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

July 6, 2012

Jennifer Young Gaudet
HPC Wireless Services
46 Mill Plain Road, Floor 2
Danbury, CT 06811

RE: **EM-CING-166-120622** – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 347 East Street, Wolcott, Connecticut.

Dear Ms. Gaudet:

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:

- The coax lines be installed in accordance with the recommendations made in Appendix B of the Structural Analysis Report prepared by FDH Engineering dated April 27, 2012 and stamped by Christopher Murphy; and
- Following the installation of the proposed equipment, AT&T shall provide documentation certifying that the installation complied with the engineer's recommendation.
- 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;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated June 21, 2012. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

CSC
CONNECTICUT SITING COUNCIL

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Linda Roberts UAB

Linda Roberts
Executive Director

LR/CDM/cm

c: The Honorable Thomas G. Dunn, Mayor, Town of Wolcott
David Kalinowski, Zoning Enforcement Officer, Town of Wolcott
Crown Castle

HPC Wireless Services
46 Mill Plain Rd.
Floor 2
Danbury, CT, 06811
P.: 203.797.1112

EM-CING-166-120622

HPC WIRELESS SERVICES

June 21, 2012

VIA OVERNIGHT COURIER

Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051
Attn: Ms. Linda Roberts, Executive Director

Re: New Cingular Wireless PCS, LLC – exempt modification
347 East Street, Wolcott, Connecticut

Dear Ms. Roberts:

This letter and attachments are submitted on behalf of New Cingular Wireless PCS, LLC ("AT&T"). AT&T is making modifications to certain existing sites in its Connecticut system in order to implement LTE technology. Please accept this letter and attachments as notification, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies ("R.S.C.A."), of construction that constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the Mayor of the Town of Wolcott.

AT&T plans to modify the existing wireless communications facility owned by Crown Castle and located at 347 East Street in the Town of Wolcott (coordinates 41°-33'-37.14" NAD, 72°-39'-44.42"). Attached are a compound plan and elevation depicting the planned changes, and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration. Also included is a power density report reflecting the modification to AT&T's operations at the site.

The changes to the facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. AT&T will replace six (6) antennas of the existing nine (9) antennas with six (6) new antennas and relocate three (3) existing antennas, all on the existing mounting frame at a center line height of approximately 160'. Six (6) RRUs (remote radio units) and a surge arrestor will be mounted on the legs of the tower. AT&T will also place a DC

power and fiber run from the equipment to the antennas along the existing coaxial cable run. The changes will not extend the height of the approximately 181.5' structure.

2. AT&T will install related equipment within its existing shelter and will mount a GPS antenna to the shelter. These changes will be within the existing compound and will have no effect on the site boundaries.

3. The proposed changes will not increase the noise level at the existing facility by six (6) decibels or more. The incremental effect of the proposed changes will be negligible.

4. The changes to the facility will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site. As indicated on the attached report prepared by C Squared Systems, LLC, AT&T's operations at the site will result in a power density of approximately 1.56%; the combined site operations will result in a total power density of approximately 16.85%.

Please feel free to contact me by phone at (860) 798-7454 or by e-mail at jgaudet@hpcwireless.com with questions concerning this matter. Thank you for your consideration.

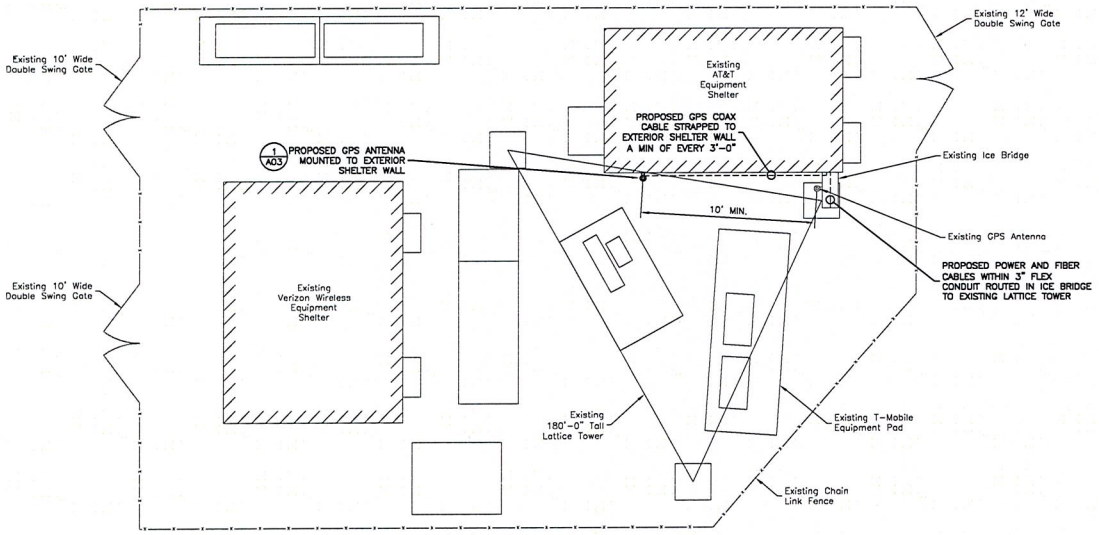
Respectfully yours,

Jennifer Young Gaudet (DBP)

Jennifer Young Gaudet

Attachments

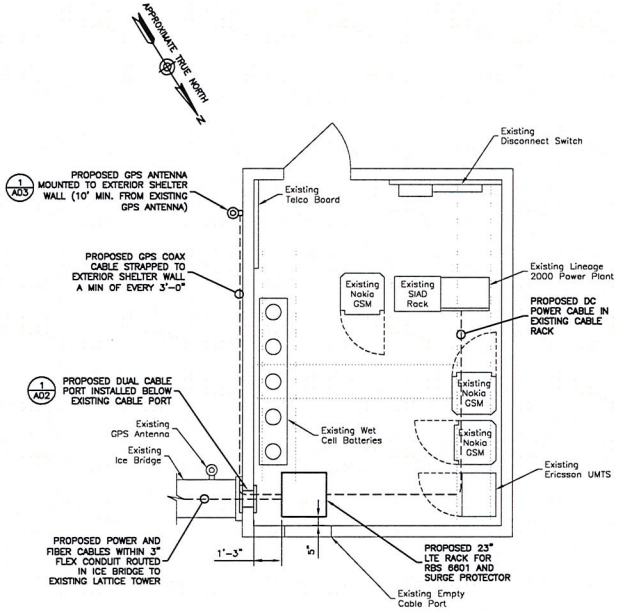
cc: Honorable Thomas G. Dunn, Mayor, Town of Wolcott
Joanne & Augostinho V. Rodriques (underlying property owners)



SITE PLAN

SCALE: 1"=10' FOR 11"x17"
1"=5' FOR 22"x34"

0' 5' 10'



SHELTER LAYOUT DETAIL

SCALE: 3/16"=1' FOR 11"x17"
3/8"=1' FOR 22"x34"

0' 2' 4' 6'

NOTES:

1. NORTH SHOWN AS APPROXIMATE.
2. ANTENNAS AND COAX TO BE INSTALLED WITH PASSING STRUCTURAL ANALYSIS PROVIDED TO NEXLINK GLOBAL SERVICES BY CROWN CASTLE PREPARED BY A LICENSED CONNECTICUT STRUCTURAL ENGINEER.
3. NOT ALL INFORMATION SHOWN FOR CLARITY.

Dewberry
Dewberry Engineers Inc.
600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
PHONE: 973.739.9400
FAX: 973.739.9710

NEXLINK GLOBAL SERVICES
800 MARSHALL PHELPS ROAD, #2A
WINDSOR, CT 06095

WOLCOTT EAST ST.
SITE NO. CT1060
347 EAST STREET
WOLCOTT, CT 06176
CROWN CASTLE – 806362

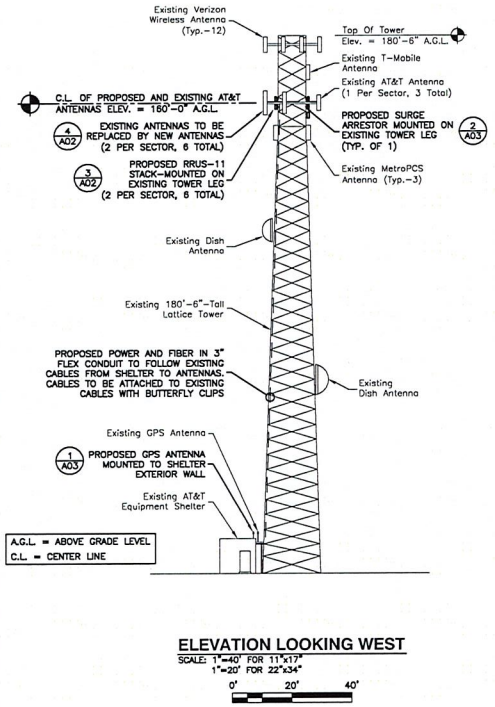
at&t
500 ENTERPRISE DRIVE,
SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	06/11/12	ISSUED FOR SUBMITTAL	JRF	DER	GHN
1	04/27/12	ISSUED FOR SUBMITTAL	JRF	GMN	GHN
0	03/06/12	PRELIMINARY SUBMISSION	RSA	GMN	GHN

SCALE: AS SHOWN | DESIGNED BY: GMN | DRAWN BY: JRF

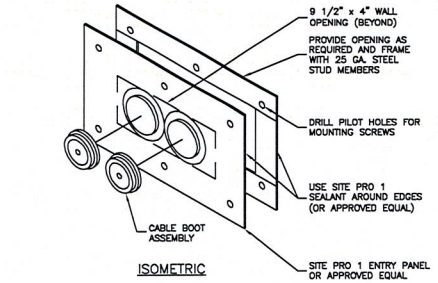
SITE PLAN & SHELTER LAYOUT

DEWBERRY NO.	DRAWING NUMBER	REV
50048347/50048352	A01	2

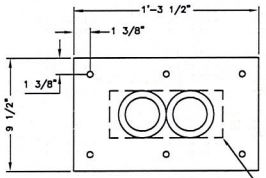


ELEVATION LOOKING WEST

SCALE: 1"=40' FOR 11"x17"
1"=20' FOR 22"x34"
0' 20' 40'



ISOMETRIC



ELEVATION

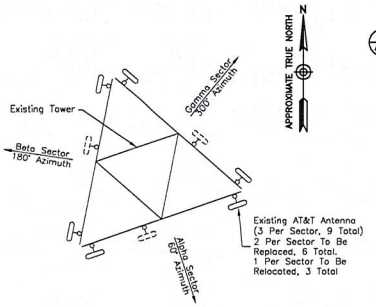
NOTES:

1. ENTRY PANEL AND BOOTS BY SITE PRO 1 (SEE CHART FOR PART #). ORDER BOOTS SEPARATELY FOR SPECIFIC CABLE SIZE(S) & QUANTITY. PROVIDE PLUGS BY SITE PRO 1 FOR EACH UNUSED HOLE IN BOOT.

CABLE ENTRY PANEL CHART
SITE PRO 1 E1448 FOR (2 PORTS)

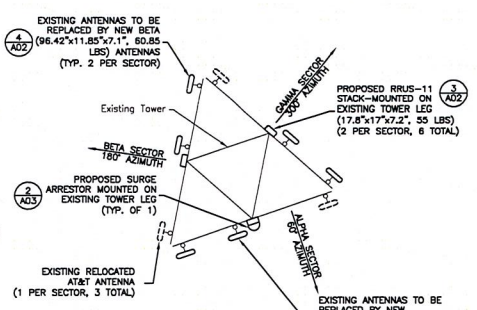
DUAL COAX PORT 1

SCALE: N.T.S.



Legend:
⊂⊃ Antenna To Be Relocated

EXISTING



Legend:
⊂⊃ RELOCATED ANTENNA

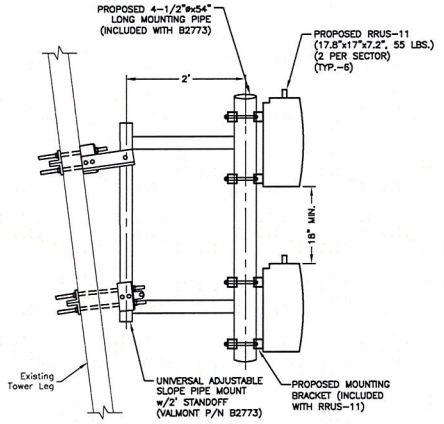
PROPOSED

NOTE:

1. AZIMUTHS BASED ON TRUE NORTH.

PLATFORM ANTENNA ORIENTATION 2

SCALE: N.T.S.

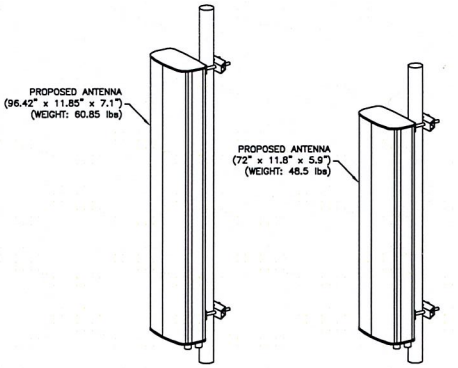


NOTE:

1. MOUNT PER STRUCTURAL ANALYSIS AND MANUFACTURER SPECIFICATIONS

RRUS-11 MOUNTING DETAIL 3

SCALE: N.T.S.



NOTE:

1. PLEASE SEE RFDS FOR SPECIFIC ANTENNA MODEL.

ISOMETRIC ANTENNA DETAIL 4

SCALE: N.T.S.

NOTES:

1. PRIOR TO START OF ANY WORK, A PASSING STRUCTURAL ANALYSIS SHALL BE PROVIDED TO NEXLINK GLOBAL SERVICES BY CROWN CASTLE PREPARED BY A CONNECTICUT LICENSED PROFESSIONAL ENGINEER. CONTRACTOR TO OBTAIN COPY BEFORE STARTING ANY WORK.
2. ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED TO NEXLINK BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.

Dewberry
Dewberry Engineers Inc.
600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
PHONE: 973.739.9400
FAX: 973.739.9710

NEXLINK GLOBAL SERVICES
800 MARSHALL PHELPS ROAD, #2A
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500 ENTERPRISE DRIVE,
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NO.	DATE	REVISIONS	BY	CHK	APP'D
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0	03/06/12	PRELIMINARY SUBMISSION	RSA	GMN	GHN

SCALE: AS SHOWN | DESIGNED BY: GMN | DRAWN BY: JRF

ELEVATION & CONSTRUCTION DETAILS

DEWBERRY NO.	DRAWING NUMBER	REV
50048347/50048352	A02	2

Date: **April 27, 2012**

Veronica Harris
Crown Castle
1200 McArthur Blvd
Mahwah, NJ 07430

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, NC 27616
(919) 755-1012

Subject: **Structural Analysis Report**

Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CT1060
	Carrier Site Name:	WOLCOTT
Crown Castle Designation:	**Crown Castle BU Number:**	806362
	Crown Castle Site Name:	NHV 108 943133
	Crown Castle JDE Job Number:	183422
	Crown Castle Work Order Number:	483603
	Crown Castle Application Number:	144164 Rev. 2
Engineering Firm Designation:	**FDH Engineering, Inc. Project Number:**	12-04545E S1
Site Data: **WOLCOTT, New Haven County, CT**	**INTERSECTION OF RTE 322/MERIDIAN RDWOLCOTT SITE,**	
	Latitude *41° 33' 34.41"*, Longitude *-72° 56' 49.1"*	
	181.5 Foot - Self Support Tower	

Dear Veronica Harris,

FDH Engineering, Inc. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 459232, in accordance with application 144164, revision 2.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Existing + Proposed for Current Application + Proposed for Other Applicants **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and the 2005 Connecticut State Building Code based upon a wind speed of 85 mph fastest mile.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *FDH Engineering, Inc.* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Tyler Mora, EI
Project Engineer

Reviewed By:

Christopher M. Murphy, PE
President
CT PE License No. 25842

tnxTower Report - version 6.0.4.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 181.5 ft Self Support tower designed by ROHN in September of 1986. The tower was originally designed for EIA Zone C with 1" radial ice. The foundations were reinforced by All Points Technology Corp. in 2002.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and the 2005 Connecticut State Building Code using a fastest mile wind speed of 85 mph with no ice, 37.6 mph with 0.75 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
158.0	160.0	2	andrew	SBNH-1D6565C w/ Mount Pipe	1 2	3/8 3/4	-
		3	communication components inc.	DTMABP7819VG12A			
		6	ericsson	RRUS-11			
		4	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		3	powerwave technologies	7020.00			
		1	raycap	DC6-48-60-18-8F			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
180.0	188.0	3	andrew	TMZXXX-6516-R2M w/ Mount Pipe	18	1-5/8	1
		3	rfs celwave	ATMAA1412D-1A20			
	180.0	3	rfs celwave	ATMPP1412D-1CWA			
		1	pipe mount	8' x 2 1/2" Pipe Mount			
177.0	177.0	2	andrew	DB846F65ZAXY w/ Mount Pipe	12	1-5/8	1
		1	antel	BXA-185063/12CFx2 w/ Mount Pipe			
		3	antel	BXA-70063/6CFx4 w/ Mount Pipe			
		2	antel	LPA-80063/6CFx5 w/ Mount Pipe			
		1	crown mounts	Sector Mount [SM 502-3]			
		2	rfs celwave	APX18-206516L-CT0 w/ Mount Pipe			
		6	rfs celwave	FD9R6004/2C-3L			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		2	swedcom	SC-E 6014 rev2 w/ Mount Pipe			
168.0	168.0	3	argus technologies	LLPX310R w/ Mount Pipe	3 1	5/16 1/2	1
		1	crown mounts	Sector Mount [SM 411-3]			
		1	dragonwave	A-ANT-18G-2-C			
		3	samsung telecommunications	FDD_R6_RRH			
158.0	159.0	6	css	DUO1417-8686 w/ Mount Pipe	1	5/16	2
	160.0	6	adc	DUAL BAND 800/1900 FULL BAND MASTHEAD	12	1-1/4	1
		3	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP13519			
	158.0	1	crown mounts	Sector Mount [SM 502-3]			
148.0	148.0	3	rfs celwave	APXV18-206517S-C w/ Mount Pipe	6	1-5/8	1
112.0	112.0	1	andrew	UHX6-59-D3A	1	EW107	3
		1	crown mounts	Pipe Mount [PM 501-1]			
70.0	70.0	1	andrew	UHX10-59-D3A	1	EW107	3
		1	crown mounts	Pipe Mount [PM 501-1]			
40.0	40.0	1	crown mounts	Side Arm Mount [SO 201-1]	1	1/2	1
		1	gps	GPS_A			

Notes:
1) Existing Equipment, to remain.
2) Existing Equipment, to be removed.
3) Reserved Equipment

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
180	180	4	RFS	PD10017	-	-
170	170	3	RFS	PD1132D	-	-
160	160	2	-	6' STD Dish	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH Engineering, Inc. (Project No. 08-01300G)	2303630	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Rohn dated September 9, 1986	217670	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Rohn (Drawing No. A861188-1)	529684	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	All Points Technology Corp. (Job No. CT105680)	903539	CCISITES

3.1) Analysis Method

tnxTower (version 6.0.4.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.

This analysis may be affected if any assumptions are not valid or have been made in error. FDH Engineering, Inc. should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	181.5 - 161.333	Leg	ROHN 2.5 STD	2	-20.87	41.14	45.8	Pass
		Diagonal	ROHN 2 STD	11	-6.18	15.54	35.4	Pass
		Horizontal	ROHN 1.5 STD	10	-3.29	20.29	14.4 17.3 (b)	Pass
		Top Girt	ROHN 1.5 STD	5	-0.84	20.34	3.8 4.6 (b)	Pass
		Inner Bracing	L2x2x1/8	16	-0.00	5.82	0.3	Pass
T2	161.333 - 141.167	Leg	ROHN 3 X-STR	41	-58.17	83.78	60.4	Pass
		Diagonal	ROHN 2 STD	48	-9.25	13.39	58.7	Pass
		Horizontal	ROHN 1.5 STD	46	-5.72	17.39	28.0 28.4 (b)	Pass
		Inner Bracing	L2x2x1/8	53	-0.01	4.29	0.3	Pass
T3	141.167 - 121	Leg	ROHN 4 X-STR	80	-94.98	139.07	56.8	Pass
		Diagonal	ROHN 2 STD	87	-9.83	11.52	67.3	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
		Horizontal	ROHN 2 STD	85	-6.74	24.66	21.5 30.9 (b)	Pass
		Inner Bracing	L2x2x1/8	91	-0.01	2.93	0.4	Pass
T4	121 - 100.833	Leg	ROHN 5 X-STR	119	-130.82	177.42	59.2	Pass
		Diagonal	ROHN 2.5 STD	125	-13.31	14.44	70.3	Pass
		Horizontal	ROHN 2 STD	124	-7.94	20.43	29.5 35.2 (b)	Pass
		Inner Bracing	L2x2x1/8	130	-0.01	2.21	0.4	Pass
T5	100.833 - 80.6667	Leg	ROHN 5 X-STR	146	-163.66	177.36	72.1	Pass
		Diagonal	ROHN 2.5 STD	152	-12.49	12.60	72.7	Pass
		Horizontal	ROHN 2 STD	151	-8.20	14.77	40.5	Pass
		Inner Bracing	L2 1/2x2 1/2x3/16	157	-0.01	4.63	0.4	Pass
T6	80.6667 - 60.5	Leg	ROHN 6 EHS	173	-197.38	212.13	71.3	Pass
		Diagonal	ROHN 2.5 STD	179	-14.50	11.15	96.7	Pass
		Horizontal	ROHN 2.5 STD	178	-10.13	25.42	29.3 44.6 (b)	Pass
		Inner Bracing	L3x3x3/16	185	-0.01	6.06	0.5	Pass
T7	60.5 - 40.3333	Leg	ROHN 6 X-STR	200	-231.39	264.22	66.2	Pass
		Diagonal	ROHN 2.5 X-STR	206	-14.81	12.31	88.1	Pass
		Horizontal	ROHN 2.5 STD	205	-10.90	19.66	40.2 46.4 (b)	Pass
		Inner Bracing	L3 1/2x3 1/2x1/4	211	-0.01	7.45	0.5	Pass
T8	40.3333 - 20.1667	Leg	ROHN 6 X-STR	227	-262.87	264.19	74.4	Pass
		Diagonal	ROHN 3 STD	233	-14.40	16.87	61.9	Pass
		Horizontal	ROHN 2.5 STD	232	-11.04	15.57	50.7	Pass
		Inner Bracing	L3 1/2x3 1/2x1/4	239	-0.01	5.93	0.5	Pass
T9	20.1667 - 0	Leg	HSS8.75x.375	254	-294.07	316.36	65.5	Pass
		Diagonal	ROHN 3 STD	264	-22.29	28.19	56.4 61.7 (b)	Pass
		Horizontal	ROHN 3 STD	263	-12.35	27.89	31.3 50.8 (b)	Pass
		Redund Horz 1 Bracing	ROHN TS1.5x11 ga	261	-5.10	4.90	77.3	Pass
		Redund Diag 1 Bracing	ROHN 1.5 STD	262	-4.66	3.70	93.6	Pass
		Redund Hip 1 Bracing	ROHN TS1.5x11 ga	270	-0.07	4.35	1.0	Pass
		Redund Hip Diagonal Bracing	ROHN 2.5 STD	271	-0.07	9.30	0.7	Pass
		Inner Bracing	ROHN 3 STD	284	-0.01	19.73	0.5	Pass
							Summary	
						Leg (T8)	74.4	Pass
						Diagonal (T6)	96.7	Pass
						Horizontal (T9)	50.8	Pass
						Top Girt (T1)	4.6	Pass
						Redund	77.3	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
						Horz 1 Bracing (T9)		
						Redund Diag 1 Bracing (T9)	93.6	Pass
						Redund Hip 1 Bracing (T9)	1.0	Pass
						Redund Hip Diagonal Bracing (T9)	0.7	Pass
						Inner Bracing (T9)	0.5	Pass
						Bolt Checks	61.7	Pass
						Rating =	96.7	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Base Foundation Soil Interaction	0	26.1	Pass

Structure Rating (max from all components) =	96.7%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
2) Capacities up to 105% are considered acceptable based on analysis methods used.

4.1) Recommendations

1. The coax must be installed as shown in the Base Level Drawing in Appendix B.

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Calculated Radio Frequency Emissions

at&t

CT1060 – Wolcott

Intersection Of Rte 322/Meriden Rd, Wolcott, CT

(a.k.a. 347 East St., Wolcott, CT)

May 15, 2012

Table of Contents

List of Tables

List of Figures

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modifications to the existing AT&T antenna arrays mounted on the self-supporting tower located at the intersection Of Rte 322/Meriden Road in Wolcott, CT. The coordinates of the tower are 41° 33' 34.37"N, 72° 56' 49.10"W.

AT&T is proposing the following modifications:

1) Replace six of nine panel antennas with six multi-band panel antennas

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{1.6^2 \times EIRP}{4\pi \times R^2} \right) \text{x Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the finished modifications.

4. Calculation Results

Table 1 below outlines the power density information for the site. Because the proposed AT&T antennas are directional in nature, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	%MPE
Cingular UMTS	*158*	*880*	*1*	*500*	*0.0072*	*0.5867*	*1.23%*
Cingular GSM	*158*	*880*	*8*	*296*	*0.0341*	*0.5867*	*5.81%*
Cingular GSM	*158*	*1900*	*2*	*427*	*0.0123*	*1.0000*	*1.23%*
Clearwire	168	2496	2	153	0.0039	1.0000	0.39%
Clearwire	168	11 GHz	1	211	0.0027	1.0000	0.27%
Pocket	148	2130	3	631	0.0311	1.0000	3.11%
Verizon	177	869	9	368	0.0380	0.5793	6.56%
Verizon	177	1970	3	337	0.0116	1.0000	1.16%
Verizon	177	757	1	640	0.0073	0.5047	1.46%
T-Mobile GSM	188	1945	8	138	0.0112	1.0000	1.12%
T-Mobile UMTS	188	2100	2	599.0	0.0122	1.0000	1.22%
AT&T UMTS	160	880	2	565	0.0016	0.5867	0.27%
AT&T UMTS	160	1900	2	875	0.0025	1.0000	0.25%
AT&T LTE	160	734	1	1375	0.0019	0.4893	0.39%
AT&T GSM	160	880	1	538	0.0008	0.5867	0.13%
AT&T GSM	160	1900	4	934	0.0052	1.0000	0.52%
						Total	**16.85%**

Table 1: Carrier Information[1] [2] [3]

[1] The existing CSC filing for Cingular should be removed and replaced with the updated AT&T technologies and values provided in Table 1. The power density information for carriers other than AT&T was taken directly from the CSC database dated 3/29/2012. Please note that %MPE values listed are rounded to two decimal points. The total %MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table.

[2] In the case where antenna models are not uniform across all 3 sectors for the same frequency band, the antenna model with the highest gain was used for the calculations to present a worse-case scenario.

[3] Antenna height listed for AT&T is in reference to the FDH Engineering Structural Analysis Report dated 4/27/2012.

5. Conclusion

The above analysis verifies that emissions from the existing site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed transmit antennas at the existing facility is well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at ground level is **16.85% of the FCC limit**.

As noted previously, obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the finished modifications.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.

Daniel L. Goulet
C Squared Systems, LLC

May 15, 2012
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz. IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave. IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[4]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[5]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

[4] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

[5] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

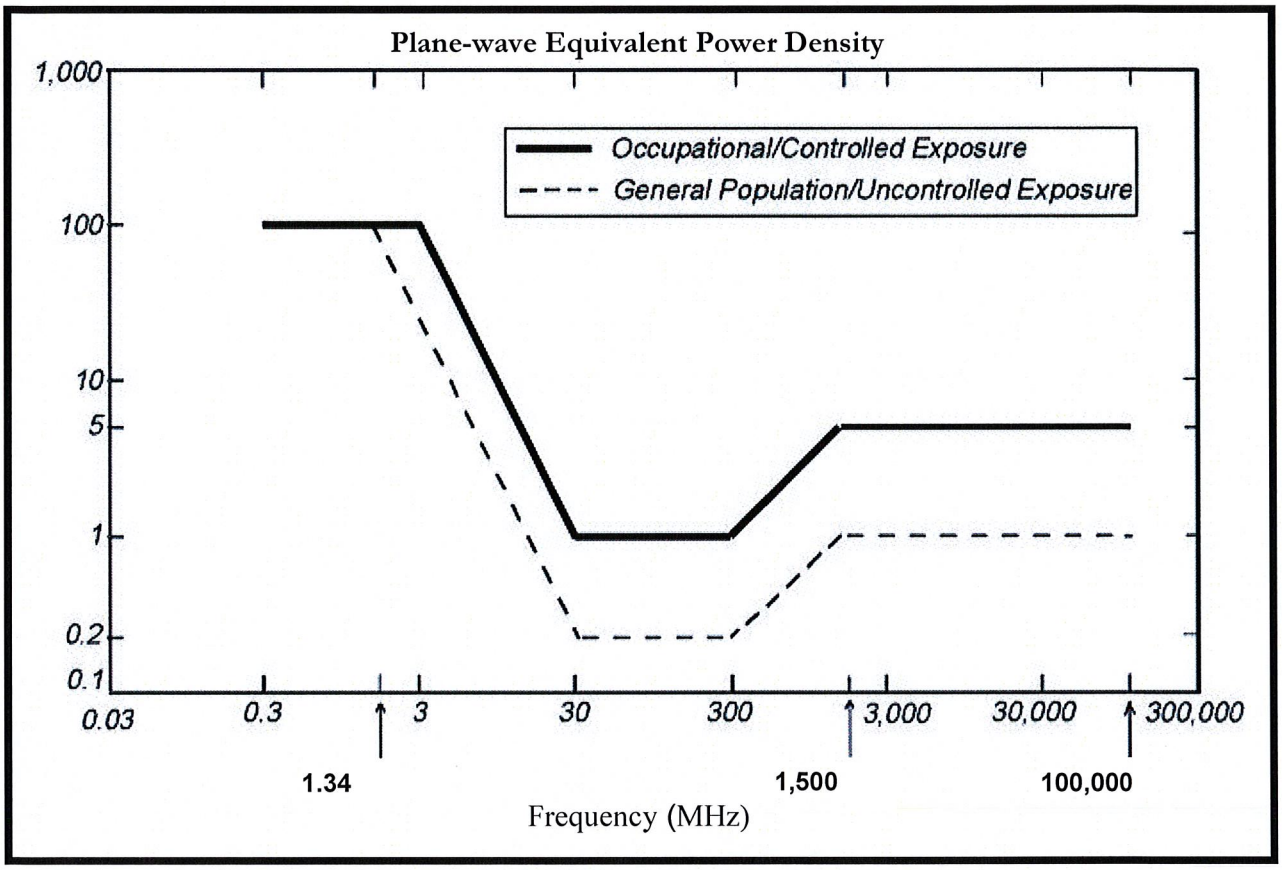
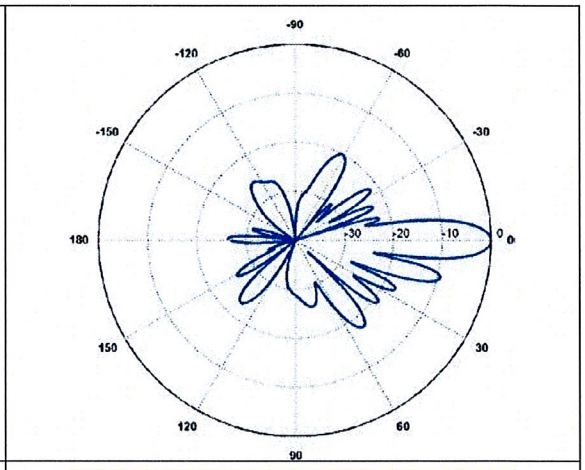


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: AT&T Antenna Data Sheets and Electrical Patterns

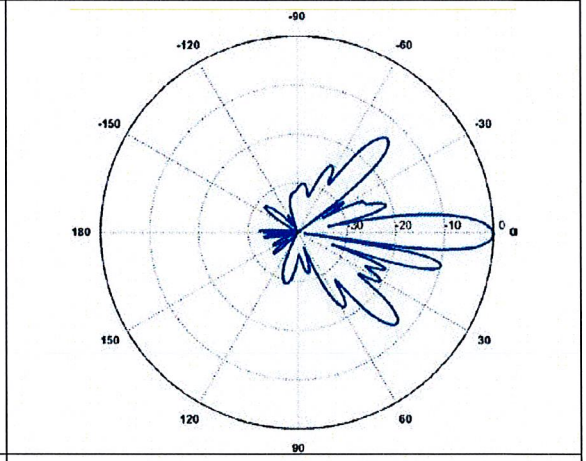
700 MHz

Manufacturer:	Commscope
Model #:	SBNH-1D6565C
Frequency Band:	698-806 MHz
Gain:	13.6 dBd
Vertical Beamwidth:	8.6°
Horizontal Beamwidth:	71°
Polarization:	Dual Slant +/- 45°
Size L x W x D:	96.42"x11.85"x7.1"



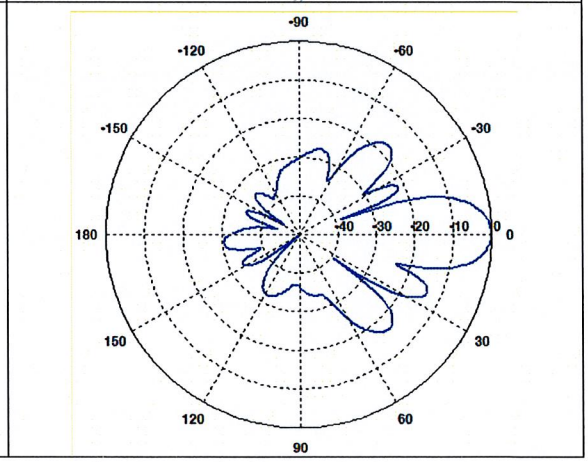
850 MHz GSM

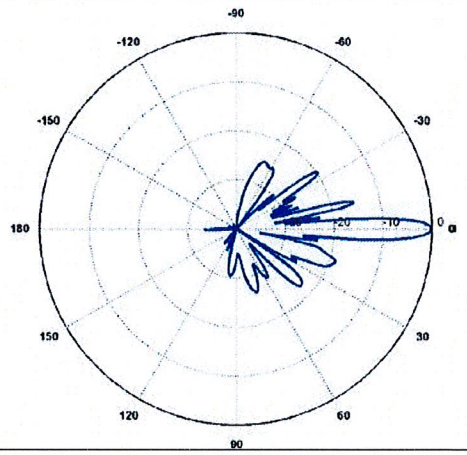
Manufacturer:	Commscope
Model #:	SBNH-1D6565C
Frequency Band:	806-896 MHz
Gain:	14.3 dBd
Vertical Beamwidth:	7.8°
Horizontal Beamwidth:	67°
Polarization:	Dual Slant +/- 45°
Size L x W x D:	96.42"x11.85"x7.1"



850 MHz UMTS

Manufacturer:	Powerwave
Model #:	7770
Frequency Band:	824-896 MHz
Gain:	11.4 dBd
Vertical Beamwidth:	15°
Horizontal Beamwidth:	85°
Polarization:	Dual Slant +/- 45°
Size L x W x D:	55.4"x11.0"x5.0"



1900 MHz GSM Manufacturer: Commscope Model #: SBNH-1D6565C Frequency Band: 1850-1990 MHz Gain: 15.9 dBd Vertical Beamwidth: 5.1° Horizontal Beamwidth: 57° Polarization: Dual Slant +/- 45° Size L x W x D: 96.42”x11.85”x7.1”	
1900 MHz UMTS Manufacturer: Powerwave Model #: 7770 Frequency Band: 1850-1990 MHz Gain: 13.4 dBd Vertical Beamwidth: 7° Horizontal Beamwidth: 90° Polarization: Dual Slant +/- 45° Size L x W x D: 55.4"x11.0"x5.0"