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Also admitted in Massachusetts

ORIGINAL

December 26, 2013

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

Re: **EM-VER-024-130107 – Cellco Partnership d/b/a Verizon Wireless
203 Davis Road, Chaplin, Connecticut**

Dear Mr. Martin:

On January 25, 2013, the Siting Council acknowledged receipt of Cellco's notice of intent to modify its telecommunications facility at 203 Davis Road in Chaplin. The modification involved the replacement of certain antennas and the installation of coaxial cable diplexers.

As a condition of the acknowledgement, Cellco was required to provide the Council with a letter stating that the recommendations specified in the structural report were implemented. Attached is a Tower Modification Certification Letter verifying that these conditions have been satisfied. All construction associated with these modifications has now been completed.

If you have any questions please do not hesitate to contact me or Rachel Mayo.

Sincerely,

Kenneth C. Baldwin

Attachment

Copy to:

Sandy M. Carter
Brian Ragozzine
Mark Gauger



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November 19, 2013

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

Re: Existing Telecommunications Facility Tower Modification Certification Letter

Project: Verizon ~ Mansfield NE
203 Davis Road
Chaplin, CT

Tower Owner: SBA Communications Corporation
5900 Broken Sound Parkway NW
Boca Raton, Florida 33487

Engineer: FDH Engineering
2730 Rowland Ave Raleigh, NC 27615

Centek Project No.: 13008.034

Dear Mr. Gauger,

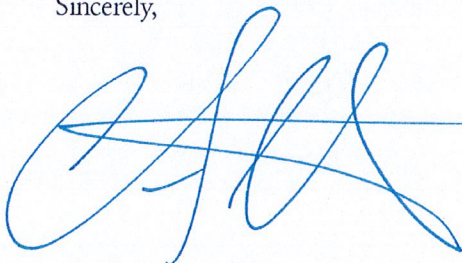
We are providing this "Existing Telecommunications Facility Tower Modification Certification Letter" with regard to the antenna upgrade by Verizon Wireless at the above referenced project.

The following are the basis for substantiating compliance with the FDH Engineering Structural Analysis Report (FDH Project No. 12-06274E S1) dated June 23, 2012:

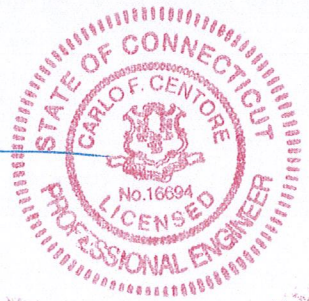
- Review of the FDH Structural Analysis Report dated 06/23/2012.
- Field observations by Centek personnel of the coax installation on 11/14/2013 which determined all coax lines and diplexers were installed in general compliance with the recommendations of the structural analysis report prepared by FDH on 06/23/2012.

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

Sincerely,



Carlo F. Centore, PE
Principal ~ Structural Engineer



CC: Rachel Mayo, Tim Parks



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 25, 2013

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

RE: **EM-VER-024-130107** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 203 Davis Road, Chaplin, Connecticut.

Dear Attorney Baldwin:

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

- The proposed coax and accessory equipment shall be installed in accordance with the recommendations made in the Structural Analysis Report prepared by FDH Engineering dated June 23, 2012 and stamped by Christopher Murphy;
- Not more than 45 days following completion of the antenna installation, Verizon shall provide documentation certifying that its installation complied with the engineer's recommendation;
- 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 more 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 2, 2013. 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/jb

c: The Honorable William H. Rose, IV, First Selectman, Town of Chaplin
Demian Sorrentino, Zoning Enforcement Officer, Town of Chaplin
Sean Gormley, SBA



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

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January 9, 2013

The Honorable William H. Rose, IV
First Selectman
Town of Chaplin
Town Hall
Route 198
P. O. Box 286
Chaplin, CT 06235-0286

RE: **EM-VER-024-130107** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 203 Davis Road, Chaplin, Connecticut.

Dear First Selectman Rose:

The Connecticut Siting Council (Council) received a request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72, a copy of which has already been provided to you.

If you have any questions or comments regarding the proposal, please call me or inform the Council by January 23, 2013.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts
Executive Director

LR/jb

c: Demian Sorrentino, Zoning Enforcement Officer, Town of Chaplin

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Also admitted in Massachusetts

January 2, 2013

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JAN - 7 2013

**CONNECTICUT
SITING COUNCIL**

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

Re: **Notice of Exempt Modification – Antenna Swap
203 Davis Road, Chaplin, Connecticut**

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) wireless telecommunications antennas at the 155-foot level on an existing 175-foot tower at the above-referenced address. The tower is owned by SBA. Cellco’s use of the tower was approved by the Council in 2007. Cellco now intends to replace ten (10) of its existing antennas with four (4) model LPA-80063-6CF cellular antennas; two (2) model BXA-171063-12BF PCS antennas; one (1) model BXA-171085-12BF PCS antenna; and three (3) model BXA-70063-6CF LTE antennas at the same 155-foot level. Cellco also intends to install six (6) coax cable diplexers behind its antennas. 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 H. Rose IV, First Selectman of the Town of Chaplin. A copy of this letter is also being sent to Truman Pearl, the owner of the property on which the tower is located.

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



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Linda Roberts
January 2, 2013
Page 2

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas will be located at the 155-foot level on the existing 175-foot tower.
2. The proposed modifications do 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, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency (RF) emissions 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.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support Cellco's proposed modifications. (*See* Structural Analysis attached behind Tab 3). Contrary to note 1, under the "Recommendations" section of the Structural Analysis, Cellco does not propose to install any new coax cables at this site.

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 H. Rose IV, Chaplin First Selectman
Truman Pearl
Sandy M. Carter



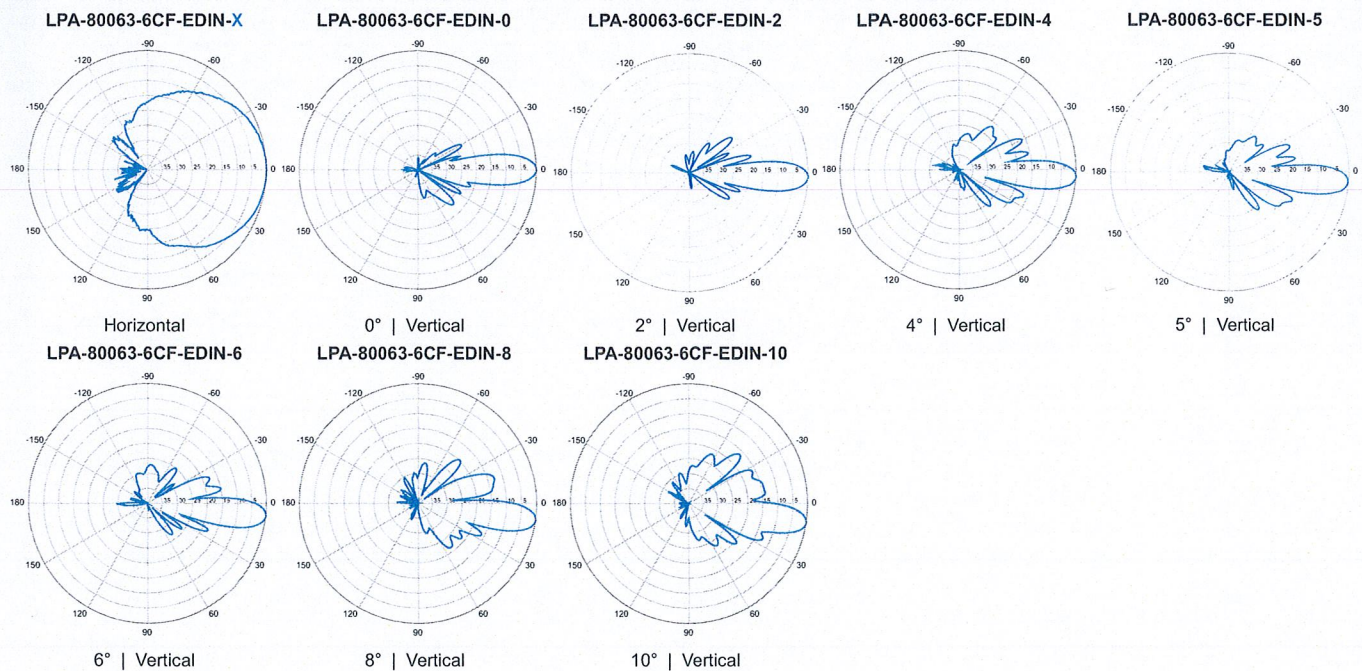
LPA-80063-6CF-EDIN-X

V-Pol | Log Periodic | 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	
Frequency bands	806-960 MHz
Polarization	Vertical
Horizontal beamwidth	63°
Vertical beamwidth	10°
Gain	14.5 dBd (16.6 dBi)
Electrical downtilt (X)	0, 2, 4, 5, 6, 8, 10
Impedance	50Ω
VSWR	≤1.4:1
Null fill	5% (-26.02 dB)
Input power	500 W
Lightning protection	Direct Ground
Connector(s)	1 Port / EDIN or NE / Female / Center (Back)
Mechanical Characteristics	
Dimensions Length x Width x Depth	1805 x 385 x 332 mm 71.1 x 15.2 x 13.1 in
Depth of antenna with z-bracket	372 mm 14.6 in
Weight without mounting brackets	12.3 kg 27 lbs
Survival wind speed	> 201 km/hr > 125 mph
Wind area	Front: 0.70 m ² Side: 0.59 m ² Front: 7.5 ft ² Side: 6.3 ft ²
Wind load @ 161 km/hr (100 mph)	Front: 885 N Side: 757 N Front: 199 lbf Side: 170 lbf
Mounting Options	
Part Number	Fits Pipe Diameter
3-Point Mounting & Downtilt Bracket Kit (0-20°)	21700000 50-102 mm 2.0-4.0 in
Lock-Down Brace	Weight: 11 kg 25 lbs
If the lock-down brace is used, the maximum diameter of the mounting pipe is 88.9 mm or 3.5 in.	



Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

BXA-171063-12BF-EDIN-X

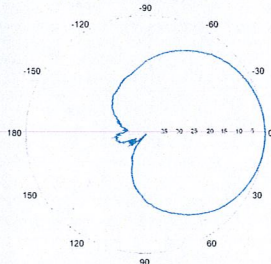
Replace "X" with desired electrical downtilt.

X-Pol | FET Panel | 63° | 19.0 dBi

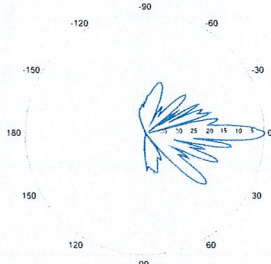


Electrical Characteristics		1710-2170 MHz		
Frequency bands		1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization		±45°	±45°	±45°
Horizontal beamwidth		68°	65°	60°
Vertical beamwidth		4.5°	4.5°	4.5°
Gain		16.1 dBd / 18.2 dBi	16.5 dBd / 18.6 dBi	16.9 dBd / 19.0 dBi
Electrical downtilt (X)		0, 2, 5		
Impedance		50Ω		
VSWR		≤1.5:1		
First upper sidelobe		< -17 dB		
Front-to-back ratio		> 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		1820 x 154 x 105 mm	71.7 x 6.1 x 4.1 in	
Depth with z-brackets		133 mm	5.2 in	
Weight without mounting brackets		6.8 kg	15 lbs	
Survival wind speed		> 201 km/hr	> 125 mph	
Wind area		Front: 0.28 m ² Side: 0.19 m ²	Front: 3.1 ft ² Side: 2.1 ft ²	
Wind load @ 161 km/hr (100 mph)		Front: 460 N Side: 304 N	Front: 103 lbf Side: 68 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-171063-12BF-EDIN-X-FP			

BXA-171063-12BF-EDIN-X

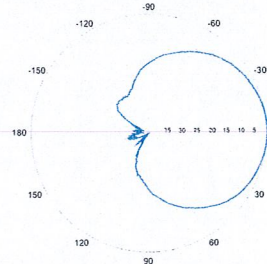


Horizontal | 1710-1880 MHz
BXA-171063-12BF-EDIN-0

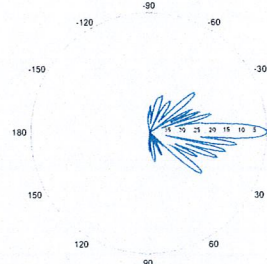


0° | Vertical | 1710-1880 MHz

BXA-171063-12BF-EDIN-X

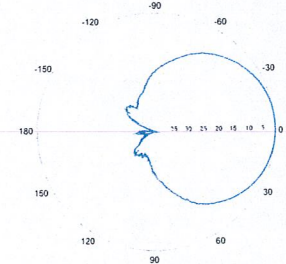


Horizontal | 1850-1990 MHz
BXA-171063-12BF-EDIN-0

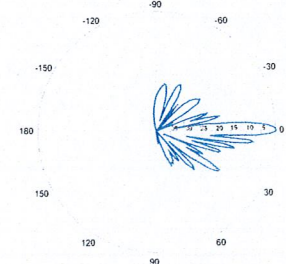


0° | Vertical | 1850-1990 MHz

BXA-171063-12BF-EDIN-X



Horizontal | 1920-2170 MHz
BXA-171063-12BF-EDIN-0



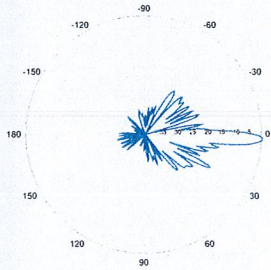
0° | Vertical | 1920-2170 MHz

Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

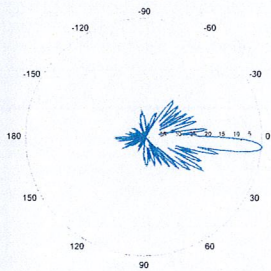
BXA-171063-12BF-EDIN-X

X-Pol | FET Panel | 63° | 19.0 dBi

BXA-171063-12BF-EDIN-2

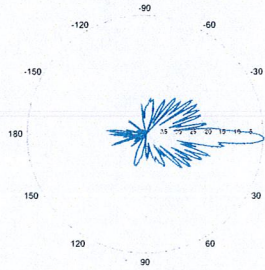


2° | Vertical | 1710-1880 MHz
BXA-171063-12BF-EDIN-5

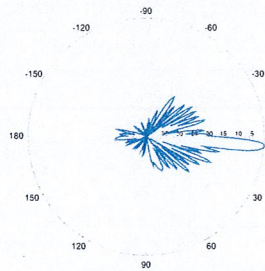


5° | Vertical | 1710-1880 MHz

BXA-171063-12BF-EDIN-2

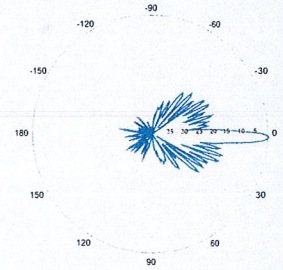


2° | Vertical | 1850-1990 MHz
BXA-171063-12BF-EDIN-5

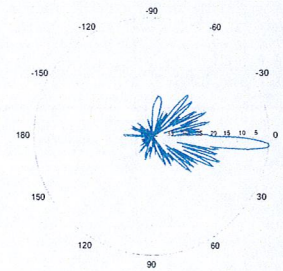


5° | Vertical | 1850-1990 MHz

BXA-171063-12BF-EDIN-2



2° | Vertical | 1920-2170 MHz
BXA-171063-12BF-EDIN-5



5° | Vertical | 1920-2170 MHz

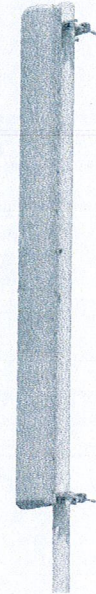
Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

BXA-171085-12BF-EDIN-X

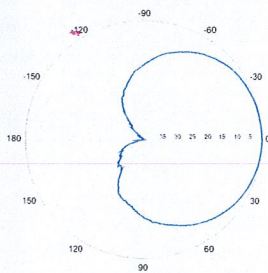
Replace "X" with desired electrical downtilt

X-Pol | FET Panel | 85° | 18.0 dBi

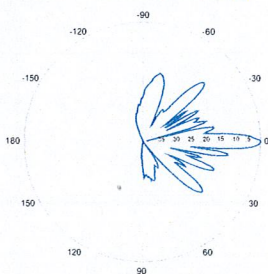
Electrical Characteristics	1710-2170 MHz		
	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	88°	85°	80°
Vertical beamwidth	4.5°	4.5°	4.5°
Gain	15.1 dBd / 17.2 dBi	15.5 dBd / 17.6 dBi	15.9 dBd / 18.0 dBi
Electrical downtilt (X)		0, 2, 4	
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back ratio	> 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	1820 x 154 x 105 mm	71.7 x 6.1 x 4.1 in	
Depth with z-brackets	133 mm	5.2 in	
Weight without mounting brackets	6.8 kg	15 lbs	
Survival wind speed	> 201 km/hr		> 125 mph
Wind area	Front: 0.28 m ² Side: 0.19 m ²	Front: 3.1 ft ² Side: 2.1 ft ²	
Wind load @ 161 km/hr (100 mph)	Front: 460 N Side: 304 N	Front: 103 lbf Side: 68 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-171085-12BF-EDIN-X-FP		



BXA-171085-12BF-EDIN-X

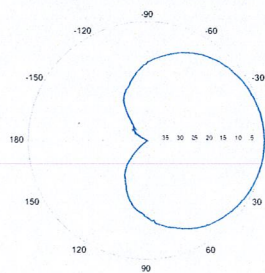


Horizontal | 1710-1880 MHz
BXA-171085-12BF-EDIN-0

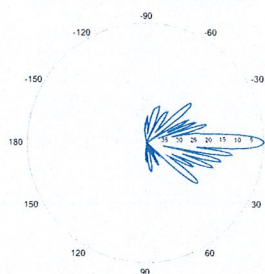


0° | Vertical | 1710-1880 MHz

BXA-171085-12BF-EDIN-X

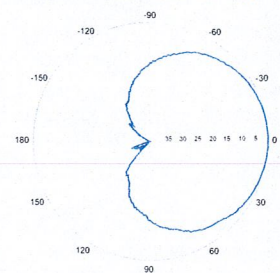


Horizontal | 1850-1990 MHz
BXA-171085-12BF-EDIN-0

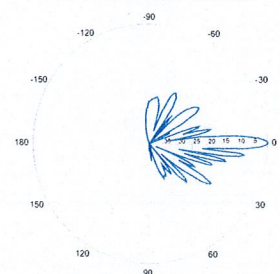


0° | Vertical | 1850-1990 MHz

BXA-171085-12BF-EDIN-X



Horizontal | 1920-2170 MHz
BXA-171085-12BF-EDIN-0



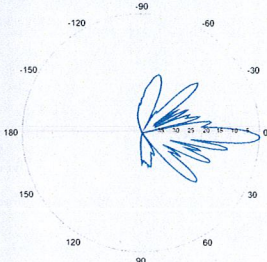
0° | Vertical | 1920-2170 MHz

Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

BXA-171085-12BF-EDIN-X

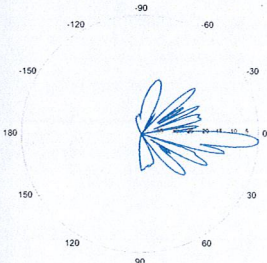
X-Pol | FET Panel | 85° | 18.0 dBi

BXA-171085-12BF-EDIN-2



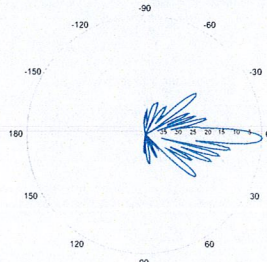
2° | Vertical | 1710-1880 MHz

BXA-171085-12BF-EDIN-4



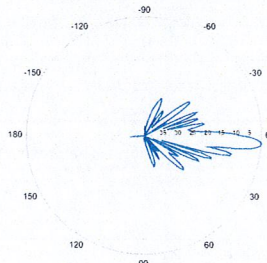
4° | Vertical | 1710-1880 MHz

BXA-171085-12BF-EDIN-2



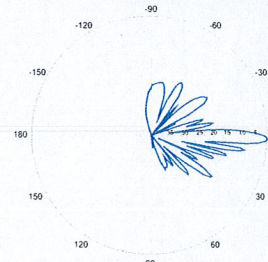
2° | Vertical | 1850-1990 MHz

BXA-171085-12BF-EDIN-4



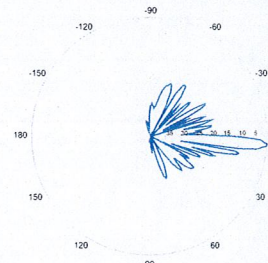
4° | Vertical | 1850-1990 MHz

BXA-171085-12BF-EDIN-2



2° | Vertical | 1920-2170 MHz

BXA-171085-12BF-EDIN-4



4° | Vertical | 1920-2170 MHz

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BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

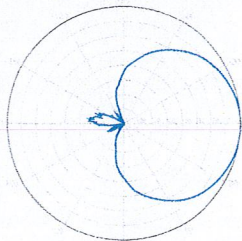
Replace "X" with desired electrical downtilt.

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



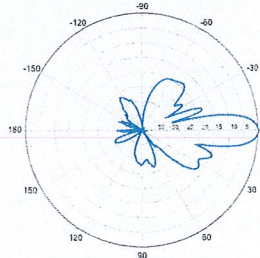
Electrical Characteristics	696-900 MHz		
Frequency bands	696-806 MHz	806-900 MHz	
Polarization	±45°		
Horizontal beamwidth	65°	63°	
Vertical beamwidth	13°	11°	
Gain	14.0 dBd (16.1 dBi)	14.5 dBd (16.6 dBi)	
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 10		
Impedance	50Ω		
VSWR	≤1.35:1		
Upper sidelobe 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 m ² Side: 0.24 m ²	Front: 5.5 ft ² Side: 2.6 ft ²	
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



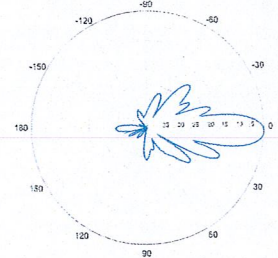
Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0

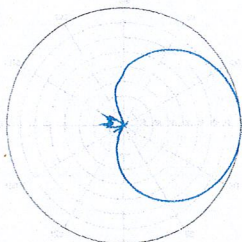


0° | Vertical | 750 MHz

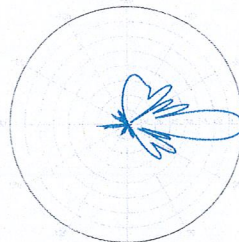
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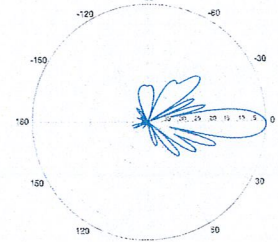
2° | Vertical | 750 MHz



Horizontal | 850 MHz



0° | Vertical | 850 MHz



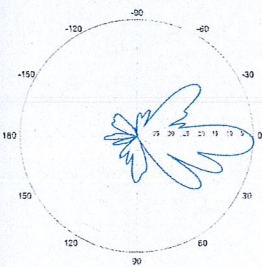
2° | Vertical | 850 MHz

Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

BXA-70063-6CF-EDIN-X

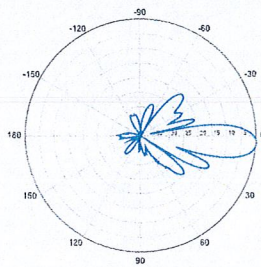
X-Pol | FET Panel | 63° | 14.5 dBd

BXA-70063-6CF-EDIN-3



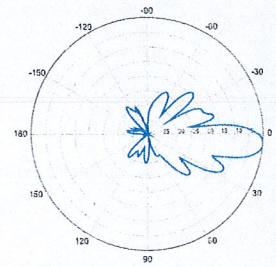
3° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-4

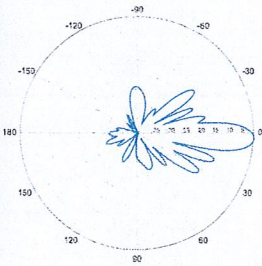


4° | Vertical | 750 MHz

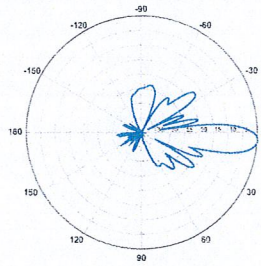
BXA-70063-6CF-EDIN-5



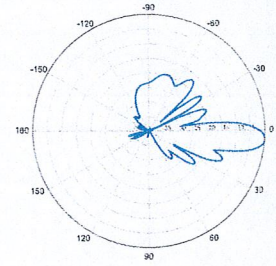
5° | Vertical | 750 MHz



3° | Vertical | 850 MHz

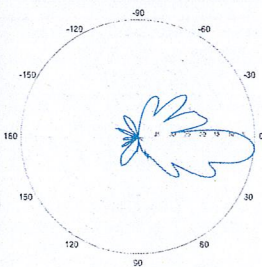


4° | Vertical | 850 MHz



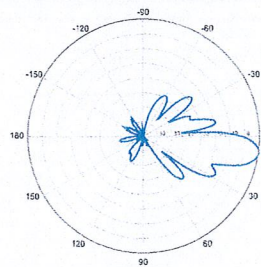
5° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-6



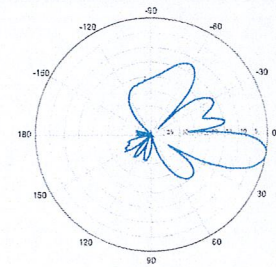
6° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-8

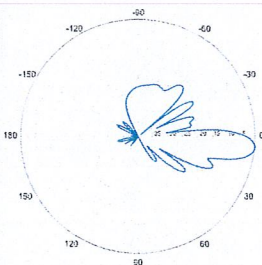


8° | Vertical | 750 MHz

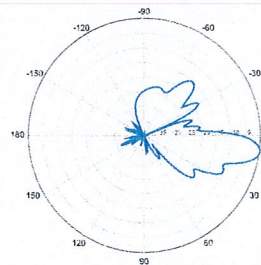
BXA-70063-6CF-EDIN-10



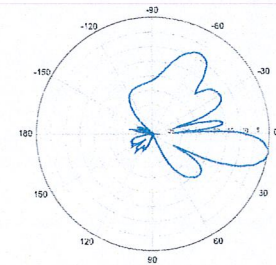
10° | Vertical | 750 MHz



6° | Vertical | 850 MHz



8° | Vertical | 850 MHz



10° | Vertical | 850 MHz

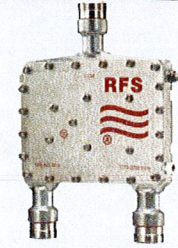
Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.



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
Application	LTE700, GSM900, UMTS, GSM1800, Cellular 800, PCS
Frequency Range 1, MHz	698-960
Frequency Range 2, MHz	1710-2200
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; 57/70@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

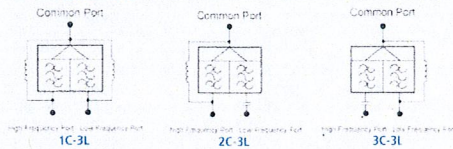


ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

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



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)

All information contained in the present datasheet is subject to confirmation at time of ordering

		General		Power		Density							
Site Name: Mansfield NE (Chaplin)													
Tower Height: Verizon @ 153Ft.													
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total					
*Sprint/Nextel	F information available		173										
*Sprint CDMA/LTE	2	769	162.5	0.0209	1900	1.0000	2.09%						
Verizon PCS	11	237	155	0.0390	1970	1.0000	3.90%						
Verizon Cellular	9	248	155	0.0334	869	0.5793	5.77%						
Verizon AWS	1	1750	155	0.0262	2145	1.0000	2.62%						
Verizon 700	1	817	155	0.0122	698	0.4653	2.63%	17.01%					
* Source: Siting Council													



FDH Engineering, Inc., 6521 Meridien Drive Raleigh, NC 27616, Ph. 919.755.1012

**Structural Analysis for
SBA Network Services, Inc.**

175' Monopole Tower

**SBA Site Name: North Chaplin
SBA Site ID: CT03113-S
Verizon Site ID: Mansfield NE, CT**

FDH Project Number 12-06274E S1

Analysis Results

Tower Components	82.7%	Sufficient
Foundation	60%	Sufficient

Prepared By:

Heather W Jones

Heather W. Jones, EI
Project Engineer

Reviewed By:

Christopher M. Murphy

Christopher M. Murphy, PE
President
CT PE License No. 25842

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Raleigh, NC 27616
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info@fdh-inc.com



June 23, 2012

Prepared pursuant to TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and the 2005 Connecticut State Building Code

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EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the monopole located in Chaplin, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads pursuant to the *Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, TIA/EIA-222-F and the 2005 Connecticut State Building Code*. Information pertaining to the existing/proposed antenna loading, current tower geometry, geotechnical data, and member sizes was obtained from:

- Fred A. Nudd Corporation (Project No. 7678 10125-056) original design drawings dated July 19, 2000
- Vertical Structures, Inc. (Job No. 2007-007-026) Structural Analysis Report dated July 10, 2007
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and the *2005 CTSBC* is 85 mph without ice and 38 mph with 1" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the existing and proposed antennas from Verizon in place at 155 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and the *2005 CTSBC* provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundation was designed and constructed to support the original design reactions (see Fred A. Nudd Corporation Project No. 7678 10125-056), the foundation should have the necessary capacity to support both the proposed and existing loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

Our structural analysis has been performed assuming all information provided to FDH Engineering, Inc. is accurate (i.e., the steel data, tower layout, existing antenna loading, and proposed antenna loading) and that the tower has been properly erected and maintained per the original design drawings.

Recommendations

To ensure the requirements of the *TIA/EIA-222-F* standards and the *2005 CTSBC* are met with the existing and proposed loading in place, we have the following recommendations:

1. The proposed coax should be installed inside the pole's shaft.
2. The proposed diplexers should be installed behind the proposed panels.

APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coax lines are shown in **Table 1**. *If the actual layout determined in the field deviates from the layout, FDH Engineering, Inc. should be contacted to perform a revised analysis.*

Table 1 - Appurtenance Loading

Existing Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
173	(12) Decibel DB844H90E-XY	(12) 1-1/4"	Nextel	173	(1) 14' Low Profile Platform
165	(12) Decibel DB980H90	(12) 1-5/8"	Sprint	165	(1) 14' Low Profile Platform
155	(6) Antel LPA-80080-6CF (6) Antel LPA-185080/12CF (6) Andrew PCS 1900 TMAs	(12) 1-5/8"	Verizon	155	(1) Pirod 13' Low Profile Platform

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
155	(3) Antel BXA-70063CF (4) Antel LPA-80063/6CF (2) Antel BXA-171063-12BF (2) Antel LPA-80080-6CF (1) Antel BXA-171085-12BF (6) RFS FD9R6004/2C-3L Diplexers	(12) 1-5/8"	Verizon	155	(1) Pirod 13' Low Profile Platform

RESULTS

The following yield strength of steel for individual members was used for analysis:

Table 2 - Material Strength

Member Type	Yield Strength
Tower Shaft Sections	65 ksi
Base Plate	50 ksi
Anchor Bolts	105 ksi

Table 3 displays the summary of the ratio (as a percentage) of force in the member to their capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its capacity. *Note: Capacities up to 105% are considered acceptable.* **Table 4** displays the maximum foundation reactions.

If the assumptions outlined in this report differ from actual field conditions, FDH Engineering, Inc. should be contacted to perform a revised analysis. Furthermore, as no information pertaining to the allowable twist and sway requirements for the existing or proposed appurtenances was provided, deflection and rotation were not taken into consideration when performing this analysis.

See the **Appendix** for detailed modeling information

Table 3 - Summary of Working Percentage of Structural Components

Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
L1	175 - 130	Pole	TP35.3162x24x0.25	42.7	Pass
L2	130 - 115	Pole	TP38.62x33.5588x0.3125	48.3	Pass
L3	115 - 85	Pole	TP45.3617x38.62x0.375	49.8	Pass
L4	85 - 41	Pole	TP55.2895x43.2634x0.375	55.9	Pass
L5	41 - 0	Pole	TP64.5x52.8558x0.4375	56.8	Pass
		Anchor Bolts	(29) 2" ϕ w/ B.C. 58"	55.4	Pass
		Base Plate	PL 64.5" ϕ x 1.5" Thick	82.7	Pass

Table 4 - Maximum Base Reactions

Base Reactions	Current Analysis (TIA/EIA-222-F)	Original Design (TIA/EIA-222-F)
Axial	45 k	---
Shear	28 k	44 k
Moment	3,406 k-ft	5,680 k-ft

GENERAL COMMENTS

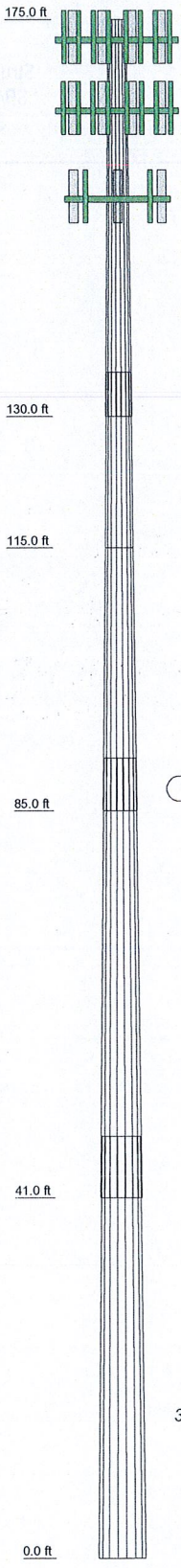
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading information) modeled. If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, FDH Engineering, Inc. should be notified immediately to perform a revised analysis.

LIMITATIONS

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of FDH Engineering, Inc.

APPENDIX

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	45.00	18	0.2500	5.00	24.0000	35.3162	A572-65	3.6
2	20.00	18	0.3125	33.5588	38.6200		A572-65	2.4
3	30.00	18	0.3750	6.00	38.6200	45.3617	A572-65	5.1
4	50.00	18	0.3750	7.00	43.2634	55.2895	A582-70	9.9
5	48.00	18	0.4375	52.8558	64.5000		A572-65	13.2
								34.2



DESIGNED APPURTENANCE LOADING

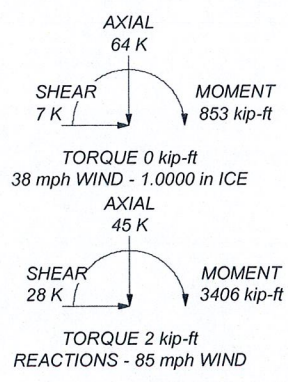
TYPE	ELEVATION	TYPE	ELEVATION
(4) DB844H90E-XY w/ Mount Pipe	173	(2) LPA-80063/6CF w/ Mount Pipe	155
(4) DB844H90E-XY w/ Mount Pipe	173	LPA-80063/6CF w/ Mount Pipe	155
(4) DB844H90E-XY w/ Mount Pipe	173	LPA-80063/6CF w/ Mount Pipe	155
14' Low Profile Platform	173	BXA-171063-12BF w/ Mount Pipe	155
(4) DB980H90	165	BXA-171063-12BF w/ Mount Pipe	155
(4) DB980H90	165	LPA-80080-6CF	155
(4) DB980H90	165	LPA-80080-6CF	155
14' Low Profile Platform	165	BXA-171085-12BF w/ Mount Pipe	155
Pirol 13' Low Profile Platform	155	(2) FD9R6004/2C-3L Diplexer	155
BXA-70063CF	155	(2) FD9R6004/2C-3L Diplexer	155
BXA-70063CF	155	(2) FD9R6004/2C-3L Diplexer	155
BXA-70063CF	155		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi	A582-70	70 ksi	90 ksi

TOWER DESIGN NOTES

1. Tower is located in Windham County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. TOWER RATING: 56.8%



<p>FDH Engineering, Inc. 6521 Meridian Drive Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031</p>	Job: North Chaplin, CT03113-S		
	Project: 12-06274E S1		
	Client: SBA Network Services, Inc.	Drawn by: John Wood	App'd:
	Code: TIA/EIA-222-F	Date: 06/23/12	Scale: NTS
	Path:	Dwg No. E-1	