

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

Also admitted in Massachusetts

April 22, 2014

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

Re: **Notice of Exempt Modification – Facility Modification
12 Burr Road, Bloomfield, Connecticut**

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) wireless telecommunications antennas at the 117-foot level of the existing 140-foot tower at 12 Burr Road in Bloomfield, Connecticut (the “Property”). The tower is owned by SBA. The Council approved Cellco’s use of this tower in 2009. Cellco now intends to modify its facility by replacing six (6) of its existing antennas with three (3) model 742 213V01, 1900 MHz antennas and three (3) model 742 213V01, 2100 MHz antennas, all at the same 117-foot level on the tower. Cellco also intends to install three (3) remote radio heads (“RRHs”) behind its 2100 MHz antennas and one (1) HYBRIFLEX™ antenna cable inside the monopole. Included in Attachment 1 are specifications for Cellco’s replacement antennas, RRHs and HYBRIFLEX™ cable.

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 Philip K. Schenk, Jr., Bloomfield’s Town Manager. A copy of this letter is also being sent to Maple Hill Farms, the owner of the Property.

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



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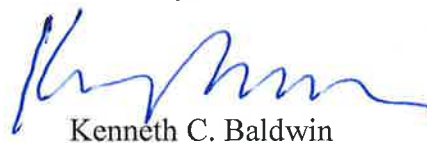
ROBINSON & COLE_{LLP}

Melanie A. Bachman
April 22, 2014
Page 2

1. The proposed modifications will not result in an increase in the height of the existing tower. The replacement antennas and RRHs will be located at the 117-foot level on the 140-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 modified facility 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 is included behind Attachment 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support Cellco's proposed modifications. (See Structural Analysis included in Attachment 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:

Philip K. Schenk, Jr., Bloomfield Town Manager
Maple Hill Farms
Sandy M. Carter



ATTACHMENT 1

Kathrein's X-polarized adjustable electrical downtilt antennas offer the wireless carrier the ability to tailor polarization diversity sites for optimum performance. Using variable downtilt, only a few models need be procured to accommodate the needs of widely varying conditions. Remotely controlled downtilt is available as a retrofitable option.

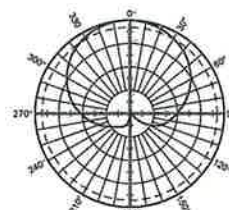
- 0-6° downtilt range.
- UV resistant pulltruded fiberglass radome.
- DC Grounded metallic parts for impulse suppression.
- No moving electrical connections.
- Wideband vector dipole technology.
- Optional remote downtilt Control.
- Will accommodate future 3G / UMTS applications.

General specifications:

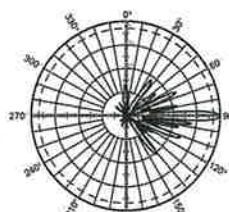
Frequency range	1710–2200 MHz	
VSWR	< 1.5:1	
Impedance	50 ohms	
Intermodulation (2x20w)	IM3: <-150 dBc	
Polarization	+45° and -45°	
Front-to-back ratio (180°±30°)	>30 dB (co-polar) >25 dB (total power)	
Maximum input power	300 watts per input (at 50°C)	
Electrical downtilt continuously adjustable	0–6 degrees	
Connector	2 x 7-16 DIN female	
Isolation	>30 dB	
Cross polar ratio		
Main direction	0°	25 dB (typical)
Sector	±60°	>10 dB
Tracking, average	0.5 dB	
Squint	±2.0°	
Weight	19.8 lb (9 kg) 24.3 lb (11 kg) clamps included	
Dimensions	76.9 x 6.1 x 2.8 inches (1954 x 155 x 70 mm)	
Wind load	at 93 mph (150kph)	
Front/Side/Rear	115 lbf / 32 lbf / 115 lbf (510 N) / (140 N) / (510 N)	
Mounting category	M (Medium)	
Wind survival rating*	120 mph (200 kph)	
Shipping dimensions	88 x 6.8 x 3.6 inches (2235 x 172 x 92 mm)	
Shipping weight	28.7 lb (13 kg)	
Mounting	Fixed mounts for 2 to 4.6 inch (50 to 115 mm) OD masts are included and tilt options are available.	

See reverse for order information.

Specifications:	1710–1880 MHz				1850–1990 MHz				1920–2200 MHz			
Gain	19 dBi				19.2 dBi				19.5 dBi			
+45° and -45° polarization horizontal beamwidth	67° (half-power)				65° (half-power)				63° (half-power)			
+45° and -45° polarization vertical beamwidth	4.7° (half-power)				4.5° (half-power)				4.3° (half-power)			
Sidelobe suppression for first sidelobe above main beam	0°	2°	4°	6° T	0°	2°	4°	6° T	0°	2°	4°	6° T
	18	18	16	15 dB	18	18	17	16 dB	18	18	18	18 dB



Horizontal pattern
±45°- polarization



Vertical pattern
±45°- polarization
0°–6° electrical downtilt



11271-B
936.3740/b



* Mechanical design is based on environmental conditions as stipulated in TIA-222-G-2 (December 2009) and/or ETS 300 019-1-4 which include the static mechanical load imposed on an antenna by wind at maximum velocity. See the Engineering Section of the catalog for further details.

Alcatel-Lucent RRH2x40-07-U

REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-07-U is a high-power, small form-factor Remote Radio Head (RRH) operating in the North American Digital Dividend / 700MHz frequency band (3GPP Band 13). The Alcatel-Lucent RRH2x40-07-U is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.



A distributed eNodeB expands deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent RRH2x40-07-U is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information. The Alcatel-Lucent RRH2x40-07-U has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to two-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 10 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-07-U is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low

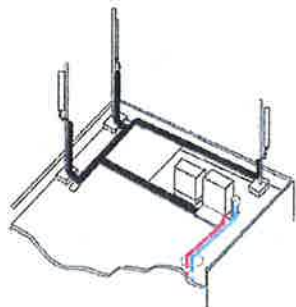
capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH2x40-07-U installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

Fast, low-cost installation and deployment

The Alcatel-Lucent RRH2x40-07-U is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent RRH2x40-07-U is compact and weighs less than 23 kg (50 lb), eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day — a fraction of the time required for a traditional BTS.

Excellent RF performance

Because of its small size and weight, the Alcatel-Lucent RRH2x40-07-U can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-07-U where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced. The Alcatel-Lucent RRH2x40-07-U provides more RF power while at the same time consuming less electricity.



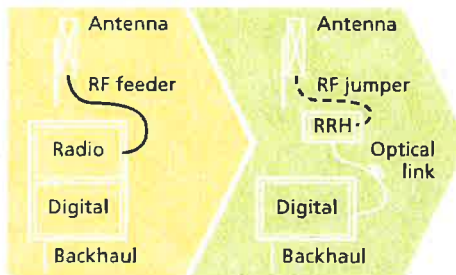
Macro

Features

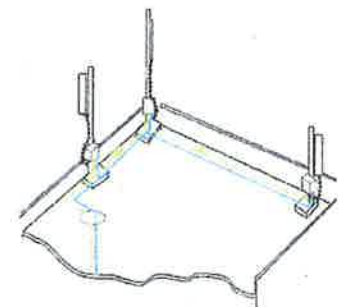
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless), noise-free, and heaterless unit
- Best-in-class power efficiency, with significantly reduced energy consumption

Benefits

- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning



RRH for space-constrained cell sites



Distributed

Technical specifications

Physical dimensions

- Height: 390 mm (15.4 in.)
- Width: 380 mm (15 in.)
- Depth: 210 mm (8.2 in.)
- Weight (without mounting kit): less than 23 kg (50 lb)

Power

- Power supply: -48V

Operating environment

- Outdoor temperature range:
 - With solar load: -40°C to +50°C (-40°F to +122°F)
 - Without solar load: -40°C to +55°C (-40°F to +131°F)
- Passive convection cooling (no fans)

- Enclosure protection
 - IP65 (International Protection rating)

RF characteristics

- Frequency band: 700 MHz; 3GPP Band 13
- Bandwidth: up to 10 MHz
- RF output power at antenna port:
 - 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way
- Noise figure: below 2.5 dB typical
- ALD features
 - TMA
 - Remote electrical tilt (RET) support (AISG v2.0)

Optical characteristics

Type/number of fibers

- Up to 3.12 Gb/s line bit rate
- Single-mode variant
 - One SM fiber (9/125 μm) per RRH2x, carrying UL and DL using CWDM (at 1550/1310 nm)
- Multi-mode variant
 - Two MM fibers (50/125 μm) per RRH2x: one carrying UL, the other carrying DL (at 850 nm)

Optical fiber length

- Up to 500 m (0.31 mi), using MM fiber
- Up to 20 km (12.43 mi), using SM fiber

Alarms and ports

- Six external alarms
- Two optical ports to support daisy-chaining

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HYBRIFLEX™ RRH Hybrid Feeder Cabling Solution, 1-5/8", Single-Mode Fiber

Product Description

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world's most innovative solution for RRH deployments.

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX® accessories can be used with HYBRIFLEX cable. Both pre-connectorized and on-site options are available.

Features/Benefits

- Aluminum corrugated armor with outstanding bending characteristics - minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding - Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design - Decreases tower loading
- Robust cabling - Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH - Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable - Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- Outdoor polyethylene jacket - Ensures long-lasting cable protection



Figure 1: HYBRIFLEX Series

Technical Specifications

Structure			
Outer Conductor Armor	Corrugated Aluminum	[mm (in.)]	45.5 (1.83)
Jacket	Polyethylene, PE	[mm (in.)]	50.3 (1.98)
UV-Protection	Individual and External Jacket		Yes
Mechanical Properties			
Weight, Approximate		[kg/m (lb/ft)]	1.9 (1.30)
Minimum Bending Radius, Single Bending		[mm (in.)]	200 (8)
Minimum Bending Radius, Repeated Bending		[mm (in.)]	500 (20)
Recommended/Maximum Clamp Spacing		[m (ft)]	1.0 / 1.2 (3.25 / 4.0)
Electrical Properties			
DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	0.68 (0.205)
DC-Resistance Power Cable, 3.4mm² (8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)
Fiber Cable Properties			
Version			Single-mode OM3
Quantity, Fiber Count			16 (8 pairs)
Core/Clad		[μm]	50/125
Primary Coating (Acrylate)		[μm]	245
Buffer Diameter, Nominal		[μm]	900
Secondary Protection, Jacket, Nominal		[mm (in.)]	2.0 (0.08)
Minimum Bending Radius		[mm (in.)]	104 (4.1)
Insertion Loss @ wavelength 850nm		dB/km	3.0
Insertion Loss @ wavelength 1310nm		dB/km	1.0
Standards (Meets or exceeds)			UL34-V0, UL1666 RoHS Compliant
DC Power Cable Properties			
Size (Power)		[mm (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm (AWG)]	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		[mm (in.)]	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-95-653 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Operating Range			
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to 149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to 149)

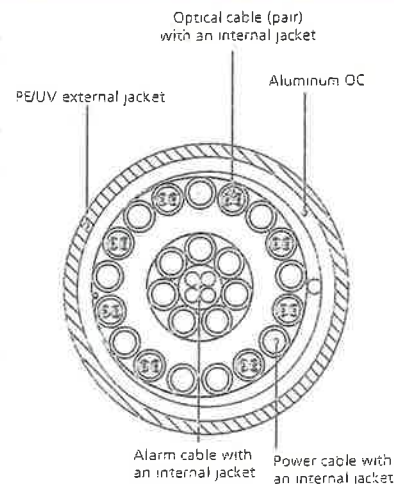


Figure 2: Construction Detail

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

* This data is provisional and subject to change

ATTACHMENT 2

Site Name: Bloomfield 2 Tower Height: 140Ft	General		Power	Density					
	CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total
*T-Mobile	8	158	121	0.0310	1945	1.0000	3.10%		
*Clearwire	2	153	97	0.0117	2496	1.0000	1.17%		
*Clearwire	1	211	97	0.0081	11 GHz	1.0000	0.81%		
*AT&T UMTS	2	565	107	0.0355	880	0.5867	6.05%		
*AT&T UMTS	2	875	107	0.0550	1900	1.0000	5.50%		
*AT&T GSM	1	283	107	0.0089	880	0.5867	1.51%		
*AT&T GSM	4	525	107	0.0660	1900	1.0000	6.60%		
*AT&T LTE	1	1615	107	0.0507	734	0.4893	10.37%		
MetroPCS	3	727	137	0.0418	2140	1.0000	4.18%		
Verizon	11	441	117	0.1274	1970	1.0000	12.74%		
Verizon	9	405	117	0.0957	869	0.5793	16.53%		
Verizon	1	1750	117	0.0460	2145	1.0000	4.60%		
Verizon	1	1050	117	0.0276	698	0.4653	5.93%	79.07%	
* Source: Siting Council									

ATTACHMENT 3



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

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

140' Monopole Tower

**SBA Site Name: Bloomfield 4
SBA Site ID: CT13548-S-00
Verizon Site Name: Bloomfield 2**

FDH Project Number 1425AW1400

Analysis Results

Tower Components	90.3%	Sufficient
Foundation	91.6%	Sufficient

Prepared By:

Mark S. Girgis, EI
Project Engineer

Reviewed By:

Bradley R. Newman, PE
Senior Project Engineer
CT PE License No. 29630

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



April 3, 2014

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

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EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the monopole located in Bloomfield, 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 Building Code (CBC)*. Information pertaining to the existing/proposed antenna loading, current tower geometry, geotechnical data, and member sizes was obtained from:

- FDH Engineering, Inc. (Project No. 11-10353E S2) Tower Top Mapping Report dated November 16, 2011
- Rohn Products, LLC (File No. 0606820) original design drawings dated February 4, 2010
- TEP, Inc. (Project No. 093184.01) Subsurface Exploration Report Rev. 1 dated March 1, 2010
- FDH Engineering, Inc. (Project No. 12-02719E S1) Extension Drawings For A 130' Monopole dated June 26, 2012
- FDH, Inc. (Project No. 1206095TC1) Modification Inspection Report dated August 30, 2012
- FDH, Inc. (Job No. 12-06095T C1) TIA Inspection Report dated August 16, 2012
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and the *2005 CBC* is 80 mph without ice and 38 mph with 1" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the existing and proposed antennas from Verizon at 117 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and the *2005 CBC* provided the **Recommendation** listed below is satisfied. Furthermore, provided the foundation was designed and constructed to support the original design reactions (see Rohn Products, LLC File No. 0606820), the foundation should have the necessary capacity to support the existing and proposed loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

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

Recommendation

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

1. The proposed feed lines should be installed inside the pole's shaft unless otherwise noted.
2. RRU/RRH Stipulation: The proposed equipment may be installed in any arrangement as determined by the client.

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	Feed Lines ¹	Carrier	Mount Elevation (ft)	Mount Type
137	(6) Andrew HBX-6516DS-VTM (6) Andrew ATM200-A20 RETs	(12) 1-5/8" (1) 3/8"	Metro PCS ²	137	(3) 12.5' T-Arms (Max Total EPA = 11.4 ft ²)
127.5	(3) 10" x 8" x 4.5" TMAs (3) 10" x 8" x 3" TMAs	(18) 1-5/8"	T-Mobile	126.5	(3) 12.5' T-Arms
126.5	(9) RFS APXV18-209014-C				
117	(6) Antel LPA-80063/6CF (6) Antel LPA-185063/12CF (3) Antel BXA-70063/6CF	(18) 1-5/8"	Verizon	116.5	(3) 12.5' T-Arms
107	(9) Powerwave P65-16-XLH-RR (1) Powerwave P65-17-XLH-RR (1) Andrew SBNH-1D6565C (1) KMW AM-X-CD-16-65-00T-RET (12) Powerwave TT08-19DB111-001 TMAs (12) Powerwave 7020.00 RETs	(12) 1-5/8" (1) 1/2" (1) 3" Flex Conduit (1) Fiber (2) DC Cables	AT&T ³	106.5	(1) 12' Platform w/ Handrails
106	(6) Andrew RRUS11 RRUs (1) Raycap DC6-48-60-18-8-F			105	(1) Valmont LWRM Ring Mount

1. Feed lines installed inside the pole's shaft unless otherwise noted.
2. Currently, Metro PCS has (12) 1-5/8" coax and (1) 3/8" coax installed outside the pole's shaft in a single row.
3. Currently, New Cingular has (1) Fiber cable and (2) DC Power cables installed inside (1) 3" conduit outside the pole's shaft.

Proposed Loading:

Antenna Elevation (ft)	Description	Feed Lines	Carrier	Mount Elevation (ft)	Mount Type
117	(6) Kathrein 742 213 (6) Antel LPA-80063/6CF (3) Antel BXA-70063/6CF (3) Alcatel Lucent RRH2X40-AWS RRHs (1) RFS DB-T1-6Z-8AB-0Z Distribution Box	(18) 1-5/8" (1) 1-5/8" Hybriflex	Verizon	116.5	(3) 12.5' T-Arms

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
Tower Extension	42 ksi
Flange Plate	50 ksi
Flange Bolts	92 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	140 - 130	Pole	TP20x20x0.25	6.6	Pass
		Flange Bolts	(8) 1"Ø w/ BC = 24.25"Ø	6.6	Pass
		Flange Plate	27.25"Ø x 1.5" thk.	3.0	Pass
L2	130 - 86.25	Pole	TP31.992x20.603x0.25	63.0	Pass
L3	86.25 - 42.4167	Pole	TP42.743x30.4073x0.3125	79.5	Pass
L4	42.4167 - 0	Pole	TP53x40.6831x0.375	74.5	Pass
		Anchor Bolts	(24) 1.5"Ø w/ BC = 58.125"Ø	90.3	Pass
		Base Plate	62"Ø PL x 2" thk.	63.8	Pass

Table 4 - Maximum Base Reactions

Base Reactions	Current Analysis (TIA/EIA-222-F)	Original Design (TIA/EIA-222-F)
Axial	34 k	51 k
Shear	27 k	27 k
Moment	2,590 k-ft	2,826 k-ft

GENERAL COMMENTS

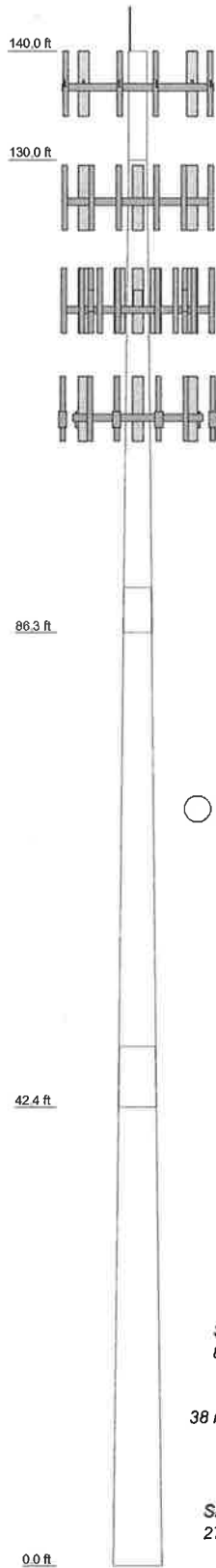
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading 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)	10.00	43.75	48.00	48.00
Number of Sides	1	18	18	18
Thickness (in)	0.2500	0.2500	0.3125	0.3750
Socket Length (ft)		4.17	5.58	
Top Dia (in)	20.0000	20.6030	30.4073	40.6631
Bot Dia (in)	20.0000	31.9920	42.7430	53.0000
Grade	A572-42		A572-65	
Weight (K)	0.5	3.1	5.9	9.0



DESIGNED APPURTENANCE LOADING

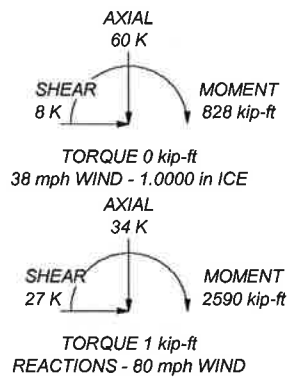
TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 5/8x4'	140	BXA-70063/6CF w/ Mount Pipe	116.5
(2) HBX-6516DS-VTM w/ Mount Pipe	137	BXA-70063/6CF w/ Mount Pipe	116.5
(2) HBX-6516DS-VTM w/ Mount Pipe	137	RRH2X40-AWS	116.5
(2) HBX-6516DS-VTM w/ Mount Pipe	137	RRH2X40-AWS	116.5
(2) ATM200-A20 RET	137	RRH2X40-AWS	116.5
(2) ATM200-A20 RET	137	DB-T1-6Z-8AB-0Z Distribution Box	116.5
(3) 12.5' T-Arms	137	(3) 12.5' T-Arms	116.5
(3) APX16DWV-16DWVS-C w/ Mount Pipe	126.5	(3) P65-16-XLH-RR	106.5
(3) APX16DWV-16DWVS-C w/ Mount Pipe	126.5	(3) P65-16-XLH-RR	106.5
(3) APX16DWV-16DWVS-C w/ Mount Pipe	126.5	(3) P65-16-XLH-RR	106.5
10' x 8" x 4.5" TMA	126.5	SBNH-1D6565C	106.5
10' x 8" x 4.5" TMA	126.5	AM-X-CD-16-65-00T-RET	106.5
10' x 8" x 4.5" TMA	126.5	P65-17-XLH-RR	106.5
10' x 8" x 3" TMA	126.5	(4) TT08-19DB111-001 TMA	106.5
10' x 8" x 3" TMA	126.5	(4) TT08-19DB111-001 TMA	106.5
10' x 8" x 3" TMA	126.5	(4) TT08-19DB111-001 TMA	106.5
10' x 8" x 3" TMA	126.5	(4) 7020 RET	106.5
10' x 8" x 3" TMA	126.5	(4) 7020 RET	106.5
12.5' T-Arms	126.5	(4) 7020 RET	106.5
(2) 742 213 w/ Mount Pipe	116.5	12.5' Platform w/ Handrails	106.5
(2) 742 213 w/ Mount Pipe	116.5	(2) RRUS-11	105
(2) 742 213 w/ Mount Pipe	116.5	DC6-48-60-18-8F Surge Arrestor	105
(2) LPA-80063/6CF w/ Mount Pipe	116.5	Valmont LWRM Ring Mount	105
(2) LPA-80063/6CF w/ Mount Pipe	116.5	(2) RRUS-11	105
(2) LPA-80063/6CF w/ Mount Pipe	116.5	(2) RRUS-11	105

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-42	42 ksi	60 ksi	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.		Job: Bloomfield 4, CT13548-S-00	
	6521 Meridien Drive		Project: 1425AW1400	
	Raleigh, NC 27616		Client: SBA Network Services, Inc.	
	Phone: (919) 755-1012		Drawn by: Mark S. Girgis	App'd:
	FAX: (919) 755-1031		Code: TIA/EIA-222-F	Scale: NTS
		Date: 04/03/14	Dwg No. E-1	
		Path:		