Robinson+Cole

KENNETH C. BALDWIN

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Also admitted in Massachusetts

December 12, 2014

ORIGINAL

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

Re: **EM-VER-143-130607 – Cellco Partnership d/b/a Verizon Wireless**
1925 East Main Street, Torrington, Connecticut

Dear Ms. Bachman:

On July 11, 2013, the Siting Council acknowledged receipt of Cellco's notice of intent to modify its telecommunications facility at 1925 East Main Street in Torrington. The modification involved the replacement of certain antennas.

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

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

Sincerely,

Kenneth C. Baldwin

Attachment
Copy to:
Sandy M. Carter
Brian Ragozzine
Mark Gauger

CENTEK engineering

Centered on Solutions℠

December 11, 2014

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

Re: Existing Telecommunications Facility Tower Certification Letter

Project:	**Verizon Torrington East** 1925 East Main Street Torrington, CT
Tower Owner:	**SBA Communications**
Engineer:	**FDH Engineering** 6521 Meridien Drive Raleigh, NC 27616

Centek Project No.: 14055.043
CSC Exempt Mod Reference No.: EM-VER-143-130607

Dear Mr. Gauger,

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

The following are the basis for substantiating compliance with the FDH Engineering structural analysis report (FDH Project No. 1324621400 (R1)) dated April 29, 2013:

- Review of the FDH structural analysis report dated 04/29/2013.
- Field observations by Centek personnel of the coax installation on 12/10/2014 which determined all coax lines were installed in general compliance with the recommendations of the structural analysis report prepared by FDH Engineering on 04/29/2013.

The structural analysis prepared by FDH Engineering demonstrates the tower will not exceed 100 percent of the post construction structural rating. The work under this Contract has been reviewed and found, to the Engineer's best knowledge, information and belief, to be completed in general compliance with the documents referenced above. This certification is not a review of the adequacy or effectiveness of the referenced structural analysis.

Sincerely,

Carlo F. Centore, PE
Principal ~ Structural Engineer

STATE OF CONNECTICUT
CARLO F. CENTORE
No. 16884
LICENSED
PROFESSIONAL ENGINEER

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 www.CentekEng.com

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

July 11, 2013

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

RE: **EM-VER -143-130607** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 1925 East Main Street, Torrington, 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:

- Verizon shall follow the coax installation recommendations made in the Structural Analysis Report prepared by FDH Engineering dated April 29, 2013 and stamped by Christopher Murphy; and
- Within 45 days following completion of the antenna installation, Verizon shall provide documentation certified by a professional engineer that its installation complied with the recommendations of the structural analysis;
- Any deviation from the proposed modification as specified in this notice and supporting materials with the 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;
- Within 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 June 6, 2013. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

CSC
CONNECTICUT SITING COUNCIL

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,

Melanie A. Bachman
Acting Executive Director

MAB/CDM/jb

c: The Honorable Ryan J. Bingham, Mayor, City of Torrington
Martin Connor, City Planner, City of Torrington
Sean Gormley, SBA

STATE OF CONNECTICUT
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June 12, 2013

The Honorable Ryan J. Bingham
Mayor
City of Torrington
Municipal Building
140 Main Street
Torrington, CT 06790-5245

RE: **EM-VER -143-130607** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 1925 East Main Street, Torrington, Connecticut.

Dear Mayor Bingham:

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

If you have any questions or comments regarding the proposal, please call me or inform the Council by June 26, 2013.

Thank you for your cooperation and consideration.

Very truly yours,

Melanie Bachman
Acting Executive Director

MB/jb

c: Martin Connor, City Planner, City of Torrington

ROBINSON & COLE LLP

EM-VER-143-130607

KENNETH C. BALDWIN

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Also admitted in Massachusetts

June 6, 2013

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

Re: **Notice of Exempt Modification – Facility Modification**
1925 East Main, Torrington, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains fifteen (15) antennas at the 123-foot level of the 153-foot tower at 1925 East Main Street in Torrington. The tower is owned by SBA. The Council approved Cellco's use of this tower in 2003. 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 Ryan J. Bingham, Mayor of the City of Torrington. A copy of this letter is also being sent to TEP Incorporated, 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 antennas will be located at the 123-foot level of the 153-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 are 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 modification. (*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:
Ryan J. Bingham, Torrington Mayor
TEP Incorporated
Sandy M. Carter

BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

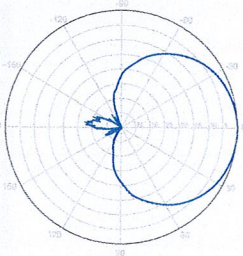
Replace "X" with desired electrical downtilt.

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

Electrical Characteristics	696-900 MHz	
Frequency bands	696-806 MHz	806-900 MHz
Polarization	±45°	
Horizontal beamwidth	65°	63°
Vertical beamwidth	13°	11°
Gain	14.0 dBd (16.1 dBi)	14.5 dBd (16.6 dBi)
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 10	
Impedance	50Ω	
VSWR	≤1.35:1	
Upper sidelobe suppression (0°)	-18.3 dB	-18.2 dB
Front-to-back ratio (+/-30°)	-33.4 dB	-36.3 dB
Null fill	5% (-26.02 dB)	
Isolation between ports	< -25 dB	
Input power with EDIN connectors	500 W	
Input power with NE connectors	300 W	
Lightning protection	Direct Ground	
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)	
Mechanical Characteristics		
Dimensions Length x Width x Depth	1804 x 285 x 132 mm	71.0 x 11.2 x 5.2 in
Depth with z-brackets	172 mm	6.8 in
Weight without mounting brackets	7.9 kg	17 lbs
Survival wind speed	> 201 km/hr	> 125 mph
Wind area	Front: 0.51 m² Side: 0.24 m²	Front: 5.5 ft² Side: 2.6 ft²
Wind load @ 161 km/hr (100 mph)	Front: 759 N Side: 391 N	Front: 169 lbf Side: 89 lbf

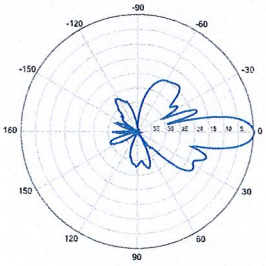
Mounting Options	Part Number	Fits Pipe Diameter	Weight
3-Point Mounting & Downtilt Bracket Kit	36210008	40-115 mm 1.57-4.5 in	6.9 kg 15.2 lbs
Concealment Configurations	For concealment configurations, order BXA-70063-6CF-EDIN-X-FP		

BXA-70063-6CF-EDIN-X



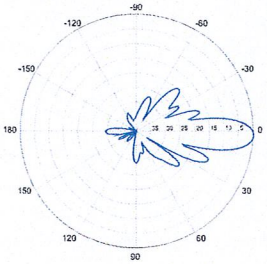
Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0

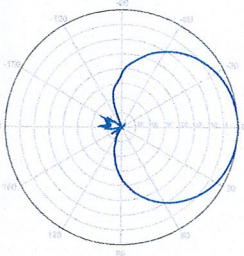


0° | Vertical | 750 MHz

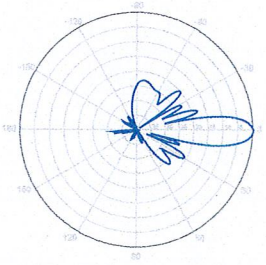
BXA-70063-6CF-EDIN-2



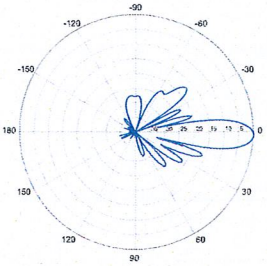
2° | Vertical | 750 MHz



Horizontal | 850 MHz



0° | Vertical | 850 MHz

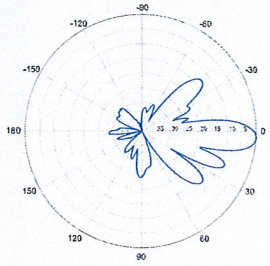


2° | Vertical | 850 MHz

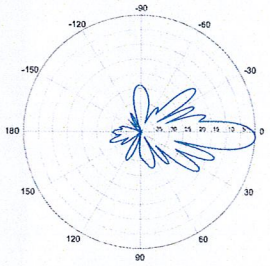
BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

BXA-70063-6CF-EDIN-3

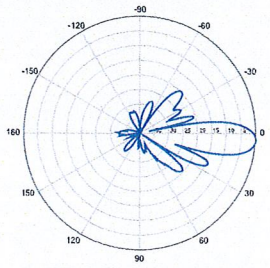


3° | Vertical | 750 MHz

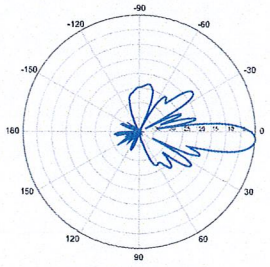


3° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-4

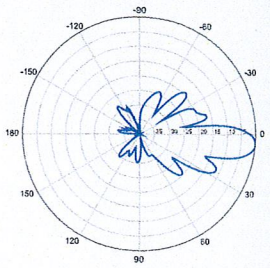


4° | Vertical | 750 MHz

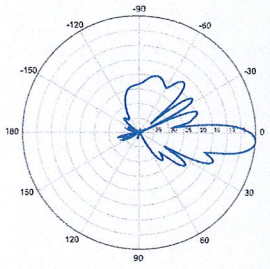


4° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-5

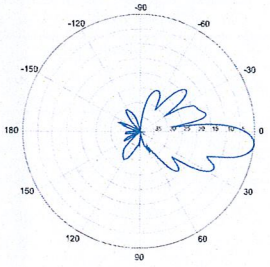


5° | Vertical | 750 MHz

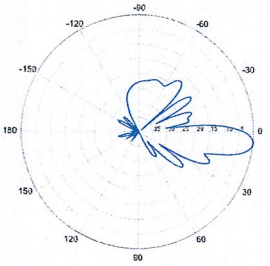


5° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-6

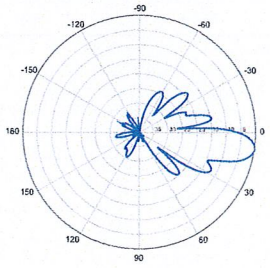


6° | Vertical | 750 MHz

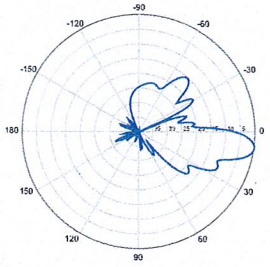


6° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-8

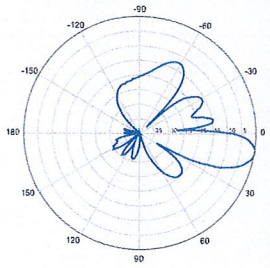


8° | Vertical | 750 MHz

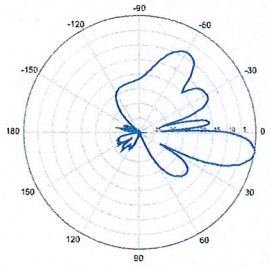


8° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-10



10° | Vertical | 750 MHz



10° | Vertical | 850 MHz

	General	Power	Density					
Site Name: Torrington E								
Tower Height: Verizon @ 123ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*Nextel	9	100	143	0.0158	851	0.5673	2.79%	
*VoiceStream	4	294	133	0.0239	1930	1.0000	2.39%	
*Sprint CDMA/LTE	4	778	150.4	0.0495	1900	1.0000	4.95%	
*Sprint CDMA/LTE	1	438	150.4	0.0070	850	0.5667	1.23%	
*Pocket (now MetroPCS)	3	631	85	0.0942	2130	1.0000	9.42%	
*Town	no RF information available %MPE estimated						5.00%	
*AT&T UMTS	2	565	95	0.0450	880	0.5867	7.67%	
*AT&T UMTS	2	875	95	0.0697	1900	1.0000	6.97%	
*AT&T GSM	1	283	95	0.0113	880	0.5867	1.92%	
*AT&T GSM	4	525	95	0.0837	1900	1.0000	8.37%	
*AT&T LTE	1	1313	95	0.0523	734	0.4893	10.69%	
Verizon PCS	**14**	**252**	**123**	**0.0838**	**1970**	**1.0000**	**8.38%**	
Verizon Cellular	**9**	**258**	**123**	**0.0552**	**869**	**0.5793**	**9.53%**	
Verizon AWS	**1**	**1750**	**123**	**0.0416**	**2145**	**1.0000**	**4.16%**	
Verizon 700	**1**	**845**	**123**	**0.0201**	**698**	**0.4653**	**4.32%**	
								87.79%
* Source: Siting Council								

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

Structural Analysis for SBA Network Services, Inc.

153' Monopole Tower

SBA Site Name: Torrington
SBA Site ID: CT01499-S-05
Verizon Site Name: Torrington East

FDH Project Number 1324621400 (R1)

Analysis Results

Tower Components	90.0%	Sufficient
Foundation	92.4%	Sufficient

Prepared By:

David Zambrano, EI
Project Engineer

Reviewed By:

Christopher M. Murphy

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

4/29/13

April 29, 2013

Prepared pursuant to TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and 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 Torrington, 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 Building Code*. Information pertaining to the existing/proposed antenna loading, current tower geometry, geotechnical data, foundation dimensions, and member sizes was obtained from:

- Fred A. Nudd Corporation (Project No. 7783) original design drawings dated August 18, 2000
- Vertical Structures, Inc. (Job No. 2003-007-015) structural analysis and modification drawings dated September 9, 2003
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and *2005 Connecticut Building Code* is 80 mph without ice and 28 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 123 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and *2005 Connecticut Building Code* provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundation was designed and constructed to support the original design reactions (see Fred A. Nudd Project No. 7783), 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 *2005 Connecticut Building Code* 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 but (6) 1-5/8" coax may be installed on the exterior of the monopole shaft in a single row.

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
153	(3) RFS APXVSPP18-C-A20 (3) ALU 1900 MHz RRUs (3) ALU 800 MHz RRUs (3) ALU 800 MHz Filters (4) RFS ACU-A20-N RETs	(3) 1-1/4"	Sprint	153	(1) Low Profile Platform
143	(12) Decibel DB844H90E-XY	(12) 1-1/4"	Nextel	143	(1) Low Profile Platform
133	(6) EMS RR90-17-02DP	(12) 1-5/8"	T-Mobile	133	(1) Low Profile Platform
123	(6) Antel LPA-80063/6CF (6) Antel LPA-171063-12CF (2) Antel BXA-70063-6CF-2 (1) RFS APX75-866514-T6	(12) 1-5/8" (6) 1-5/8"[2]	Verizon	123	(1) Low Profile Platform
110	(1) 10' Omni	(1) 1/2"	Torrington PD	105	(1) Standoff
95[3]	(3) CSS DUO1417-8686-40 (6) Powerwave 7770 (1) Kathrein 800 10764 (2) KMW AM-X-CD-16-65-001-RET (6) Powerwave LGP21401 TMAs (6) Powerwave LGP21903 Diplexers (6) Ericsson RRUS-11 RRUs (1) Andrew ABT-DF-DMADBH Surge Arrestor (1) Raycap DC6-48-60-18-8F Surge Arrestor	(12) 1-5/8 (1) 7/16 Fiber[5] (2) 3/4 DC[5]	AT&T	95	(1) Low Profile Platform
85[4]	(3) RFS APXV18-206517S-C	(6) 1-5/8"	Pocket	85	(3) Pipe Mounts
70	(1) GPS	(1) 1/2"	---	70	(1) Standoff

1. The existing coax are installed inside the pole's shaft, unless otherwise noted
2. Verizon's has (6) 1-5/8" coax to 123 ft installed outside the pole's shaft in a single row
3. AT&T's coax to 95 ft are installed outside the pole's shaft in a single row
4. Pocket's coax to 85 ft are installed outside the pole's shaft in a single row
5. AT&T's Coax installed inside 3" Flex Conduit.

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
123	(3) Antel BXA 70063-6CF (6) Antel LPA-80063-6CF (6) Antel LPA-171063-12CF	(12) 1-5/8"[1]	Verizon	123	(1) Low Profile Platform

1. Verizon's has (6) 1-5/8" coax to 123 ft installed outside the pole's shaft in a single row

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 (assumed)
Base Plate	50 ksi
Anchor Bolts	Fu = 125 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. **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	153 - 150	Pole	TP26.25x24x0.25	1.9	Pass
		Flange Bolts	(18) .5" Ø on 27" Ø BC	7.1	Pass
		Flange Plate	30" Ø x .5" thk PL	3.8	Pass
L2	150 - 110	Pole	TP35.25x26.25x0.25	35.8	Pass
L3	110 - 65	Pole	TP45.375x33.625x0.3125	65.0	Pass
L4	65 - 21	Pole	TP55.275x43.34x0.3125	90.0	Pass
L5	21 - 0	Pole	TP60x52.9791x0.375	78.4	Pass
		Anchor Bolts	(18) 2" Ø w/ 67" Ø BC	77.2	Pass
		Base Plate	73" Ø x 1.5" thk. PL w/ Stiffeners	61.0	Pass

* Capacities include 1/3 allowable stress increase for wind per *TIA/EIA-222-F*.

Table 4 - Maximum Base Reactions

Base Reactions	Current Analysis *(TIA/EIA-222-F)*	Original Design *(TIA/EIA-222-F)*
Axial	42 k	---
Shear	33 k	31 k
Moment	3,411 k-ft	3,692 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

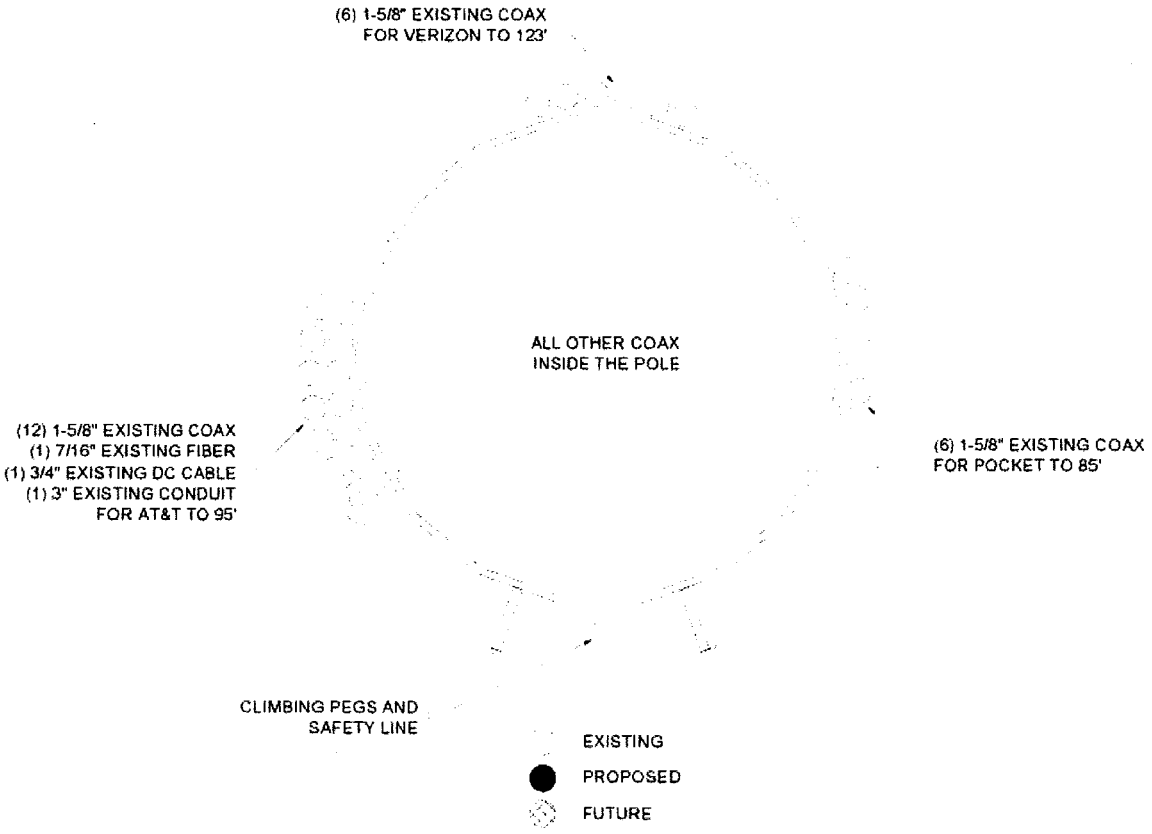
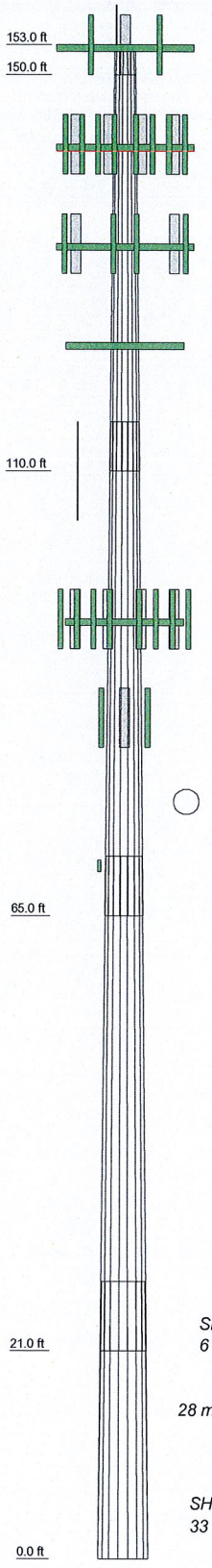
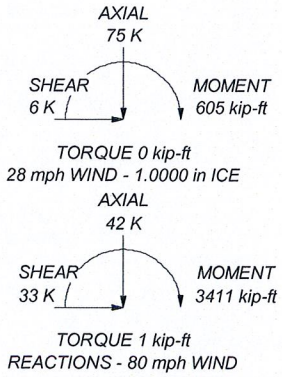


Figure 1 – Assumed Coax Layout

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	3.00	18	0.2500		24.0000	26.2500		0.2
2	40.00	18	0.2500	5.00	26.2500	35.2500		3.3
3	50.00	18	0.3125	6.00	33.6250	45.3750		6.6
4	50.00	18	0.3125	7.00	43.3400	55.2750		8.3
5	28.00	18	0.3750		52.9791	60.0000		6.4
							A572-65	24.7





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	153	BXA-70063/6CF w/ Mount Pipe	123
APXVSPP18-C-A20 w/Mount Pipe	153	BXA-70063/6CF w/ Mount Pipe	123
APXVSPP18-C-A20 w/Mount Pipe	153	(1) Low Profile Platform	123
APXVSPP18-C-A20 w/Mount Pipe	153	10' Omni	105
ALU 1900 RRU	153	(1) Standoff	105
ALU 1900 RRU	153	(2) LGP21401 TMA	95
ALU 1900 RRU	153	(2) LGP21401 TMA	95
ALU 800 RRU	153	(2) LGP21903 Diplexer	95
ALU 800 RRU	153	(2) LGP21903 Diplexer	95
ALU 800 RRU	153	(2) LGP21903 Diplexer	95
ALU 800 Filter	153	(2) RRUS-11	95
ALU 800 Filter	153	(2) RRUS-11	95
ALU 800 Filter	153	(2) RRUS-11	95
ACU-A20-N RET	153	Andrew ABT-DF-DMADBH Surge Arrestor	95
(2) ACU-A20-N RET	153		
ACU-A20-N RET	153	DC6-48-60-18-8F Surge Arrestor	95
(1) Low Profile Platform	153	(1) Low Profile Platform	95
(2) Empty Mount Pipe	153	KMW AM-X-CD-16-65-001-RET w/ Mount Pipe	95
(2) Empty Mount Pipe	153		
(2) Empty Mount Pipe	153	(2) LGP21401 TMA	95
(4) DB844H90E-XY w/Mount Pipe	143	CSS DUO1417-8686-40 w/ Mount Pipe	95
(4) DB844H90E-XY w/Mount Pipe	143	CSS DUO1417-8686-40 w/ Mount Pipe	95
(4) DB844H90E-XY w/Mount Pipe	143	CSS DUO1417-8686-40 w/ Mount Pipe	95
(1) Low Profile Platform	143	(2) Powerwave 7770 w/ Mount Pipe	95
(2) RR90-17-02DP w/Mount Pipe	133	(2) Powerwave 7770 w/ Mount Pipe	95
(2) RR90-17-02DP w/Mount Pipe	133	(2) Powerwave 7770 w/ Mount Pipe	95
(2) RR90-17-02DP w/Mount Pipe	133	800 10764 w/ Mount Pipe	95
(1) Low Profile Platform	133	KMW AM-X-CD-16-65-001-RET w/ Mount Pipe	95
(2) LPA-80063/6CF w/ Mount Pipe	123	APXV18-206517S-C w/Mount Pipe	85
(2) LPA-80063/6CF w/ Mount Pipe	123	APXV18-206517S-C w/Mount Pipe	85
(2) LPA-80063/6CF w/ Mount Pipe	123	APXV18-206517S-C w/Mount Pipe	85
(2) LPA-171063-12CF w/ Mount Pipe	123	GPS	70
(2) LPA-171063-12CF w/ Mount Pipe	123	Standoff	70
(2) LPA-171063-12CF w/ Mount Pipe	123		
BXA-70063/6CF w/ Mount Pipe	123		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Litchfield 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 28 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: 90%

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Tower Analysis

Job: Torrington CT01499-S-05			
Project: 1324621400 (R1)			
Client: SBA	Drawn by: David Zambrano	App'd:	
Code: TIA/EIA-222-F	Date: 04/29/13	Scale: NTS	
Path:		Dwg No. E-1	