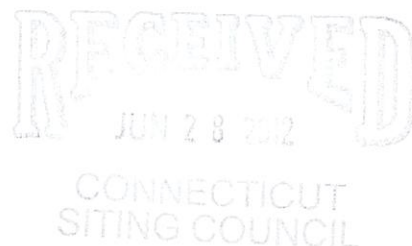


280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

June 27, 2012

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



Re: **Notice of Exempt Modification – Antenna Swap**
1111 East Putnam Avenue, Greenwich, Connecticut

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) wireless telecommunications antennas on the roof of the building at 1111 East Putnam Avenue in Greenwich. The antennas are mounted at a centerline height of 45-feet above ground level. The Council approved this roof-top installation in Docket No. 120 in 1990, and retains jurisdiction over this facility. Cellco now intends to replace all of its antennas with six (6) model DB846F65ZAXY cellular antennas; three (3) model BXA-171063-8BF PCS antennas; and three (3) model BXA-70063-6CF LTE antennas, at the same height and location on the roof of the building. Cellco also intends to install six (6) coax cable diplexers on its existing antenna mounting structure. Attached behind Tab 1 are the specifications for the replacement antennas and cable diplexers.



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NEW YORK CITY

ALBANY

SARASOTA

www.rc.com

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 Peter Tesei, First Selectman for the Town of Greenwich. A copy of this letter is also being sent to Fountainhead Properties LLC, the owners of the property and building at 1111 East Putnam Avenue.

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

1. The proposed modifications will not result in an increase in the height of the existing telecommunications antennas.

ROBINSON & COLE_{LLP}

Linda Roberts
June 27, 2012
Page 2

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 Calculated Radio Frequency Emissions Report for Cellco's modified facility is included behind Tab 2.

Also attached is a letter from URS confirming that the building 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:

Peter Tesei, Greenwich First Selectman
Fountainhead Properties LLC
Sandy M. Carter



Product Specifications



DB846F65ZAXY

Directed Dipole™ Antenna, 806–960 MHz, 65° horizontal beamwidth, fixed electrical tilt



- Excellent azimuth roll-off, reducing soft hand-offs and improving capacity
- Deep null filling below the horizon for improved signal intensity
- Rugged, reliable design, light weight for low tower loading
- Air dielectric feed system

CHARACTERISTICS

General Specifications

Antenna Type	Directed Dipole™
Brand	Directed Dipole™
Operating Frequency Band	806 – 960 MHz

Electrical Specifications

Frequency Band, MHz	806–896	870–960
Beamwidth, Horizontal, degrees	65	60
Gain, dBd	14.5	14.8
Gain, dBi	16.6	16.9
Beamwidth, Vertical, degrees	11.0	10.5
Beam Tilt, degrees	0	0
Upper Sidelobe Suppression (USLS), typical, dB	15	15
Front-to-Back Ratio at 180°, dB	40	40
VSWR Return Loss, db	1.33:1 17.0	1.33:1 17.0
Intermodulation Products, 3rd Order, 2 x 20 W, dBc	-150	-150
Input Power per Port, maximum, watts	500	500
Polarization	Vertical	Vertical
Impedance	50 ohm	50 ohm
Lightning Protection	dc Ground	dc Ground

Product Specifications

DB846F65ZAXY



Mechanical Specifications

Color	Light gray
Connector Interface	7-16 DIN Female
Connector Location	Back
Connector Quantity	1
Radome Material	ABS, UV resistant
Wind Loading, maximum	387.0 N @ 100 mph 87.0 lbf @ 100 mph
Wind Speed, maximum	241.4 km/h 150.0 mph

Dimensions

Depth	216.0 mm 8.5 in
Length	1829.0 mm 72.0 in
Width	254.0 mm 10.0 in
Net Weight	9.5 kg 20.9 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2002/95/EC	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system



INCLUDED PRODUCTS



DB380

Pipe Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Used for wide panel antennas. Includes two clamp sets.

DB382NS

Side Offset Bracket for 4.5 in (114.3 mm) OD round members



DB5083

Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Includes a heavy-duty, galvanized steel downtilt mounting bracket assembly and associated hardware. This kit is compatible with the DB380 pipe mount kit for panel antennas that are equipped with two mounting brackets.

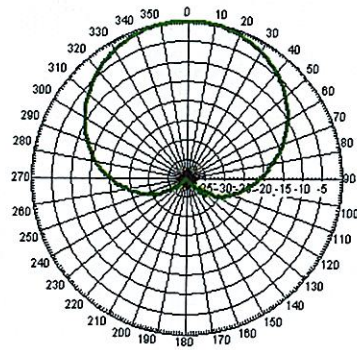
Product Specifications

DB846F65ZAXY

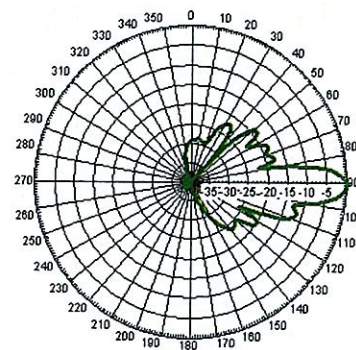


Horizontal Pattern

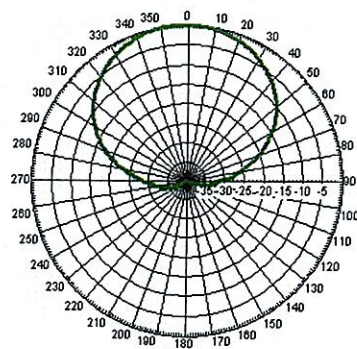
Vertical Pattern



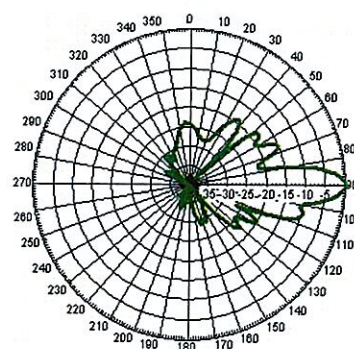
Freq: 850 MHz, Tilt: 0



Freq: 850 MHz, Tilt: 0



Freq: 940 MHz, Tilt: 0



Freq: 940 MHz, Tilt: 0

BXA-171063-8BF-EDIN-X

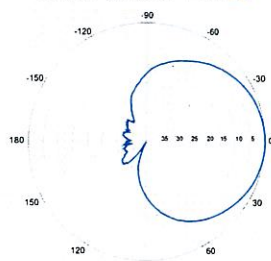
Replace "X" with desired electrical downtilt.

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		

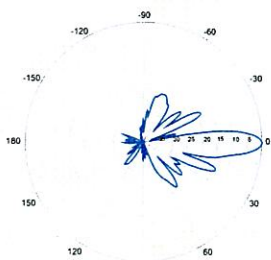


BXA-171063-8BF-EDIN-X



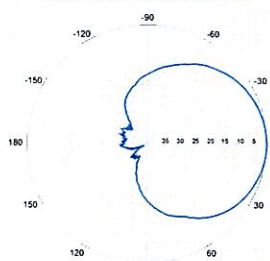
Horizontal | 1710-1880 MHz

BXA-171063-8BF-EDIN-0



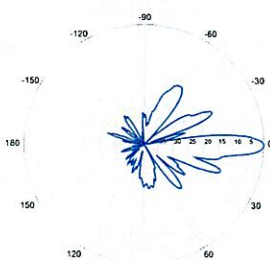
0° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-X



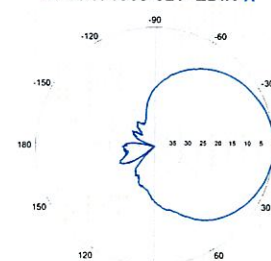
Horizontal | 1850-1990 MHz

BXA-171063-8BF-EDIN-0



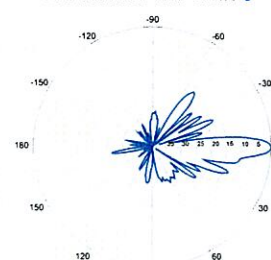
0° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-X



Horizontal | 1920-2170 MHz

BXA-171063-8BF-EDIN-0



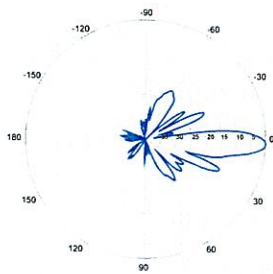
0° | Vertical | 1920-2170 MHz

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.

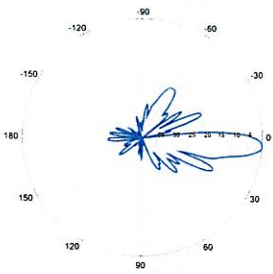
BXA-171063-8BF-EDIN-X

X-Pol | FET Panel | 63° | 17.4 dBi

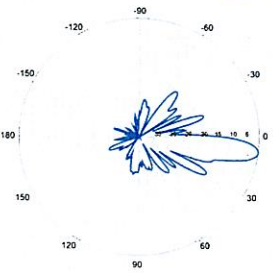
BXA-171063-8BF-EDIN-2



2° | Vertical | 1710-1880 MHz
BXA-171063-8BF-EDIN-4

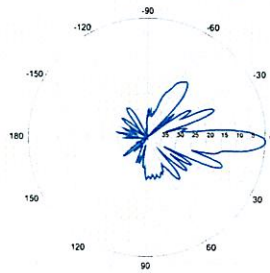


4° | Vertical | 1710-1880 MHz
BXA-171063-8BF-EDIN-8

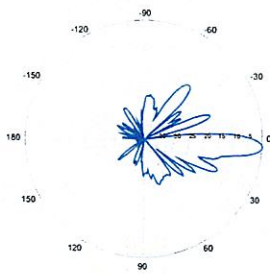


8° | Vertical | 1710-1880 MHz

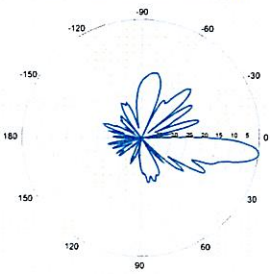
BXA-171063-8BF-EDIN-2



2° | Vertical | 1850-1990 MHz
BXA-171063-8BF-EDIN-4

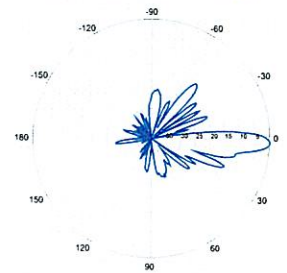


4° | Vertical | 1850-1990 MHz
BXA-171063-8BF-EDIN-8

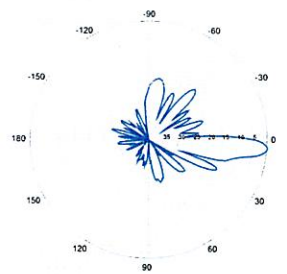


8° | Vertical | 1850-1990 MHz

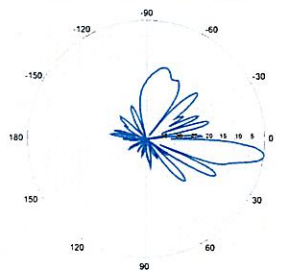
BXA-171063-8BF-EDIN-2



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-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

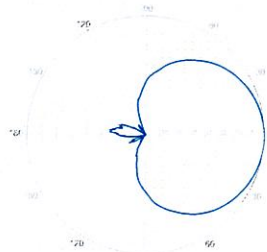
Replace "X" with desired electrical downtilt.

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	
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
3-Point Mounting & Downtilt Bracket Kit	36210008	40-115 mm 1.57-4.5 in
Concealment Configurations	For concealment configurations, order BXA-70063-6CF-EDIN-X-FP	

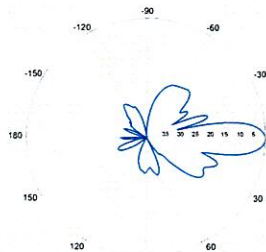


BXA-70063-6CF-EDIN-X



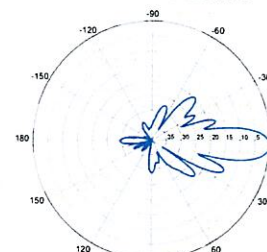
Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0

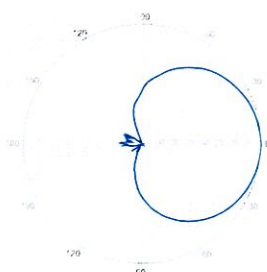


0° | Vertical | 750 MHz

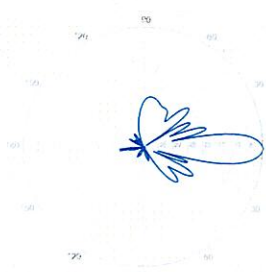
BXA-70063-6CF-EDIN-2



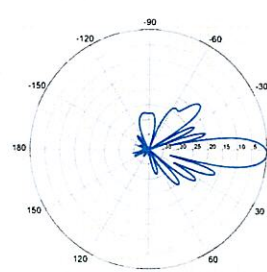
2° | Vertical | 750 MHz



Horizontal | 850 MHz



0° | Vertical | 850 MHz



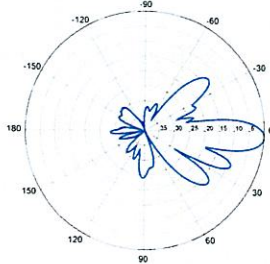
2° | Vertical | 850 MHz

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

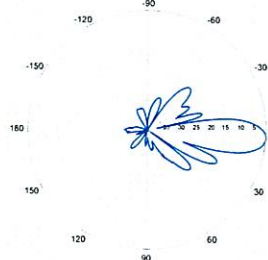
X-Pol | FET Panel | 63° | 14.5 dBd

BXA-70063-6CF-EDIN-3



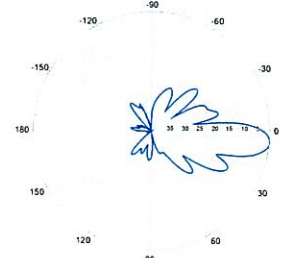
3° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-4

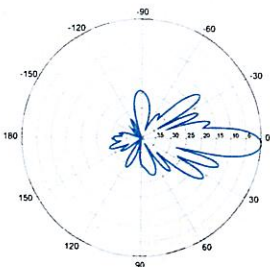


4° | Vertical | 750 MHz

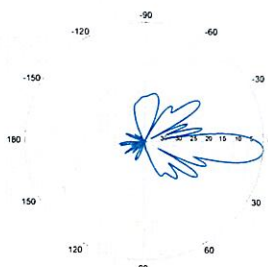
BXA-70063-6CF-EDIN-5



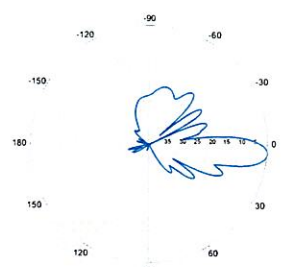
5° | Vertical | 750 MHz



3° | Vertical | 850 MHz

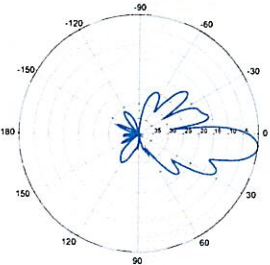


4° | Vertical | 850 MHz



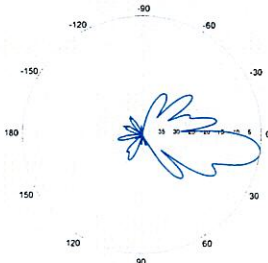
5° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-6



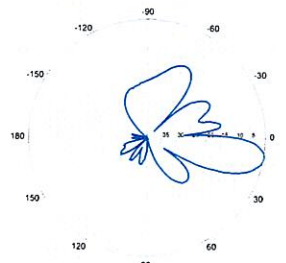
6° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-8

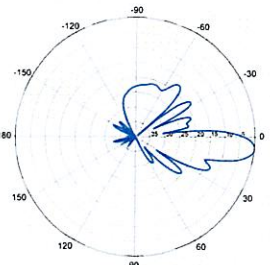


8° | Vertical | 750 MHz

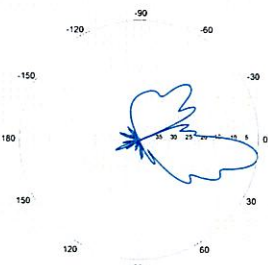
BXA-70063-6CF-EDIN-10



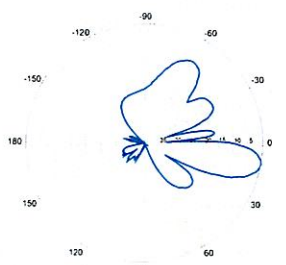
10° | Vertical | 750 MHz



6° | Vertical | 850 MHz



8° | Vertical | 850 MHz



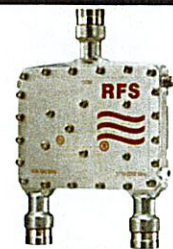
10° | Vertical | 850 MHz

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

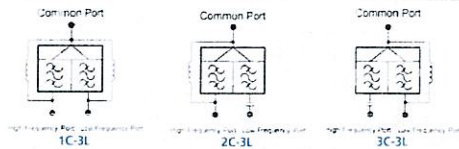
All information contained in the present datasheet is subject to confirmation at time of ordering

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)



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Calculated Radio Frequency Emissions



Riverside CT

1111 East Putnam Avenue, Greenwich, CT 06878

June 13, 2012

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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modifications to the existing Verizon Wireless antenna arrays mounted on the rooftop of the building located at 1111 East Putnam Avenue in Greenwich, CT. The coordinates of the building are 41-02-27.84 N, 73-35-02.96 W.

Verizon Wireless is proposing the following modifications:

- 1) Install three 750 MHz LTE antennas (one per sector);
- 2) Remove six existing and install six replacement 850 MHz Cellular antennas (two per sector);
- 3) Modify the downtilt of the gamma sector 850 MHz Cellular antennas;
- 4) Remove six existing 1900 MHz PCS panel antennas (one per sector);
- 5) Install three replacement dualband 1900/2100 MHz panel antennas (one per sector);
- 6) Modify the azimuth of all antennas on the gamma sector.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

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

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

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

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

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

3. RF Exposure Prediction Methods

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

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

Where:

EIRP = Effective Isotropic Radiated Power

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

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

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

4. Calculation Results

Table 1 below outlines the power density information for the site. The CT Siting Council's power density database lists Clearwire and Verizon installations only; however a recent survey of the rooftop indicates that T-Mobile, Nextel, and the Greenwich Police Department also operate equipment on the rooftop. The information listed in Table 1 for these operators is based on the field survey, FCC licenses, and similar filings with the CT Siting Council to provide a more complete power density analysis. Please note, however, that specifics of this information have not been provided directly by these operators.

Because the proposed Verizon Wireless antennas and the existing Nextel and T-Mobile antennas are directional in nature, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the ground around the building. Please refer to Attachments C, D, and E for the vertical patterns of the proposed Verizon Wireless, existing T-Mobile, and existing Nextel antennas, respectively. The calculated results for Verizon Wireless, T-Mobile, and Nextel in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm ²)	Limit	%MPE
Verizon	45	869	9	564	0.0901	0.5793	15.56%
Verizon	45	1970	15	494	0.1316	1.0000	13.16%
Clearwire	50	2496	2	153	0.0440	1.0000	4.40%
Clearwire	46	11000	1	211	0.0359	1.0000	3.59%
Nextel	43	851	12	100	0.0233	0.5673	4.11%
T-Mobile GSM	44	1945	8	150	0.0223	1.0000	2.23%
T-Mobile UMTS	44	2100	2	490	0.0182	1.0000	1.82%
Greenwich PD	41	11653	1	437	0.0935	1.0000	9.35%
Greenwich PD	48	852.45	1	224	0.0350	0.5683	6.15%
Verizon	45	869	9	564	0.0901	0.5793	15.56%
Verizon	45	1970	15	494	0.1316	1.0000	13.16%
Verizon	45	750	1	1005	0.0178	0.5000	3.57%
Verizon	45	2145	1	1355	0.0241	1.0000	2.41%
						Total	66.34%

Table 1: Carrier Information^{1 2}

¹ The existing CSC filing for Verizon Wireless should be removed and replaced with the updated Verizon Wireless technologies and values provided in Table 1. The power density information for Clearwire was taken directly from the CSC database dated 3/29/2012. Please note that %MPE values listed are rounded to two decimal points. The total %MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table.

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

5. Conclusion

The above analysis verifies that emissions from the existing site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed and existing transmit antennas at the facility is below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at ground level is **66.34% of the FCC limit**.

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

6. Statement of Certification

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



Daniel L. Goulet
C Squared Systems, LLC

June 13, 2012

Date

Attachment A: References

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

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

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

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

(A) Limits for Occupational/Controlled Exposure³

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

(B) Limits for General Population/Uncontrolled Exposure⁴

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

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

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

³ Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

⁴ General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

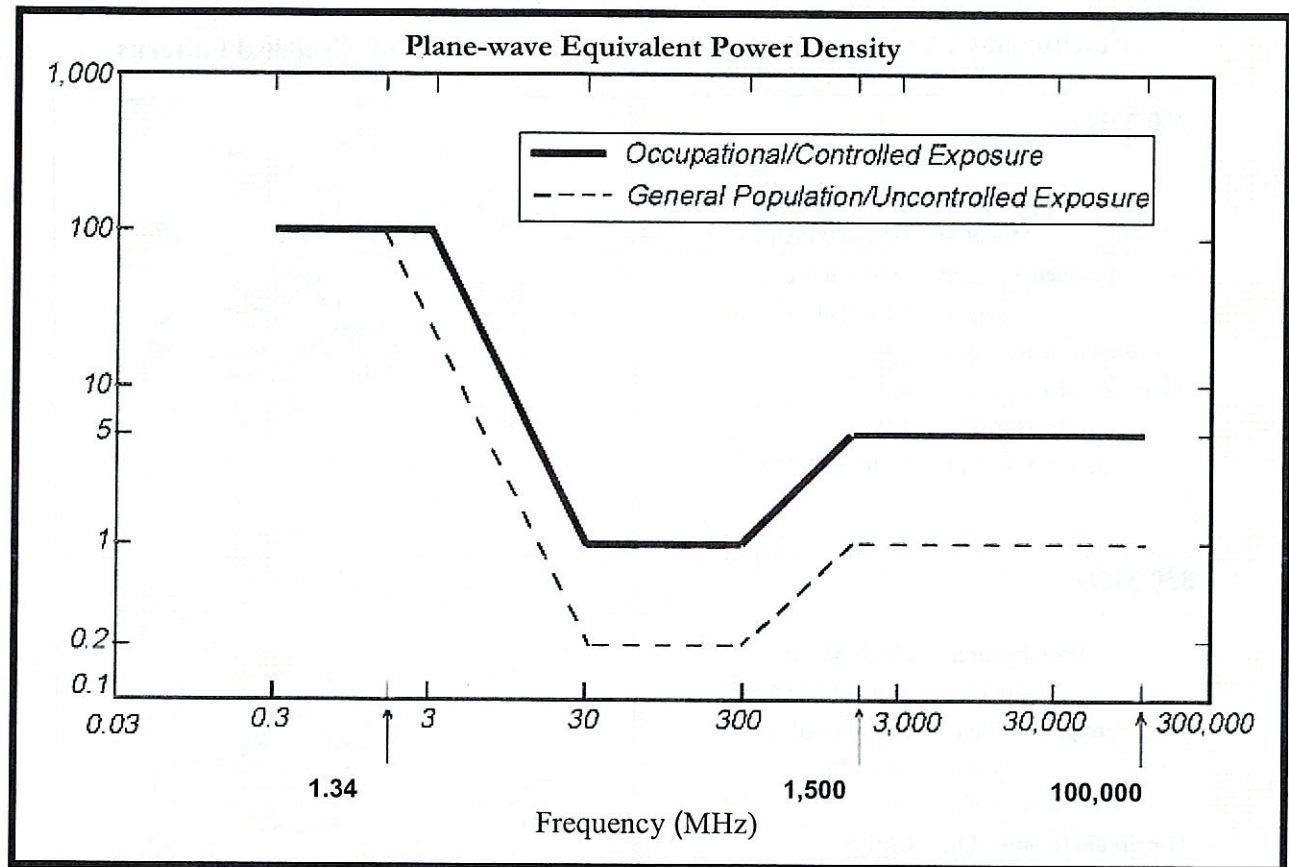
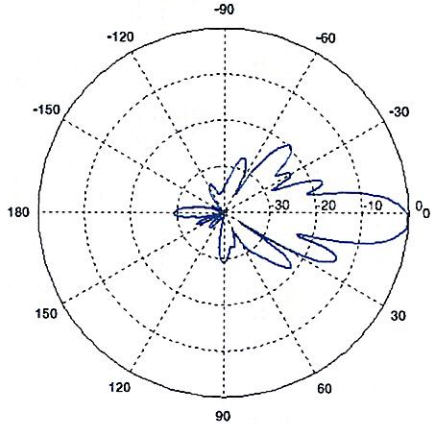
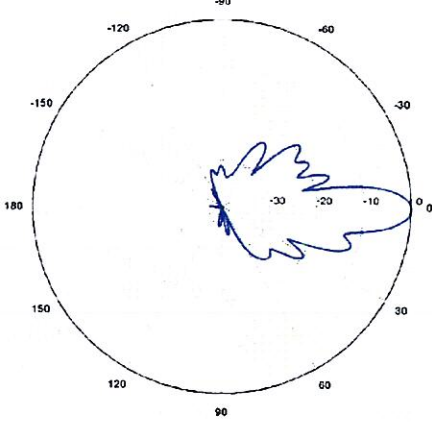
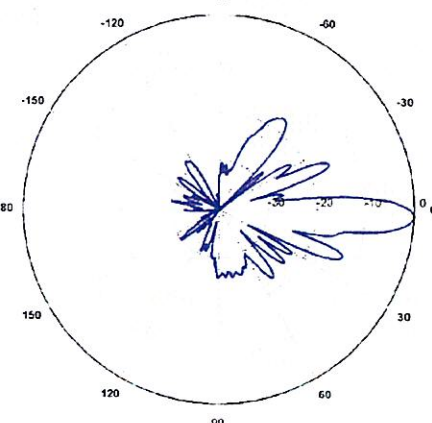


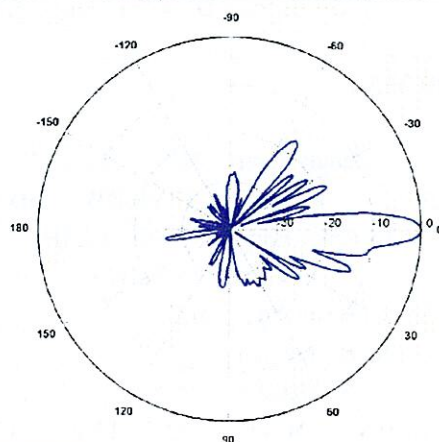
Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: Verizon Wireless Antenna Data Sheets and Electrical Patterns

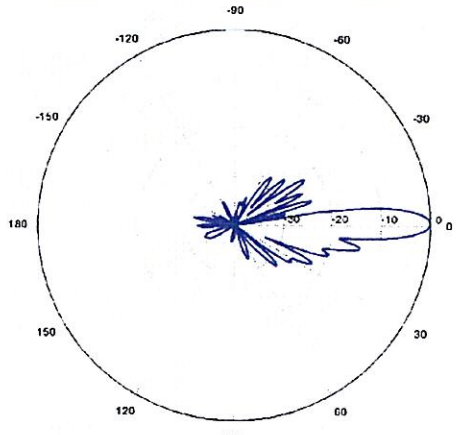
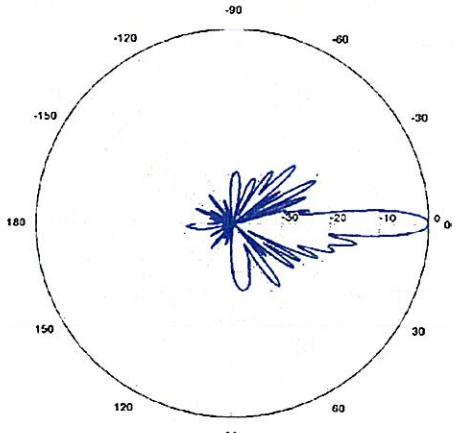
<p>750 MHz</p> <p>Manufacturer: Amphenol Model #: BXA-70063/6CF_2 Frequency Band: 696-806 MHz Gain: 14.0 dBd Vertical Beamwidth: 13° Horizontal Beamwidth: 65° Polarization: ±45° Size L x W x D: 71.0" x 11.2" x 5.2"</p>	
<p>850 MHz</p> <p>Manufacturer: Commscope Model #: DB846F65ZAXY Frequency Band: 806-896 MHz Gain: 14.5 dBd Vertical Beamwidth: 11° Horizontal Beamwidth: 65° Polarization: Vertical Size L x W x D: 72.0" x 10.0" x 8.5"</p>	
<p>1900 MHz</p> <p>Manufacturer: Amphenol Model #: BXA-171063/8BF Frequency Band: 1850-1990 MHz Gain: 14.9 dBd Vertical Beamwidth: 7° Horizontal Beamwidth: 65° Polarization: ±45° Size L x W x D: 48.5" x 6.1" x 4.1"</p>	

2100 MHz

Manufacturer: Amphenol
Model #: BXA-171063/8BF
Frequency Band: 1920-2170 MHz
Gain: 15.3 dBd
Vertical Beamwidth: 7°
Horizontal Beamwidth: 60°
Polarization: $\pm 45^\circ$
Size L x W x D: 48.5" x 6.1" x 4.1"

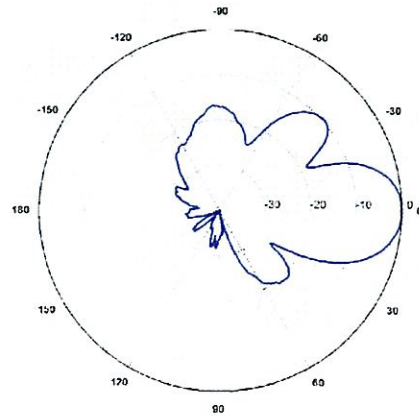


Attachment D: T-Mobile Antenna Data Sheets and Electrical Patterns

<p>1900 MHz</p> <p>Manufacturer: RFS Model #: APX16DWV-16DWVS Frequency Band: 1850-1990 MHz Gain: 16.3 dBd Vertical Beamwidth: 7° Horizontal Beamwidth: 65° Polarization: ±45° Size L x W x D: 55.9" x 13.3" x 3.15"</p>	
<p>2100 MHz</p> <p>Manufacturer: RFS Model #: APX16DWV-16DWVS Frequency Band: 1710-2200 MHz Gain: 16.3 dBd Vertical Beamwidth: 7° Horizontal Beamwidth: 65° Polarization: ±45° Size L x W x D: 55.9" x 13.3" x 3.15"</p>	

Attachment E: Nextel Antenna Data Sheets and Electrical Patterns**850 MHz**

Manufacturer: EMS
Model #: RR65-12-00DBL
Frequency Band: 806 - 940 MHz
Gain: 12.3 dBd
Vertical Beamwidth: 16°
Horizontal Beamwidth: 65°
Polarization: $\pm 45^\circ$
Size L x W x D: 48" x 12" x 7"





June 20, 2012

James Smith
Verizon Wireless
99 East River Drive
East Hartford, CT 06118

Reference: **Proposed Antenna Upgrade**
 Site Name: Riverside, CT
 1111 East Putnam Avenue, Greenwich, CT 06878
 VZ5-126 / 36922284

Dear Mr. Smith:

URS Corporation (URS) has been retained by Verizon Wireless to assess the structural capacity of the existing site with regard to its ability to support an upgrade of antennas. URS completed a field visit on June 18, 2012 in order to assess the site and gather information on the existing conditions. The proposed antenna upgrade is summarized below.

Proposed Antenna Upgrade	Carrier	Antenna Center Elevation
On the Existing Verizon Antenna Mounts:		
<u>Remove:</u> (3) SC-9012 (1 per sector) (3) ALPE-9011 (1 per sector) (6) 948F85T2E-M (2 per sector)	Verizon (existing)	@ 45'
<u>Install:</u> (3) BXA-70063-6CF (1 per sector) (6) DB846F65ZAXY (2 per sector) (3) BXA-171063-8BF (1 per sector) (6) Diplexers (2 per sector)	Verizon (Proposed)	@ 45'
Note: Antennas mounted flush with existing enclosure		

This site currently consists of three sectors of antennas with four antennas per sector attached flush with the existing enclosure. It is our determination that the total loading on the existing structure is similar to what is there presently. Therefore, the site has satisfactory structural capacity to support the proposed Verizon Wireless antennas as specified in the table above.

This evaluation is based on the 2003 International Building Code and 2005 Connecticut Supplement. Should there be questions, please do not hesitate to call.

Sincerely,

URS Corporation

Richard Sambor, P.E.
Senior Structural Engineer

cc: IA, MJE, CF/Book - URS



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