ROBINSON & COL

EM-VER-040-130613

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Also admitted in Massachusetts

June 12, 2013

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Facility Modification**
56 Floydville Road, East Granby, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) antennas at the 117-foot level of the existing 120-foot tower at 56 Floydville Road in East Granby. The tower is owned by SBA. The Council approved Cellco's shared use of this tower in 2002. Cellco now intends to replace one (1) of its existing antennas with one (1) model BXA-70063-6CF LTE antenna at the same height on the tower. Attached behind Tab 1 are the specifications for the replacement antenna.

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 James M. Hayden, East Granby's First Selectman. A copy of this letter is also being sent to D I Paine and Son's 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).

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antenna will be located at the 117-foot level of the existing 120-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 boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

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

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The tower and its foundation can support Cellco's proposed antenna modifications. (*See* Structural Analysis attached behind Tab 3). Contrary to recommendation number 1 on page 3 of the Structural Analysis, Cellco does not intend to install any new coax cables as a part of this modification proposal.

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:
James M. Hayden, East Granby First Selectman
D I Paine and Son's LLC
Sandy M. Carter

Amphenol ANTENNA SOLUTIONS

BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

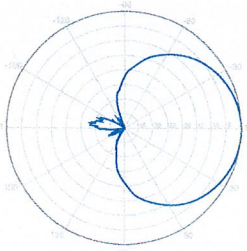
Replace "X" with desired electrical downtilt.

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

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

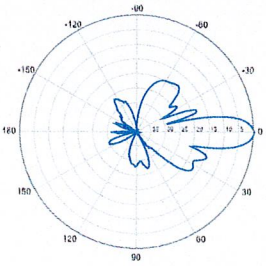
Mounting Options	Part Number	Fits Pipe Diameter	Weight
3-Point Mounting & Downtilt Bracket Kit	36210008	40-115 mm 1.57-4.5 in	6.9 kg 15.2 lbs
Concealment Configurations	For concealment configurations, order BXA-70063-6CF-EDIN-X-FP		

BXA-70063-6CF-EDIN-X



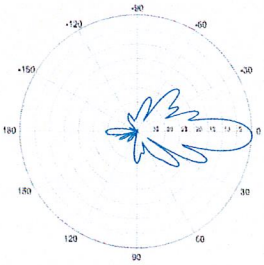
Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0

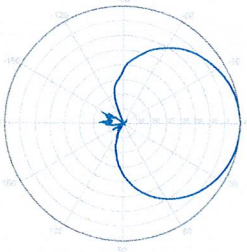


0° | Vertical | 750 MHz

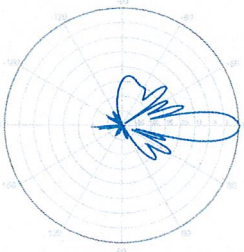
BXA-70063-6CF-EDIN-2



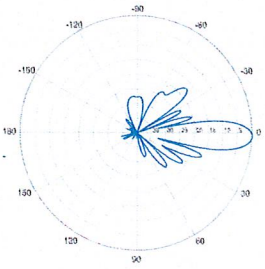
2° | Vertical | 750 MHz



Horizontal | 850 MHz



0° | Vertical | 850 MHz



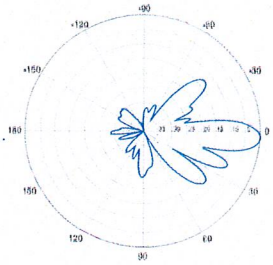
2° | Vertical | 850 MHz

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.

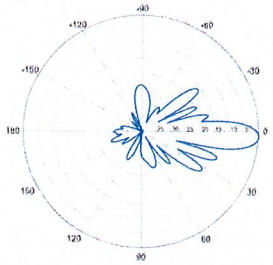
BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

BXA-70063-6CF-EDIN-3

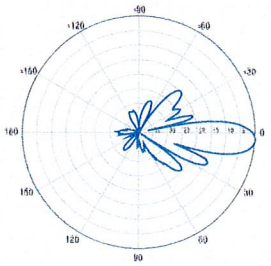


3° | Vertical | 750 MHz

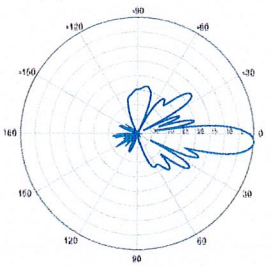


3° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-4

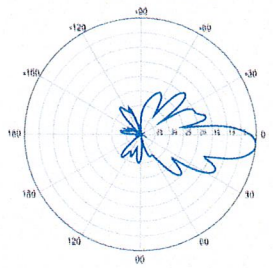


4° | Vertical | 750 MHz

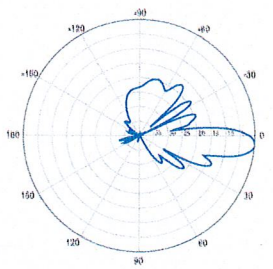


4° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-5

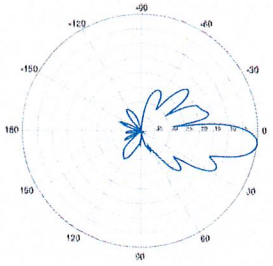


5° | Vertical | 750 MHz

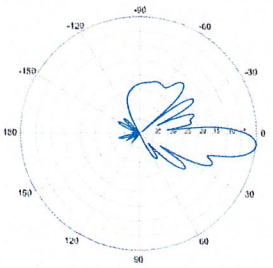


5° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-6

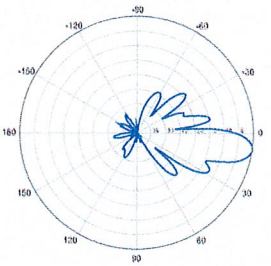


6° | Vertical | 750 MHz

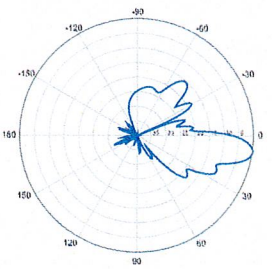


6° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-8

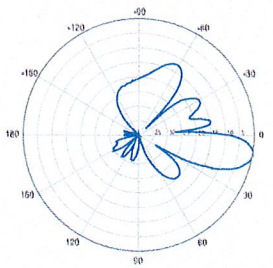


8° | Vertical | 750 MHz

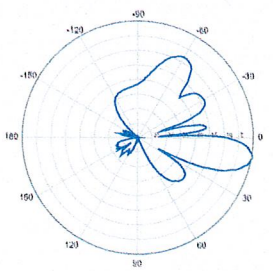


8° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-10



10° | Vertical | 750 MHz



10° | Vertical | 850 MHz

	General	Power	Density					
Site Name: East Granby 2								
Tower Height: Verizon @ 117ft								
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total
*Voicestream	8	238	107	0.0598	1935	1.0000	5.98%	
*Pocket (now MetroPCS)	3	631	97	0.0723	2130	1.0000	7.23%	
*AT&T UMTS	2	565	87	0.0537	880	0.5867	9.15%	
*AT&T UMTS	2	875	87	0.0831	1900	1.0000	8.31%	
*AT&T GSM	1	283	87	0.0134	880	0.5867	2.29%	
*AT&T GSM	4	525	87	0.0998	1900	1.0000	9.98%	
*AT&T LTE	1	1615	87	0.0767	734	0.4893	15.68%	
Verizon PCS	**11**	**265**	**117**	**0.0766**	**1970**	**1.0000**	**7.66%**	
Verizon Cellular	**9**	**267**	**117**	**0.0631**	**869**	**0.5793**	**10.90%**	
Verizon AWS	**1**	**1750**	**117**	**0.0460**	**2145**	**1.0000**	**4.60%**	
Verizon 700	**1**	**870**	**117**	**0.0229**	**698**	**0.4653**	**4.91%**	
								86.68%
* Source: Siting Council								

Structural Analysis for SBA Network Services, Inc.

120' Monopole Tower

SBA Site Name: East Granby
SBA Site ID: CT03801-S-01
Verizon Site Name: East Granby 2

FDH Project Number 1332021400

Analysis Results

Tower Components	54.8%	Sufficient
Foundation	39.2%	Sufficient

Prepared By:

David Zambrano, EI
Project Engineer

Reviewed By:

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

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

STATE OF CONNECTICUT
Christopher Michael Murphy
No. 25842
LICENSED PROFESSIONAL ENGINEER

5/17/13

May 17, 2013

TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and the 2005 Connecticut Building Code (CBC)

TABLE OF CONTENTS

EXECUTIVE SUMMARY

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

- PiRod, Inc. (Eng File No. A-118413-1) original design drawings dated June 13, 2001
- PiRod, Inc. (Eng File No. A-118413-1) Tower Calculations dated June 14, 2001
- Jaworski Geotech, Inc. (Project No. 00729G) Geotechnical Evaluation dated May 11, 2001
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and the *2005 CBC* is 105 mph without ice and 50 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 117 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and the *2005 CBC* provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundation was designed and constructed to support the original design reactions (see PiRod Eng File No. A-118413-1), 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.

Recommendations

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

1. The proposed coax should be installed inside the pole's shaft.
2. The existing TMAs should be installed directly behind the existing/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
117	(3) Antel BXA-70063/4CF (6) Antel LPA-80080/4CF-EDIN (6) Antel LPA-171080/8CF-EDIN (6) RFS FD9R6004/2C-3L Diplexers	(12) 1-5/8"	Verizon	117	(1) Low Profile Platform
107	(3) Thales P65Q56NS2B (3) Remec TMAs	(12) 1-5/8"	T-Mobile	107	(1) Low Profile Platform
97	(3) Kathrein 742 213	(6) 1-5/8"	Pocket	97	Flush
88	(6) Ericsson RRUS-11 RRUs (1) Raycap DC2-48-60-18-8F Surge Arrestor	(12) 1-5/8" (1) 3' Flex Conduit (1) FB-L98B-002 (2) WR-VG86ST-BRD	AT&T	88	(1) Universal Ring Mount (Valmont Part # LWRM)
87	(6) Powerwave 7770.00 (3) Powerwave P65-17-XLH-RR (6) Powerwave TT19-08BP111-001 TMAs (6) Powerwave LGP21903 Diplexers			87	(1) Low Profile Platform

1. Coax installed inside the pole's shaft unless otherwise noted.

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
117	(1) Antel BXA-70063/6CF (2) Antel BXA-70063/4CF (6) Antel LPA-80080/4CF-EDIN (6) Antel LPA-171080/8CF-EDIN (6) RFS FD9R6004/2C-3L Diplexers	(12) 1-5/8"	Verizon	117	(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
Base Plate	50 ksi
Anchor Bolts	105 ksi

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

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

See the **Appendix** for detailed modeling information.

Table 3 - Summary of Working Percentage of Structural Components

Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
L1	120 - 98.5	Pole	TP34.0625x24.25x0.3125	6.5	Pass
L2	98.5 - 64.8333	Pole	TP41.75x31.688x0.375	19.4	Pass
L3	64.8333 - 32	Pole	TP49.0625x39.7478x0.375	30.1	Pass
L4	32 - 0	Pole	TP56.125x46.9463x0.375	37.8	Pass
		Anchor Bolts	(39) 1.25"Ø w/ BC = 61"	35.3	Pass
		Base Plate	65"Ø x 1.5" thk.	54.8	Pass

Table 4 - Maximum Base Reactions

Base Reactions	Current Analysis *(TIA/EIA-222-F)*	Original Design *(TIA/EIA-222-F)*
Axial	33 k	37 k
Shear	18 k	37 k
Moment	1,457 k-ft	3,719 k-ft

GENERAL COMMENTS

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

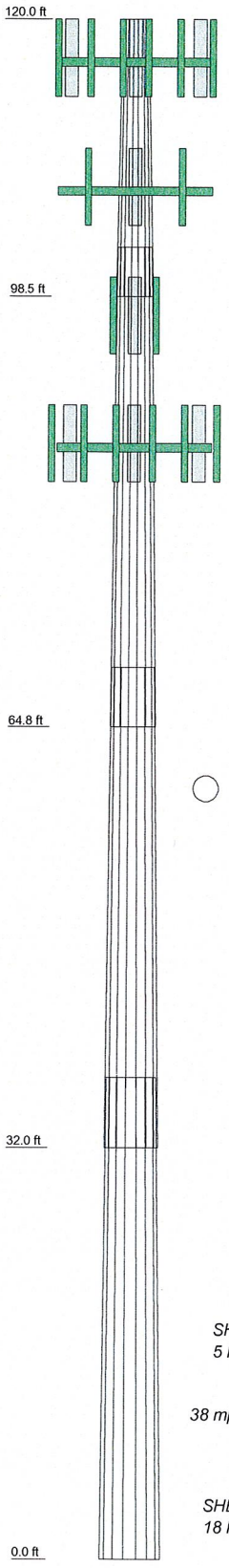
LIMITATIONS

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

APPENDIX

Section	1	2	3	4
Length (ft)	21.50	37.50	37.50	37.50
Number of Sides	18	18	18	18
Thickness (in)	0.3125	0.3750	0.3750	0.3750
Socket Length (ft)	3.83	4.67	5.50	
Top Dia (in)	24.2500	31.6880	39.7478	46.9463
Bot Dia (in)	34.0625	41.7500	49.0625	56.1250
Grade	A572-65			
Weight (K)	2.1	5.5	6.7	7.8

22.1



AXIAL
46 K

SHEAR
5 K

MOMENT
416 kip-ft

TORQUE 0 kip-ft
38 mph WIND - 1.0000 in ICE

AXIAL
33 K

SHEAR
18 K

MOMENT
1457 kip-ft

TORQUE 1 kip-ft
REACTIONS - 80 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	120	742 213 w/ Mount Pipe	97
(2) LPA-171080/8CF w/ Mount Pipe	117	742 213 w/ Mount Pipe	97
(2) LPA-171080/8CF w/ Mount Pipe	117	742 213 w/ Mount Pipe	97
(2) LPA-171080/8CF w/ Mount Pipe	117	(2) RRUS-11	88
(2) LPA-80080/4CF W/Mount Pipe	117	(2) RRUS-11	88
(2) LPA-80080/4CF W/Mount Pipe	117	(2) RRUS-11	88
(2) LPA-80080/4CF W/Mount Pipe	117	DC2-48-60-18-8F Surge Arrestor	88
BXA-70063/4CF W/ Mount Pipe	117	Ring Mount	88
BXA-70063/4CF W/ Mount Pipe	117	(2) LGP21903 Diplexer	87
BXA-70063/6CF w/Mount Pipe	117	(2) LGP21903 Diplexer	87
(2) FD9R6004/2C-3L Diplexer	117	(2) LGP21903 Diplexer	87
(2) FD9R6004/2C-3L Diplexer	117	(1) Low Profile Platform mnt	87
(2) FD9R6004/2C-3L Diplexer	117	P65-17-XLH-RR w/Mount Pipe	87
(1) Low Profile Platform mnt	117	P65-17-XLH-RR w/Mount Pipe	87
P65Q56NS2B w/ Mount Pipe	107	P65-17-XLH-RR w/Mount Pipe	87
P65Q56NS2B w/ Mount Pipe	107	(2) TT19-08BP111-001 TMA	87
P65Q56NS2B w/ Mount Pipe	107	(2) TT19-08BP111-001 TMA	87
TMA	107	(2) TT19-08BP111-001 TMA	87
TMA	107	(2) 7770.00 w/Mount Pipe	87
TMA	107	(2) 7770.00 w/Mount Pipe	87
(1) Low Profile Platform mnt	107	(2) 7770.00 w/Mount Pipe	87

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.

FDH Engineering, Inc.
6521 Meridien Drive, Suite 107
Raleigh, NC 27616
Phone: 9197551012
FAX: 9197551031
Tower Analysis

Job: East Granby, CT03801-S-01			
Project: 1332021400			
Client: SBA Network Services, Inc.	Drawn by: David Zambrano	App'd:	
Code: TIA/EIA-222-F	Date: 05/17/13	Scale: NTS	
Path:		Dwg No. E-1	