



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

May 18, 2012

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

RE: **EM-CING-032-120501** – New Cingular Wireless PCS, LLC (AT&T) notice of intent to modify an existing telecommunications facility located at 400 Riley Mountain Road, Coventry, 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:

- 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 April 30, 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.

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,

A handwritten signature in cursive script that reads "Linda Roberts".

Linda Roberts
Executive Director

LR/cm

c: The Honorable Elizabeth Woolf, Chairman Town Council, Town of Coventry
Eric M. Trott, Director of Planning & Development, Town of Coventry



EM-CING-032-120501

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

ORIGINAL

April 30, 2012

VIA OVERNIGHT COURIER

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

RECEIVED
MAY - 1 2012
CONNECTICUT
SITING COUNCIL

Re: New Cingular Wireless PCS, LLC – exempt modification
400 Riley Mountain Road, Coventry, 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 R.C.S.A. Section 16-50j-73, 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 Town Council Chairman of the Town of Coventry.

AT&T plans to modify the existing wireless communications facility owned by Crown Castle and located at 400 Riley Mountain Road in the Town of Coventry (coordinates 41°-47’-56.2” N, 72°-19’-55.9” W). 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 add three (3) LTE panel antennas to the existing platform, with a center line of approximately 120’. Six (6) RRHs (remote radio heads) and a surge

Ms. Linda Roberts
April 30, 2012
Page 2

arrestor will be mounted behind the antennas. AT&T will also place a DC power and fiber run from the equipment to the antennas, up the tower along the existing coaxial cable run. The proposed modifications will not extend the height of the 150' structure.

2. The proposed changes will not extend the site boundaries. AT&T will install related equipment in 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 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 2.38%; the combined site operations will result in a total power density of approximately 41.70%.

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

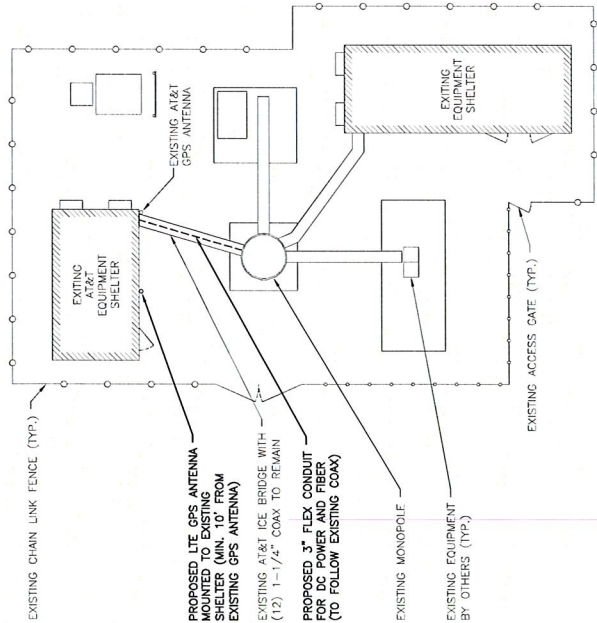
Attachments

cc: Elizabeth A. Woolf, Chairman, Town Council
John A. Elsesser, Town Manager
James & Concetta Wallbeoff (underlying property owners)

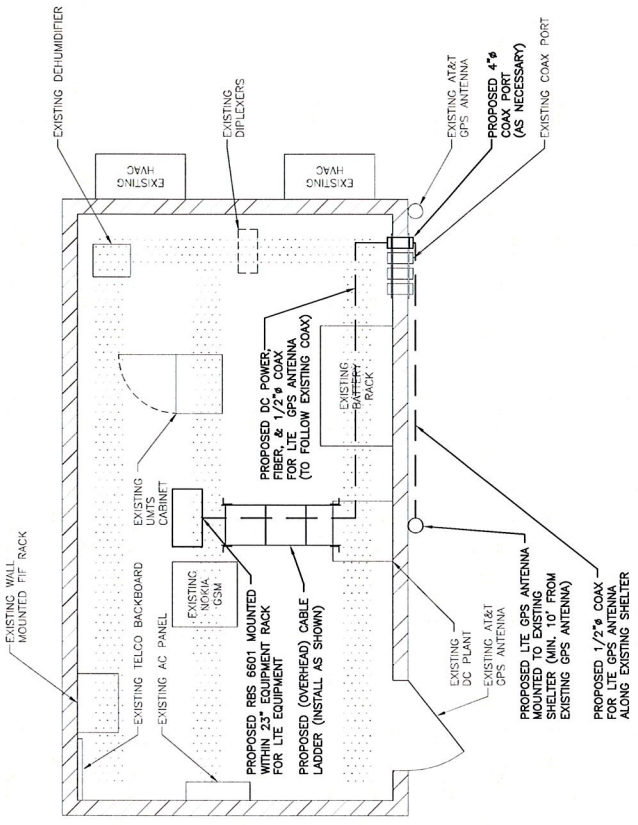


NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:
ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH APPROVED SETTINGS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.



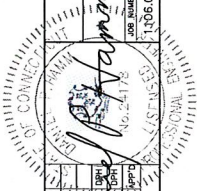
COMPOUND PLAN
SCALE: 1/8"=1'-0"



EQUIPMENT PLAN
SCALE: 1/2"=1'-0"

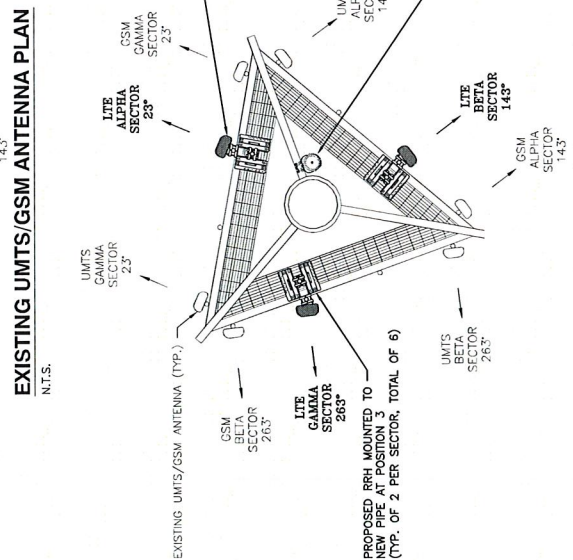
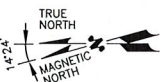
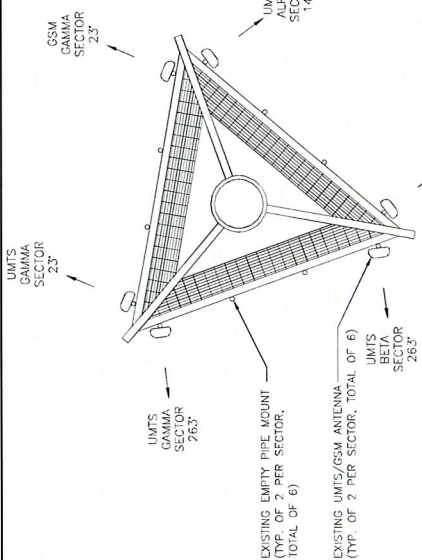


SITE NUMBER: CT1106
SITE NAME: COVENTRY
CROWN SITE ID: 876385
400 RILEY MOUNTAIN ROAD
COVENTRY, CT 06238
TOLLAND COUNTY



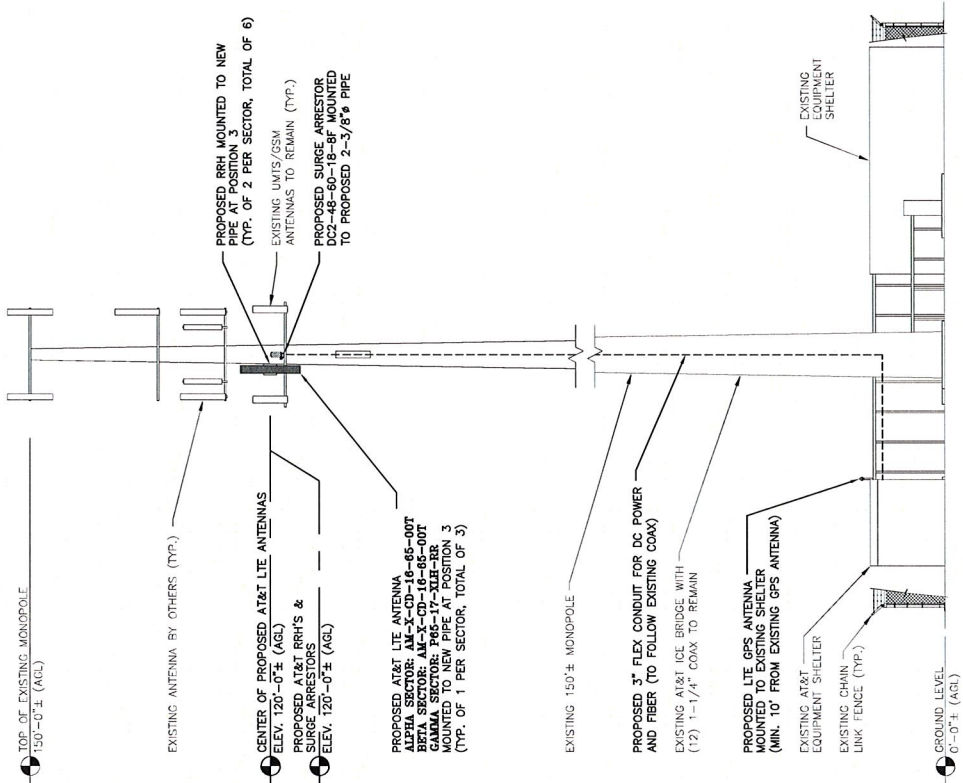
REVISIONS		DESIGNED BY: DC	DRAWN BY: SF	DATE	BY	CHK'D BY	DATE	JOB NUMBER	DRAWING NUMBER	REV
1	04/23/12	ISSUED FOR CONSTRUCTION						1106.01	A-1	1
2	04/24/12	ISSUED FOR REVIEW								

AT&T
COMMPOUND & EQUIPMENT PLAN
(LIE)

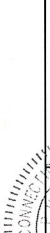


NOTE.
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE.
ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH THE U.S. FEDERAL COMMUNICATIONS COMMISSION (FCC) PART 15.247 RULES AND REGULATIONS. SEE THE FINAL AT&T RF DATA SHEET.



WEST ELEVATION
SCALE: 1/8"=1'-0"



AT&T
ANTENNA & ELEVATION PLAN
(LITE)

NO.	DATE	REVISIONS	BY	CHK'D BY	SCALE
1	04/23/12	ISSUED FOR CONSTRUCTION	AD	CH	AS SHOWN
2	04/23/12	ISSUED FOR REVIEW	AD	CH	AS SHOWN

JOB NUMBER: 1406.01
DRAWN BY: SF
DESIGNED BY: DC
DATE: 06-11-12

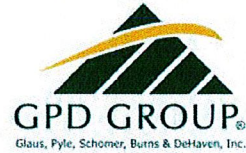


500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

SITE NUMBER: CT1106
SITE NAME: COVENTRY
CROWN SITE ID: 876385
400 RILEY MOUNTAIN ROAD
COVENTRY, CT 06238
TOLLAND COUNTY

NEWLINK
A UNITAR GLOBAL SERVICES COMPANY
800 MARSHALL PHELPS ROAD, UNIT# 2A
WINDSOR, CT 06095

Hudson Design Group
1420 COGGIN STREET
NEW HAVEN, CT 06511
TEL: 203.435.5888
FAX: 203.334.5888



Date: **April 17, 2012**

Veronica Harris
Crown Castle USA Inc.
1200 McArthur Blvd
Mahwah, NJ 07430
(201) 236-9094

GPD Group
520 S. Main St. Suite 2531
Akron, OH 44311
(330) 572-2100
(330) 572-2137
jcheronis@gpdgroup.com

Subject: Structural Analysis Report

Carrier Designation: **AT&T Mobility Co-Locate**
Carrier Site Number: C1106
Carrier Site Name: Coventry-Sprint

Crown Castle Designation: **Crown Castle BU Number:** 876385
Crown Castle Site Name: N. Coventry/Wallbeoff
Crown Castle JDE Job Number: 183462
Crown Castle Work Order Number: 482681
Crown Castle Application Number: 144353 Rev. 1

Engineering Firm Designation: **GPD Group Project Number:** 2012775.876385.01

Site Data: **Reilly Mtn. Rd., Coventry, Connecticut 06238, Tolland County**
Latitude 41° 47' 56.21", Longitude -72° 19' 55.88"
152 Foot – EEI Monopole Tower

Dear Veronica Harris,

GPD Group 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 458551, in accordance with application 144353, revision 1.

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 + Reserved + Proposed Equipment **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 all local code requirements based upon a wind speed of 85 mph fastest mile.

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

Respectfully submitted by:

David B. Granger, P.E.
Connecticut #: 17557

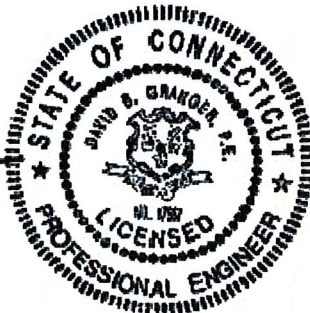


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1) INTRODUCTION

The monopole has 18 sides and is evenly tapered from 75" (flat-flat) at the base to 33.03" (flat-flat) at the top. It has four major sections connected with slip joints. The tower is galvanized and has no tower lighting.

This tower is a 152 ft Monopole tower designed by EEI in November of 2007. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F.

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 using a fastest mile wind speed of 85 mph with no ice, 37 mph with 1 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
116.0	120.0	1		MTC3335 Mount	2 1	3/4 3/8	1
		6	Ericsson	RRUS 11			
		2	KMW Communications	AM-X-CD-16-65-00T-RET			
		1	Powerwave	P65-17-XLH-RR			
		1	Raycap	DC6-48-60-18-8F			

Notes:

- 1) See Appendix B for the proposed coax layout.

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
150.0	152.0	6	Decibel	DB980F90T2E-M	6	1-5/8	
	150.0	1		Platform Mount [LP 601-1]			
133.0	136.0	3	EMS Wireless	RR90-17-02DP	6	1-5/8	
		6	Ericsson	KRY 112 71/2			
	133.0	1		Platform Mount [LP 303-1]			
124.0	126.0	3	Antel	BXA-70063-6CF-2	12	1-5/8	1
		6	Antel	LPA-171080/12CF			
		6	Antel	LPA-80080/6CF			
	124.0	1		Platform Mount [LP 303-1]			
116.0	120.0	6	Powerwave	LGP21401	12	1-1/4	
		6	Powerwave	7770.00			
		6	Powerwave	LGP21903			
	116.0	1		Platform Mount [LP 712-1]			
107.0	107.0	3	Kathrein	742-213	6	1-5/8	
74.0	75.0	1	Lucent	KS24019-L112A	1	1/2	
	74.0	1		Side Arm Mount [SO 701-1]			

Notes:

- 1) 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)
150	150	1	Dapa	LP Platform		
		12		48000		
140	140	1	Dapa	LP Platform		
		12		48000		
130	130	1	Dapa	LP Platform		
		12		48000		
120	120	1	Dapa	LP Platform		
		12		48000		
110	110	1	Dapa	LP Platform		
		12		48000		
100	100	1	Dapa	LP Platform		
		12		48000		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Original Tower Drawings	Engineered Endeavors, Inc. Job #: 7831, dated 9/22/2000	Doc ID # 1614566	Crown DMZ
Foundation Design	Engineered Endeavors, Inc. Project #: 7831 Rev. 1, dated 9/25/2000	Doc ID # 1441268	Crown DMZ
Geotechnical Report	Goodkind & O'Dea, Inc. dated August, 2000	Doc ID # 1531969	Crown DMZ
Previous Analysis	Crown Castle Project #: 438487, dated 9/27/2011	Doc ID # 2966608	Crown DMZ

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.
- 5) Mount sizes, weights, and manufacturers are best estimates based on photos provided and determined without the benefit of a site visit by GPD.
- 6) All member connections and foundation steel reinforcing are assumed designed to meet or exceed the load carrying capacity of the connected member and surrounding soils respectively unless otherwise specified in this report.
- 7) All equipment model numbers, quantities, and centerline elevations are as provided in the CCI CAD package dated 4/10/12 with any adjustments as noted below.

This analysis may be affected if any assumptions are not valid or have been made in error. GPD Group 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
L1	152 - 137.423	Pole	TP37.31x33.03x0.3125	1	-2447.19	1829529.09	2.3	Pass
L2	137.423 - 91.09	Pole	TP50.15x35.1679x0.375	2	-17252.00	2956953.79	21.3	Pass
L3	91.09 - 44.793	Pole	TP62.86x47.4122x0.4375	3	-31758.20	4329637.14	31.2	Pass
L4	44.793 - 0	Pole	TP75x59.5377x0.5	4	-55399.20	6146502.73	34.3	Pass
							Summary	
						Pole (L4)	34.3	Pass
						Rating =	34.3	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
	Anchor Rods	0	31.5	Pass
	Base Plate	0	46.4	Pass
	Base Foundation	0	33.4	Pass
Structure Rating (max from all components) =				46.4%

Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and foundations are satisfactory for the proposed loads and do not require modifications.

5) DISCLAIMER OF WARRANTIES

GPD GROUP has not performed a site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD GROUP in connection with this Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. All tower components have been assumed to only resist dead loads when no other loads are applied. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

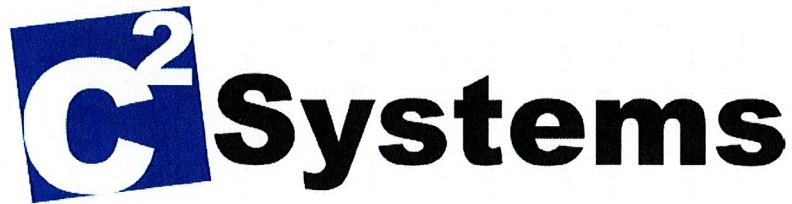
GPD GROUP does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD GROUP provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation in excess of the code specified amount, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD GROUP, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

GPD GROUP makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD GROUP 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 GPD GROUP pursuant to this report will be limited to the total fee received for preparation of this report.



C Squared Systems, LLC
65 Dartmouth Drive, Unit A3
Auburn, NH 03032
(603) 644-2800
support@csquaredsystems.com

Calculated Radio Frequency Emissions



CT1106

(Coventry-Sprint)

Riley Mountain Road, Coventry, CT 06238

(a.k.a. 400 Riley Mountain Road)

April 27, 2012

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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 monopole tower located at Reilly Mtn. Road, Coventry, CT. The coordinates of the tower are 41-47-56.21 N, 72-19-55.88 W.

AT&T is proposing the following modifications:

- 1) Install three 700 MHz LTE antennas (one per sector).

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:

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

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
AT&T UMTS	119	880	1	500	0.0127	0.5867	2.16%
AT&T GSM	119	880	4	296	0.0301	0.5867	5.12%
AT&T GSM	119	1930	2	427	0.0217	1.0000	2.17%
Pocket	107	2130	3	631	0.0595	1.0000	5.95%
Sprint	147	1962.5	11	384	0.0703	1.0000	7.03%
T-Mobile	137	1935	8	246	0.0377	1.0000	3.77%
Verizon cellular	126	869	9	305	0.0622	0.5793	10.73%
Verizon PCS	126	1970	7	228	0.0361	1.0000	3.61%
Verizon AWS	126	2145	1	571	0.0129	1.0000	1.29%
Verizon LTE	126	698	2	712	0.0323	0.4653	6.93%
AT&T UMTS	120	880	2	565	0.0028	0.5867	0.48%
AT&T UMTS	120	1900	2	875	0.0044	1.0000	0.44%
AT&T LTE	120	734	1	1615	0.0040	0.4893	0.82%
AT&T GSM	120	880	1	283	0.0007	0.5867	0.12%
AT&T GSM	120	1900	4	525	0.0052	1.0000	0.52%
						Total	41.70%

Table 1: Carrier Information^{1 2}

¹ The existing CSC filing for AT&T 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.

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 **41.70% 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

April 27, 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 Exposure³

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 Exposure⁴

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)

³ 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

⁴ 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

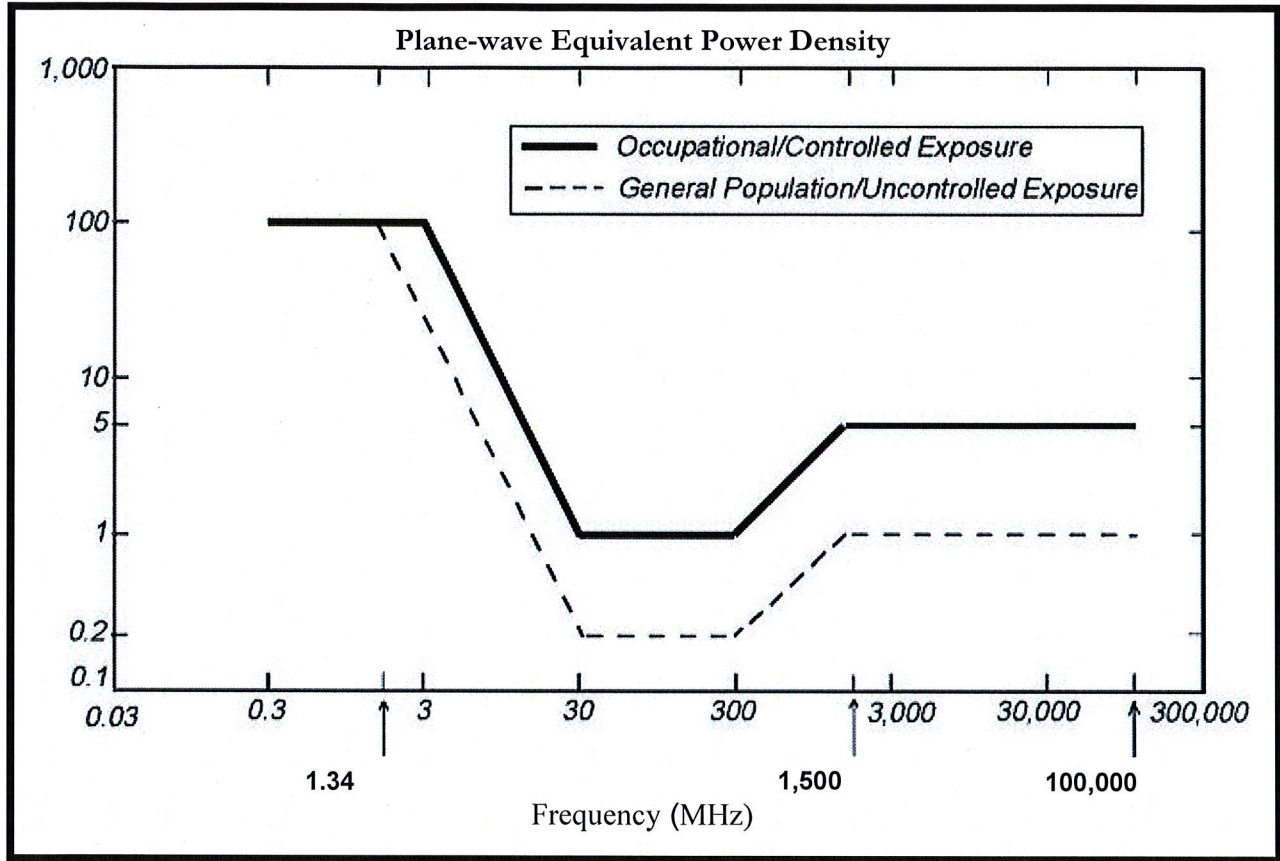
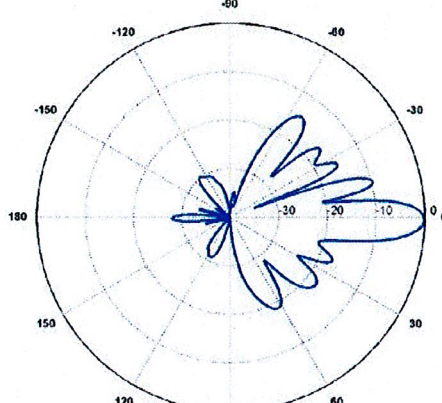
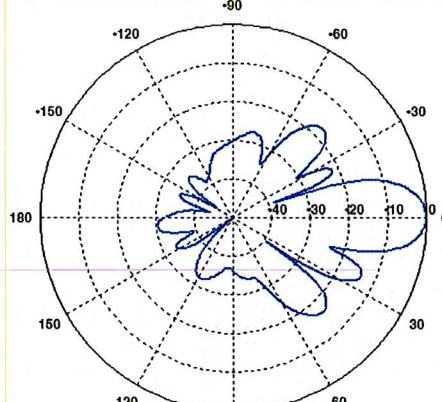


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

<p>700 MHz</p> <p>Manufacturer: Powerwave Model #: P65-17-XLH-RR Frequency Band: 698-806 MHz Gain: 14.3 dBd Vertical Beamwidth: 8.4° Horizontal Beamwidth: 70° Polarization: Dual Linear ± 45° Size L x W x D: 96.0" x 12.0" x 6.0"</p>	
<p>850 MHz</p> <p>Manufacturer: Powerwave Model #: 7770 Frequency Band: 824-896 MHz Gain: 11.5 dBd Vertical Beamwidth: 15° Horizontal Beamwidth: 85° Polarization: Dual Linear ±45° Size L x W x D: 55.4" x 11.0" x 5.0"</p>	
<p>1900 MHz</p> <p>Manufacturer: Powerwave Model #: 7770 Frequency Band: 1850-1990 MHz Gain: 13.4 dBd Vertical Beamwidth: 7° Horizontal Beamwidth: 90° Polarization: Dual Linear ±45° Size L x W x D: 55.4" x 11.0" x 5.0"</p>	