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kbaldwin@rc.com
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Also admitted in Massachusetts

March 21, 2014

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

Re: **Notice of Exempt Modification – Facility Modification
2 West Street, Rocky Hill, Connecticut**

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) wireless telecommunications antennas at the 90-foot level of the existing 100-foot tower at 2 West Street in Rocky Hill, Connecticut (the “Property”). The tower is owned by American Tower Corporation. The Council approved Cellco’s use of this tower in 2008. Cellco now intends to modify its facility by replacing nine (9) of its existing antennas with three (3) model BXA-70063-6CF, 700 MHz antennas; three (3) model LNX-6514DS-VTM, 1900 MHz antennas; and three (3) model HBX-6517DS-VTM, 2100 MHz antennas, all at the same 90-foot level on the tower. Cellco also intends to install three (3) remote radio heads (“RRHs”) behind its 2100 MHz antennas and one (1) HYBRIFLEX™ antenna cable attached to the outside 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 letter is being sent to Henry Vasel, Mayor of the Town of Rocky Hill. The Town of Rocky Hill is the owner of the Property.

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



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1. The proposed modifications will not result in an increase in the height of the existing tower. The replacement antennas and RRHs will be located at the 90-foot level on the 100-foot tower.
2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. Far Field Approximation tables for each of Cellco's operating frequencies are included behind Attachment 2. The Far Field calculations demonstrate that Cellco's modified facility will operate well within the RF emissions limits established by the FCC.
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 Evaluation Letter included in Attachment 3).

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

Sincerely,



Kenneth C. Baldwin

Enclosures

Copy to:

Henry Vasel, Rocky Hill Mayor
Sandy M. Carter



ATTACHMENT 1

BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

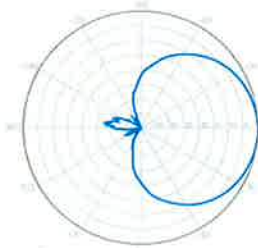
Replace "X" with desired electrical downtilt.

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

Electrical Characteristics	696-900 MHz		
Frequency bands	696-806 MHz	806-900 MHz	
Polarization	±45°		
Horizontal beamwidth	65°	63°	
Vertical beamwidth	13°	11°	
Gain	14.0 dBd (16.1 dBi)	14.5 dBd (16.6 dBi)	
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 10		
Impedance	50Ω		
VSWR	≤1.35:1		
Upper sidelobe suppression (0°)	-18.3 dB	-18.2 dB	
Front-to-back ratio (+/-30°)	-33.4 dB	-36.3 dB	
Null fill	5% (-26.02 dB)		
Isolation between ports	< -25 dB		
Input power with EDIN connectors	500 W		
Input power with NE connectors	300 W		
IM3 (2x20W carriers)	< -153 dBc		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)		
Mechanical Characteristics			
Dimensions Length x Width x Depth	1804 x 285 x 132 mm	71.0 x 11.2 x 5.2 in	
Depth with z-brackets	172 mm	6.8 in	
Weight without mounting brackets	7.9 kg	17 lbs	
Survival wind speed	> 201 km/hr	> 125 mph	
Wind area	Front: 0.51 m ² Side: 0.24 m ²	Front: 5.5 ft ² Side: 2.6 ft ²	
Wind load @ 161 km/hr (100 mph)	Front: 759 N Side: 391 N	Front: 169 lbf Side: 89 lbf	
Mounting Options	Part Number	Fits Pipe Diameter	Weight
3-Point Mounting & Downtilt Bracket Kit	36210008	40-115 mm 1.57-4.5 in	6.9 kg 15.2 lbs
Concealment Configurations	For concealment configurations, order BXA-70063-6CF-EDIN-X-FP		

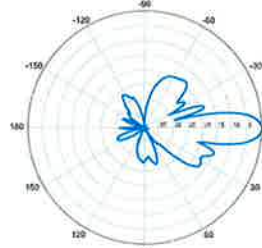


BXA-70063-6CF-EDIN-X



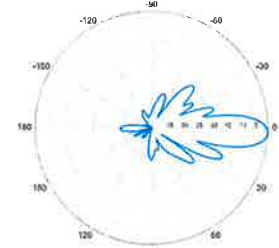
Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0

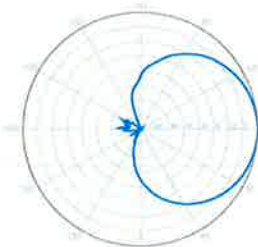


0° | Vertical | 750 MHz

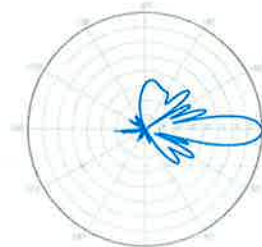
BXA-70063-6CF-EDIN-2



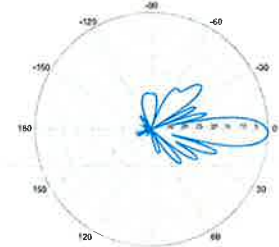
2° | Vertical | 750 MHz



Horizontal | 850 MHz



0° | Vertical | 850 MHz



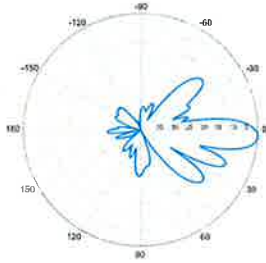
2° | Vertical | 850 MHz

Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

BXA-70063-6CF-EDIN-X

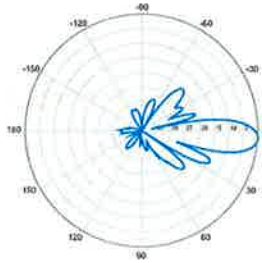
X-Pol | FET Panel | 63° | 14.5 dBd

BXA-70063-6CF-EDIN-3



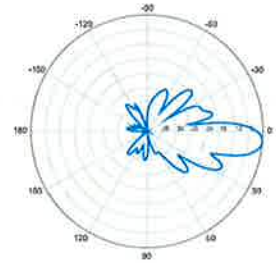
3° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-4

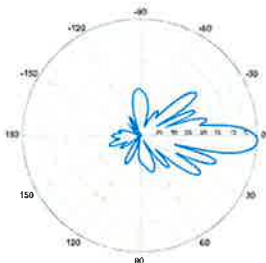


4° | Vertical | 750 MHz

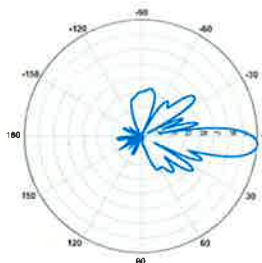
BXA-70063-6CF-EDIN-5



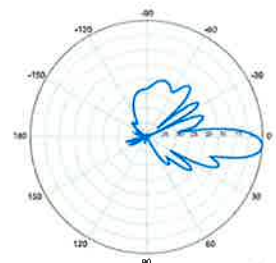
5° | Vertical | 750 MHz



3° | Vertical | 850 MHz

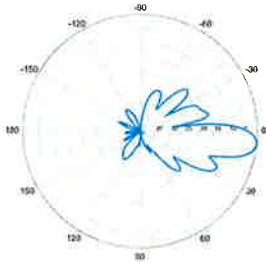


4° | Vertical | 850 MHz



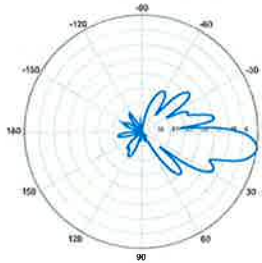
5° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-6



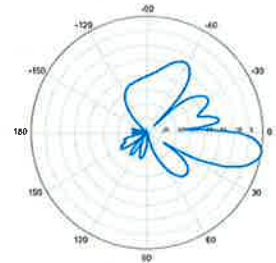
6° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-8

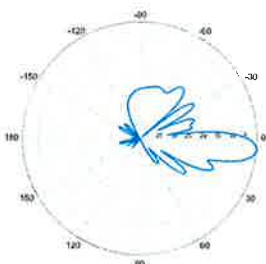


8° | Vertical | 750 MHz

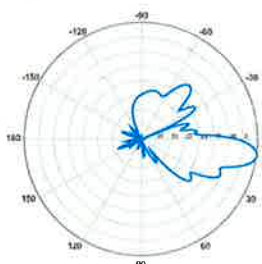
BXA-70063-6CF-EDIN-10



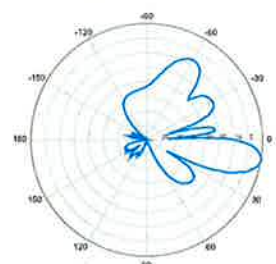
10° | Vertical | 750 MHz



6° | Vertical | 850 MHz



8° | Vertical | 850 MHz



10° | Vertical | 850 MHz

Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

Product Specifications

COMMScope®

LNX-6514DS-VTM

Andrew® Antenna, 698–896 MHz, 65° horizontal beamwidth, RET compatible

POWERED BY



Electrical Specifications

Frequency Band, MHz	698–806	806–896
Gain, dBi	15.7	16.3
Beamwidth, Horizontal, degrees	65	65
Beamwidth, Horizontal Tolerance, degrees	±3	±3
Beamwidth, Vertical, degrees	12.5	11.2
Beam Tilt, degrees	0–10	0–10
USLS, typical, dB	17	18
Front-to-Back Ratio at 180°, dB	32	30
CPR at Boresight, dB	20	20
CPR at Sector, dB	10	10
Isolation, dB	30	30
VSWR Return Loss, dB	1.4 15.6	1.4 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153
Input Power per Port, maximum, watts	400	400
Polarization	±45°	±45°

Mechanical Specifications

Color Radome Material	Light gray Fiberglass, UV resistant
Connector Interface Location Quantity	7-16 DIN Female Bottom 2
Wind Loading, maximum	617.7 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h 149.8 mph
Antenna Dimensions, L x W x D	1847.0 mm x 301.0 mm x 181.0 mm 72.7 in x 11.9 in x 7.1 in
Net Weight	17.6 kg 38.8 lb
Model with factory installed AISG 2.0 RET	LNX-6514DS-A1M



Product Specifications

COMMSCOPE®

HBX-6517DS-VTM

Andrew® Teletilt® Antenna, 1710–2180 MHz, 65° horizontal beamwidth, RET compatible



Electrical Specifications

Frequency Band, MHz	1710–1880	1850–1990	1920–2180
Gain, dBi	19.0	19.1	19.2
Beamwidth, Horizontal, degrees	65	65	65
Beamwidth, Vertical, degrees	5.0	4.7	4.4
Beam Tilt, degrees	0–6	0–6	0–6
USLS, typical, dB	18	18	18
Front-to-Back Ratio at 180°, dB	30	30	30
Isolation, dB	30	30	30
VSWR Return Loss, dB	1.4 15.6	1.4 15.6	1.4 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350
Polarization	±45°	±45°	±45°

Mechanical Specifications

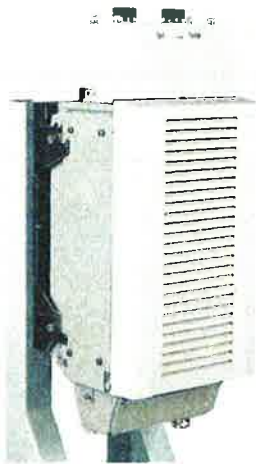
Color Radome Material	Light gray PVC, UV resistant
Connector Interface Location Quantity	7-16 DIN Female Bottom 2
Wind Loading, maximum	393.2 N @ 150 km/h 88.4 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h 149.8 mph
Antenna Dimensions, L x W x D	1902.0 mm x 166.0 mm x 83.0 mm 74.9 in x 6.5 in x 3.3 in
Net Weight	6.2 kg 13.7 lb
Model with factory installed AISG 2.0 RET	HBX-6517DS-A1M



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

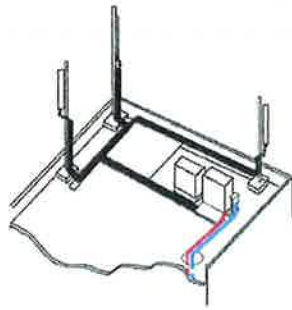
capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent 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

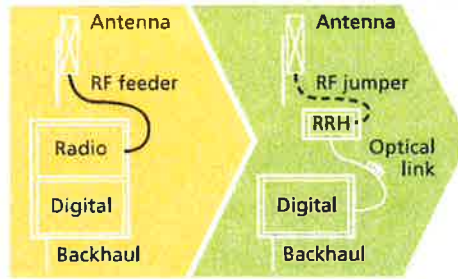
Because of its small size and weight, the Alcatel-Lucent RRH2x40-AWS can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-AWS where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation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



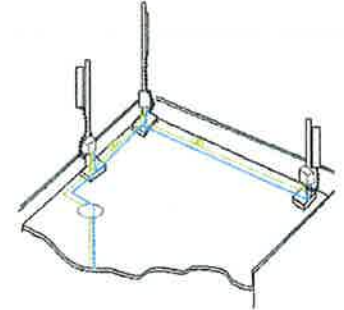
Macro

Features

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



RRH for space-constrained cell sites



Distributed

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

Technical specifications

Physical dimensions

- Height: 620 mm (24.4 in.)
- Width: 270 mm (10.63 in.)
- Depth: 170mm (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

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

Product Description

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

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

Features/Benefits

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



Figure 1: HYBRIFLEX Series

Technical Specifications

Structure			
Outer Conductor Armor	Corrugated Aluminum	(mm (in))	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))	0.68 (0.265)
DC-Resistance Power Cable, 8.4mm² (8AWG)		(Ω/km (Ω/1000ft))	2.1 (0.307)
Fiber Cable Properties			
Version			Single-mode OM3
Quantity, Fiber Count			16 (8 pairs)
Core/Clad		(μm)	50/125
Primary Coating (Acrylate)		(μm)	245
Buffer Diameter, Nominal		(μm)	900
Secondary Protection, Jacket, Nominal		(mm (in))	2.0 (0.08)
Minimum Bending Radius		(mm (in))	104 (4.1)
Insertion Loss @ wavelength 850nm		dB/km	3.0
Insertion Loss @ wavelength 1310nm		dB/km	1.0
Standards (Meets or exceeds)			UL34-V0, UL1666 RoHS Compliant
DC Power Cable Properties			
Size (Power)		(mm (AWG))	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		(mm (AWG))	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		(mm (in))	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-95-658 UL Type X+HW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Operating Temp			
Installation Temperature		(°C (°F))	-40 to +65 (-40 to 149)
Operation Temperature		(°C (°F))	-40 to +65 (-40 to 149)

* This data is provisional and subject to change

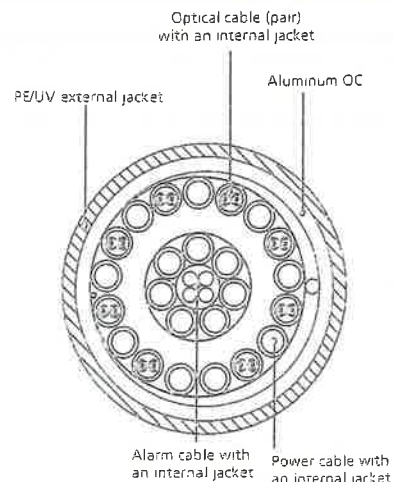


Figure 3: Construction Detail

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

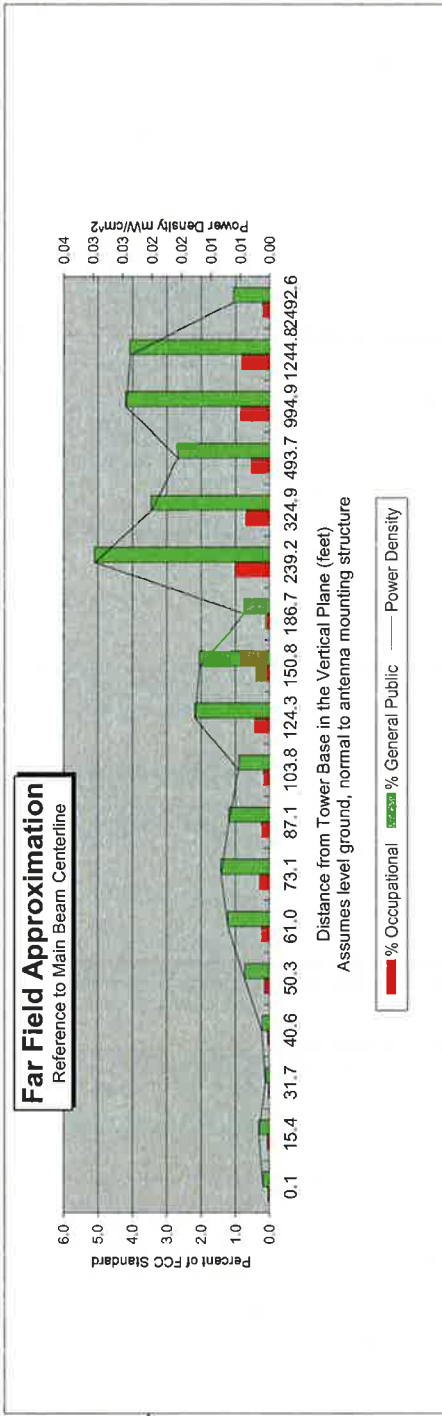
ATTACHMENT 2

Far Field Approximation
with downtilt variation

**Estimated Radiated Emission
Single Emitter Far Field Model
Dipole / Wire/ Yagi Antenna Types**



Location:	Rocky Hill 4, CT
Site #:	
Date:	03/14/14
Name:	Mark Brauer
File Name:	ROCKY HILL 4, CT - FF Power
Operating Freq. (MHz)	869.0
Antenna Height (ft):	90.0
Antenna Gain (dBi):	16.7
Antenna Size (in.):	72.0
Downtilt (degrees):	0.0
Feedline Loss (dB):	0.0
Power @ J4 (w):	3795.0



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	87.0	88.4	92.6	96.0	100.5	106.2	113.6	123.1	135.4	151.7	174.1	206.0	254.5	336.3	501.3	998.7	1247.8	2494.1
Distance from Antenna Structure Base in Horizontal plane	0.1	15.4	31.7	40.6	50.3	61.0	73.1	87.1	103.8	124.3	150.8	186.7	239.2	324.9	493.7	994.9	1244.8	2492.6
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	36.76	34.35	38.52	35.34	29.54	26.8	25.59	25.63	25.99	21.21	20.29	23.24	13.03	12.3	9.92	2	0.2	0
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm²)	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.03	0.02	0.02	0.02	0.02	0.01
Percent of Occupational Standard	0.0	0.1	0.0	0.0	0.1	0.2	0.3	0.2	0.2	0.4	0.4	0.1	1.0	0.7	0.5	0.8	0.8	0.2
Percent of General Population Standard	0.2	0.3	0.1	0.2	0.7	1.2	1.4	1.2	0.9	2.2	2.1	0.7	5.1	3.5	2.7	4.2	4.1	1.1

Antenna Type LNX-6514DS-VTM
Max% 5.11%

Instructions:

- 1) Fill in Site Location, Site number, Date, Name of Person Responsible for Date, and enter File Name to be saved as.
- 2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
- 3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBd to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Pc
- 4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
- 5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
- 6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
- 7) An odd distance may be entered in the rightmost column of the lower table.

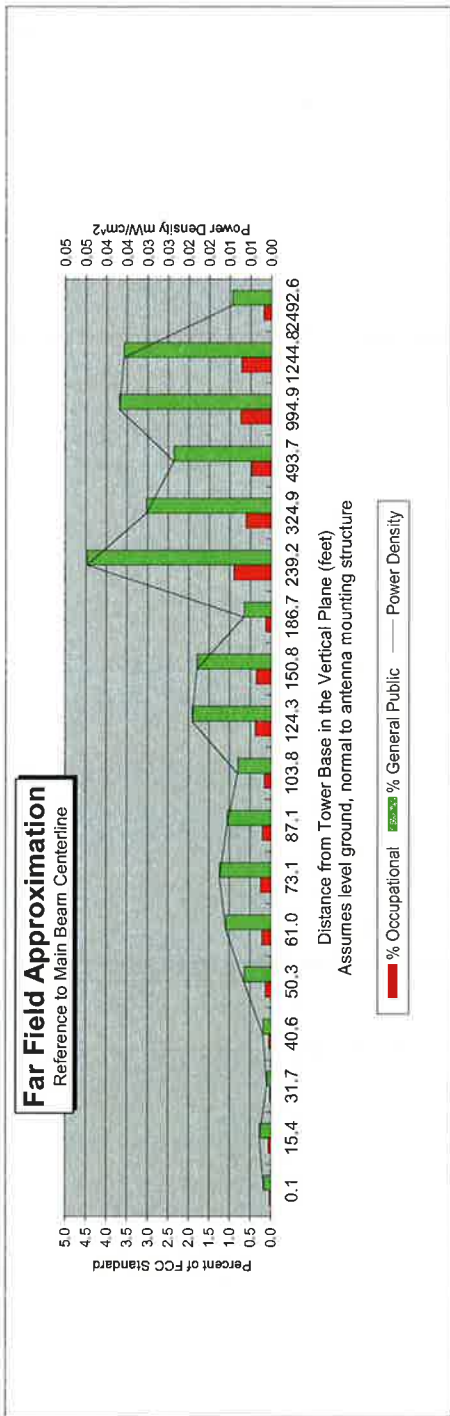
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole / Wire/ Yagi Antenna Types



Location:	Rocky Hill 4, CT
Site #:	
Date:	03/14/14
Name:	Mark Brauer
File Name:	ROCKY HILL 4, CT - FF Power

Operating Freq. (MHz)	1970.0
Antenna Height (ft):	90.0
Antenna Gain (dBi):	17.1
Antenna Size (in.):	72.0
Downtilt (degrees):	0.0
Feedline Loss (dB):	0.0
Power @ J4 (w):	5173.0



Calc. Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	87.0	88.4	92.6	96.0	100.5	106.2	113.6	123.1	135.4	151.7	174.1	206.0	254.5	336.3	501.3	998.7	1247.8	2494.1
Distance from Antenna Structure Base in Horizontal plane	0.1	15.4	31.7	40.6	50.3	61.0	73.1	87.1	103.8	124.3	150.8	186.7	239.2	324.9	493.7	994.9	1244.8	2492.6
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	36.76	34.35	38.52	35.34	29.54	26.8	25.59	25.63	25.99	21.21	20.29	23.24	13.03	12.3	9.92	2	0.2	0
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm ²)	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.04	0.03	0.02	0.04	0.04	0.01
Percent of Occupational Standard	0.0	0.1	0.0	0.0	0.1	0.2	0.2	0.2	0.4	0.4	0.4	0.1	0.9	0.6	0.5	0.7	0.7	0.2
Percent of General Population Standard	0.2	0.3	0.1	0.2	0.6	1.1	1.2	1.1	0.8	1.9	1.8	0.7	4.5	3.0	2.4	3.7	3.6	0.9

Antenna Type: BXA-171063-8
Max%: 4.47%

Instructions:

- 1) Fill in Site Location, Site number, Date, Name of Person Responsible for Date, and enter File Name to be saved as.
- 2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
- 3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBd to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Po
- 4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
- 5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
- 6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
- 7) An odd distance may be entered in the rightmost column of the lower table.

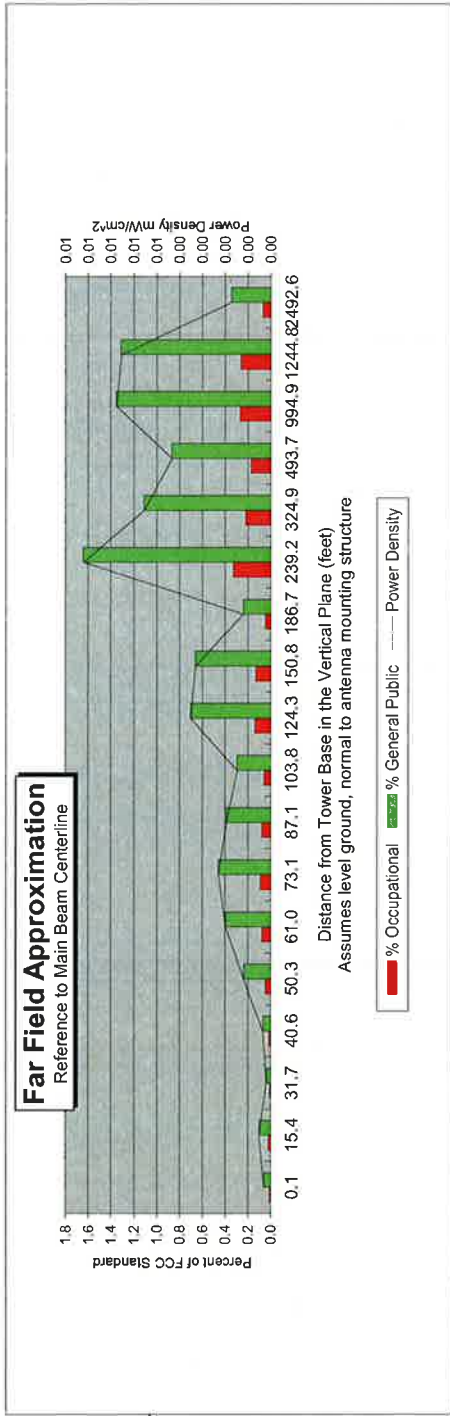
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole / Wire/ Yagi Antenna Types



Location:	Rocky Hill 4, CT
Site #:	
Date:	03/14/14
Name:	Mark Brauer
File Name:	ROCKY HILL 4, CT - FF Power

Operating Freq. (MHz)	746.0
Antenna Height (ft):	90.0
Antenna Gain (dBi):	16.7
Antenna Size (in.):	72.0
Downtilt (degrees):	0.0
Feedline Loss (dB):	0.0
Power @ J4 (w):	1050.0



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	87.0	88.4	92.6	96.0	100.5	106.2	113.6	123.1	135.4	151.7	174.1	206.0	254.5	336.3	501.3	998.7	1247.8	2494.1
Distance from Antenna Structure Base in Horizontal plane	0.1	15.4	31.7	40.6	50.3	61.0	73.1	87.1	103.8	124.3	150.8	186.7	239.2	324.9	493.7	994.9	1244.8	2492.6
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	36.76	34.35	38.52	35.34	29.54	26.8	25.59	25.63	25.99	21.21	20.29	23.24	13.03	12.3	9.92	2	0.2	0
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm²)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.3	0.3	0.1
Percent of General Population Standard	0.1	0.1	0.0	0.1	0.2	0.4	0.5	0.4	0.3	0.7	0.7	0.2	1.6	1.1	0.9	1.4	1.3	0.3

Antenna Type: BXA-70063-6CF
Max%: 1.65%

Instructions:

- 1) Fill in Site Location, Site number, Date, Name of Person Responsible for Data, and enter File Name to be saved as.
- 2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
- 3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBd to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Pc
- 4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
- 5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
- 6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
- 7) An odd distance may be entered in the rightmost column of the lower table.

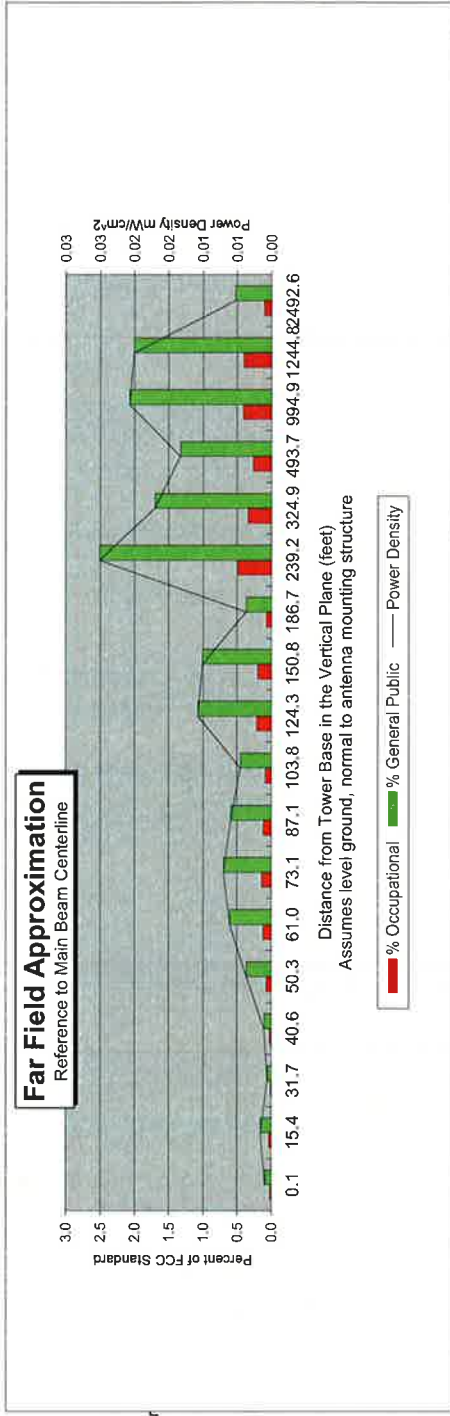
Far Field Approximation
with downtilt variation

Estimated Radiated Emission
Single Emitter Far Field Model
Dipole / Wire/ Yagi Antenna Types



Location:	Rocky Hill 4, CT
Site #:	
Date:	03/14/14
Name:	Mark Brauer
File Name:	ROCKY HILL 4, CT - FF Power

Operating Freq. (MHz)	2145.0
Antenna Height (ft):	90.0
Antenna Gain (dBi):	19.3
Antenna Size (in.):	72.0
Downtilt (degrees):	0.0
Feedline Loss (dB):	0.0
Power @ J4 (w):	1750.0



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r. dx to antenna	87.0	88.4	92.6	96.0	100.5	106.2	113.6	123.1	135.4	151.7	174.1	206.0	254.5	336.3	501.3	998.7	1247.8	2494.1
Distance from Antenna Structure Base in Horizontal plane	0.1	15.4	31.7	40.6	50.3	61.0	73.1	87.1	103.8	124.3	150.8	186.7	239.2	324.9	493.7	994.9	1244.8	2492.6
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	36.76	34.35	38.52	35.34	29.54	26.8	25.59	25.63	25.99	21.21	20.29	23.24	13.03	12.3	9.92	2	0.2	0
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm²)	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.03	0.02	0.01	0.02	0.02	0.01
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.5	0.3	0.3	0.4	0.4	0.1
Percent of General Population Standard	0.1	0.2	0.1	0.1	0.4	0.6	0.7	0.6	0.4	1.1	1.0	0.4	2.5	1.7	1.3	2.1	2.0	0.5

Antenna Type: HBX-6517DS-VTM
Max%: 2.51%

Instructions:

- 1) Fill in Site Location, Site number, Date, Name of Person Responsible for Date, and enter File Name to be saved as.
- 2) Reference to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
- 3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Pc
- 4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
- 5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
- 6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
- 7) An odd distance may be entered in the rightmost column of the lower table.

ATTACHMENT 3



Structural Evaluation	
ATC Site Number & Name	302479, Rkhl - Rocky Hill, CT
Carrier Site Number & Name	NA, Rocky Hill 4, CT
Site Location	2 West Street Rocky Hill, CT 06067-1924, Hartford County 41.651764 N / -72.668472 W
Tower Description	100 ft Monopole
Basic Wind Speed	100 mph (3-Second Gust)
Basic Wind Speed w/ Ice Code	50 mph (3-Second Gust) w/1" ice ANSI/TIA-222-G / 2003 IBC / 2005 Connecticut Supplement and 2009 Connecticut Amendments

Existing and Reserved Equipment

Mount Elev. ¹ (ft)	Qty.	Antenna	Mount Type	Lines	Carrier
100.0	6	Powerwave LGP21901	Platform w/ Handrails	(12) 1 1/4" Coax (2) 0.78" 8 AWG 6 (1) 3" conduit (1) 0.39" Cable	AT&T Mobility
	1	Raycap DC6-48-60-18-8F			
	6	Powerwave LGP21401			
	6	Ericsson RRUS 11			
	6	Powerwave 7770.00			
	3	KMW AM-X-CD-16-65-00T-RET			
90.0	6	RFS FD9R6004/2C-3L	Low Profile Platform	(12) 1 5/8" Coax	Verizon Wireless
	3	Antel BXA-171063-8BF-EDIN-X			
80.0	3	RFS APXV18-206517S-C	Flush	(6) 1 5/8" Coax	Metro PCS



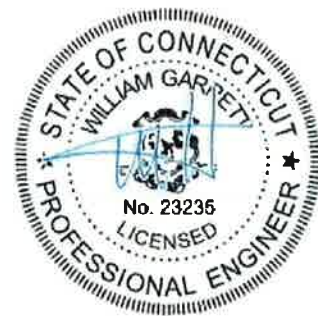
Proposed Equipment

Elevation ¹ (ft)		Qty.	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
90.0	90.0	3	Alcatel-Lucent RRH2x40-AWS	Low Profile Platform	(1) 1 5/8" Hybriflex	Verizon Wireless
		3	Andrew HBX-6517DS-VTM			
		1	RFS DB-T1-6Z-8AB-OZ			
		3	Antel BXA-70063-6CF-EDIN-X			
		3	Andrew LNX-6514DS-VTM			

¹ Mount elevation is defined as height above bottom of steel structure to bottom of mount, RAD elevation is defined as center of antenna above grade level (AGL).

Install proposed coax outside of the pole shaft.

The existing and proposed loads listed in the tables above are compared to the tower's current design capacity or previous structural analysis. The tower should be re-evaluated as future loads are added or if actual loads are found different from those listed in the tables. The subject tower and foundation **are adequate** to support the above stated loads in conformance with specified requirements.



Feb 6 2014 4:49 PM

BS/KMV