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Hartford, CT 06103-3597
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Also admitted in Massachusetts

December 28, 2012

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

RECEIVED
JAN - 2 2013
**CONNECTICUT
SITING COUNCIL**

Re: **EM-VER-082-120829** – 393 Jackson Hill Road, Middlefield, Connecticut
EM-VER-079-120807 – 175 South Main Street, Marlborough,
Connecticut
EM-VER-005-120217B – 127 New Hartford Road, Barkhamsted,
Connecticut
EM-VER-086-120216 – 41 Beckwith Road, Montville, Connecticut
EM-VER-036-120627 – 15 Pent Road, Deep River, Connecticut
EM-VER-041-120405 – 135 Honey Hill Road, East Haddam, Connecticut

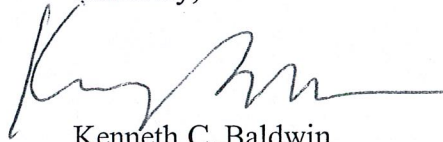
Completion of Construction Activity

Dear Ms. Roberts:

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

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

Sincerely,



Kenneth C. Baldwin

Copy to:
Sandy M. Carter



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STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

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

RE: **EM-VER-079-120807**- Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 175 South Main Street, Marlborough, 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 diplexers be installed in accordance with the recommendations made in the Structural Analysis Report prepared by FDH Engineering dated May 24, 2012 and stamped by Christopher Murphy;
- Following the installation of the proposed equipment, AT&T shall provide documentation certifying that the 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 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 August 6, 2012. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Linda Roberts
Executive Director

LR/CDM/jbw

c: The Honorable Catherine D. Gaudinski, First Selectman, Town of Marlborough
Peter F. Hughes, Zoning Enforcement Officer, Town of Marlborough
Sean Gormley, SBA



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Also admitted in Massachusetts

August 6, 2012

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

Re: **Notice of Exempt Modification – Antenna Swap
 175 South Main Street, Marlborough, Connecticut**

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) wireless telecommunications antennas at the 167-foot level on an existing 170-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 2004 (Sprint Spectrum L.P. Docket No. 256). Cellco now intends to replace all of its antennas with four (4) model LPA-80063-4CF cellular antennas; two (2) model LPA-80080-6CF cellular antennas; two (2) model BXA-171063-8BF PCS antennas; one (1) model BXA-171085-12BF PCS antenna; two (2) model BXA-70063-4CF LTE antennas; and one (1) model BXA-70080-6CF LTE antenna, all at the same 167-foot level. Cellco also intends to install six (6) coax cable diplexers mounted directly 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 Catherine D. Gaudinski, First Selectwoman of the Town of Marlborough. A copy of this letter is also being sent to Fallow Crossings LLC, 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
August 6, 2012
Page 2

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and diplexers will be located at the 167-foot level on the existing 170-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.

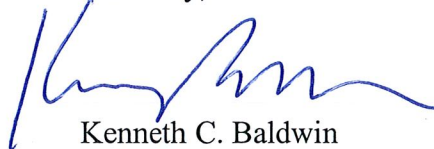
3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

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

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

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

Sincerely,



Kenneth C. Baldwin

Enclosures

Copy to:

Catherine D. Gaudinski, Marlborough First Selectwoman
Fallow Crossings LLC
Sandy M. Carter

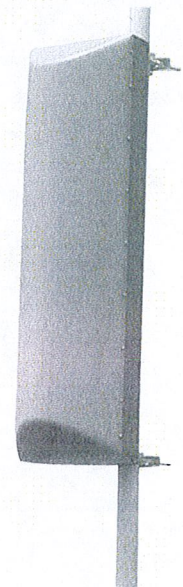


LPA-80063-4CF-EDIN-X

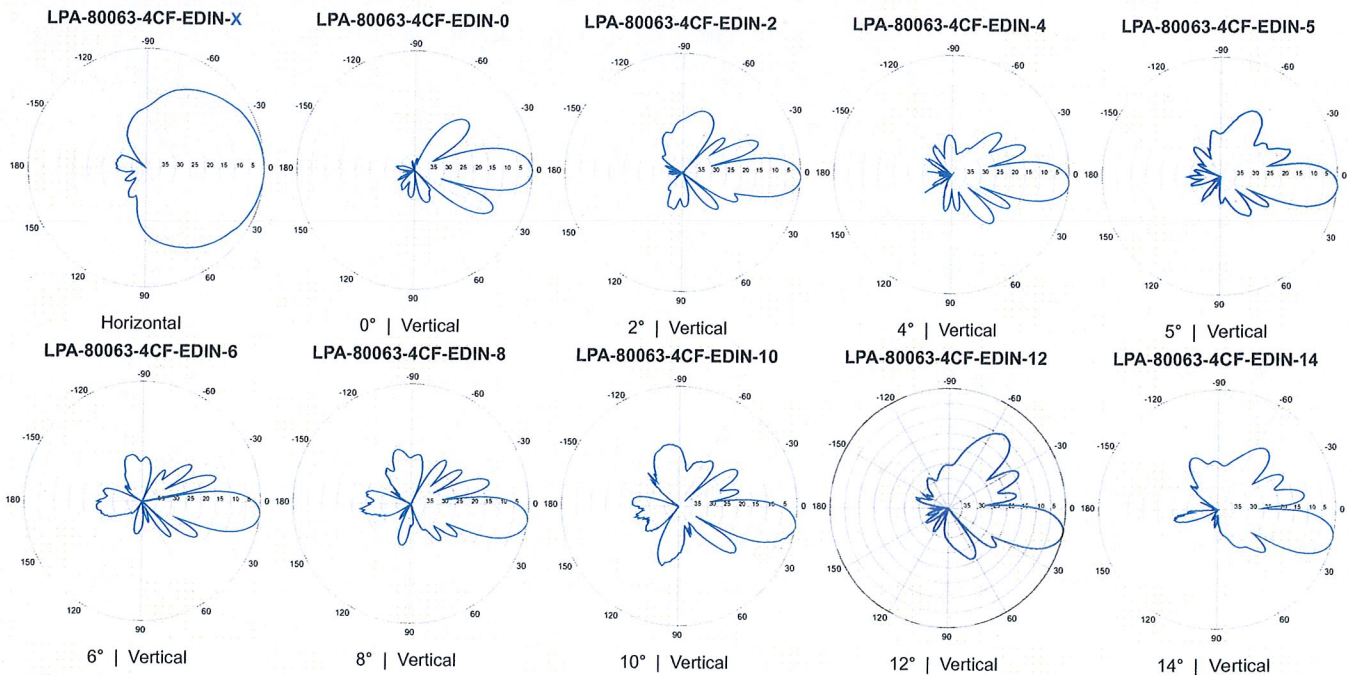
V-Pol | Log Periodic | 63° | 13.0 dBd

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		
Frequency bands	806-960 MHz	
Polarization	Vertical	
Horizontal beamwidth	63°	
Vertical beamwidth	15°	
Gain	13.0 dBd (15.1 dBi)	
Electrical downtilt (X)	0, 2, 4, 5, 6, 8, 10, 12, 14	
Impedance	50Ω	
VSWR	≤1.4:1	
Upper sidelobe suppression (0°)	-15.7 dB	
Front-to-back ratio (+/-30°)	-31.7 dB	
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	1205 x 385 x 332 mm 47.4 x 15.2 x 13.1 in	
Depth of antenna with z-bracket	372 mm 14.6 in	
Weight without mounting brackets	9.1 kg 20 lbs	
Survival wind speed	> 201 km/hr > 125 mph	
Wind area	Front: 0.46 m ² Side: 0.39 m ² Front: 5.0 ft ² Side: 4.2 ft ²	
Wind load @ 161 km/hr (100 mph)	Front: 660 N Side: 550 N Front: 149 lbf Side: 124 lbf	
Mounting Options		
	Part Number Fits Pipe Diameter Weight	
2-Point Mounting & Downtilt Bracket Kit (0-20°)	21699999 50-102 mm 2.0-4.0 in 5.4 kg 12 lbs	
Lock-Down Brace	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.

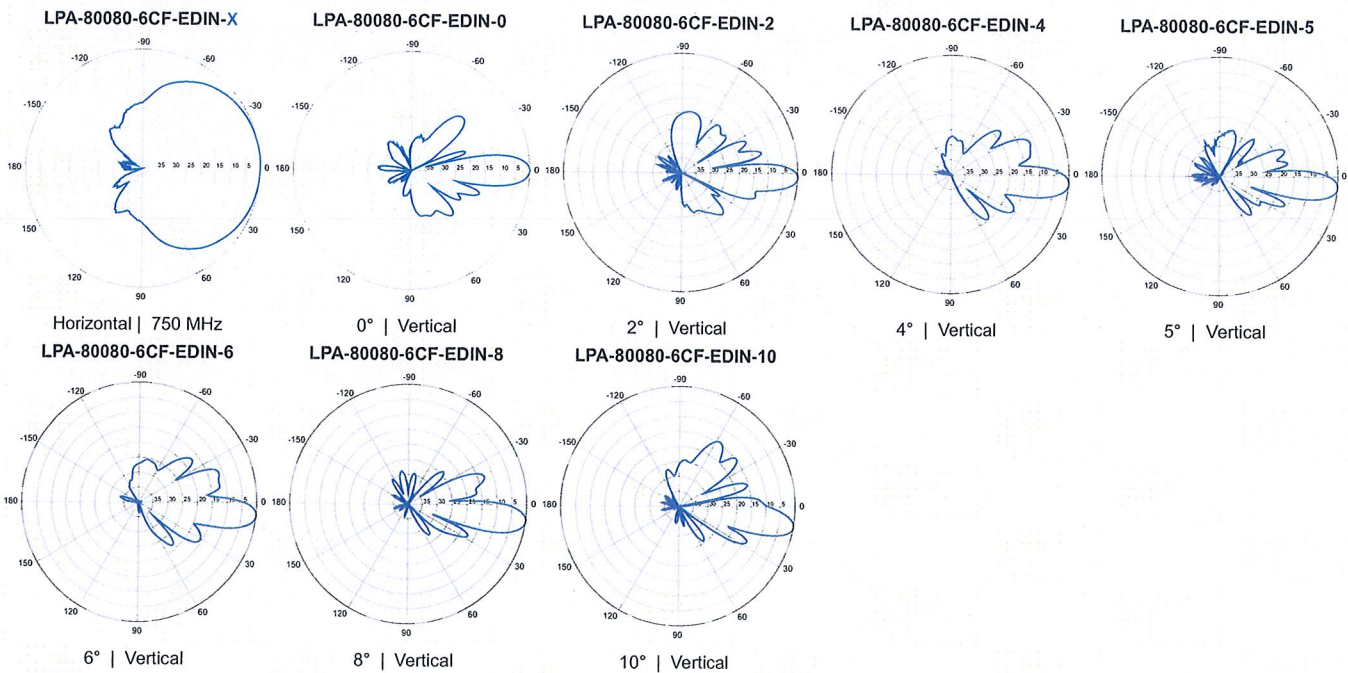
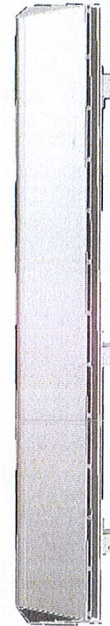
LPA-80080-6CF-EDIN-X

V-Pol | Log Periodic | 80° | 14.0 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		
Frequency bands	806-960 MHz	
Polarization	Vertical	
Horizontal beamwidth	80°	
Vertical beamwidth	10°	
Gain	14.0 dBd (16.1 dBi)	
Electrical downtilt (X)	0, 2, 4, 5, 6, 8, 10	
Impedance	50Ω	
VSWR	≤1.4:1	
Upper sidelobe suppression (0°)	-22.6 dB	
Null fill	10% (-20.0 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	1800 x 140 x 335 mm 70.9 x 5.5 x 13.2 in	
Depth of antenna with z-bracket	375 mm 14.8 in	
Weight without mounting brackets	9.5 kg 21.0 lbs	
Survival wind speed	> 201 km/hr > 125 mph	
Wind area	Front: 0.25 m ² Side: 0.61 m ² Front: 2.7 ft ² Side: 6.6 ft ²	
Wind load @ 161 km/hr (100 mph)	Front: 415 N Side: 878 N Front: 93 lbf Side: 198 lbf	
Mounting Options		
Part Number	Fits Pipe Diameter	Weight
3-Point Mounting & Downtilt Bracket Kit (0-20°)	21700000 50-102 mm 2.0-4.0 in	11 kg 25 lbs
Lock-Down Brace	If the lock-down brace is used, the maximum diameter of the mounting pipe is 88.9 mm or 3.5 in.	



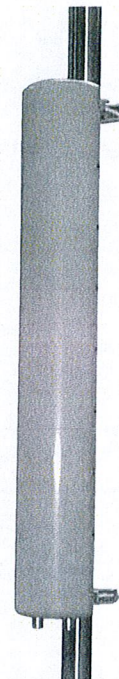
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BXA-171063-8BF-EDIN-X

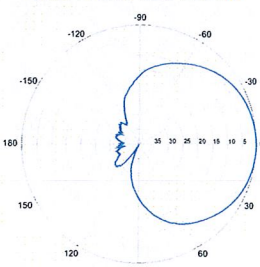
Replace "X" with desired electrical downtilt.

X-Pol | FET Panel | 63° | 17.4 dBi

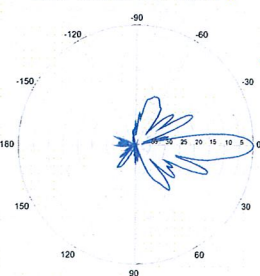
Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	68°	65°	60°
Vertical beamwidth	7°	7°	7°
Gain	14.5 dBd / 16.6 dBi	14.9 dBd / 17.0 dBi	15.3 dBd / 17.4 dBi
Electrical downtilt (X)	0, 2, 4, 8		
Impedance	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 m ² Side: 0.14 m ²	Front: 2.0 ft ²	Side: 1.5 ft ²
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

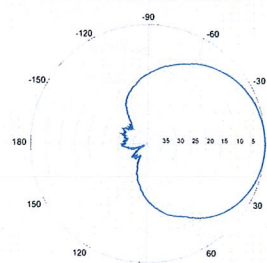


Horizontal | 1710-1880 MHz
BXA-171063-8BF-EDIN-0

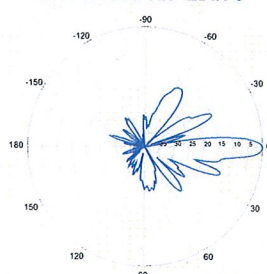


0° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-X

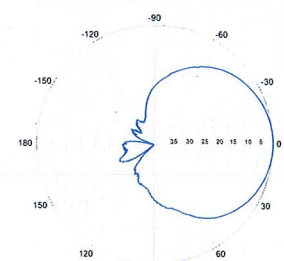


Horizontal | 1850-1990 MHz
BXA-171063-8BF-EDIN-0

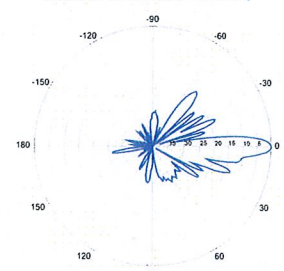


0° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-X



Horizontal | 1920-2170 MHz
BXA-171063-8BF-EDIN-0



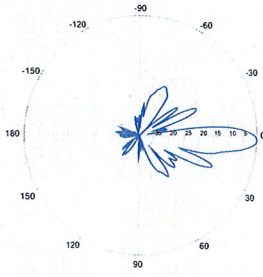
0° | Vertical | 1920-2170 MHz

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-171063-8BF-EDIN-X

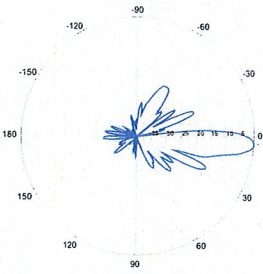
X-Pol | FET Panel | 63° | 17.4 dBi

BXA-171063-8BF-EDIN-2



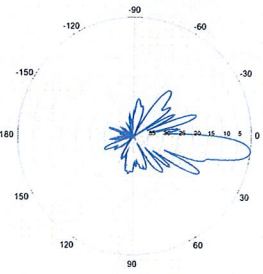
2° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-4



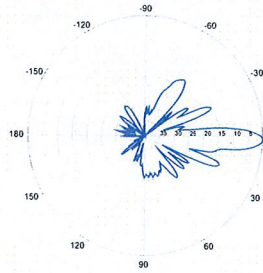
4° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-8



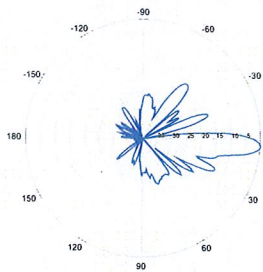
8° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-2



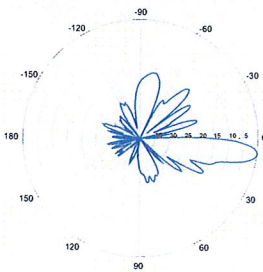
2° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-4



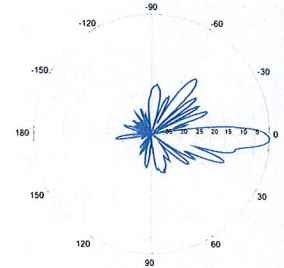
4° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-8



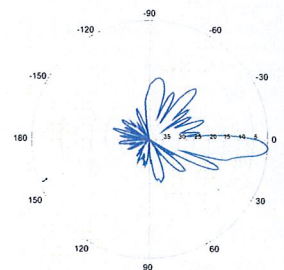
8° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-2



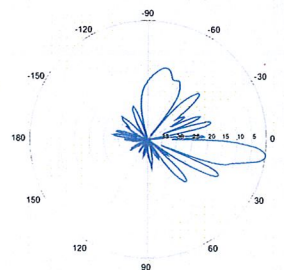
2° | Vertical | 1920-2170 MHz

BXA-171063-8BF-EDIN-4



4° | Vertical | 1920-2170 MHz

BXA-171063-8BF-EDIN-8



8° | Vertical | 1920-2170 MHz

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

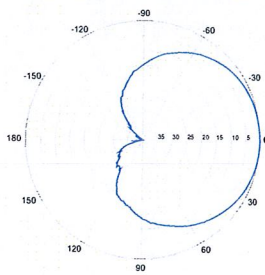
Replace "X" with desired electrical downtilt.

X-Pol | FET Panel | 85° | 18.0 dBi

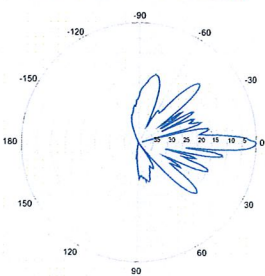
Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	88°	85°	80°
Vertical beamwidth	4.5°	4.5°	4.5°
Gain	15.1 dBd / 17.2 dBi	15.5 dBd / 17.6 dBi	15.9 dBd / 18.0 dBi
Electrical downtilt (X)	0, 2, 4		
Impedance	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

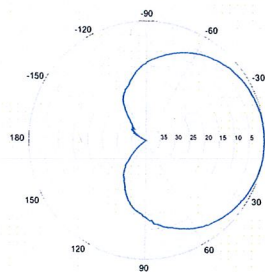


Horizontal | 1710-1880 MHz
BXA-171085-12BF-EDIN-0

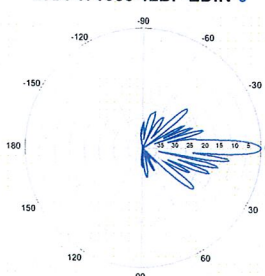


0° | Vertical | 1710-1880 MHz

BXA-171085-12BF-EDIN-X

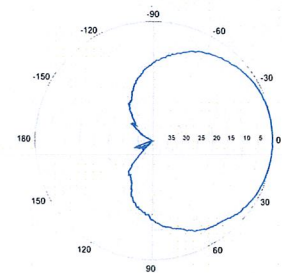


Horizontal | 1850-1990 MHz
BXA-171085-12BF-EDIN-0

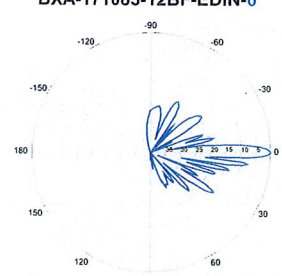


0° | Vertical | 1850-1990 MHz

BXA-171085-12BF-EDIN-X



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



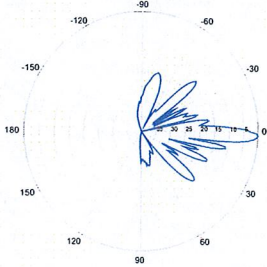
0° | Vertical | 1920-2170 MHz

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BXA-171085-12BF-EDIN-X

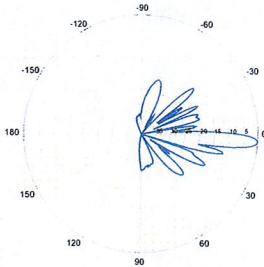
X-Pol | FET Panel | 85° | 18.0 dBi

BXA-171085-12BF-EDIN-2



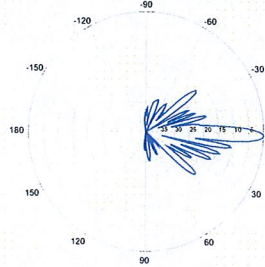
2° | Vertical | 1710-1880 MHz

BXA-171085-12BF-EDIN-4



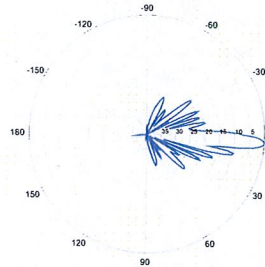
4° | Vertical | 1710-1880 MHz

BXA-171085-12BF-EDIN-2



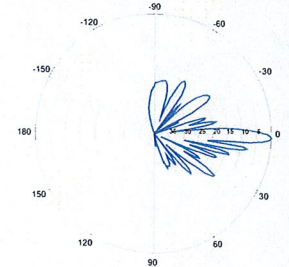
2° | Vertical | 1850-1990 MHz

BXA-171085-12BF-EDIN-4



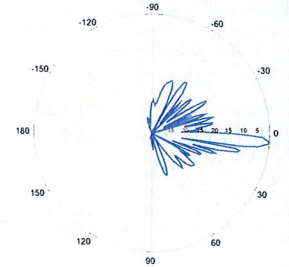
4° | Vertical | 1850-1990 MHz

BXA-171085-12BF-EDIN-2



2° | Vertical | 1920-2170 MHz

BXA-171085-12BF-EDIN-4



4° | Vertical | 1920-2170 MHz

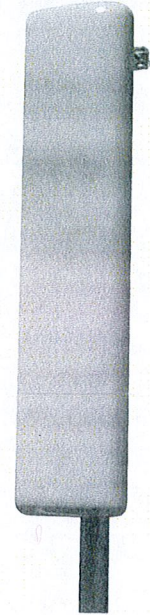
Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product.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

BXA-70063-4CF-EDIN-X

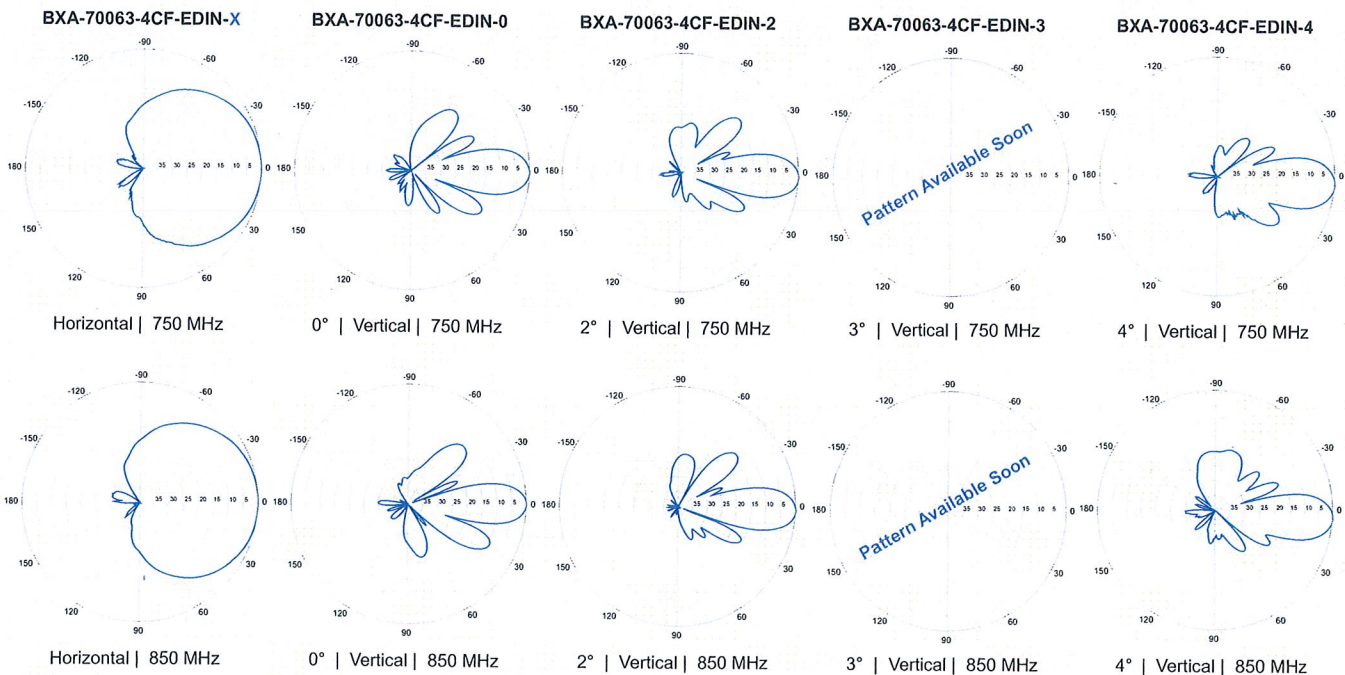
X-Pol | FET Panel | 63° | 13.0 dBd

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 m ² Side: 0.16 m ²	Front: 3.7 ft ² Side: 1.7 ft ²	
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 & Downtilt Bracket Kit	36210006	40-115 mm 1.57-4.5 in	4.1 kg 9 lbs
Concealment Configurations	For concealment configurations, order BXA-70063-4CF-EDIN-X-FP		

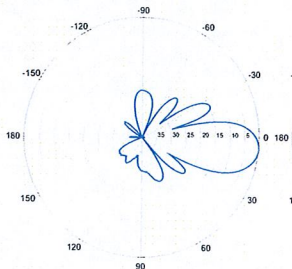


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BXA-70063-4CF-EDIN-X

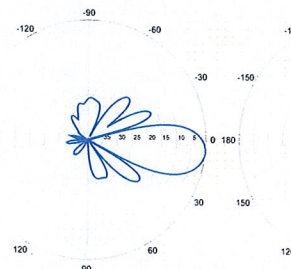
X-Pol | FET Panel | 63° | 13.0 dBd

BXA-70063-4CF-EDIN-5



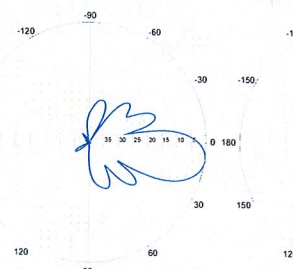
5° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-6



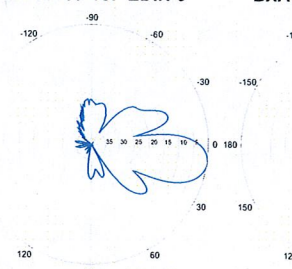
6° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-8



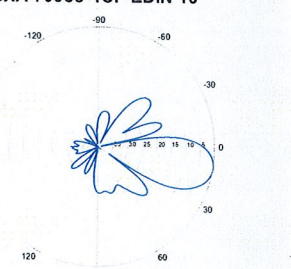
8° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-9

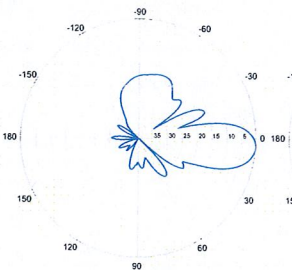


9° | Vertical | 750 MHz

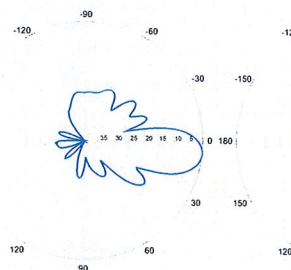
BXA-70063-4CF-EDIN-10



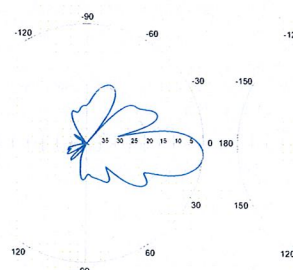
10° | Vertical | 750 MHz



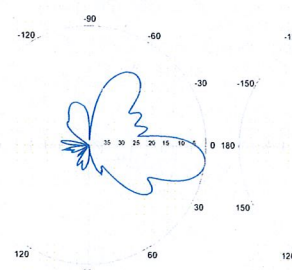
5° | Vertical | 850 MHz



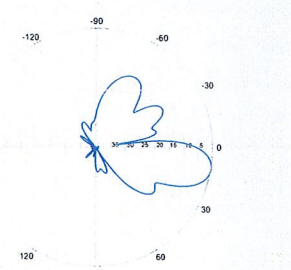
6° | Vertical | 850 MHz



8° | Vertical | 850 MHz

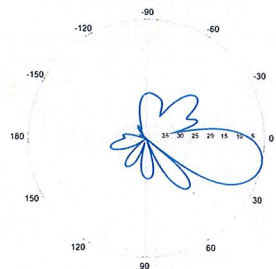


9° | Vertical | 850 MHz



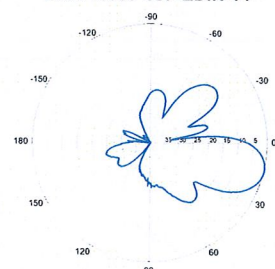
10° | Vertical | 850 MHz

BXA-70063-4CF-EDIN-12

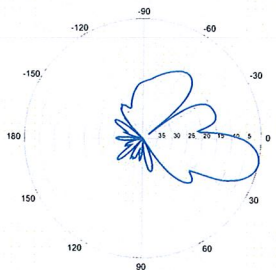


12° | Vertical | 750 MHz

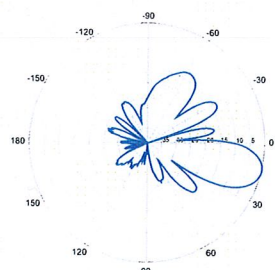
BXA-70063-4CF-EDIN-14



14° | Vertical | 750 MHz



12° | Vertical | 850 MHz



14° | Vertical | 850 MHz

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.

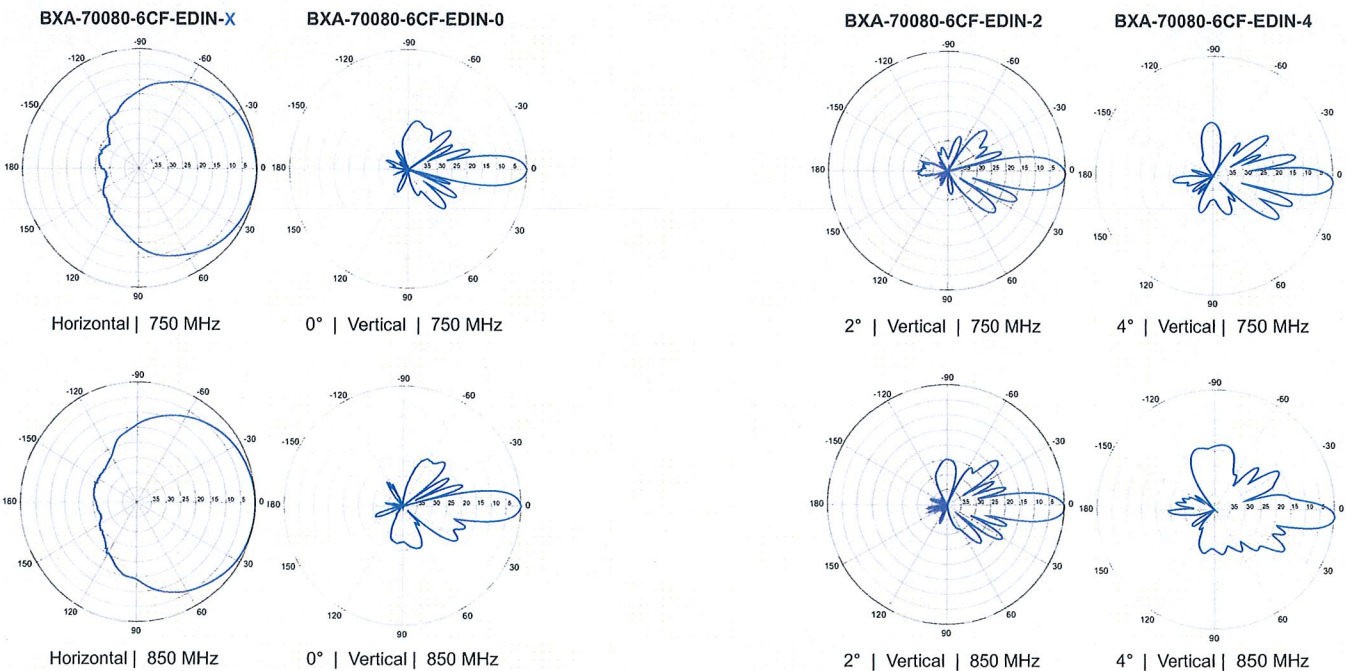
BXA-70080-6CF-EDIN-X

X-Pol | FET Panel | 80° | 13.5 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	82°	80°	
Vertical beamwidth	12°	10°	
Gain	13.0 dBd (15.1 dBi)	13.5 dBd (15.6 dBi)	
Electrical downtilt (X)	0, 2, 4, 6, 8, 10		
Impedance	50Ω		
VSWR	≤1.35:1		
Upper sidelobe suppression (0°)	-18.3 dB	-18.6 dB	
Front-to-back ratio (+/-30°)	-26.9 dB	-25.6 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	1804 x 204 x 151 mm	71.0 x 8.0 x 5.9 in	
Depth with z-brackets	191 mm	7.5 in	
Weight without mounting brackets	8.2 kg	18 lbs	
Survival wind speed	> 201 km/hr	> 125 mph	
Wind area	Front: 0.37 m ² Side: 0.27 m ²	Front: 3.9 ft ² Side: 2.9 ft ²	
Wind load @ 161 km/hr (100 mph)	Front: 531 N Side: 475 N	Front: 119 lbf Side: 104 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-70080-6CF-EDIN-X-FP		

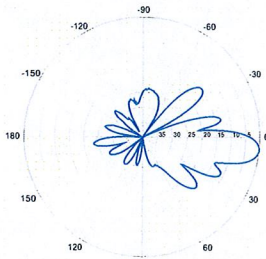


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BXA-70080-6CF-EDIN-X

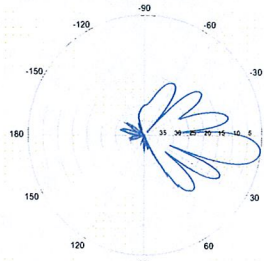
X-Pol | FET Panel | 80° | 13.5 dBd

BXA-70080-6CF-EDIN-6



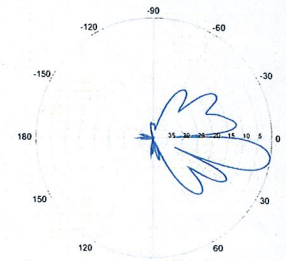
6° | Vertical | 750 MHz

BXA-70080-6CF-EDIN-8

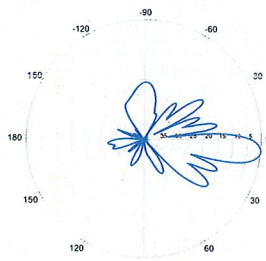


8° | Vertical | 750 MHz

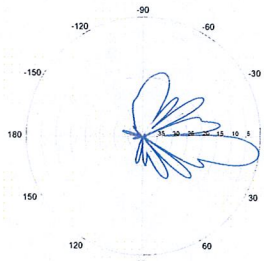
BXA-70080-6CF-EDIN-10



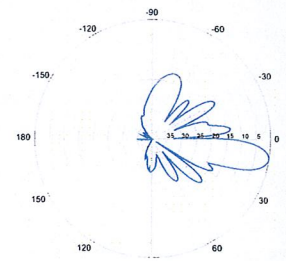
10° | Vertical | 750 MHz



6° | Vertical | 850 MHz



8° | Vertical | 850 MHz



10° | Vertical | 850 MHz

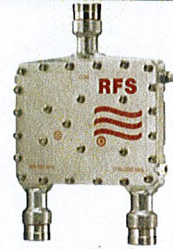
Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. 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

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

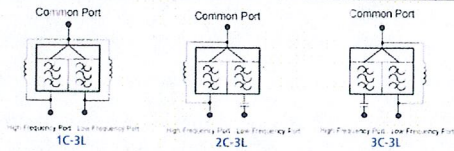


ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

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: Marlborough E													
Tower Height: Verizon @ 168Ft.													
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total					
*Sprint	11	254.1	165	0.0369	1962.5	1.0000	3.69%						
*Pocket	3	631	110	0.0563	2130	1.0000	5.63%						
*T-Mobile	8	214	130	0.0364	1935	1.0000	3.64%						
*Cingular	6	296	145	0.0304	880	0.5867	5.18%						
*Cingular	3	427	145	0.0219	1930	1.0000	2.19%						
Verizon PCS	11	228	167	0.0323	1970	1.0000	3.23%						
Verizon Cellular	9	243	167	0.0282	869	0.5793	4.87%						
Verizon AWS	1	555	167	0.0072	2145	1.0000	0.72%						
Verizon 700	1	801	167	0.0103	698	0.4653	2.22%						
									31.36%				
* Source: Siting Council													



FDH Engineering, Inc., 6521 Meridien Dr. Raleigh, NC 27616, Ph. 919.755.1012, Fax 919.755.1031

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

170' Monopole Tower

**SBA Site Name: Marlborough
SBA Site ID: CT13062A
Verizon Site ID: Marlborough East CT
Verizon Site Name: 118001**

FDH Project Number 12-05222E S1

Analysis Results

Tower Components	89.9%	Sufficient
Foundation	76.1%	Sufficient

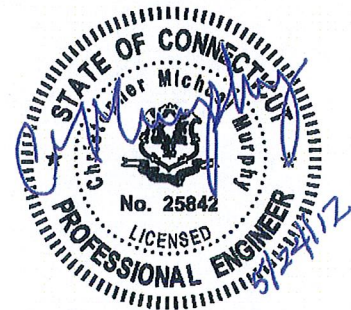
Prepared By:

Chad Smith, EI
Project Engineer

Reviewed By:

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

FDH Engineering, Inc.
6521 Meridien Dr.
Raleigh, NC 27616
(919) 755-1012
info@fdh-inc.com



May 24, 2012

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

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GENERAL COMMENTS6
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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 Hartford, 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 2005 Connecticut State Building Code*. Information pertaining to the existing/proposed antenna loading, current tower geometry, geotechnical data, foundation dimensions, and member sizes was obtained from:

- Paul J. Ford and Company (Job No. 44404-0628) original design drawings dated November 9, 2004
- Jaworski Geotech, Inc. (Project No. 04316G) Revised Geotechnical Evaluation dated August 31, 2004
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards is 80 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 167 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards provided the **Recommendation** listed below is satisfied. Furthermore, provided that the foundation was designed and constructed to support the original design reactions (see Paul J. Ford and Company Job No. 44404-0628), the foundation should have the necessary capacity to support the existing and proposed 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.

Recommendation

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

1. The proposed diplexers should be mounted directly behind the proposed panel antennas.

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 ¹	Carrier	Mount Elevation (ft)	Mount Type
167	(12) Decibel DB844H90 w/Mount Pipe	(12) 1-5/8"	Verizon	167	(1) Low Profile Platform
156	(12) Decibel 950F65T2E-M w/Mount Pipe	(6) 1-5/8"	Sprint	156	(1) Low Profile Platform
145	(6) Kathrein AP14/17-880/1940/088D/ADT/XXP w/Mount Pipe (12) Powerwave LGP2140X TMAs	(12) 1-5/8"	AT&T	145	(1) Low Profile Platform
120	(9) EMS RR65-18-02DPL-2W w/Mount Pipe	(4) 1-5/8"	T-Mobile	120	(3) T-Arms
110	(3) Kathrein 742 213 w/Mount Pipe	(6) 1-5/8"	MetroPCS	110	(3) Pipe Mounts (Assumed)

1. Coax located inside the pole unless otherwise noted.

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
167	(2) Antel BXA-70063/4CF w/Mount Pipe (4) Antel LPA-80063/4CF w/Mount Pipe (2) Antel BXA-171063-8BF w/Mount Pipe (1) Antel BXA-70080-6CF w/Mount Pipe (2) Antel LPA-80080/6CF w/Mount Pipe (1) Antel BXA-171085-12BF w/Mount Pipe (6) RFS FD9R6004/2C-3L Diplexers	(12) 1-5/8"	Verizon	167	(1) 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
Flange Plate	50 ksi
Flange Bolts	Fu = 120 ksi
Base Plate	60 ksi
Anchor Bolts	75 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.

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	170 - 135	Pole	TP30.768x24x0.1875	54.9	Pass
	135	Flange Bolts	(18) 0.75"Ø w/ BC = 35"	89.9	Pass
	135	Flange Plate	PL 39"Ø x 1.25" thk.	48.7	Pass
L2	135 - 87	Pole	TP40.051x30.768x0.3125	69.7	Pass
L3	87 - 44	Pole	TP47.741x38.459x0.375	76.5	Pass
L4	44 - 0	Pole	TP55.5x45.8308x0.4375	75.5	Pass
	0	Anchor Bolts	(18) 2.25"Ø w/ BC = 63"	71.6	Pass
	0	Base Plate	PL 69"Ø x 2.75" thk.	46.2	Pass

* Capacities include 1/3 allowable increase for wind.

Table 4 - Maximum Base Reactions

Base Reactions	Current Analysis (TIA/EIA-222-F)	Original Design (TIA/EIA-222-F)
Axial	40 k*	39 k
Shear	27 k	36 k
Moment	3,350 k-ft	4,400 k-ft

* Based on previous engineering experience, the axial load will not control this type of foundation.

GENERAL COMMENTS

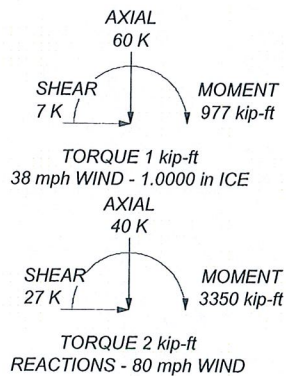
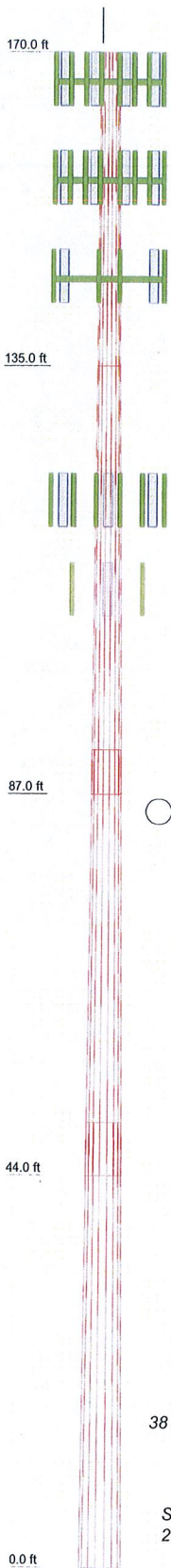
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading 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	1	2	3	4
Length (ft)	35.00	48.00	48.00	50.00
Number of Sides	18	18	18	18
Thickness (in)	0.1875	0.3125	0.3750	0.4375
Socket Length (ft)		5.00	6.00	
Top Dia (in)	24.0000	30.7680	38.4590	45.8308
Bot Dia (in)	30.7680	40.0510	47.7410	55.5000
Grade			A572-65	
Weight (K)	1.9	5.7	8.3	11.9



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	170	Low Profile Platform	145
Low Profile Platform	167	(2) Empty Mount Pipe	145
Empty Mount Pipe	167	(2) Empty Mount Pipe	145
Empty Mount Pipe	167	(2) Empty Mount Pipe	145
Empty Mount Pipe	167	(2) AP14/17-880/1940/088D/ADT/XXP w/ Mount Pipe	145
BXA-70063/4CF w/ Mount Pipe	167		
BXA-70063/4CF w/ Mount Pipe	167	(2) AP14/17-880/1940/088D/ADT/XXP w/ Mount Pipe	145
LPA-80063/4CF w/ Mount Pipe	167		
LPA-80063/4CF w/ Mount Pipe	167	(2) AP14/17-880/1940/088D/ADT/XXP w/ Mount Pipe	145
(2) LPA-80063/4CF w/ Mount Pipe	167		
BXA-171063-8BF w/ Mount Pipe	167	(4) LGP2140X	145
BXA-171063-8BF w/ Mount Pipe	167		
BXA-70080-6CF w/ Mount Pipe	167	(3) RR65-18-02DPL2 w/ Mount Pipe	120
LPA-80080/6CF w/ Mount Pipe	167	(3) T-Arms	120
Low Profile Platform	156	(3) RR65-18-02DPL2 w/ Mount Pipe	120
(4) 950F65T2E-M w/ Mount Pipe	156	(3) RR65-18-02DPL2 w/ Mount Pipe	120
(4) 950F65T2E-M w/ Mount Pipe	156	742 213 w/ Mount Pipe	110
(4) 950F65T2E-M w/ Mount Pipe	156	742 213 w/ Mount Pipe	110
(4) 950F65T2E-M w/ Mount Pipe	156	742 213 w/ Mount Pipe	110
(4) LGP2140X	145	742 213 w/ Mount Pipe	110

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 76.5%

 FDH Engineering, Inc. Tower Analysis	6521 Meridien Dr. Raleigh, NC 27616 Phone: (919) 755-1012 FAX: (919) 755-1031	Job: Marlborough, CT13062-A Project: 12-05222E S1	Client: SBA Code: TIA/EIA-222-F Path:	Drawn by: Chad Smith Date: 05/24/12	App'd: Scale: NTS Dwg No. E-1
	<small>\\FDH\545\1\2\Projects\2012\222E S1 - May12-097272\Maproom\CT13062-A_SBA_Venture\04\0413\Marlborough.ct13062.dwg</small>				