19	0.00	0.00	2,287.2	1,056.4	1,421.33	0.00	1,421.33	1
														8,170.8	3,933.2			5,478.70	

LoadCase 90 deg Ice — 73.61 mph Wind at 90 deg From Face with Ice

Allow Stress Inc: 1.333
Dead LF: 1.000
Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
4	70.00	17.20	8.11	39.01	16.24	0.52	1.87	0.85	1.00	0.71	34.53	0.00	0.00	1,631.3	812.7	1,311.71	0.00	1,311.71	1
3	50.00	15.62	9.09	47.13	19.40	0.51	1.89	0.85	1.00	0.70	40.84	0.00	0.00	2,061.7	1,008.5	1,419.26	0.00	1,419.26	1
2	30.00	13.87	9.99	49.31	19.91	0.39	2.08	0.85	1.00	0.65	40.50	0.00	0.00	2,190.6	1,055.5	1,374.56	0.00	1,374.56	1
1	10.00	13.87	10.20	48.57	19.17	0.31	2.28	0.85	1.00	0.62	38.70	0.00	0.00	2,287.2	1,056.4	1,440.32	0.00	1,440.32	1
														8,170.8	3,933.2			5,545.84	

Site Number: 11464
Location: Brookfield, CT

Code: TIA/EIA-222 Rev F

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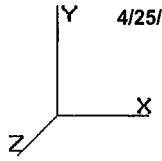


Gh : 1.18

Section Forces

LoadCase Normal — 50.00 mph Wind Normal To Face with No Ice

Allow Stress Inc: 1.333
Dead LF: 1.000
Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
4	70.00	7.93	8.11	22.77	0.00	0.34	2.19	1.00	1.00	0.63	22.44	0.00	0.00	818.6	0.0	459.97	0.00	459.97	1
3	50.00	7.21	9.09	27.73	0.00	0.33	2.21	1.00	1.00	0.63	26.47	0.00	0.00	1,053.1	0.0	496.96	0.00	496.96	1
2	30.00	6.40	9.99	29.40	0.00	0.26	2.40	1.00	1.00	0.60	27.77	0.00	0.00	1,135.1	0.0	503.38	0.00	503.38	1
1	10.00	6.40	10.20	29.40	0.00	0.21	2.57	1.00	1.00	0.59	27.60	0.00	0.00	1,230.8	0.0	535.64	0.00	535.64	1
														4,237.7	0.0			1,995.96	

LoadCase 60 deg — 50.00 mph Wind at 60 deg From Face with No Ice

Allow Stress Inc: 1.333
Dead LF: 1.000
Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
4	70.00	7.93	8.11	22.77	0.00	0.34	2.19	0.80	1.00	0.63	20.82	0.00	0.00	818.6	0.0	426.72	0.00	426.72	1
3	50.00	7.21	9.09	27.73	0.00	0.33	2.21	0.80	1.00	0.63	24.66	0.00	0.00	1,053.1	0.0	462.83	0.00	462.83	1
2	30.00	6.40	9.99	29.40	0.00	0.26	2.40	0.80	1.00	0.60	25.78	0.00	0.00	1,135.1	0.0	467.17	0.00	467.17	1
1	10.00	6.40	10.20	29.40	0.00	0.21	2.57	0.80	1.00	0.59	25.56	0.00	0.00	1,230.8	0.0	496.05	0.00	496.05	1
														4,237.7	0.0			1,852.77	

LoadCase 90 deg — 50.00 mph Wind at 90 deg From Face with No Ice

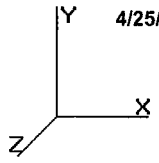
Allow Stress Inc: 1.333
Dead LF: 1.000
Wind LF: 1.000

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Rr	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	Eff Face
4	70.00	7.93	8.11	22.77	0.00	0.34	2.19	0.85	1.00	0.63	21.23	0.00	0.00	818.6	0.0	435.03	0.00	435.03	1
3	50.00	7.21	9.09	27.73	0.00	0.33	2.21	0.85	1.00	0.63	25.11	0.00	0.00	1,053.1	0.0	471.36	0.00	471.36	1
2	30.00	6.40	9.99	29.40	0.00	0.26	2.40	0.85	1.00	0.60	26.28	0.00	0.00	1,135.1	0.0	476.23	0.00	476.23	1
1	10.00	6.40	10.20	29.40	0.00	0.21	2.57	0.85	1.00	0.59	26.07	0.00	0.00	1,230.8	0.0	505.95	0.00	505.95	1
														4,237.7	0.0			1,888.57	

Site Number: 11464
Location: Brookfield, CT

Code: TIA/EIA-222 Rev F

4/25/2012 11:38:55 AM



Tower Loading

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)	X Angle (deg)	Vert Ecc (ft)
79.00	DB854DG90ESX	3	19.00	6.200	0.78	56.34	6.830	0.78	0.000	0.00	0.000
79.00	Sidearm	3	70.00	5.150	1.00	100.00	7.100	1.00	0.000	0.00	0.000
79.00	BXA-171063/8BF	3	10.50	2.902	0.88	29.82	3.374	0.88	0.000	0.00	0.000
71.00	Diplexer	6	7.00	0.713	0.64	11.11	0.893	0.64	0.000	0.00	0.000
71.00	BXA-80063/4CF_5	3	9.90	5.160	1.00	37.73	5.740	1.00	0.000	0.00	0.000
71.00	Allgon 7486.00	2	36.30	5.347	1.00	64.17	5.950	1.00	0.000	0.00	0.000
71.00	Sidearm	3	70.00	5.150	1.00	100.00	7.100	1.00	0.000	0.00	0.000
71.00	BXA-70063/6CF	2	17.00	7.731	1.00	57.60	8.540	1.00	0.000	0.00	0.000
71.00	BXA-70063/4CF	1	9.90	5.160	1.00	37.73	5.740	1.00	0.000	0.00	0.000
71.00	BXA-80063/6CF	2	14.90	7.742	0.70	55.55	8.550	0.70	0.000	0.00	0.000
71.00	BXA-80063/4CF	1	9.90	5.160	1.00	37.73	5.740	1.00	0.000	0.00	0.000
	Totals	29	736.40			1468.43			Number of Appurtenances : 11		

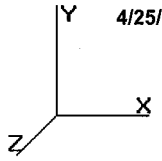
Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Wind	Spread On Faces	Bundling Arrangement
0.00	79.00	1 5/8" Coax	6	1.98	1.04	50.00	1	Separate
0.00	79.00	1 5/8" Coax	3	1.98	1.04	100.00	2,3	Separate
0.00	71.00	1 5/8" Coax	6	1.98	1.04	50.00	1	Separate
0.00	71.00	1 5/8" Coax	5	1.98	1.04	60.00	3	Separate

Site Number: 11464
Location: Brookfield, CT

Code: TIA/EIA-222 Rev F

4/25/2012 11:38:55 AM



Force/Stress Summary

Section: 1 9NH-2 Bot Elev (ft): 0.00 Height (ft): 20.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG PX - 2-1/2" DIA PIPE	-51.79	Normal No Ice	6.68	100	100	100	0.0	0.0	55.99	0	0	0.00	0.00	92	User Input
HORIZ	0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 1.75X1.75X.015	-1.63	90 deg No Ice	12.22	50	75	50	230.8	3.7	1.86	1	1	5.49	7.25	88	Member Z

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG PX - 2-1/2" DIA PIPE	47.04	60 deg No Ice	50	55.99	0	0	0.00	0.00	84	User Input
HORIZ	0.00		0	0.00	0	0	0.00	0.00	0	
DIAG SAE - 1.75X1.75X.015	1.66	90 deg Ice	36	11.84	1	1	5.49	7.25	30	Bolt Shear

Section: 2 8N-2 Bot Elev (ft): 20.00 Height (ft): 20.000

Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG PST - 2-1/2" DIA PIP	-42.06	Normal No Ice	5.01	100	100	100	0.0	0.0	52.53	0	1	0.00	1,333,2	80	User Input
HORIZ SAE - 1.75X1.75X0.18	-0.43	Normal Ice	6.507	100	100	100	227.6	3.8	2.38	1	0	0.00	10.87	18	Member Z
DIAG SAE - 1.5X1.5X0.1563	-1.53	90 deg Ice	9.677	50	75	50	196.8	5.1	2.26	1	1	5.49	7.25	67	Member Z

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG PST - 2-1/2" DIA PIP	38.38	60 deg No Ice	50	52.53	0	1	0.00	1,333,200.	73	User Input
HORIZ SAE - 1.75X1.75X0.18	0.44	60 deg No Ice	36	17.85	1	0	0.00	10.87	4	Bolt Bear
DIAG SAE - 1.5X1.5X0.1563	1.44	90 deg No Ice	36	10.21	1	1	5.49	7.25	26	Bolt Shear

Section: 3 7N3-TAPERED Bot Elev (ft): 40.00 Height (ft): 20.000

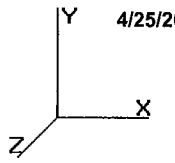
Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG PX - 2" DIA PIPE	-30.07	Normal No Ice	4.01	100	100	100	0.0	0.0	46.01	0	0	0.00	0.00	65	User Input
HORIZ SAE - 1.5X1.5X0.1875	-0.22	Normal No Ice	4.522	100	100	100	185.2	5.8	3.08	0	0	0.00	0.00	7	Member Z
DIAG SAE - 1.5X1.5X0.1563	-1.37	90 deg No Ice	7.471	50	75	50	151.9	8.6	3.79	1	1	5.49	7.25	36	Member Z

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG PX - 2" DIA PIPE	27.70	60 deg No Ice	50	46.01	0	0	0.00	0.00	60	User Input
HORIZ SAE - 1.5X1.5X0.1875	0.22	60 deg No Ice	36	15.26	0	0	0.00	0.00	1	Member
DIAG SAE - 1.5X1.5X0.1563	1.39	90 deg No Ice	36	10.21	1	1	5.49	7.25	25	Bolt Shear

Site Number: 11464
Location: Brookfield, CT

Code: TIA/EIA-222 Rev F

4/25/2012 11:38:55 AM



Force/Stress Summary

Section: 4 6NST-2 **Bot Elev (ft): 60.00** **Height (ft): 20.000**

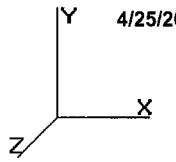
Max Compression Member	Force (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fa (ksi)	Member Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG PST - 2" DIA PIPE	-14.07	Normal No Ice	4.00	100	100	100	0.0	0.0	33.73	0	0	0.00	0.00	41	User Input
HORIZ SAE - 1.5X1.5X0.1563	-0.34	60 deg No Ice	4.522	100	100	100	184.0	5.9	2.59	0	0	0.00	0.00	13	Member Z
DIAG SAE - 1.5X1.5X0.1563	-1.98	Normal No Ice	6.037	50	75	50	122.8	13.2	5.79	1	1	5.49	7.25	36	Bolt Shear

Max Tension Member	Force (kip)	Load Case	Fy (ksi)	Cap (kip)	Num Bolts	Num Holes	Shear Cap (kip)	Bear Cap (kip)	Use %	Controls
LEG PST - 2" DIA PIPE	12.87	60 deg No Ice	50	33.73	0	0	0.00	0.00	38	User Input
HORIZ SAE - 1.5X1.5X0.1563	0.35	Normal No Ice	36	12.67	0	0	0.00	0.00	2	Member
DIAG SAE - 1.5X1.5X0.1563	1.99	90 deg No Ice	36	10.21	1	1	5.49	7.25	36	Bolt Shear

Site Number: 11464
Location: Brookfield, CT

Code: TIA/EIA-222 Rev F

4/25/2012 11:38:55 AM



Support Forces Summary

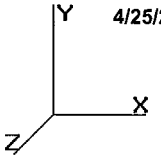
Load Case	Node	FX (kip)	FY (kip)	FZ (kip)
90 deg	1b	-1.30	-13.39	-0.65
	1a	-1.50	16.71	0.76
	1	-0.19	1.66	-0.11
60 deg	1b	-1.45	-15.56	-0.84
	1a	-0.95	10.27	0.36
	1	-0.16	10.27	-1.01
Normal	1b	-0.63	-7.27	-0.56
	1a	0.63	-7.27	-0.56
	1	0.00	19.50	-1.98
90 deg Ice	1b	-3.98	-38.76	-2.00
	1a	-3.92	45.18	1.95
	1	-0.53	3.21	0.05
60 deg Ice	1b	-4.41	-44.96	-2.54
	1a	-2.38	27.30	0.84
	1	-0.46	27.30	-2.48
Normal Ice	1b	-2.06	-21.46	-1.73
	1a	2.06	-21.46	-1.73
	1	0.00	52.55	-5.17
90 deg No Ice	1b	-3.98	-42.13	-1.99
	1a	-4.17	45.44	2.09
	1	-0.55	1.66	-0.09
60 deg No Ice	1b	-4.41	-48.45	-2.54
	1a	-2.57	26.71	0.94
	1	-0.47	26.71	-2.69
Normal No Ice	1b	-2.02	-24.30	-1.74
	1a	2.02	-24.30	-1.74
	1	0.00	53.58	-5.54

(-) = Uplift (+) = Down

Max Uplift:	48.45 (kip)	Moment:	475.70 (ft-kip)	Normal No Ice
Max Down:	53.58 (kip)	Total Down:	4.97 (kip)	
Max Shear:	5.54 (kip)	Total Shear:	9.01 (kip)	

Site Number: 11464
Location: Brookfield, CT

Code: TIA/EIA-222 Rev F



4/25/2012 11:38:55 AM

Deflections and Rotations

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
50.00 mph Wind at 60 deg From Face with No Ice	72.00	0.1348	0.0038	0.2087
	80.00	0.1639	0.0033	0.2121
50.00 mph Wind at 90 deg From Face with No Ice	72.00	0.1359	0.0022	0.2100
	80.00	0.1651	0.0020	0.2148
50.00 mph Wind Normal To Face with No Ice	72.00	0.1388	0.0039	0.2142
	80.00	0.1686	0.0034	0.2174
73.61 mph Wind at 60 deg From Face with Ice	72.00	0.3742	0.0133	0.5757
	80.00	0.4546	0.0124	0.5845
73.61 mph Wind at 90 deg From Face with Ice	72.00	0.3759	0.0078	0.5778
	80.00	0.4566	0.0072	0.5902
73.61 mph Wind Normal To Face with Ice	72.00	0.3813	0.0135	0.5856
	80.00	0.4628	0.0126	0.5941
85.00 mph Wind at 60 deg From Face with No Ice	72.00	0.3924	0.0139	0.6075
	80.00	0.4771	0.0129	0.6173
85.00 mph Wind at 90 deg From Face with No Ice	72.00	0.3953	0.0081	0.6108
	80.00	0.4803	0.0075	0.6249
85.00 mph Wind Normal To Face with No Ice	72.00	0.4037	0.0142	0.6228
	80.00	0.4904	0.0133	0.6324
		0.0000	0.0000	0.0000