ROBINSON & COLE LLP

KENNETH C. BALDWIN

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

June 20, 2014

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

Re: **Completion of Construction Activity**

Dear Ms. Bachman:

The purpose of this letter is to notify the Siting Council that construction activity associated with the Cellco Partnership d/b/a Verizon Wireless telecommunications facility modifications listed below has been completed.

EM-VER-007-130226 – 260 Beckley Road, Berlin, Connecticut
EM-VER-011-130125 – 811 Blue Hills Avenue, Bloomfield, Connecticut
EM-VER-011-130214 – 785 Park Avenue, Bloomfield, Connecticut
EM-VER-012-130107 – 130 Vernon Road, Bolton, Connecticut
EM-VER-043-130220 – 148 Roberts Road, East Hartford, Connecticut
EM-VER-057-130214 – Butternut Hollow Road, Greenwich, Connecticut
EM-VER-059-130220 – 68 Groton Long Point Road, Groton, Connecticut
EM-VER-062-130128 – 265 Benham Street, Hamden, Connecticut
EM-VER-062-130220 – 890 Evergreen Avenue, Hamden, Connecticut
EM-VER-064-130125 – 590-600 Asylum Avenue, Hartford, Connecticut
EM-VER-064-130220 – 439-455 Homestead Avenue, Hartford, Connecticut
EM-VER-077-130220A – 60 Adams Street, Manchester, Connecticut
EM-VER-077-130220B – 266 Center Street, Manchester, Connecticut
EM-VER-080-130128 – 38 Elm Street, Meriden, Connecticut
EM-VER-096-130125 – 586 Danbury Road, New Milford, Connecticut
EM-VER-094-130114 – 605 Willard Avenue, Newington, Connecticut
EM-VER-094-130220 – 123 Costello Road, Newington, Connecticut
EM-VER-144-130227 – Indian Ledge Road, Trumbull, Connecticut
EM-VER-146-130123 – 777 Talcottville Road, Vernon, Connecticut
EM-VER-152-130301 – 41 Manitock Hill Road, Waterford, Connecticut
EM-VER-156-130227 – 85 Plainfield Avenue, West Haven, Connecticut

EM-VER-164-130128 – 482 Pigeon Hill Road, Windsor, Connecticut
EM-VER-169-130220 – 445 Prospect Street, Woodstock, Connecticut

If you have any questions or need any additional information regarding this facility please do not hesitate to contact me.

Sincerely,

Kenneth C. Baldwin

Copy to:
Sandy M. Carter

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

March 12, 2013

Kenneth C. Baldwin, Esq.
Robinson & Cole
280 Trumbull Street
Hartford, CT 06103-3597

RE: **EM-VER-043-130220 -** Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 148 Roberts Street, East Hartford, 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:

- Any deviation from the proposed modification as specified in this notice and supporting materials with 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 February 20, 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.

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,

Linda Roberts
Executive Director

LR/CDM/jb

c: The Honorable Marcia A. Leclerc, Mayor, Town of East Hartford
Michael J. Dayton, Town Planner, Town of East Hartford
Global Tower Partners

ROBINSON & COL

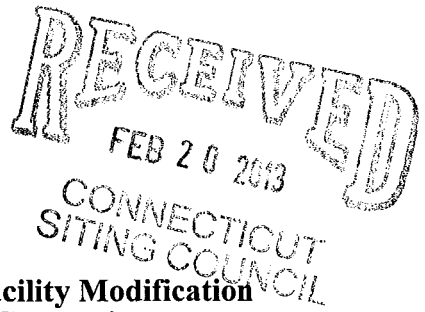
EM-VER-043-130220

KENNETH C. BALDWIN

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

February 20, 2013



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

Re: **Notice of Exempt Modification – Facility Modification**
148 Roberts Street, East Hartford, Connecticut

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 120-foot level on an existing 130-foot tower at the above-referenced address. The tower is owned by Global Tower Partners. The Council approved Cellco's shared use of this tower in 2002. Cellco now intends to add three (3) model BXA-171063-8CF AWS antennas for a total of fifteen (15) antennas, at the same 120-foot level. Cellco also intends to install three (3) remote radio heads ("RRHs") behind its antennas and one (1) HYBRIFLEX™ fiber cable. Attached behind Tab 1 are the specifications for the AWS 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 Marcia A. Leclerc, Mayor for the Town of East Hartford. A copy of this letter is being sent to Double Properties of East Hartford, LLC, the owner of the property on which the tower is located.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's three (3) additional antennas and RRHs will be located at the 120-foot level on the 130-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 additional antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative power density table for Cellco's modified facility is included behind Tab 2.

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

6. The tower and its foundation can support Cellco's proposed modifications. (*See* Structural Analysis Report attached behind Tab 3).

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Marcia A. Leclerc, East Hartford Mayor
Double Properties of East Hartford, LLC
Sandy M. Carter

Amphenol ANTENNA SOLUTIONS

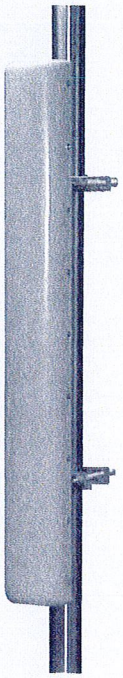
BXA-171063-8CF-EDIN-X

Replace "X" with desired electrical downtilt.

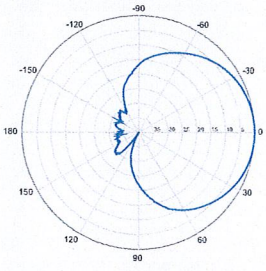
X-Pol | FET Panel | 63° | 17.4 dBi

Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	68°	65°	60°
Vertical beamwidth	7°	7°	7°
Gain	14.5 dBd / 16.6 dBi	14.9 dBd / 17.0 dBi	15.3 dBd / 17.4 dBi
Electrical downtilt (X)	0, 2, 4, 8		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back isolation	> 30 dB		
In-band isolation	> 28 dB		
IM3 (20W carrier)	< -150 dBc		
Input power	300 W		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN / Female / Center (Back)		
Operating temperature	-40° to +60° C / -40° to +140° F		
Mechanical Characteristics			
Dimensions Length x Width x Depth	1232 x 154 x 105 mm		48.5 x 6.1 x 4.1 in
Depth with t-brackets	133 mm		5.2 in
Weight without mounting brackets	4.8 kg		10.5 lbs
Survival wind speed	296 km/hr		184 mph
Wind area	Front: 0.19 m² Side: 0.14 m²		Front: 2.0 ft² Side: 1.5 ft²
Wind load @ 161 km/hr (100 mph)	Front: 281 N Side: 223 N		Front: 63 lbf Side: 50 lbf

Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171063-8CF-EDIN-X-FP		

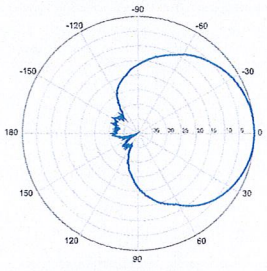


BXA-171063-8CF-EDIN-X



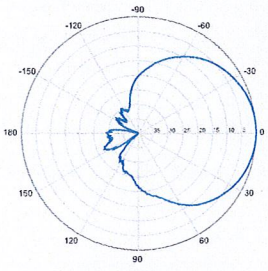
Horizontal | 1710-1880 MHz

BXA-171063-8CF-EDIN-X



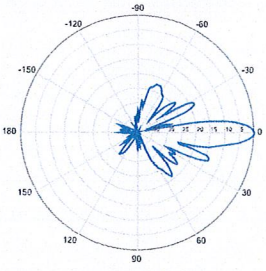
Horizontal | 1850-1990 MHz

BXA-171063-8CF-EDIN-X



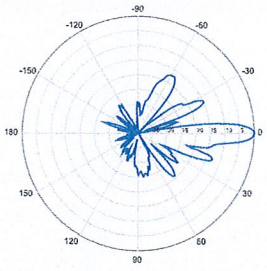
Horizontal | 1920-2170 MHz

BXA-171063-8CF-EDIN-0



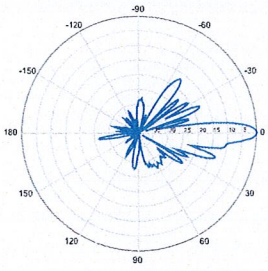
0° | Vertical | 1710-1880 MHz

BXA-171063-8CF-EDIN-0



0° | Vertical | 1850-1990 MHz

BXA-171063-8CF-EDIN-0

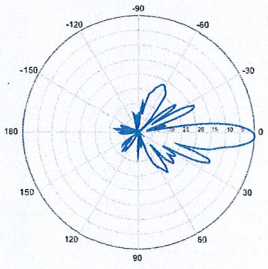


0° | Vertical | 1920-2170 MHz

BXA-171063-8CF-EDIN-X

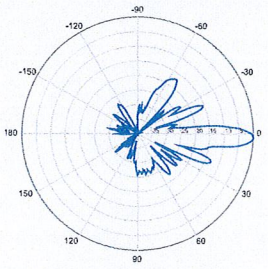
X-Pol | FET Panel | 63° | 17.4 dBi

BXA-171063-8CF-EDIN-2



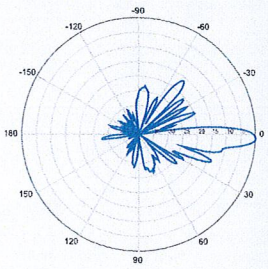
2° | Vertical | 1710-1880 MHz

BXA-171063-8CF-EDIN-2



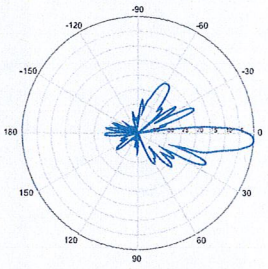
2° | Vertical | 1850-1990 MHz

BXA-171063-8CF-EDIN-2



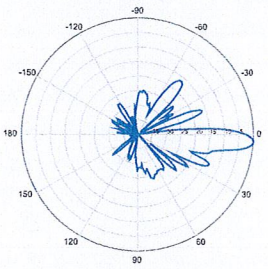
2° | Vertical | 1920-2170 MHz

BXA-171063-8CF-EDIN-4



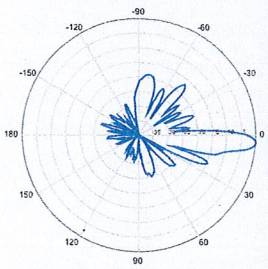
4° | Vertical | 1710-1880 MHz

BXA-171063-8CF-EDIN-4



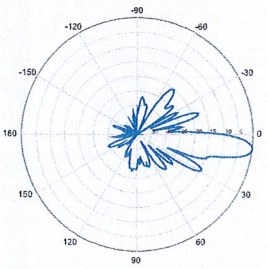
4° | Vertical | 1850-1990 MHz

BXA-171063-8CF-EDIN-4



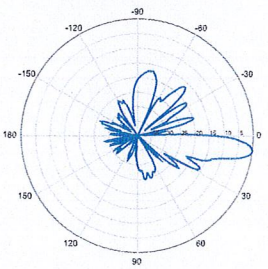
4° | Vertical | 1920-2170 MHz

BXA-171063-8CF-EDIN-8



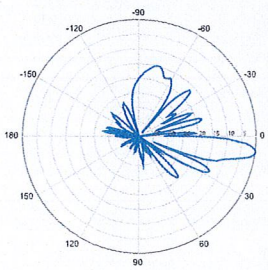
8° | Vertical | 1710-1880 MHz

BXA-171063-8CF-EDIN-8



8° | Vertical | 1850-1990 MHz

BXA-171063-8CF-EDIN-8

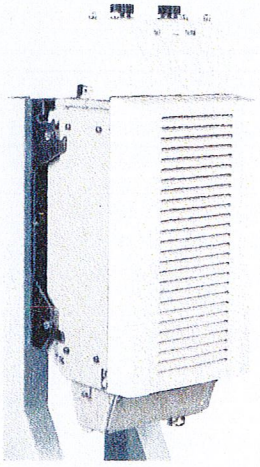


8° | Vertical | 1920-2170 MHz

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

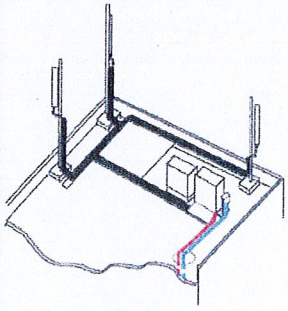
Because of its small size and weight, the Alcatel-Lucent RRH2x40-AWS can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-AWS where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation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

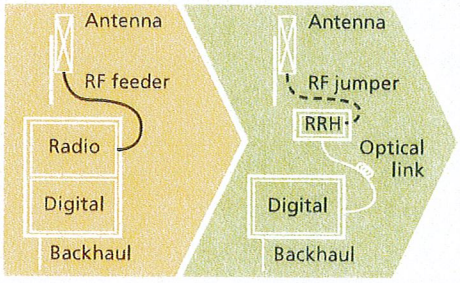
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless)
- Noise-free
- Best-in-class power efficiency, with significantly reduced energy consumption

Benefits

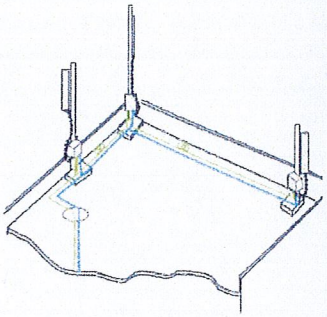
- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility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

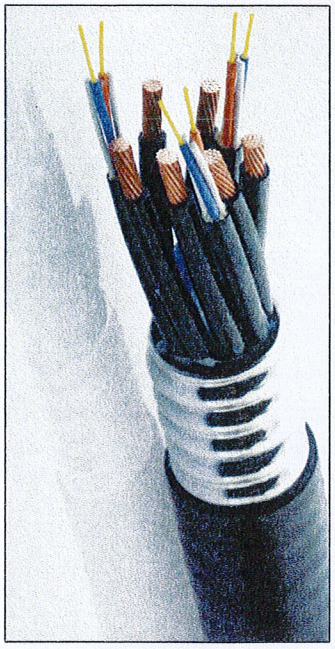


Figure 1: HYBRIFLEX Series

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

Structure			
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
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)]	068 (0.205)
DC-Resistance Power Cable, 8.4mm² (8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)
Fiber Optic 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)			UL94-V0, UL1666 RoHS Compliant
DC Power Cable Properties			
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
Environment			
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.

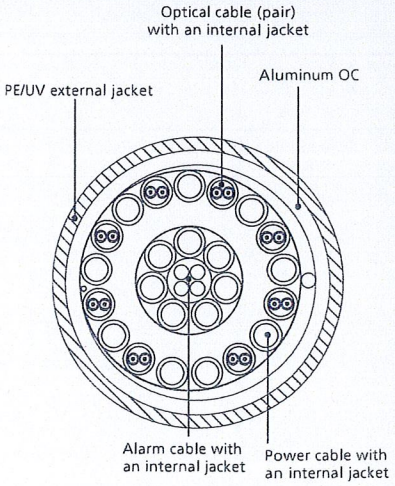


Figure 2: Construction Detail

	General	Power	Density					
Site Name: East Hartford 3								
Tower Height: Verizon @ 118ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*Nextel	9	100	90	0.0400	851	0.5673	7.04%	
*MetroPCS CDMA	3	727	100	0.0784	2135	1.0000	7.84%	
*MetroPCS LTE	1	1200	100	0.0431	2130	1.0000	4.31%	
*Clearwire	2	153	128	0.0067	2496	1.0000	0.67%	
*Clearwire	1	211	128	0.0046	11 GHZ	1.0000	0.46%	
*Sprint	11	308.51	110	0.1008	1962.5	1.0000	10.08%	
Verizon PCS	**11**	**273**	**120**	**0.0750**	**1970**	**1.0000**	**7.50%**	
Verizon Cellular	**9**	**272**	**120**	**0.0611**	**869**	**0.5793**	**10.55%**	
Verizon AWS	**1**	**1750**	**120**	**0.0437**	**2145**	**1.0000**	**4.37%**	
Verizon 700	**1**	**1050**	**120**	**0.0262**	**698**	**0.4653**	**5.63%**	
								58.47%
* Source: Siting Council								

Structural Analysis Report

130 ft. Tapered Monopole

148 Roberts Street, East Hartford, CT 06108
Hartford County
(CT-5037, East Hartford)

Global Tower Services

750 Park of Commerce Boulevard
Suite 300
Boca Raton, FL 33487-3612

P: 605.422.1548
F: 605.422.1550

Verizon Wireless
Verizon Site Number: 119677
Verizon Site Name: East Hartford 3, CT

Prepared by:

Global Tower Services, LLC
Michael T. De Boer, P.E.
Senior Director of Engineering

December 26, 2012

Global Tower Services, LLC
December 26, 2012
East Hartford
CT-5037

Table of Contents

Global Tower Services, LLC
December 26, 2012
East Hartford
CT-5037

INTRODUCTION

We have completed the structural analysis for the existing 130 ft. tapered monopole located in Hartford County (148 Roberts Street, East Hartford), CT. The objective of the analysis is to determine if the existing tapered monopole design is in conformance / compliance with the current codes and standards for the proposed equipment installation.

TSTower written by TowerSoft was utilized in performing the analysis. This program is a commercially available software program which was used to create a non-linear three-dimensional beam model and calculate member stresses for various loading conditions.

DESCRIPTION OF STRUCTURE

The existing structure is a 130 ft. tapered monopole. The original monopole manufacturer is Glen Martin Engineering, Inc., Boonville, MO. The existing structure consists of three (3) sections with slip connections and one (1) section with a flange connection.

Original monopole drawings provided by Glen Martin Engineering were used to model the monopole steel. (Glen Martin Drawing No.: MP1400800-0001, August 20, 2003) The monopole shaft is manufactured from 65 ksi steel, the base plate is 55 ksi steel and the anchor bolts are A-572 Grade 55 steel.

The monopole, for the purpose of analysis, is considered to be in good condition with no defects.

DESIGN PARAMETERS

- Standard:	ANSI/TIA-222-F-1996
- Basic Wind Speed:	80 mph (fastest mile) 100 mph (3-sec gust)
- Serviceability Wind Speed:	50 mph (fastest mile)
- Basic Wind Speed with Ice:	69.60 mph (fastest mile)
- Design Ice Thickness:	0.50 (inch)
- Allowable Stress Increase:	1/3 for wind loading conditions

Global Tower Services, LLC
December 26, 2012
East Hartford
CT-5037

ANTENNA LOADING INFORMATION

Existing and Reserved Loading Information

Antenna Description/Mount	Qty	Elev. (ft.)	TX Lines	Qty	Customer
Argus LLPX310R / Side Arms	3	130	5/8" ¼"	3 3	Clearwire
Samsung WiMax Dap Head / Side Arms	3	130			Clearwire
Dragonwave A-ANT-18G-2-C / Side Arms	3	127	½"	3	Clearwire
Dragonwave Horizon Compact / Side Arms	3	127			Clearwire
Antel BXA-70063-6CF / LP Platform	3	120	1 5/8"	6	Verizon
Antel BXA-185063-8CF / LP Platform	3	120	1 5/8"	6	Verizon
DB844G65ZAXY / LP Platform	6	120	1 5/8" **(Exterior)**	6	Verizon
4' X 1' PCS Antennas / LP Platform	9	110	1 5/8"	9	Sprint
Andrew HBX-6516DS-VTM / LP Platform	6	100	1 5/8" **(Exterior)**	12	MetroPCS
Andrew ATM200-A20 RETs / LP Platform	6	100	3/8" **(Exterior)**	1	MetroPCS
DB844H90E-XY / LP Platform	12	90	1 5/8"	12	Nextel
2' MW Dish / Pipe Mount	1	70	1 5/8"	1	Sprint

Note: Existing lines considered inside the monopole shaft unless otherwise noted.

Proposed Loading Information

Antenna Description/Mount	Qty	Elev. (ft.)	TX Lines	Qty	Customer
Antel BXA-171063-8CF / Low Profile Platform	3	120	1 5/8" Hybrid **(Exterior)**	1	Verizon
RRH2x40-AWS / LP Platform	3	120	Existing		Verizon
DB-T1-6Z-8AB-0Z / LP Platform	1	120			Verizon

Note: Final configuration for Verizon Wireless: Fifteen (15) panel antennas, three (3) RRH's, one (1) distribution box, one 1 5/8" hybrid line, and eighteen (18) 1 5/8" lines.

Global Tower Services, LLC
December 26, 2012
East Hartford
CT-5037

ANALYSIS RESULTS

Structure

The existing 130 ft. tapered monopole **is structurally capable** of supporting the proposed equipment. **(See table below)**

Monopole Member	% Capacity	Results
Monopole Shaft	78	Pass
Monopole Base Plate	65	Pass
Anchor Bolts	66	Pass

(105 percent is considered acceptable.)

Foundation

The existing foundation has also been evaluated. The existing foundation was found to be **acceptable** with the proposed equipment installed. **(See table below)**

Foundation Component	Analysis Reactions	Original Reactions	% Capacity	Results
Overturning Moment	2198.2 Ft-Kips	2740.19 Ft-Kips	80	Pass
Shear	25.28 Kips	28.46 Kips	89	Pass

Monopole Rating: 89%

SUMMARY AND CONCLUSIONS

The existing 130 ft. tapered monopole located in Hartford County (148 Roberts Street, East Hartford), CT **is structurally acceptable** based upon the EIA-222-F 1996 Standard and the local building code with the proposed equipment installed.

If any other changes are proposed, another structural analysis should be performed to assure the tower is in compliance / conformance with the applicable codes and standards.

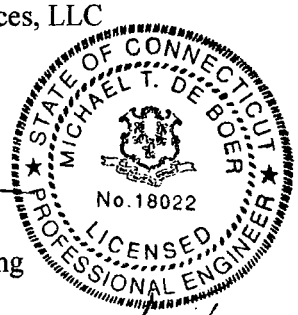
Should any further questions arise, please contact the Global Tower Services, LLC Engineering Department at 941-400-2206.

Global Tower Services, LLC

Cory Blake, E.I.T.
GTS Engineering

Reviewed by:

Michael T. De Boer, P.E.
Senior Director of Engineering



1/10/13

Global Tower Services, LLC
December 26, 2012
East Hartford
CT-5037

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but not necessarily limited to:

- Information supplied by the client regarding the structure itself, the antenna and transmission line loading on the structure and it components, or relevant information.

- Information from drawings in possession of Global Tower Services, LLC, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Global Tower Services, LLC and used in the performance of our engineering services is correct and complete. In the absence of information contrary, we consider that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated; and we, therefore consider that their capacity has not significantly changed from the original design condition.

All services will be performed to the codes and standards specified by the client, and we do not imply to meet any other code and standard requirements unless explicitly agreed to in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes and standards, the client shall specify the exact requirements. In the absence of information to the contrary, all work will be performed in accordance with the revision of ANSI/TIA/EIA-222 requested.

All services are performed, results obtained and recommendations made in accordance with the generally accepted engineering principles and practices. Global Tower Services, LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Global Tower Services, LLC
December 26, 2012
East Hartford
CT-5037

Disclaimer of Warranties

The engineering services by **Global Tower Services, LLC** in connection with this Structural Analysis are limited to a computer analysis of the tower structure, size and capacity of its members. **Global Tower Services, LLC** does not analyze the fabrication, including welding, except as included in this report.

The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines. Any mention of structural modifications are reasonable estimates and should not be used a precise construction document. Precise modification drawings are obtainable from **Global Tower Services, LLC** but are beyond the scope of this report.

Global Tower Services, LLC makes no warranties, expressed or implied, in connection with this report and disclaim any liability arising from material, fabrication and erection of this tower. **Global Tower Services, LLC** will not be responsible whatsoever for or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of **Global Tower Services, LLC** pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDIX A

Monopole Profile

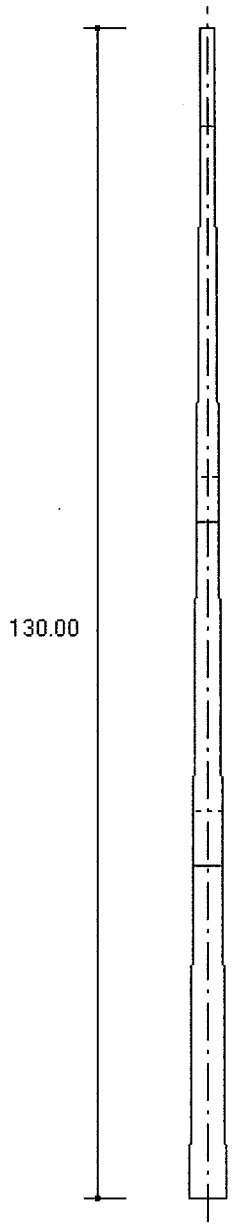
File: Z:\Shared\Tower Models for Approval\Sent to Mike\CT-5037_122612\CT-5037_122612_Verizon.out
Contract:
Project: Structural analysis for a 130' monopole
Date and Time: 1/10/2013 8:35:11 AM

Revision: 1
Site: CT-5037 (East Hartford)
Engineer: Mike De Boer

DESIGN SPECIFICATION

Design Standard: TIA/EIA-222-F-1996
Basic Wind speed = 80.0 (mph)
Service Wind speed = 50.0 (mph)
Ice thickness = 0.50 (in)

Sct.	Length (ft)	Overlap (ft)	Top Dia. (in)	Bot Dia. (in)	Thick. (in)
1	43.00	6.00	38.14	49.19	0.3750
2	43.00	5.00	29.26	40.31	0.3125
3	44.00	0.00	19.74	31.05	0.2500
4	11.00	0.00	18.00	20.76	0.2500



MAXIMUM BASE REACTIONS

Download (Kips)	37.6
Shear (Kips)	25.3
Moment (Kipsft)	2198.5

APPENDIX B

Calculations

Section A: PROJECT DATA

Project Title:	Structural analysis for a 130' monopole
Customer Name:	Verizon Wireless
Site:	CT-5037 (East Hartford)
Contract No.:	
Revision:	1
Engineer:	Mike De Boer
Date:	Jan 10 2013
Time:	08:31:17 AM

Design Standard: TIA/EIA-222-F-1996

GENERAL DESIGN CONDITIONS

Start Wind direction:	0.00 (Deg)
End Wind direction:	330.00 (Deg)
Increment wind direction:	30.00 (Deg)
Elevation above ground:	0.00(ft)
Gust Response Factor Gh:	1.69
Material Density:	490.1(lbs/ft^3)
Young's Modulus:	29000.0(ksi)
Poisson Ratio:	0.3
Weight Multiplier:	1.00
Allowable Stress Incr. Factor:	1.333
Increase allowable stress:	Yes
Ratio of corner diameter to diameter of inscribed circle (r):	0.26

WIND ONLY CONDITIONS:

Basic Wind Speed:	80.00(mph)

WIND AND ICE CONDITIONS:

Basic Wind Speed:	80.00(mph)
Ice Thickness:	0.50(in)
Ice density:	56.19(lbs/ft^3)
Wind pressure reduction for iced conditions:	0.75

WIND ONLY SERVICEABILITY CONDITIONS:

Operational Wind Speed:	50.00(mph)

Analysis performed using: TowerSoft Finite Element Analysis Program

File: Z:\Shared\Tower Models for Approval\Sent to Mike\CT-5037_122612\CT-5037_122612_Verizon.out
Contract:
Project: Structural analysis for a 130' monopole
Date and Time: 1/10/2013 8:35:11 AM

Revision: 1
Site: CT-5037 (East Hartford)
Engineer: Mike De Boer

Section C: ANTENNA DATA

Structure Azimuth from North: 0

ANTENNAS

Ant No.	Elev. (ft)	Antenna (#) Type	Ant. Azim.	Mount. Radius (ft)	Mount Type	Mount Azim.	Tx Line (#)Type	Mounting Pipe Size (in)	Mounting Pipe Length (ft) Full	Mounting Pipe Length (ft) Shielded
1	127.00	(1) HP2	30	1.08		30				
		Vert. Offset 0.00 (ft)								
2	127.00	(1) HP2	150	1.08		150				
		Vert. Offset 0.00 (ft)								
3	127.00	(1) HP2	270	1.08		270				
		Vert. Offset 0.00 (ft)								
4	70.00	(1) PL2 w/o radome	0	1.33		0		3.500	4.00	2.21
		Vert. Offset 0.00 (ft)								

ANTENNA AND MOUNT WIND AREAS AND WEIGHTS

Ant No.	Antenna/Mount	Frontal Bare Area (ft)^2	Lateral Bare Area (ft)^2	Frontal Iced Area (ft)^2	Lateral Iced Area (ft)^2	Weight Bare (lbs)	Weight Iced (lbs)	Frequency GHz	Allowable Signal Loss dB
1	HP2	4.86	0.34	4.86	0.34	40.78	88.32	6.00	10
2	HP2	4.86	0.34	4.86	0.34	40.78	88.32	6.00	10
3	HP2	4.86	0.34	4.86	0.34	40.78	88.32	6.00	10
4	PL2 w/o radome	5.97	0.16	5.97	0.16	15.43	66.25	6.00	10

Section D: TRANSMISSION LINE DATA

Transmission Lines Position

No.	Bot El (ft)	Top El (ft)	Desc.	Radius (ft)	Az.	Orient.	No.	Shielded	Shielded Lines	Antenna
1	0.00	130.00	LDF2-50	0.00	0.00	0.00	6	Yes	6	
2	0.00	127.00	LDF4P-50A	0.00	0.00	0.00	3	Yes	3	
3	0.00	120.00	LDF7P-50A	0.00	0.00	0.00	12	Yes	12	
4	0.00	120.00	LDF7P-50A	0.00	0.00	0.00	7	Yes	4	
5	0.00	110.00	LDF7P-50A	0.00	0.00	0.00	9	Yes	9	
6	0.00	100.00	LDF7P-50A	0.00	0.00	0.00	12	Yes	9	
7	0.00	100.00	LDF2-50	0.00	0.00	0.00	1	No	0	
8	0.00	90.00	LDF7P-50A	0.00	0.00	0.00	12	Yes	12	
9	0.00	70.00	LDF7P-50A	0.00	0.00	0.00	1	Yes	1	

Transmission Lines Details

No.	Desc.	Width (in)	Depth (in)	Unit Mass (lb/ft)
1	LDF2-50	0.43	0.43	0.08
2	LDF4P-50A	0.63	0.63	0.15
3	LDF7P-50A	2.01	2.01	0.92
4	LDF7P-50A	2.01	2.01	0.92
5	LDF7P-50A	2.01	2.01	0.92
6	LDF7P-50A	2.01	2.01	0.92
7	LDF2-50	0.43	0.43	0.08
8	LDF7P-50A	2.01	2.01	0.92
9	LDF7P-50A	2.01	2.01	0.92

Utilization of the cross-section for TX Lines: 28.46%

Section F: POINT LOAD DATA

Structure Azimuth from North:0.00

POINT LOADS

No.	Description	Elev. (ft)	Radius (ft)	Azim. (Deg)	Orient. (Deg)	Vertical Offset (ft)	Tx Line	Comments
1	(3) LLPX310R	130.00	0.00	0.0	0.0	0.00		Clearwire (1.0)
2	(3) WiMax Dap Head	130.00	0.00	0.0	0.0	0.00		Clearwire (1.0)
3	T-Arms	130.00	0.00	0.0	0.0	0.00		Clearwire
4	(3) Horizon Compact	127.00	0.00	0.0	0.0	0.00		Clearwire (1.0)
5	(3) BXA-171063/8CF	120.00	0.00	0.0	0.0	0.00		Verizon (0.75)
6	(3) BXA-70063-6CF	120.00	0.00	0.0	0.0	0.00		Verizon (0.75)
7	(3) BXA-185063/8CF	120.00	0.00	0.0	0.0	0.00		Verizon (0.75)
8	LP Platform	120.00	0.00	0.0	0.0	0.00		Verizon
9	(6) DB844G65ZAXY	120.00	0.00	0.0	0.0	0.00		Verizon (0.75)
10	(1) DB-T1-6Z-8AB-0Z	120.00	0.00	0.0	0.0	0.00		Verizon (0.75)
11	(9) 4' X 1' Panels	110.00	0.00	0.0	0.0	0.00		Sprint (0.85)
12	LP Platform	110.00	0.00	0.0	0.0	0.00		Sprint
13	(6) HBX-6516DS-VTM	100.00	0.00	0.0	0.0	0.00		MetroPCS (0.85)
14	(6) RETs ATM200-A20	100.00	0.00	0.0	0.0	0.00		MetroPCS (1.0)
15	LP Platform	100.00	0.00	0.0	0.0	0.00		MetroPCS
16	(12) DB844H90EXY	90.00	0.00	0.0	0.0	0.00		Nextel (0.80)
17	LP Platform	90.00	0.00	0.0	0.0	0.00		Nextel

POINT LOADS WIND AREAS AND WEIGHTS

No.	Description	Frontal Bare Area (ft^2)	Lateral Bare Area (ft^2)	Frontal Iced Area (ft^2)	Lateral Iced Area (ft^2)	Weight Bare (Kips)	Weight Iced (Kips)
1	(3) LLPX310R	14.52	14.52	16.11	16.11	0.09	0.16
2	(3) WiMax Dap Head	7.59	7.59	8.67	8.67	0.11	0.18
3	T-Arms	21.00	21.00	27.00	27.00	0.75	1.25
4	(3) Horizon Compact	1.65	1.65	2.10	2.10	0.03	0.05
5	(3) BXA-171063/8CF	11.08	11.08	12.73	12.73	0.04	0.08
6	(3) BXA-70063-6CF	23.19	23.19	25.62	25.62	0.05	0.17
7	(3) BXA-185063/8CF	8.67	8.67	10.29	10.29	0.03	0.08
8	LP Platform	24.00	24.00	30.00	30.00	1.50	2.00
9	(6) DB844G65ZAXY	21.01	21.01	26.24	26.24	0.07	0.50
10	(1) DB-T1-6Z-8AB-0Z	4.20	4.20	4.56	4.56	0.02	0.04
11	(9) 4' X 1' Panels	42.84	42.84	47.38	47.38	0.27	0.68
12	LP Platform	24.00	24.00	30.00	30.00	1.50	2.00
13	(6) HBX-6516DS-VTM	16.58	16.58	19.48	19.48	0.06	0.17
14	(6) RETs ATM200-A20	1.32	1.32	1.98	1.98	0.00	0.01
15	LP Platform	21.00	21.00	27.00	27.00	1.50	2.00
16	(12) DB844H90EXY	35.81	35.81	41.18	41.18	0.24	0.56
17	LP Platform	21.00	21.00	27.00	27.00	1.50	2.00

File: Z:\Shared\Tower Models for Approval\Sent to Mike\CT-5037_122612\CT-5037_122612_Verizon.out
Contract:
Project: Structural analysis for a 130' monopole
Date and Time: 1/10/2013 8:35:11 AM

Revision: 1
Site: CT-5037 (East Hartford)
Engineer: Mike De Boer

Section H: STRUCTURE DISPLACEMENT DATA

Load Combination Max Envelope

Wind Direction Maximum displacements

Elev. (ft)	N-S Disp (in)	W-E Disp (in)	Vert.Disp (in)	N-S Rot (deg)	W-E Rot (deg)	Twist Rot (deg)
130.00	75.4	75.1	-2.3	5.07	-5.09	-0.02
128.17	73.5	73.2	-2.2	5.07	-5.09	-0.02
126.33	71.6	71.3	-2.1	5.06	-5.08	-0.02
124.50	69.6	69.3	-2.0	5.06	-5.08	-0.02
122.67	67.7	67.4	-1.9	5.05	-5.06	-0.02
120.83	65.7	65.4	-1.9	5.03	-5.05	-0.02
119.00	63.8	63.5	-1.8	5.02	-5.04	-0.02
111.20	55.7	55.4	-1.5	4.87	-4.88	-0.02
103.40	47.9	47.7	-1.2	4.63	-4.64	-0.02
95.60	40.5	40.3	-0.9	4.31	-4.33	-0.01
87.80	33.8	33.6	-0.7	3.94	-3.96	-0.01
80.00	27.6	27.5	-0.5	3.53	-3.54	-0.01
75.00	24.0	23.9	-0.4	3.25	-3.27	-0.01
68.60	19.9	19.8	-0.3	2.94	-2.96	-0.01
62.20	16.1	16.0	-0.2	2.63	-2.64	-0.01
55.80	12.8	12.7	-0.2	2.32	-2.33	-0.01
49.40	9.9	9.8	-0.1	2.01	-2.02	0.00
43.00	7.4	7.3	-0.1	1.70	-1.71	0.00
37.00	5.4	5.4	0.0	1.42	-1.42	0.00
30.83	3.7	3.7	0.0	1.17	-1.17	0.00
24.67	2.4	2.3	0.0	0.92	-0.93	0.00
18.50	1.3	1.3	0.0	0.68	-0.69	0.00
12.33	0.6	0.6	0.0	0.45	-0.45	0.00
6.17	0.1	0.1	0.0	0.22	-0.22	0.00
0.00	0.0	0.0	0.0	0.00	0.00	0.00

Section J: ANTENNA DISPLACEMENT DATA

Load Combination Max Envelope

Wind Direction Maximum displacements

Ant.	Elev. (ft)	N-S Disp (in)	W-E Disp (in)	Vert.Disp (in)	N-S Rot (Deg)	W-E Rot (Deg)	Twist Tot (Deg)	Allow. (Deg)
1	127.00	72.5	72.2	-2.1	5.07	-5.08	-0.02	4.43
2	127.00	72.5	72.2	-2.1	5.07	-5.08	-0.02	4.43
3	127.00	72.5	72.2	-2.1	5.07	-5.08	-0.02	4.43
4	70.00	22.0	21.8	-0.4	3.10	-3.11	-0.01	4.43

File: Z:\Shared\Tower Models for Approval\Sent to Mike\CT-5037_122612\CT-5037_122612_Verizon.out
Contract:
Project: Structural analysis for a 130' monopole
Date and Time: 1/10/2013 8:35:11 AM

Revision: 1
Site: CT-5037 (East Hartford)
Engineer: Mike De Boer

Section K: POLE OUTPUT LOAD DATA

Load Combination: Max Envelope
Wind Direction: Maximum

Elev. (ft)	Axial Ld. (kips)	Shear Ld. (kips)	Torque (kipsft)	Bend Mom. (kipsft)
130.00	1.51	1.89	0.00	0.00
128.17	1.51	1.89	0.00	3.39
128.17	1.72	2.16	0.02	3.40
126.33	1.72	2.16	0.03	7.36
126.33	2.01	2.58	0.07	7.36
124.50	2.01	2.58	0.07	12.08
124.50	2.13	2.68	0.07	12.08
122.67	2.13	2.68	0.07	16.98
122.67	2.24	2.77	0.07	16.98
120.83	2.24	2.77	0.08	22.05
120.83	3.79	4.97	0.09	22.06
119.00	3.79	4.97	0.09	31.16
119.00	5.39	7.08	0.20	31.25
111.20	5.39	7.08	0.20	86.33
111.20	8.25	10.03	0.42	86.50
103.40	8.25	10.03	0.42	164.19
103.40	10.69	12.05	0.71	164.40
95.60	10.69	12.05	0.70	258.09
95.60	13.32	14.17	1.09	258.34
87.80	13.32	14.17	1.08	368.47
87.80	16.25	16.59	1.47	368.76
80.00	16.25	16.59	1.46	497.71
80.00	17.30	17.26	1.76	497.96
75.00	17.30	17.26	1.75	583.69
75.00	18.61	17.93	1.95	583.89
68.60	18.61	17.93	1.94	698.16
68.60	20.21	18.80	2.07	698.34
62.20	20.21	18.80	2.06	818.18
62.20	21.51	19.47	2.27	818.38
55.80	21.51	19.47	2.26	942.51
55.80	22.86	20.13	2.44	942.69
49.40	22.86	20.13	2.44	1071.05
49.40	24.26	20.77	2.59	1071.21
43.00	24.26	20.77	2.59	1203.72
43.00	25.66	21.37	2.71	1203.85
37.00	25.66	21.37	2.70	1331.87
37.00	27.64	21.97	2.81	1331.99
30.83	27.64	21.97	2.80	1467.18
30.83	29.75	22.55	2.89	1467.28
24.67	29.75	22.55	2.88	1606.13
24.67	31.42	23.13	2.95	1606.22
18.50	31.42	23.13	2.95	1748.69
18.50	33.13	23.72	3.00	1748.75
12.33	33.13	23.72	3.00	1894.90
12.33	34.90	24.32	3.03	1894.94
6.17	34.90	24.32	3.03	2044.82
6.17	36.71	24.92	3.05	2044.85
0.00	36.71	24.92	3.05	2198.51
Base	37.59	25.28	3.04	2198.52

File: Z:\Shared\Tower Models for Approval\Sent to Mike\CT-5037_122612\CT-5037_122612_Verizon.out
Contract:
Revision: 1
Project: Structural analysis for a 130' monopole
Site: CT-5037 (East Hartford)
Date and Time: 1/10/2013 8:35:11 AM
Engineer: Mike De Boer

Section L: STRENGTH ASSESSMENT DATA

Load Combination: Max Envelope
Wind Direction: Maximum

Elev. (ft)	Bending Stress (ksi)	Axial Stress (ksi)	Shear Stress (ksi)	Total Stress (ksi)	Allowable Stress (ksi)	Assess.
130.00	0.00	0.11	0.12	0.24	52.00	0.005
128.17	0.58	0.10	0.12	0.72	52.00	0.014
128.17	0.63	0.07	0.15	0.74	52.00	0.014
126.33	1.30	0.06	0.15	1.39	52.00	0.027
126.33	1.30	0.07	0.17	1.41	52.00	0.027
124.50	2.03	0.07	0.17	2.12	52.00	0.041
124.50	2.03	0.08	0.18	2.13	52.00	0.041
122.67	2.72	0.08	0.17	2.81	52.00	0.054
122.67	2.72	0.08	0.18	2.82	52.00	0.054
120.83	3.37	0.08	0.17	3.47	52.00	0.067
120.83	3.37	0.13	0.31	3.55	52.00	0.068
119.00	4.55	0.13	0.30	4.71	52.00	0.091
119.00	5.06	0.20	0.46	5.31	52.00	0.102
111.20	11.47	0.18	0.41	11.68	52.00	0.225
111.20	11.49	0.29	0.59	11.83	52.00	0.228
103.40	18.24	0.27	0.54	18.53	52.00	0.356
103.40	18.26	0.36	0.64	18.66	52.00	0.359
95.60	24.32	0.33	0.59	24.68	52.00	0.475
95.60	24.35	0.43	0.70	24.80	52.00	0.477
87.80	29.83	0.40	0.65	30.24	52.00	0.582
87.80	29.85	0.49	0.76	30.37	52.00	0.584
80.00	34.98	0.46	0.71	35.46	52.00	0.682
80.00	35.00	0.50	0.74	35.52	52.00	0.683
75.00	31.34	0.43	0.60	31.78	52.00	0.611
68.60	33.69	0.40	0.57	34.11	52.00	0.656
68.60	33.70	0.45	0.59	34.16	52.00	0.657
62.20	35.69	0.43	0.56	36.13	52.00	0.695
62.20	35.70	0.46	0.58	36.17	52.00	0.696
55.80	37.34	0.44	0.56	37.79	52.00	0.727
55.80	37.35	0.47	0.58	37.83	52.00	0.728
49.40	38.71	0.45	0.55	39.17	52.00	0.753
49.40	38.72	0.48	0.57	39.21	52.00	0.754
43.00	39.85	0.46	0.54	40.32	52.00	0.775
43.00	39.86	0.49	0.56	40.36	52.00	0.776
37.00	35.22	0.44	0.47	35.67	52.00	0.686
30.83	35.83	0.42	0.45	36.26	52.00	0.697
30.83	35.83	0.46	0.46	36.30	52.00	0.698
24.67	36.34	0.44	0.44	36.79	52.00	0.708
24.67	36.34	0.47	0.46	36.83	52.00	0.708
18.50	36.76	0.46	0.44	37.23	52.00	0.716
18.50	36.76	0.49	0.45	37.26	52.00	0.716
12.33	37.11	0.47	0.44	37.58	52.00	0.723
12.33	37.11	0.50	0.45	37.61	52.00	0.723
6.17	37.39	0.48	0.43	37.88	52.00	0.728
6.17	37.39	0.51	0.44	37.91	52.00	0.729
0.00	37.63	0.49	0.43	38.12	52.00	0.733

File: Z:\Shared\Tower Models for Approval\Sent to Mike\CT-5037_122612\CT-5037_122612_Verizon.out
Contract:
Revision: 1
Project: Structural analysis for a 130' monopole
Site: CT-5037 (East Hartford)
Date and Time: 1/10/2013 8:35:11 AM
Engineer: Mike De Boer

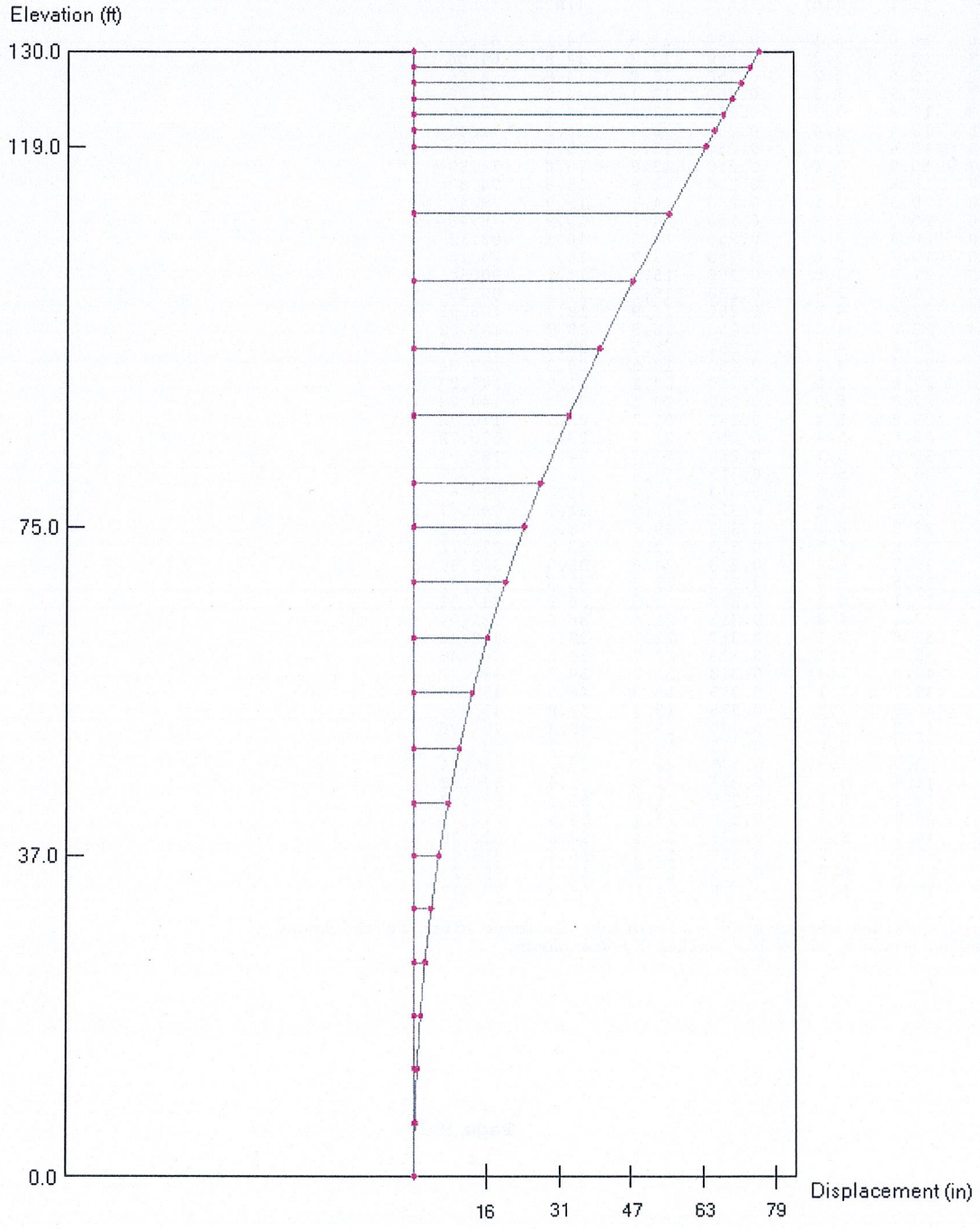
Section M: SECTION PROPERTIES DATA

Elev. (ft)	Diam. (in)	Width (in)	Thick. (in)	W/t	Area (in^2)	S (in^3)
130.0	18.0	3.1	0.250	12.3	14.1	61.42
128.2	18.5	3.2	0.250	12.7	14.5	64.66
128.2	18.5	3.2	0.250	12.7	14.5	64.66
126.3	18.9	3.3	0.250	13.1	14.9	67.99
126.3	18.9	3.3	0.250	13.1	14.9	67.99
124.5	19.4	3.4	0.250	13.4	15.2	71.40
124.5	19.4	3.4	0.250	13.4	15.2	71.40
122.7	19.8	3.4	0.250	13.8	15.6	74.89
122.7	19.8	3.4	0.250	13.8	15.6	74.89
120.8	20.3	3.5	0.250	14.1	15.9	78.46
120.8	20.3	3.5	0.250	14.1	15.9	78.46
119.0	20.8	3.6	0.250	14.5	16.3	82.12
119.0	19.7	3.4	0.250	13.7	15.5	74.16
111.2	21.7	3.8	0.250	15.3	17.1	90.30
111.2	21.7	3.8	0.250	15.3	17.1	90.30
103.4	23.8	4.2	0.250	16.9	18.7	108.02
103.4	23.8	4.2	0.250	16.9	18.7	108.02
95.6	25.8	4.6	0.250	18.5	20.3	127.34
95.6	25.8	4.6	0.250	18.5	20.3	127.34
87.8	27.8	5.0	0.250	20.1	21.9	148.23
87.8	27.8	5.0	0.250	20.1	21.9	148.23
80.0	29.8	5.4	0.250	21.7	23.5	170.72
80.0	29.8	5.4	0.250	21.7	23.5	170.72
75.0	31.0	5.7	0.250	22.7	24.5	185.97
75.0	30.5	5.5	0.313	17.4	30.1	223.57
68.6	32.2	5.8	0.313	18.5	31.7	248.67
68.6	32.2	5.8	0.313	18.5	31.7	248.67
62.2	33.8	6.1	0.313	19.5	33.3	275.12
62.2	33.8	6.1	0.313	19.5	33.3	275.12
55.8	35.5	6.4	0.313	20.6	35.0	302.89
55.8	35.5	6.4	0.313	20.6	35.0	302.89
49.4	37.1	6.8	0.313	21.6	36.6	332.01
49.4	37.1	6.8	0.313	21.6	36.6	332.01
43.0	38.8	7.1	0.313	22.7	38.2	362.46
43.0	38.8	7.1	0.313	22.7	38.2	362.46
37.0	40.3	7.4	0.313	23.7	39.8	392.22
37.0	39.7	7.1	0.375	19.0	46.9	453.86
30.8	41.3	7.5	0.375	19.9	48.8	491.36
30.8	41.3	7.5	0.375	19.9	48.8	491.36
24.7	42.9	7.8	0.375	20.7	50.7	530.34
24.7	42.9	7.8	0.375	20.7	50.7	530.34
18.5	44.4	8.1	0.375	21.6	52.6	570.82
18.5	44.4	8.1	0.375	21.6	52.6	570.82
12.3	46.0	8.4	0.375	22.4	54.5	612.78
12.3	46.0	8.4	0.375	22.4	54.5	612.78
6.2	47.6	8.7	0.375	23.3	56.4	656.23
6.2	47.6	8.7	0.375	23.3	56.4	656.23
0.0	49.2	9.0	0.375	24.1	58.3	701.17

Note: w/t values marked with * (asterisk) indicate width to thickness exceeding maximum allowable values by standards.

Horizontal Displacement Diagram

Max. Envelope (All Loading Cases)

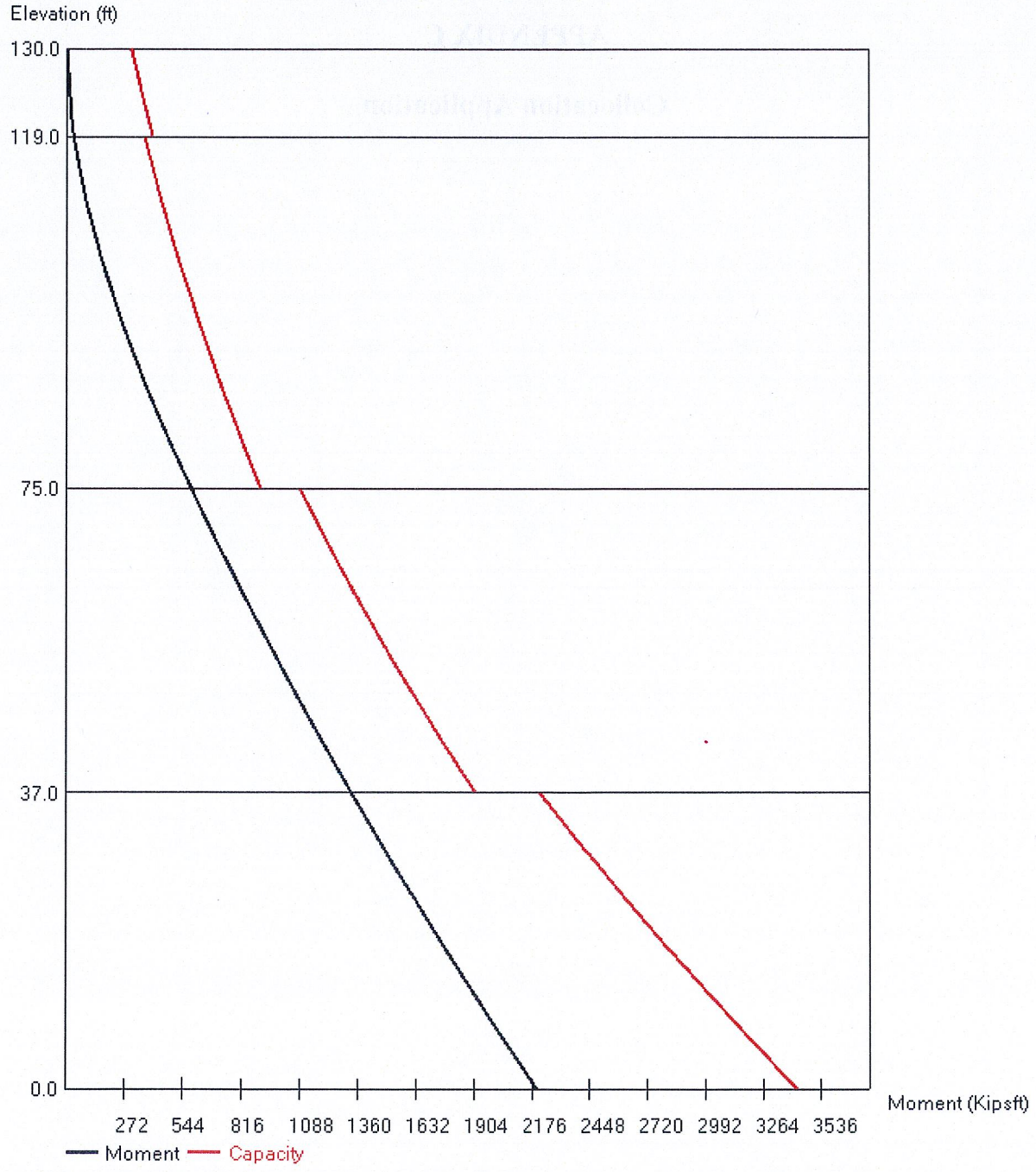


File: Z:\Shared\Tower Models for Approval\Sent to Mike\CT-5037_122612\CT-5037_122612_Verizon.out
Contract:
Project: Structural analysis for a 130' monopole
Date and Time: 1/10/2013 8:35:11 AM

Revision: 1
Site: CT-5037 (East Hartford)
Engineer: Mike De Boer

Bending Moment Diagram

Max. Envelope (All Loading Cases)



APPENDIX C

Collocation Application

GLOBAL TOWER PARTNERS

Collocation Application

Check one: New ☐ Addition to Existing ☒ Modification ☐	**LEASE # 10672** VERSION 1
PLEASE RETURN THIS APPLICATION TO: (E-MAIL IS PREFERRED)	GTP Site #: CT-5037
GTP	GTP Site Name: East Hartford
750 Park of Commerce Blvd Suite 300 — E-Mail: sales@gtpsites.com	GTP Date Received: 10-22-12
Boca Raton, FL 33487-3612 — Office: (561) 995-0320	Revision Dates: 10-22-12, 10-31-12
Attn: Leasing — Fax: (561) 995-0321	**RSM Approval:** Charles Laurette 10.23.12

APPLICANT/CARRIER INFORMATION

Carrier Name:	Verizon Wireless	Contact Name:	Jim Smith
Carrier Site Name:	East Hartford 3 CT	Contact Number:	860-608-0028
Carrier Site Number:	119677	Contact Fax:	860-290-8951
Carrier Legal Entity Name, State of registration:	Cellco Partnership d/b/a Verizon Wireless	Contact Address:	Verizon Wireless 99 East River Dr, 9th Fl East Hartford CT 06108
Type of entity (LP, LLC, Corp)	Delaware		
d/b/a/ (If applicable)	GP		
Notice Address for Lease:	Per existing agreement	Contact E-mail:	jsmith@structureconsulting.net
With copies to:	Per existing agreement	Additional E-mail:	
Carrier Invoice Address:	99 East River Dr, East Hartford, CT 06108	Other:	
Carrier Invoice Contact - Name, Title, Phone No.	Tim Parks - RE Specialist 860-803-8239	Carrier NOC#	800-852-2671

ADDITIONAL CARRIER INFORMATION

Leasing Contact Name/Number:	Corey Saunders / 203-578-4254
RF Contact Name/Number:	
Construction Contact Name/Number:	Brian Ragozzine / 860-982-4246
Emergency Contact Name/Number:	NOCC / 800-852-2671

SITE INFORMATION

Latitude:	41	46	23.9	N	Existing Structure Type:	Monopole
Longitude:	72	36	48.3	W	Existing Structure Height:	130'
Site Address:	148 Roberts Street, East Hartford CT 06108					

Antenna Equipment Specifications

Sectors (1, 2, 3 etc. - if applicable)	Antenna 1	Antenna 2	Antenna 3	Antenna 4		
Equipment Type (Panel, Omni, RRU, TMA, RET, MW Dish etc.)	Panel	Panel	Panel	Panel	RRH	Distribution Box for Hybriflex Cable
Installation Status (Existing, Proposed etc.)	**Proposed**	Existing and Remaining	Existing and Remaining	Existing and Remaining	**Proposed**	**Proposed**
Rad Center AGL (ft)	119' 8"	119' 8"	119' 8"	119' 8"	119' 8" (mounted flush to pole)	119' 8" (flush to pole inside platform)
Equipment Mount Height (ft)	119' 8"	119' 8"	119' 8"	119' 8"	119' 8" (mounted flush to pole)	119' 8" (flush to pole inside platform)
Equipment Mount Type	LP Platform	LP Platform	LP Platform	LP Platform	Flush Mounted to Monopole	LP Platform
Equipment Quantity	3 total (1/sector)	3 total (1/sector)	6 total (2/sector)	3 total (1/sector)	3 total (1/sector)	1 total
Equipment Manufacturer	Antel	Antel	Andrew	Antel	ALU	RFS
Equipment Model #	BXA-171063-8CF	BXA-70063-6CF	DB844G65ZAXY	BXA-185063/8CF	RRH2x40-AWS	DB-T1-6Z-8AB-0Z
Equipment Weight (per item in lbs))	10.5	17	12	10	44	20
Equipment Dimensions (HxWxD) (Indicate feet or inches)	48.5" x 6.1" x 4.1"	71 x 11.2 x 5.2	48 x 10 x 8	48.8 x 6.1 x 3.2	24.4 x 10.63 x 6.7	24 x 24 x 10
TOTAL # of LINES for equipment in column	1	6	6	6	0	0

GLOBAL TOWER PARTNERS

Collocation Application

Line Type	RFS Hybriflex cable	coax	coax	coax	NA	NA
Line Diameter/Size	1-5/8" On outside of pole	1-5/8"	1-5/8"	1-5/8" On outside of pole	NA	NA
Orientation/Azimuth (degrees from true north)	35, 140, 260	35, 140, 260	35, 140, 260	35, 140, 260	NA	NA
Mechanical Tilt (degrees)					NA	NA
TX Frequency	2145-2155	746-757	869-880, 890-891.5	1970-1975	NA	NA
RX Frequency	1745-1755	776-787	824-835, 845-846.5	1890-1895	NA	NA
ERP (watts)	40	40	20	16	NA	NA
Type of Technology (i.e. 3G, LTE, CMDA etc)	LTE AWS	LTE	Cellular	PCS	NA	NA

Will RRU's be installed behind Antennas ☒ **Yes** ☐ **No** RRH Flush Mounted To Pole

If no, please explain:

FIBER: ☒ **Yes** ☐ **No** **Who is Provider? Currently in place**

PLEASE NOTE - All Equipment Lines are required to be installed inside the tower when space is available. Carriers will be charged an additional $25.00 per line per month if equipment lines are installed on the outside of the tower even though there is available space inside the tower. GTP must approve any installation of lines on the outside of towers prior to installation commencement.

GROUND SPACE REQUIREMENTS

NO CHANGE TO GROUND SPACE

Total Ground Area Dimensions Required (length x width x height in ft.)	30' x 12' x 11	**Generator:** ☒ Diesel ☐ Propane ☐ Natural Gas Pad Dimension (L X W, ft.):	
Cabinet Pad Dimensions		Cabinet Manufacturer	N/A
Shelter Pad Dimensions	12' x 30'	Shelter Manufacturer	Kulman

AC POWER REQUIREMENTS.

Voltage:	240	Total Amperage:	200

Comments: Scope of Work-

Adding 3 antennas, 3 RRHs, 1 Hybiflex cable, and 1 distribution box.

Final configuration on Tower:

- 15 antennas (3 NEW)
- 18 coax cables @ 1-5/8"
- 3 RRH's
- 1 Hybiflex cable @ 1 5/8"
- 1 distribution box

NO Diplexers, MW DISHES or TMA