Robinson+Cole

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Also admitted in Massachusetts

July 29, 2016

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

Re: **Notice of Exempt Modification – Facility Modification**
130 Tanic Road, Brooklyn, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the top of an existing 175-foot tower at 130 Tanic Road in Brooklyn, Connecticut (the "Property"). The tower is owned by SBA. Cellco's use of the tower was approved by the Council in 2001. Cellco now intends to modify its facility by removing six (6) antennas and replacing them with three (3) model BXA-70080-6CF, 850 MHz antennas and three (3) model WBX065X19R050, 2100 MHz antennas. Cellco also intends to install three (3) remote radio heads ("RRHs") behind its new 2100 MHz antennas and one (1) HYBRIFLEX™ antenna cable inside of 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 notice is being sent to Rick Ives, First Selectman of the Town of Brooklyn. A copy of this letter is also being sent to Stephen C. and Mialesa Breen, the owners of the Property and SBA, the tower owner.

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 new antennas and RRHs will be installed on its existing antenna platform at the top of the existing 175-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 in 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).

A copy of the Brooklyn Assessor's Parcel Map and property owner information is included in Attachment 4.

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:
Rick Ives, Brooklyn First Selectman
Stephen C. and Mialesa Breen
SBA
Tim Parks

ATTACHMENT 1

BXA-70080-6CF-EDIN-X

X-Pol | FET Panel | 80° | 13.5 dBd

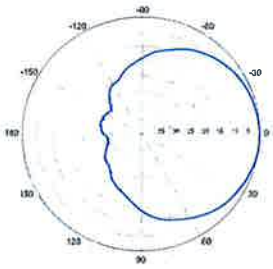
Replace "X" with desired electrical downtilt.

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

Electrical Characteristics	696-900 MHz	
Frequency bands	696-806 MHz	806-900 MHz
Polarization	±45°	
Horizontal beamwidth	82°	80°
Vertical beamwidth	12°	10°
Gain	13.0 dBd (15.1 dBi)	13.5 dBd (15.6 dBi)
Electrical downtilt (X)	0, 2, 4, 6, 8, 10	
Impedance	50Ω	
VSWR	≤1.35:1	
Upper sidelobe suppression (0°)	-18.3 dB	-18.6 dB
Front-to-back ratio (+/-30°)	-26.9 dB	-25.6 dB
Null fill	5% (-26.02 dB)	
Isolation between ports	< -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 204 x 151 mm	71.0 x 8.0 x 5.9 in
Depth with z-brackets	191 mm	7.5 in
Weight without mounting brackets	8.2 kg	18 lbs
Survival wind speed	> 201 km/hr	> 125 mph
Wind area	Front: 0.37 m^2 Side: 0.27 m^2	Front: 3.9 ft^2 Side: 2.9 ft^2
Wind load @ 161 km/hr (100 mph)	Front: 531 N Side: 475 N	Front: 119 lbf Side: 104 lbf

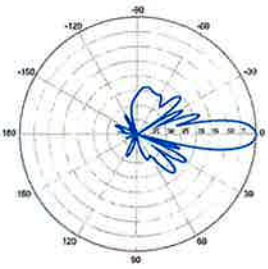
Mounting Options	Part Number	Fits Pipe Diameter	Weight
3-Point Mounting & Downtilt Bracket Kit	36210008	40-115 mm 1.57-4.5 in	6.9 kg 15.2 lbs
Concealment Configurations	For concealment configurations, order BXA-70080-6CF-EDIN-X-FP		

BXA-70080-6CF-EDIN-X



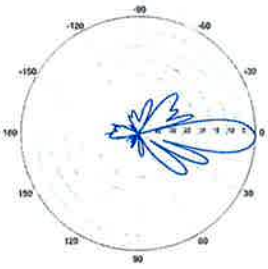
Horizontal | 750 MHz

BXA-70080-6CF-EDIN-0



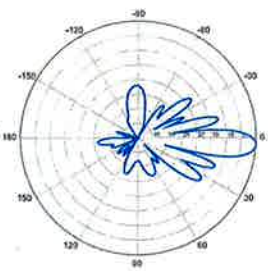
0° | Vertical | 750 MHz

BXA-70080-6CF-EDIN-2



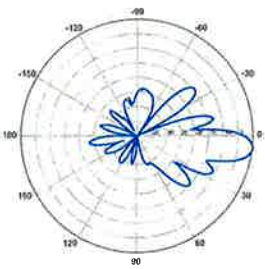
2° | Vertical | 750 MHz

BXA-70080-6CF-EDIN-4

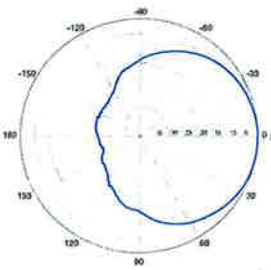


4° | Vertical | 750 MHz

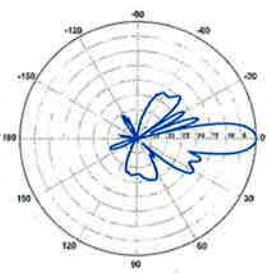
BXA-70080-6CF-EDIN-6



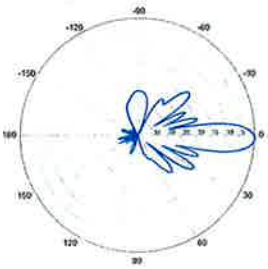
6° | Vertical | 750 MHz



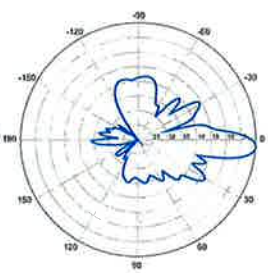
Horizontal | 850 MHz



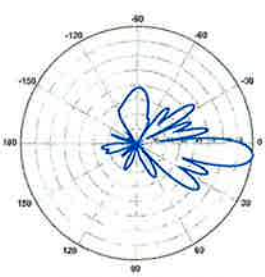
0° | Vertical | 850 MHz



2° | Vertical | 850 MHz



4° | Vertical | 850 MHz

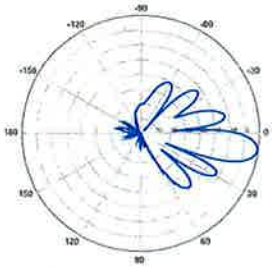


6° | Vertical | 850 MHz

BXA-70080-6CF-EDIN-X

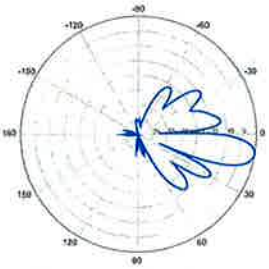
X-Pol | FET Panel | 80° | 13.5 dBd

BXA-70080-6CF-EDIN-8

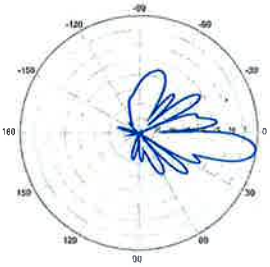


8° | Vertical | 750 MHz

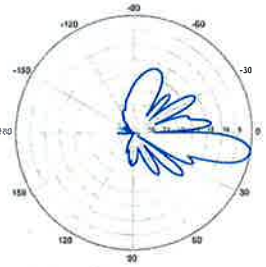
BXA-70080-6CF-EDIN-10



10° | Vertical | 750 MHz



8° | Vertical | 850 MHz



10° | Vertical | 850 MHz

WBX065X19x050

X-Pol | VET Panel | 65° | 19.0 dBi

Model Number Options:
WBX065X19M150 - Manual Electrical Tilt Antenna (aka 5142100)
WBX065X19R150 - Remote Electrical Tilt Antenna (aka 5142000)

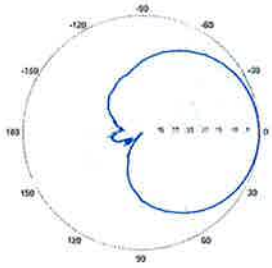
Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1900-2170 MHz
Polarization	± 45°	± 45°	± 45°
Horizontal beamwidth	69°	66°	63°
Vertical beamwidth	4.9°	4.6°	4.3°
Gain	15.9 dBd / 18.0 dBi	16.4 dBd / 18.5 dBi	16.9 dBd / 19.0 dBi
Electrical downtilt	2°-10° Variable Electrical Tilt		
Impedance	50Ω		
VSWR	< 1.4:1		
Upper sidelobe suppression	< -18 dB		
Front-to-Back ratio	> 25 dB		
First null	> -20 dB typical		
Inter-port isolation	> 30 dB		
IM3 (2x20W carrier)	< -153 dBc		
Input power	2 x 160 W		
Connector(s)	2 Ports / 7/16 DIN / Female / Bottom		
Operating temperature	-40° to +60° C (-40° to +140° F)		

Mechanical Characteristics		
Dimensions HxWxD	1950 x 157 x 69 mm	76.8 x 6.2 x 2.7 in
Weight without brackets	9.5 kg	20.9 lbs
Survival wind speed	241 km/hr	150 mph
Wind load @ 161 km/hr (100 mph)	Front: 405 N Side: 176 N	Front: 91 lbf Side: 40 lbf
RET type / Part number	Internal / RETU-CA01	

Mounting Options	Part Number	Fits Pipe Diameter	Weight
Pole mounting bracket kit	MKS05P01	40-115 mm 1.6-4.5 in	2.9 kg 6.5 lbs
Scissor tilt bracket kit	MKS05T03	40-115 mm 1.6-4.5 in	4.1 kg 9.1 lbs
Bar tilt bracket kit	MKS05T04	40-115 mm 1.6-4.5 in	4.0 kg 8.8 lbs

Concealment Options		
UNICELL module	UNX14-19	UNX20-19
Azimuth swivel	± 30°	± 30°
Elevation tilt	Fixed	Fixed
Required mounting kit	UNX14-WBX-AZ	UNX20-WBX-AZ
FP mounting configuration	None	

1710-1880 MHz



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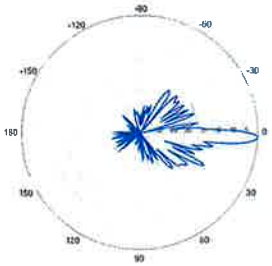
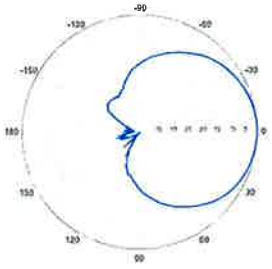
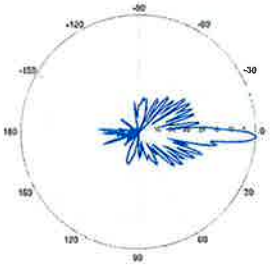


2° | Vertical

1850-1990 MHz

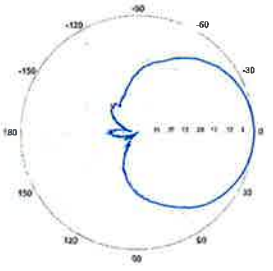


Horizontal

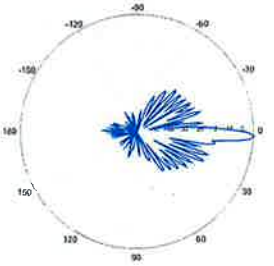


2° | Vertical

1900-2170 MHz



Horizontal

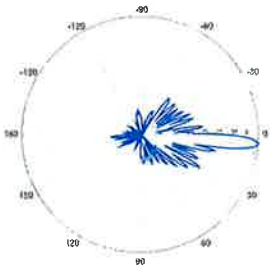
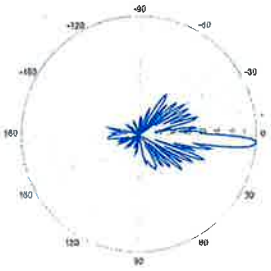
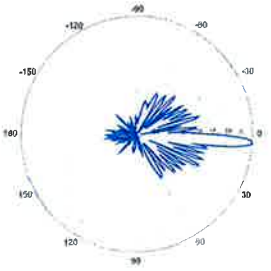


2° | Vertical

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.

WBX065X19x050

X-Pol | VET Panel | 65° | 19.0 dBi

1710-1880 MHz	1850-1990 MHz	1900-2170 MHz
		
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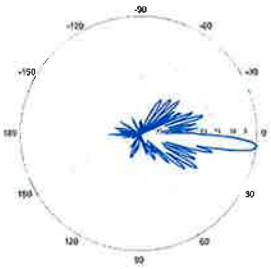	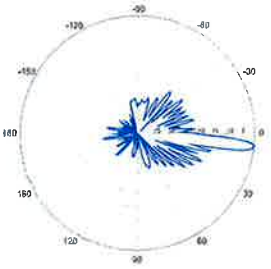	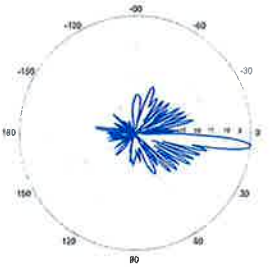
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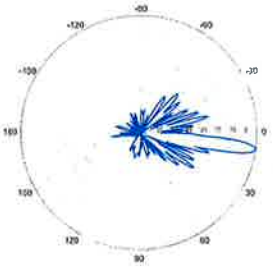	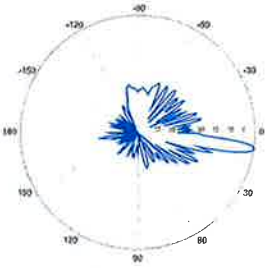	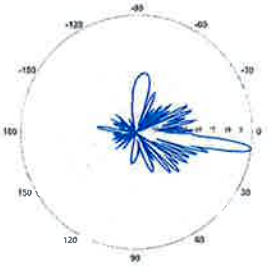
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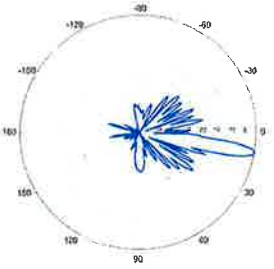
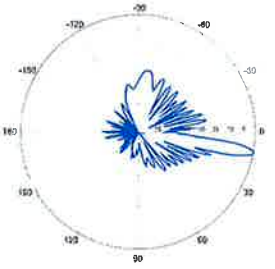
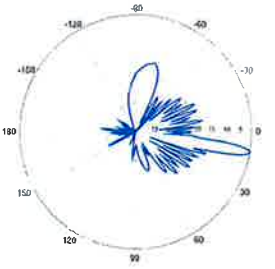
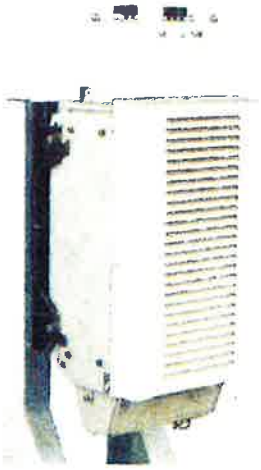
		
10° | Vertical	10° | Vertical	10° | Vertical

Alcatel-Lucent RRH2x40-AWS

REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-AWS is a high-power, small form-factor Remote Radio Head (RRH) operating in the AWS frequency band (1700/2100MHz - 3GPP Band 4). The Alcatel-Lucent RRH2x40-AWS 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-AWS 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-AWS has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to four-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 20 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-AWS 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-AWS 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-AWS 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-AWS is compact and weighs less than 20 kg (44 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

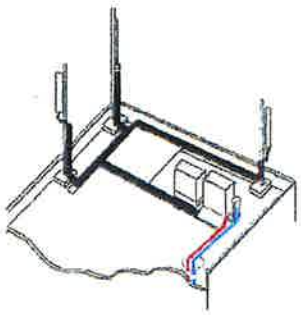
Because of its small size and weight, the Alcatel-Lucent RRH2x40-AWS can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-AWS where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation 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-AWS provides more RF power while at the same time consuming less electricity.

Features

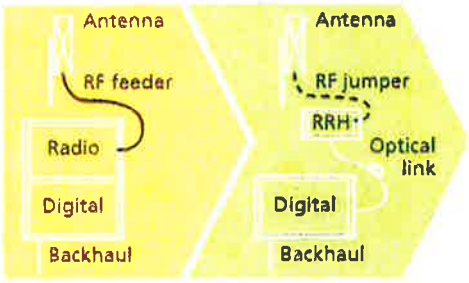
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless)
- Noise-free
- Best-in-class power efficiency, with significantly reduced energy consumption

Benefits

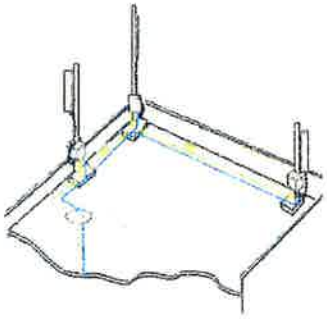
- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility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



Macro



RRH for space-constrained cell sites



Distributed

Technical specifications

Physical dimensions

- Height: 620 mm (24.4 in.)
- Width: 270 mm (10.63 in.)
- Depth: 170m (6.7 in.)
- Weight (without mounting kit): less than 20 kg (44 lb)

Power

- Power supply: -48VDC

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: 1700/2100 MHz (AWS); 3GPP Band 4
- Bandwidth: up to 20 MHz
- RF output power at antenna port: 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way with optional Rx Diversity module
- Noise figure: below 2.0 dB typical
- Antenna Line Device features
  - ¬ TMA and Remote electrical tilt (RET) support via AISG v2.0

Optical characteristics

Type/number of fibers

- Single-mode variant
  - ¬ One Single Mode Single Fiber per RRH2x, carrying UL and DL using CWDM
  - ¬ Single mode dual fiber (SM/DF)
- Multi-mode variant
  - ¬ Two Multi-mode fibers per RRH2x: one carrying UL, the other carrying DL

Optical fiber length

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

Digital Ports and Alarms

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

CPG2809100912 (09)

Alcatel·Lucent

Product Data Sheet **HB158-1-08U8-S8J18**

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.

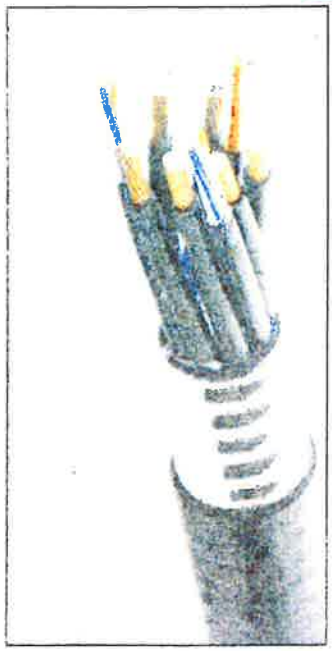


Figure 1: HYBRIFLEX Series

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

Technical Specifications

Outer Conductor Armor	Corrugated Aluminum	[mm (in)]	46.5 (1.83)
Jacket	Polyethylene, PE	[mm (in)]	50.3 (1.98)
UV-Protection	Individual and External Jacket		Yes
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)
DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	068 (0.205)
DC-Resistance Power Cable, 8.4mm²(8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)
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)			UL94-V0, UL1666 RoHS Compliant
Size (Power)		[mm² (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm² (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-95-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

* This data is provisional and subject to change

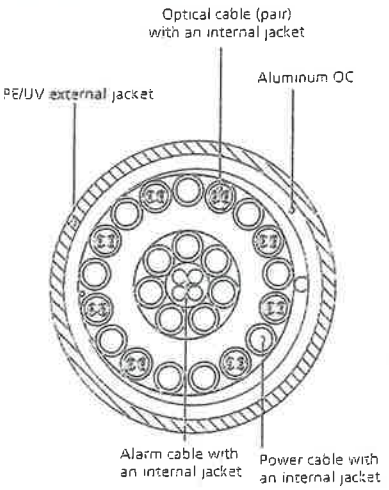


Figure 2: Construction Detail

ATTACHMENT 2

	General	Power	Density					
Site Name: Brooklyn								
Tower Height: 175								
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total
*Sprint	3	625	155.4	1900	0.0302	1.0000	0.30%	
*Nextel	9	100	153	851	0.0150	0.5673	0.26%	
*T-Mobile	2	1611	140	2100	0.0645	1.0000	0.65%	
*T-Mobile	2	1000	140	1900	0.0401	1.0000	0.40%	
*T-Mobile	2	806	140	2100	0.0323	1.0000	0.32%	
*T-Mobile	1	676	140	700	0.0135	0.4667	0.29%	
Verizon PCS	**11**	**392**	**177**	**0.0495**	**1970**	**1.0000**	**4.95%**	
Verizon Cellular	**9**	**376**	**177**	**0.0388**	**869**	**0.5793**	**6.70%**	
Verizon AWS	**1**	**1750**	**177**	**0.0201**	**2145**	**1.0000**	**2.01%**	
Verizon 700	**1**	**1050**	**177**	**0.0121**	**746**	**0.4973**	**2.42%**	
								18.31%
* 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.

175' Monopole Tower

SBA Site Name: South Brooklyn
SBA Site ID: CT01915-S-03
Verizon Site Name: Brooklyn CT

FDH Project Number 14257O1400

Analysis Results

Tower Components	79.7%	Sufficient
Foundation	58.7%	Sufficient

Prepared By:

Jarel Duncan

Jarel Duncan, 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

March 27, 2014

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

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 Brooklyn, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads pursuant to the *Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, TIA/EIA-222-F* and *2005 Connecticut State Building Code (CSBC)*. Information pertaining to the existing/proposed antenna loading, current tower geometry, member sizes, and foundation dimensions was obtained from:

- Paul J. Ford and Company (Job No. 29200-401) original tower and foundation design drawings dated April 5, 2000
- FDH Engineering, Inc. (Project No. 1201186EG1) Geotechnical Evaluation of Subsurface Conditions dated August 16, 2012
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and *2005 CSBC* is 85 mph without ice and 38 mph with 1" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the existing and proposed antennas from Verizon in place at 175 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and *2005 CSBC* provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundation was constructed per the original design drawings (see PJF Job No. 29200-401) and given the existing soil parameters (see FDH Engineering, Inc. Project No. 1201186EG1), 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 CSBC* are met with the existing and proposed loading in place, we have the following recommendations:

1. The proposed coax must be installed inside the pole's shaft.
2. The existing diplexers should be installed directly behind the existing/proposed panel antennas.
3. RRU/RRH Stipulation: The proposed equipment may be installed in any configuration 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	Coax and Lines[1]	Carrier	Mount Elevation (ft)	Mount Type
175	(3) Antel BXA-70063/6CF (6) Antel LPA-80080/6CF (3) Antel BXA-171085/12CF (6) RFS FD9R6004/2C-3L Diplexers	(12) 1-5/8"	Verizon	175	(1) Low Profile Platform (Assumed C_aA_a = 28.47 ft^2)
157	(6) 60" x 6.1" x 2.6" Panels	(6) 1-5/8"	Sprint	157	(1) Low Profile Platform (Assumed C_aA_a = 28.47 ft^2)
147	(9) Allgon ALP 9212	(9) 1-5/8"	Nextel	147	(1) Low Profile Platform (Assumed C_aA_a = 28.47 ft^2)
140	(6) EMS RR90-17-02DP	(12) 1-5/8"	T-Mobile	140	(1) Low Profile Platform (Assumed C_aA_a = 28.47 ft^2)

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
175	(3) Antel BXA-70063/6CF (3) Antel BXA-171085/12CF (3) Antel WBX065X19R050 (3) Antel BXA-70080/6CF (3) Alcatel Lucent RRH2x40-AWS RRHs (6) RFS FD9R6004/2C-3L Diplexers (1) RFS DB-T1-6Z-8AB-0Z Distribution Box	(12) 1-5/8" (1) 1-5/8" Fiber	Verizon	175	(1) Low Profile Platform (Assumed C_aA_a = 28.47 ft^2)

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	60 & 65 ksi
Flange Plate	36 ksi
Flange Bolts	Fu = 120 ksi
Base Plate	50 ksi
Anchor Bolts	75 ksi

Table 3 displays the summary of the ratio (as a percentage) of force in the member to their capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its capacity. *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	175 - 161	Pole	TP22x18.78x0.1875	27.9	Pass
	161	Flange Bolts	(18) 0.75" dia. w/ BC = 19"	41.1	Pass
	161	Flange Plate	26" dia. PL x 0.75" thk	79.4	Pass
L2	161 - 119	Pole	TP31.66x22x0.25	76.7	Pass
L3	119 - 78.75	Pole	TP40.417x30.24x0.3125	79.7	Pass
L4	78.75 - 38.75	Pole	TP48.993x38.6421x0.4375	64.7	Pass
L5	38.75 - 0	Pole	TP57.03x46.6804x0.5	60.5	Pass
		Anchor Bolts	(32) 2.25" dia. w/ BC = 64"	38.1	Pass
		Base Plate	68" Sq PL x 2.5" thk	41.4	Pass

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

Table 4 - Maximum Base Reactions

Base Reactions	Current Analysis* *(TIA/EIA-222-F)*	Original Design *(TIA/EIA-222-F)*
Axial	43 k	38 k
Shear	27 k	30 k
Moment	3,224 k-ft	3,710 k-ft

*Foundations determined adequate per independent analysis.

GENERAL COMMENTS

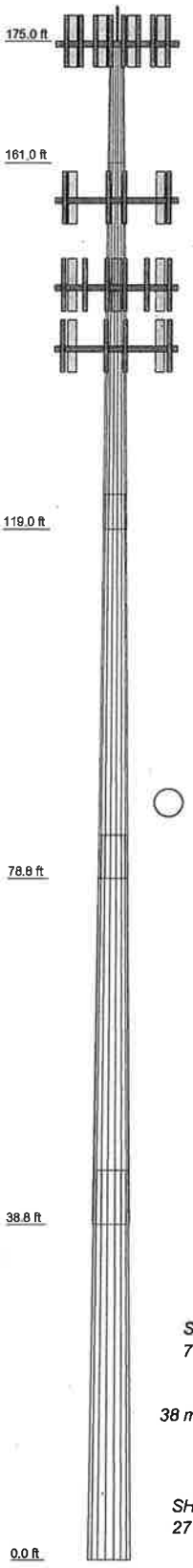
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading 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.

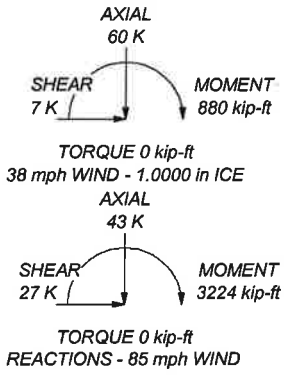
LIMITATIONS

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	5
Length (ft)	14.000	42.000	44.250	45.000	45.000
Number of Sides	18	18	18	18	18
Thickness (in)	0.1875	0.2500	0.3125	0.4375	0.5000
Socket Length (ft)		4.000	5.000	6.250	
Top Dia (in)	18.7800	22.0000	30.2400	38.6421	46.6804
Bot Dia (in)	22.0000	31.6600	40.4170	48.9930	57.0300
Grade	A607-60			A607-65	
Weight (K)	0.6	3.0	5.2	9.2	12.5





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	175	DB-T1-6Z-8AB-0Z Distribution Box	175
(1) Low Profile Platform	175	(2) 60" x 6.1" x 2.6" Panel w/ Mount Pipe	157
BXA-70063-6CF w/ Mount Pipe	175	(2) 60" x 6.1" x 2.6" Panel w/ Mount Pipe	157
BXA-70063-6CF w/ Mount Pipe	175	(2) 60" x 6.1" x 2.6" Panel w/ Mount Pipe	157
BXA-70063-6CF w/ Mount Pipe	175	(1) Low Profile Platform	157
BXA-171085-12CF w/ Mount Pipe	175	(3) Antenna Mount Pipe	147
BXA-171085-12CF w/ Mount Pipe	175	(1) Low Profile Platform	147
BXA-171085-12CF w/ Mount Pipe	175	(3) ALP 9212	147
WBX065X19R050 w/ Mount Pipe	175	(3) ALP 9212	147
WBX065X19R050 w/ Mount Pipe	175	(3) ALP 9212	147
WBX065X19R050 w/ Mount Pipe	175	(3) Antenna Mount Pipe	147
BXA-70080-6CF w/ Mount Pipe	175	(3) Antenna Mount Pipe	147
BXA-70080-6CF w/ Mount Pipe	175	(2) RR90-17-02DP w/Mount Pipe	140
BXA-70080-6CF w/ Mount Pipe	175	(2) RR90-17-02DP w/Mount Pipe	140
(2) FD9R6004/2C-3L Diplexer	175	(2) RR90-17-02DP w/Mount Pipe	140
(2) FD9R6004/2C-3L Diplexer	175	(1) Low Profile Platform	140
(2) FD9R6004/2C-3L Diplexer	175		
RRH2X40-AWS	175		
RRH2X40-AWS	175		
RRH2X40-AWS	175		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-60	60 ksi	75 ksi	A607-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in Windham County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 79.7%

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, NC 27616
Phone: (919) 755-1012
FAX: (919) 755-1031
Tower Analysis

Job: South Brooklyn, CT01915-S-03			
Project: 14257O1400			
Client: SBA Network Services, Inc.	Drawn by: Jarel Duncan	App'd:	
Code: TIA/EIA-222-F	Date: 03/27/14	Scale: NTS	
Path:		Dwg No. E-1	

ATTACHMENT 4

neccog | ashford brooklyn canterbur pomfret putnam scotland s

Search...

I want to...

CT-019-16-53

Description

Parcel Report Abutters Report

Owner: BREEN STEPHEN C & MIALESA

Address: 130 TATNIC RD

Town: Brooklyn

Details

Owner Name
BREEN STEPHEN C & MIALESA

Street Address
130 TATNIC RD

Town
N/A

Gis ID
CT-019-16-53

Account Number
00249900

Property Type
Fee Simple

Use Code
1010

PropertyOwnership
Private

SourceType
Tax Map

130 TATNIC RD

Location	130 TATNIC RD	**Mblu**	16/ / 53/ /
Acct#	00249900	**Owner**	BREEN STEPHEN C & MIALESA
Assessment	$115,200	**Appraisal**	$164,500
PID	2794	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$99,700	$64,800	$164,500
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$69,800	$45,400	$115,200

Owner of Record

Owner	BREEN STEPHEN C & MIALESA	**Sale Price**	$75,000
Co-Owner		**Certificate**	
Address	130 TATNIC HILL RD BROOKLYN, CT 06234-2335	**Book & Page**	230/ 311
		Sale Date	10/02/2000

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
BREEN STEPHEN C & MIALESA	$75,000		230/ 311	10/02/2000
SENECAL EDMOND C	$0		110/ 198	03/12/1991
SENECAL EDMOND C & LESA ANN	$39,000		75/ 497	06/06/1983
LEEMAN TELKA	$0		72/1030	01/21/1982
LEEMAN ENSIO & TELKA	$0		33/ 614	11/27/1957

Building Information

Building 1 : Section 1

Year Built:	1962
Living Area:	1,344
Replacement Cost:	$132,948
Building Percent	75

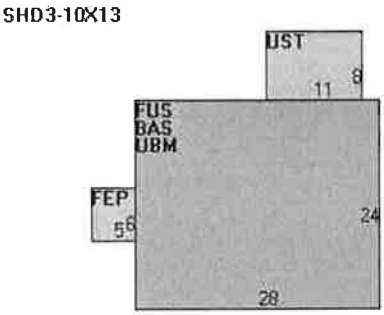
Good:
Replacement Cost
Less Depreciation: $99,700

Building Attributes	
Field	**Description**
Style	Colonial
Model	Residential
Grade:	C
Stories:	2
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Flr 1	Carpet
Interior Flr 2	Hardwood
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	3 Bedrooms
Total Bthrms:	2
Total Half Baths:	
Total Xtra Fixtrs:	1
Total Rooms:	6
Bath Style:	Average
Kitchen Style:	Modern

Building Photo

(http://images.vgsi.com/photos/BrooklynCTPhotos//\00\00\22/

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	672	672
FUS	Upper Story, Finished	672	672
FEP	Porch, Enclosed	30	0
UBM	Basement, Unfinished	672	0
UST	Utility, Storage, Unfinished	88	0
		2,134	1,344

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Land Line Valuation

Use Code	1010	**Size (Acres)**	5.5
Description	Single Fam MDL-01	**Frontage**	
Zone	RA	**Depth**	
Neighborhood	0050	**Assessed Value**	$45,400
Alt Land Appr	No	**Appraised Value**	$64,800
Category			

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$99,700	$64,800	$164,500
2014	$117,900	$72,900	$190,800
2013	$117,900	$72,900	$190,800

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$69,800	$45,400	$115,200
2014	$82,500	$51,100	$133,600
2013	$82,500	$51,100	$133,600