



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 29, 2012

Eric Dahl
Real Estate Consultant
Nexlink
55 Lynn Road
Ivoryton, CT 06442

RE: **EM-AT&T-017-120507** – AT&T Mobility notice of intent to modify an existing telecommunications facility located at 790 Willis Street, Bristol, Connecticut.

Dear Mr. Dahl:

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 May 4, 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,



Linda Roberts
Executive Director

LR/cm

c: The Honorable Arthur J. Ward, Mayor, City of Bristol
Alan Weiner, Planner/Dev. Coordinator, City of Bristol



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www.ct.gov/csc

May 8, 2012

The Honorable Arthur J. Ward
Mayor
City of Bristol
City Hall
111 North Main Street
P.O.Box 114
Bristol, CT 06010-0114

RE: **EM-AT&T-017-120507** – AT&T Mobility notice of intent to modify an existing telecommunications facility located at 790 Willis Street, Bristol, Connecticut.

Dear Mayor Ward:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

If you have any questions or comments regarding this proposal, please call me or inform the Council by May 22, 2012.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts
Executive Director

LR/cm

Enclosure: Notice of Intent

c: Alan Weiner, Planner/Dev. Coordinator, City of Bristol



May 4, 2012

VIA OVERNIGHT DELIVERY

Ms. Linda Roberts, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051



RE: AT&T Mobility – Notice of Exempt Modification
790 Willis Street, Bristol, CT

Dear Ms. Roberts:

This letter and attachments are submitted on behalf of AT&T Mobility (“AT&T”). AT&T is enhancing the capabilities of its wireless system in Connecticut by implementing LTE technology. In order to do so, AT&T will modify antenna and equipment configurations at a number of existing sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which 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 Wallingford.

AT&T plans to modify the existing facility at 790 Willis Street, Bristol owned by Connecticut Light and Power Company (coordinates 41°38'56.73"N, -72°56'52.79"W). Attached are drawings depicting the planned changes, and documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration. Also included are a power density calculation 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. The height of the overall structure will be unaffected. AT&T proposes to add three (3) new antennas, six (6) new RRU's and one (1) surge arrestor. Additionally, AT&T will install one (1) fiber cable and two (2) DC control cables within the existing monopole.

2. The proposed changes will not extend the site boundaries. AT&T will install additional equipment in the existing equipment shelter. Thus, there will be no effect on the site compound.

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 in the attached power density calculations, AT&T's operations at the site will result in a power density of 2.07%; the combined site operations will result in a total power density of 16.81%.

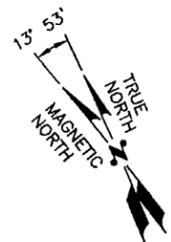
Please feel free to call me with any questions or concerns regarding this matter. Thank you for your consideration.

Respectfully submitted,
AT&T Mobility

By: 
Eric Dahl, Consultant
edahl@comcast.net
860-227-1975

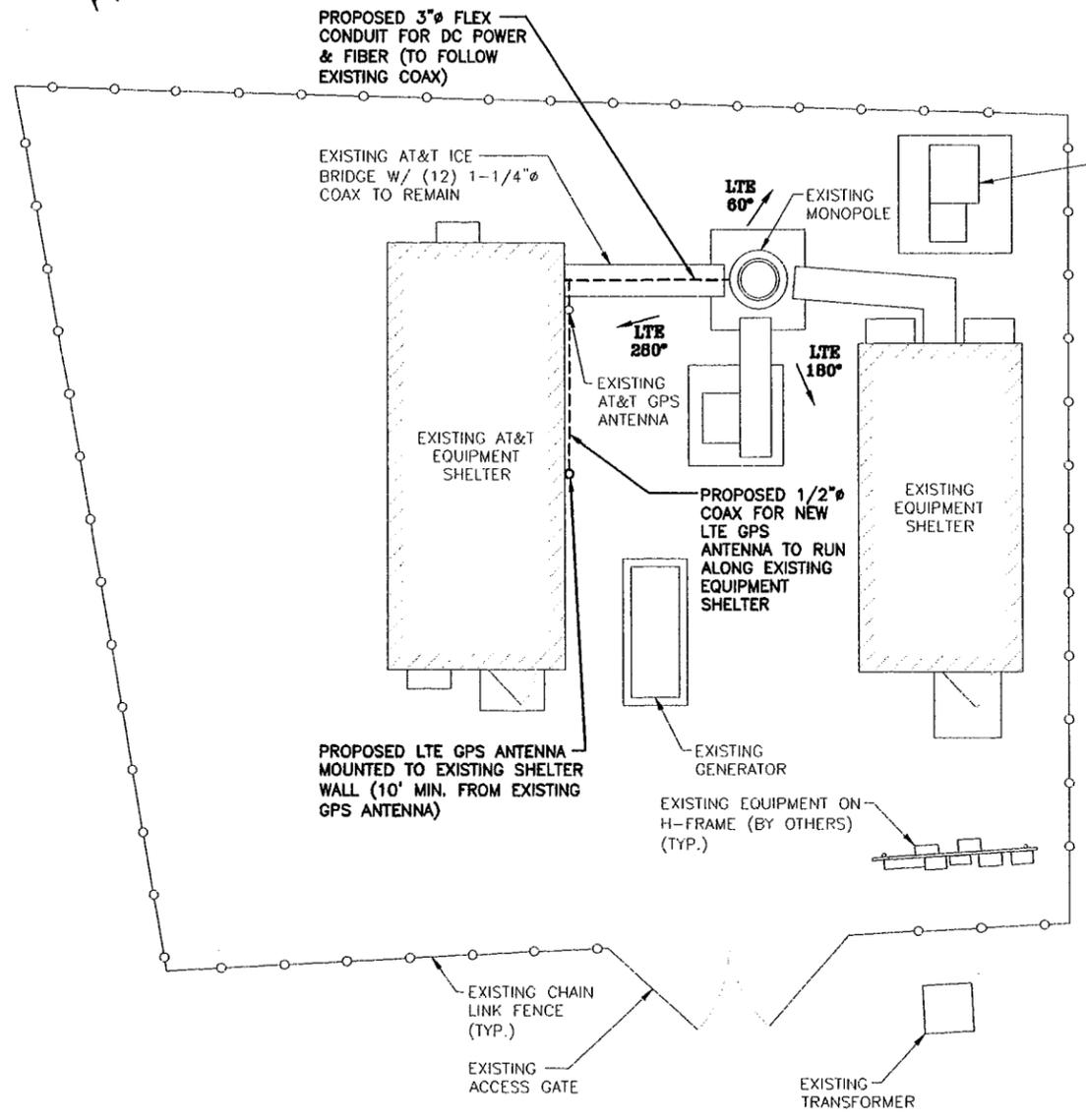
cc: Honorable Arthur J. Ward, Mayor, City of Bristol
Connecticut Light and Power Company, Property Owner

Attachments

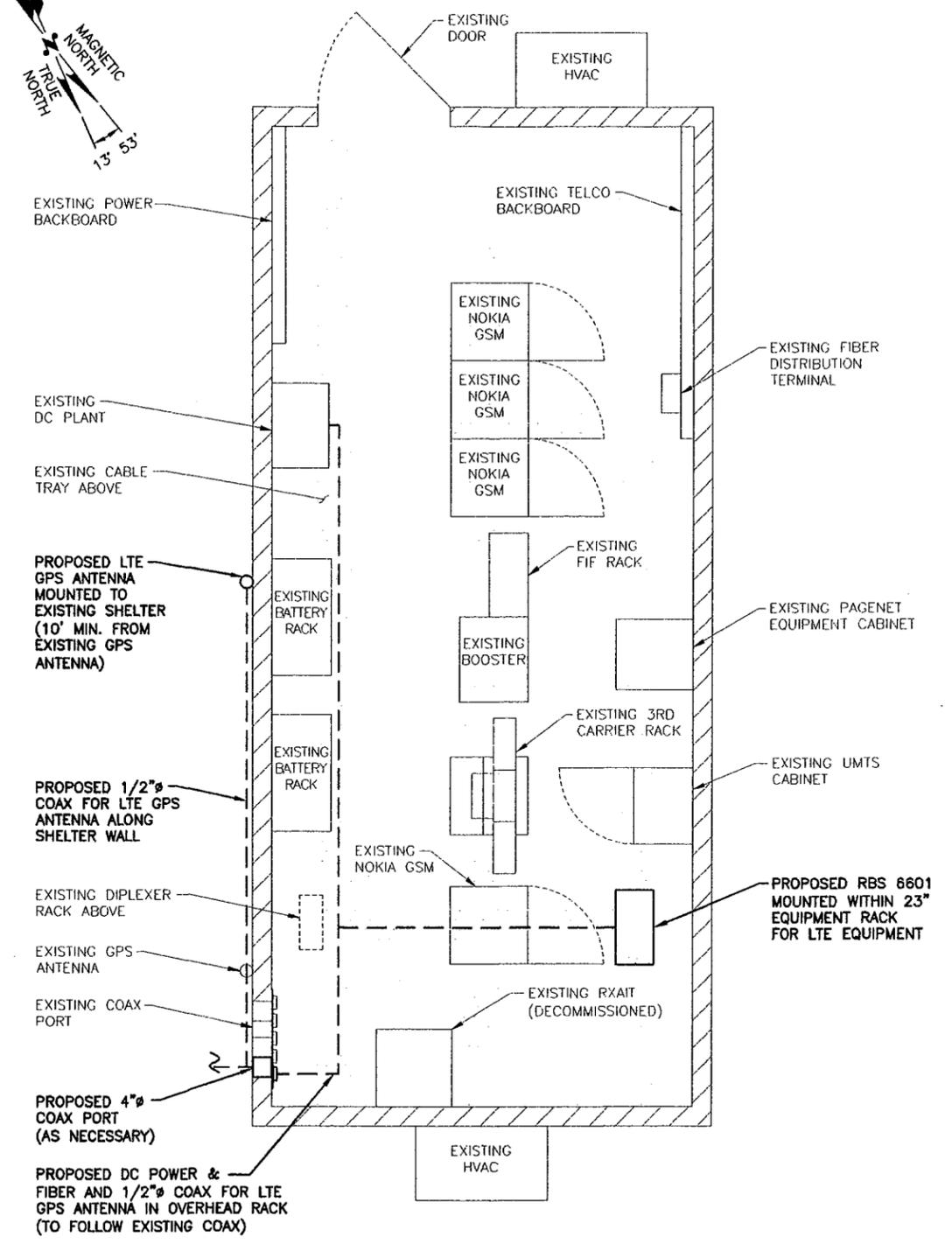
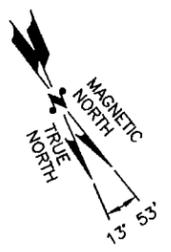


NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.



COMPOUND PLAN
SCALE: 3/16"=1'-0"
0 2'-8" 5'-4" 10'-8" 16'-0"



EQUIPMENT PLAN
SCALE: 1/2"=1'-0"
0 1'-0" 2'-0" 4'-0" 6'-0"

Hudson Design Group
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 2-101
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-3386

NEXLINK GLOBAL SERVICES
a UniTek GLOBAL SERVICES company
800 MARSHALL PHELPS ROAD UNIT#: 2A
WINDSOR, CT 06095

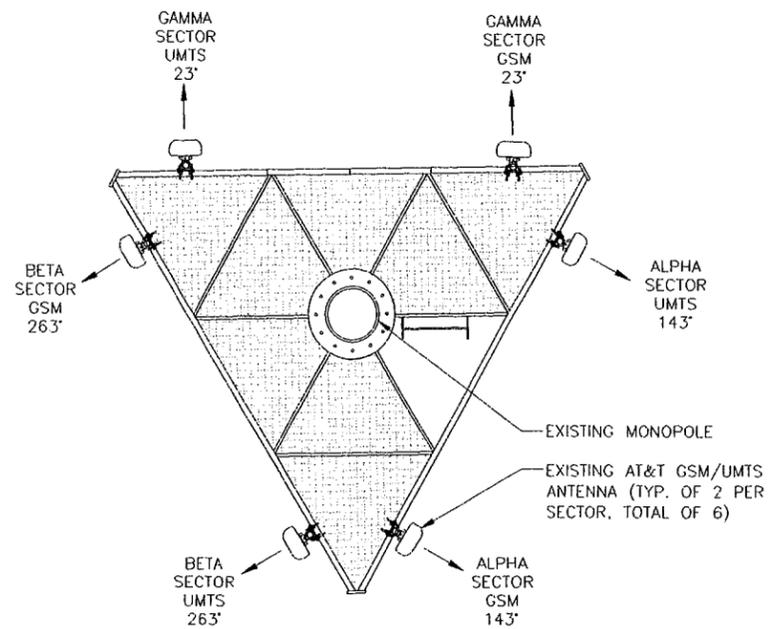
SITE NUMBER: CT1055
SITE NAME: BRISTOL
1 WILLIS STREET
BRISTOL, CT 06010
HARTFORD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/16/12	ISSUED FOR CONSTRUCTION	JG	DC	DPH
0	03/26/12	ISSUED FOR REVIEW	JG	DC	DPH

SCALE: AS SHOWN DESIGNED BY: HC DRAWN BY: JG

AT&T
COMPOUND & EQUIPMENT PLAN (LTE)
JOB NUMBER: 1055.01 DRAWING NUMBER: A-1 REV: 1

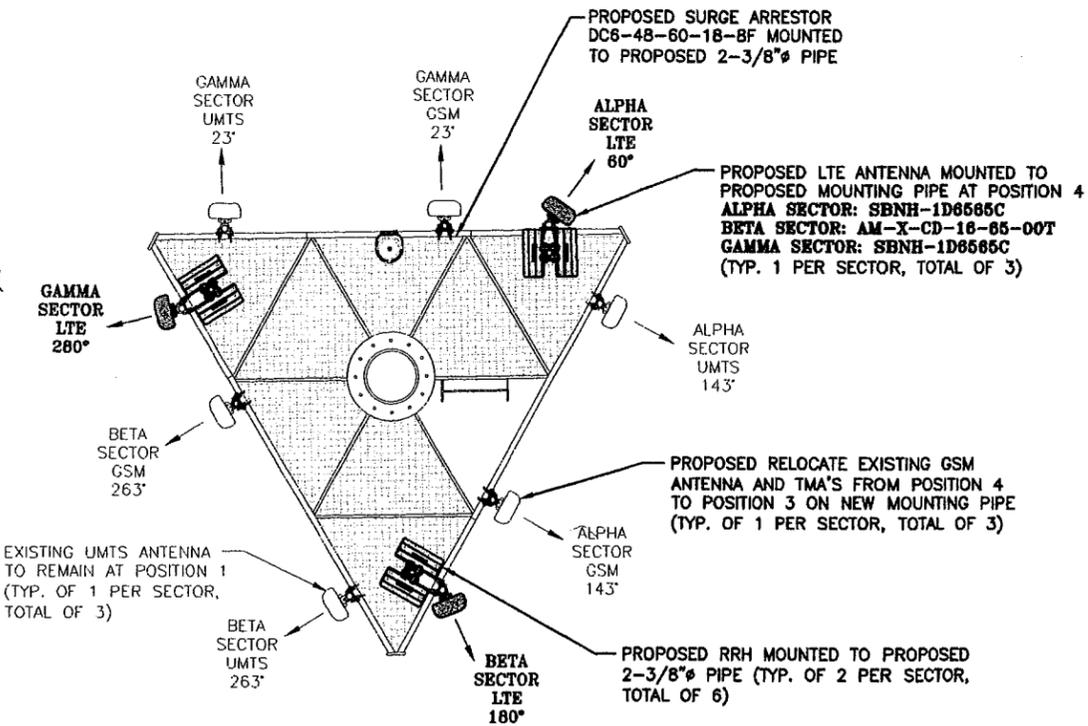


EXISTING GSM/UMTS ANTENNA PLAN

SCALE: N.T.S.

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

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.



PROPOSED LTE ANTENNA PLAN

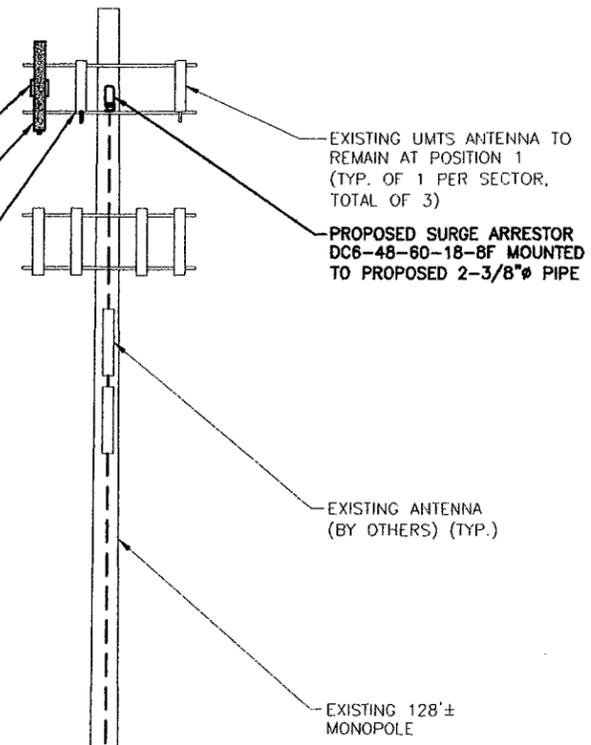
SCALE: N.T.S.

- TOP OF EXISTING MONOPOLE
128'-0" ± AGL
- CENTER OF PROPOSED AT&T LTE ANTENNAS
124'-0" ± AGL
- PROPOSED AT&T RRH'S & SURGE ARRESTOR
124'-0" ± (AGL)

PROPOSED RRH MOUNTED TO PROPOSED 2-3/8" PIPE (TYP. OF 2 PER SECTOR, TOTAL OF 6)

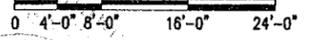
PROPOSED LTE ANTENNA MOUNTED TO PROPOSED MOUNTING PIPE AT POSITION 4
ALPHA SECTOR: SBNH-1D6565C
BETA SECTOR: AM-X-CD-16-85-00T
GAMMA SECTOR: SBNH-1D6565C
 (TYP. 1 PER SECTOR, TOTAL OF 3)

PROPOSED RELOCATE EXISTING GSM ANTENNA AND TMA'S FROM POSITION 4 TO POSITION 3 ON NEW MOUNTING PIPE (TYP. OF 1 PER SECTOR, TOTAL OF 3)



SOUTH ELEVATION

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



Hudson Design Group
 1600 OSGOOD STREET
 BUILDING 20 NORTH, SUITE 2-101
 N. ANDOVER, MA 01845
 TEL: (978) 557-5553
 FAX: (978) 336-5586

NEXLINK GLOBAL SERVICES
 a UniTek GLOBAL SERVICES company
 800 MARSHALL PHELPS ROAD UNIT#: 2A
 WINDSOR, CT 06095

SITE NUMBER: CT1055
SITE NAME: BRISTOL
 1 WILLIS STREET
 BRISTOL, CT 06010
 HARTFORD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/16/12	ISSUED FOR CONSTRUCTION	JG	DC	DPH
0	03/28/12	ISSUED FOR REVIEW	JG	DC	DPH
SCALE: AS SHOWN		DESIGNED BY: HC	DRAWN BY: JG		

AT&T
 ANTENNA LAYOUT AND ELEVATION (LTE)
 JOB NUMBER: 1055.01
 DRAWING NUMBER: A-2
 REV: 1



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 120 ft Valmont Monopole
ATC Site Name : Brst - Bristol, CT
ATC Site Number : 302500
Proposed Carrier : AT&T Mobility
Carrier Site Name : Bristol
Carrier Site Number : CT1055 / 10035029
County : Hartford
Eng. Number : 49070621
Date : April 5, 2012 *
Usage : 98%
Portholes Required : No
Result : Pass

Submitted by:
Worth L. Godwin III
Project Engineer

American Tower Engineering Services
400 Regency Forest Drive
Cary, NC 27518
Phone: 919-468-0112





AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 120 ft Valmont Monopole
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County : Hartford
Eng. Number : 49070621
Date : April 5, 2012 *
Usage : 98%
Portholes Required : No
Result : Pass

Submitted by:
Worth L. Godwin III
Project Engineer

American Tower Engineering Services
400 Regency Forest Drive
Cary, NC 27518
Phone: 919-468-0112

Introduction

The purpose of this report is to summarize results of the structural analysis performed on the 120 ft Valmont Monopole located at 760 Beecher Rd., Bristol, CT 06010, Hartford County (ATC site #302500). The tower was originally designed and manufactured by Valmont (Drawing #DC1671Z, dated December 29, 1993). The tower has been modified per design by Spectrasite Communications (Site # CT 0036, Rev.2, Dated July 22, 2002).

Analysis

The tower was analyzed using Semaan Engineering Solutions, Inc., Software.

Basic Wind Speed: 95 mph (3-Second Gust)
 Radial Ice: 40 mph (3-Second Gust) w/ 1" ice
 Code: TIA-222-G / 2003 IBC w/ 2005 CT Supplements & 2009 CT Amendments

Antenna Loads

The following antenna loads were used in the tower analysis.

Existing Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax	Carrier
124.0	6	Powerwave 7770.00	Platform w/ Handrails	(12) 1 1/4"	AT&T Mobility
	6	Powerwave LGP 2140X			
110.0	9	48" x 12" Panel	T-Arm w/ Working Platform	(12) 1 5/8"	Sprint Nextel
	3	72" x 12" Panel			
100.0	2	Kathrein 742 213	Flush	(6) 1 5/8"	Youghiogheny
	1	RFS APXV18-206517S-C			
90.0	3	Argus LLPX310R	Side Arms	(4) 1/2" (6) 5/16" (2) 2" Conduit	Clearwire
	3	DragonWave A-ANT-11G-2.5-C			
	1	DragonWave A-ANT-18G-2			
	4	DragonWave Horizon Compact			
	3	NextNet BTS-2500			

Proposed Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax	Carrier
124.0	1	Andrew SBNH-1D6565C	Platform with Handrails	(2) 19.7 mm (1) 10 mm	AT&T Mobility
	6	Ericsson RRUS-11 1900 MHz			
	2	Powerwave P65-17-XLH-RR			
	1	Raycap DC6-48-60-18-8F			

Install proposed coax on outside of monopole.

Results

The maximum structure usage is: 98%

Pole Reactions	Current Analysis Reactions
Moment (ft-kip)	1636.0
Axial (kips)	23.1
Shear (kips)	19.6

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required. These calculations are located after the software output within this analysis.

Conclusion

Based on the analysis results, the structure meets the requirements per the TIA-222-G standard and the 2003 IBC with 2005 CT Supplements and 2009 CT Amendments. The tower and foundation can support the existing and proposed antennas with the transmission line distribution as described in this report.

If you have any questions or require additional information, please call 919-466-5527.

Standard Conditions

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

- Information supplied by the client regarding the structure itself, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to ATC Engineering Services and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

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

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

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Job Information			
Pole :	302500	Code:	ANSI/TIA-222 Rev G
Description :	120' Valmont Monopole	Struct Class :	II
Client :	AT&T Mobility	Exposure :	B
Location :	Brst Bristol, CT	Topo :	1
Shape :	12 Sides	Base Elev (ft):	0.00
Height :	120.00 (ft)	Taper:	0.145033(in/ft)

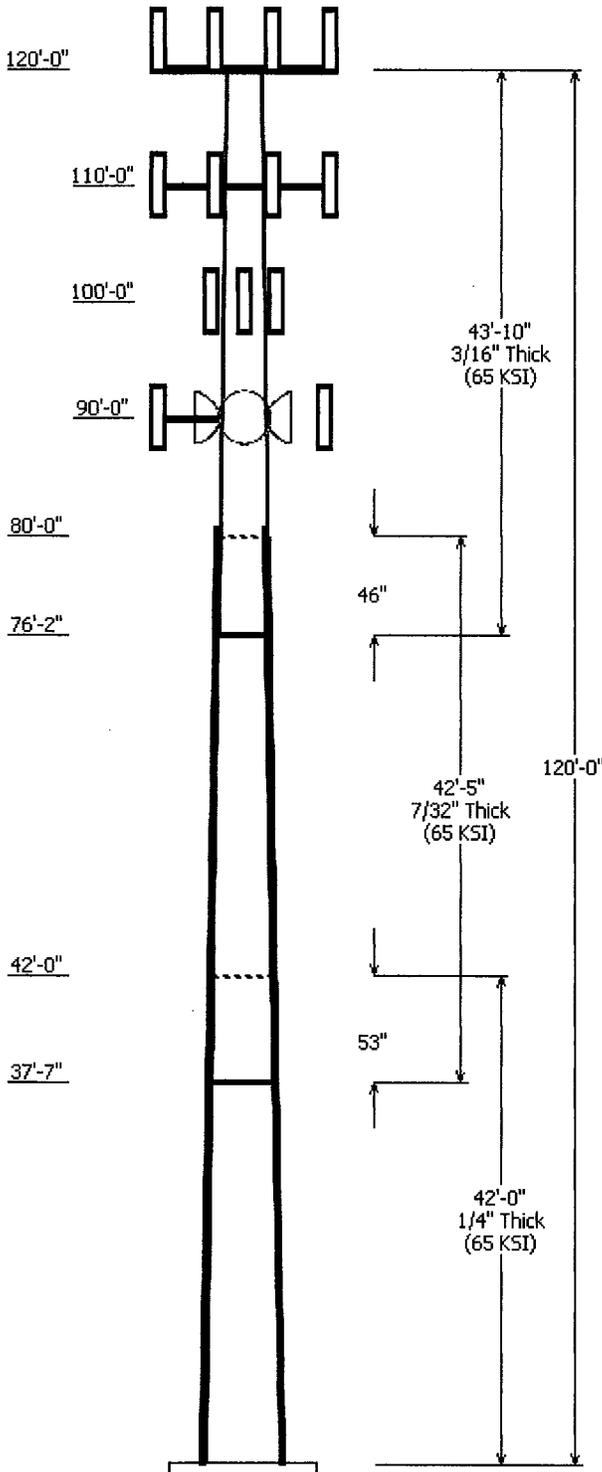
Sections Properties								
Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
		Across Flats Top	Across Flats Bottom					
1	42.000	24.90	31.00	0.250		0.000	0.145033	65
2	42.417	19.83	25.98	0.219	Slip Joint	53.000	0.145033	65
3	43.833	14.41	20.76	0.188	Slip Joint	46.000	0.145033	65

Discrete Appurtenance				
Attach Elev (ft)	Force Elev (ft)	Qty	Description	
120.000	124.000	1	Raycap DC6-48-60-18-8F	
120.000	124.000	1	Andrew SBNH-1D6565C	
120.000	124.000	2	Powerwave P65-17-XLH-RR	
120.000	124.000	6	Ericsson RRUS-11 1900 MHz	
120.000	124.000	6	Powerwave LGP 2140X	
120.000	124.000	6	Powerwave 7770.00	
120.000	120.000	1	Flat Platform with Handrails	
110.000	110.000	3	72" x 12" Panel	
110.000	110.000	3	T-Arm w/ Working Platform	
110.000	110.000	9	48" x 12" Panel	
100.000	100.000	1	RFS APXV18-206517S-C	
100.000	100.000	2	Kathrein 742 213	
90.000	90.000	3	DragonWave A-ANT-11G-2.5-C	
90.000	90.000	1	Side Arms	
90.000	90.000	3	Argus LLPX310R	
90.000	90.000	3	NextNet BTS-2500	
90.000	90.000	4	DragonWave Horizon Compact	
90.000	90.000	1	DragonWave A-ANT-18G-2	

Linear Appurtenance				
Elev (ft)		Description	Exposed To Wind	
From	To			
5.000	90.000	1/2" Coax		No
5.000	90.000	2" Conduit		Yes
5.000	90.000	5/16" Coax		No
5.000	100.0	1 5/8" Coax		Yes
5.000	110.0	1 5/8" Coax		No
5.000	124.0	1 1/4" Coax		No
5.000	124.0	10 mm Cable		No
5.000	124.0	19.7 mm Cable		No
0.000	92.000	#20		Yes

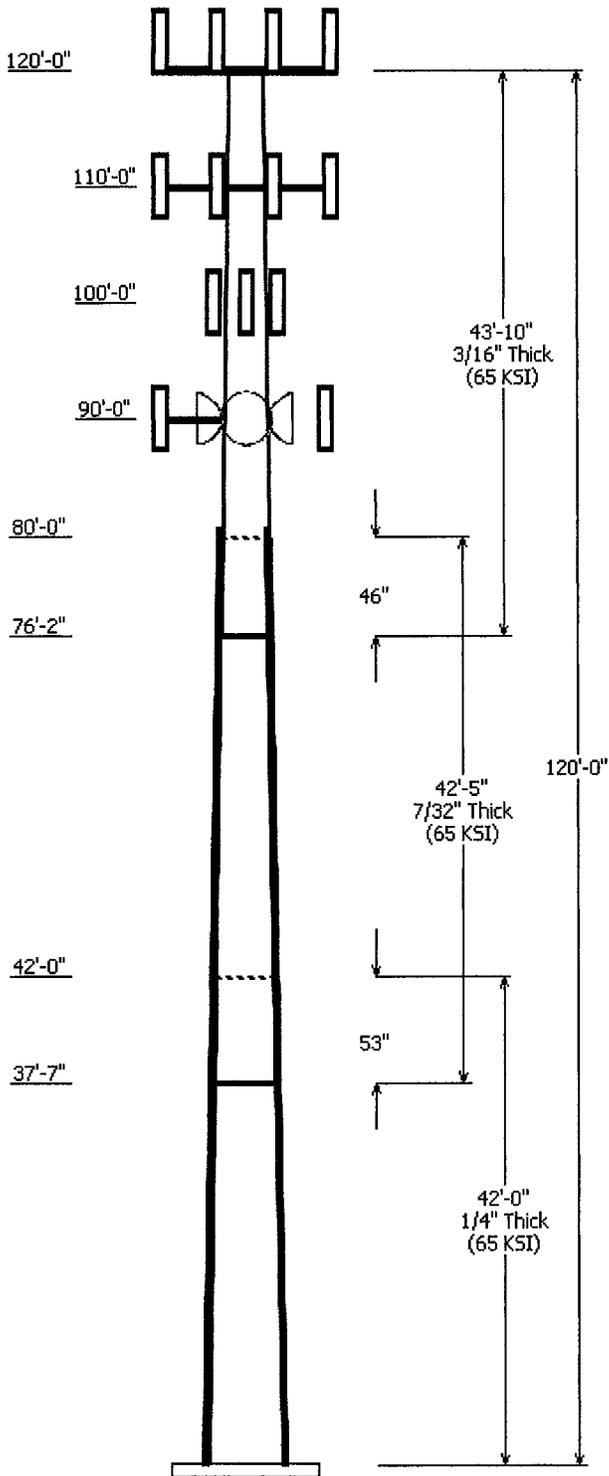
Load Cases	
1.2D + 1.6W	95.00 mph with No Ice
0.9D + 1.6W	95.00 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50.00 mph with 1.00 in Radial Ice
1.2D + 1.0E	Dead Load with Seismic
0.9D + 1.0E	Dead Load with Seismic (Reduced DL)
1.0D + 1.0W	60.00 mph Serviceability

Reactions			
Load Case	Moment (Kip-ft)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W	1636.01	19.60	23.09



0.9D + 1.6W	1618.15	19.58	18.66
1.2D + 1.0Di + 1.0Wi	437.87	4.90	46.44
1.2D + 1.0E	282.80	2.58	23.12
0.9D + 1.0E	279.19	2.58	18.69
1.0D + 1.0W	405.71	4.88	20.17

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	90.00	13.662	1.475
1.0D + 1.0W	90.00	13.662	1.475





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

Calculated Radio Frequency Emissions



CT1055

(Bristol)

790 Willis Street, Bristol, CT 06010

(a.k.a. Willis Street (SNET))

April 13, 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 790 Willis Street in Bristol, CT. The coordinates of the tower are 41-38-56.73 N, 72-56-52.79 W.

AT&T is proposing the following modifications:

- 1) Install three 700MHz 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
<i>Cingular UMS</i>	128	1935	1	500	0.0110	1.0000	1.10%
<i>Cingular GSM</i>	128	880	2	296	0.0130	0.5867	2.21%
<i>Cingular GSM</i>	128	1930	2	427	0.0187	1.0000	1.87%
Clearwire Antennas	90	2496	2	153	0.0136	1.0000	1.36%
Clearwire Microwave	90	11000	1	211	0.0094	1.0000	0.94%
Clearwire Microwave	90	11000	1	211	0.0094	1.0000	0.94%
Pocket	100	2130	3	631	0.0681	1.0000	6.81%
Nextel	110	851	9	100	0.0267	0.5673	4.71%
AT&T UMS	126	880	2	565	0.0026	0.5867	0.44%
AT&T UMS	126	1900	2	875	0.0040	1.0000	0.40%
AT&T LTE	126	734	1	1375	0.0031	0.4893	0.64%
AT&T GSM	126	880	1	283	0.0006	0.5867	0.11%
AT&T GSM	126	1900	4	525	0.0048	1.0000	0.48%
Total							16.81%

Table 1: Carrier Information^{1 2}

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. 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 **16.81% 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 13, 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

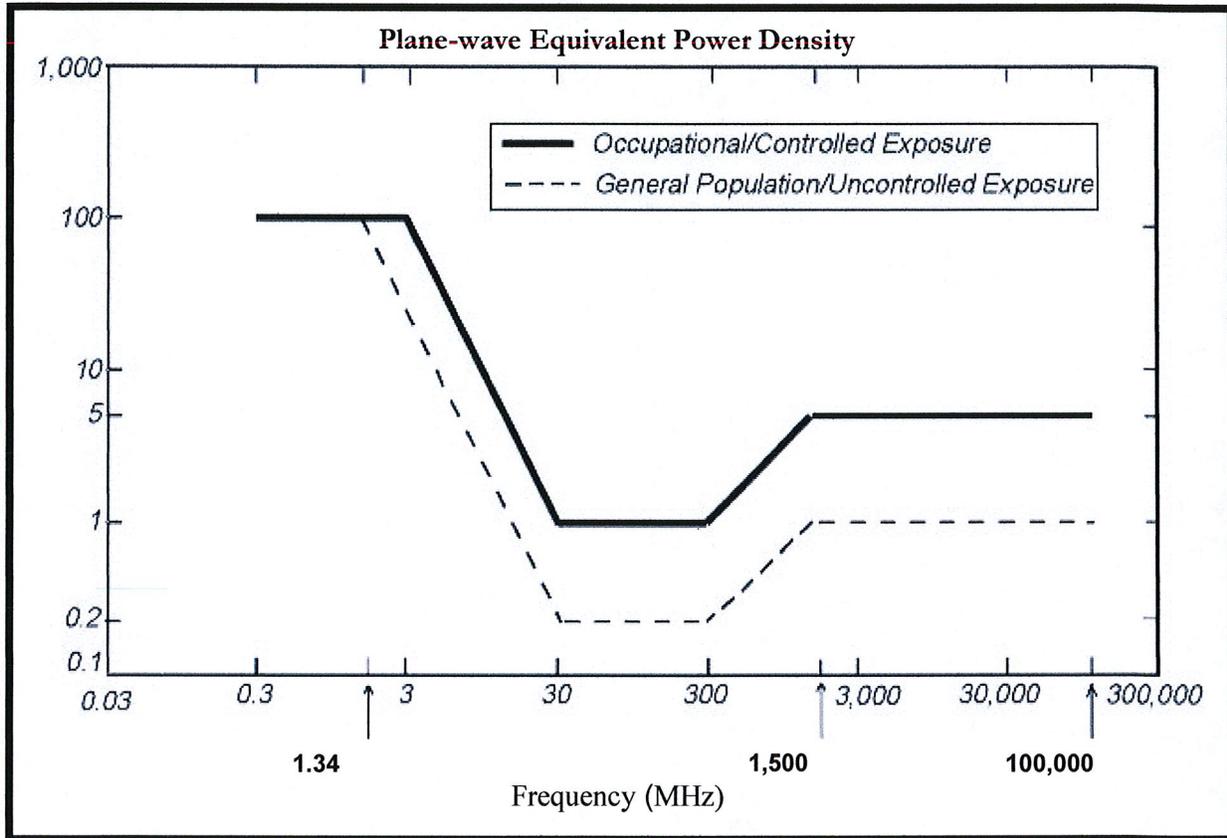
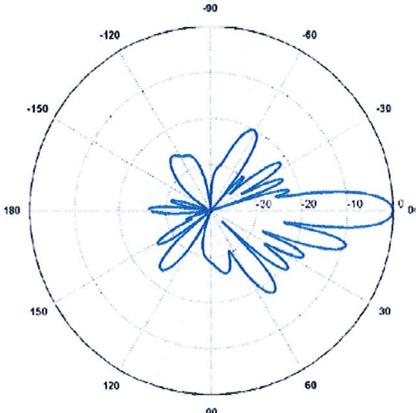
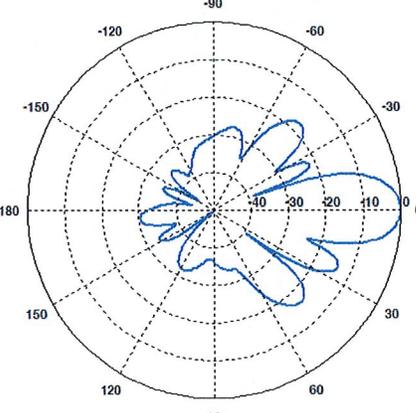
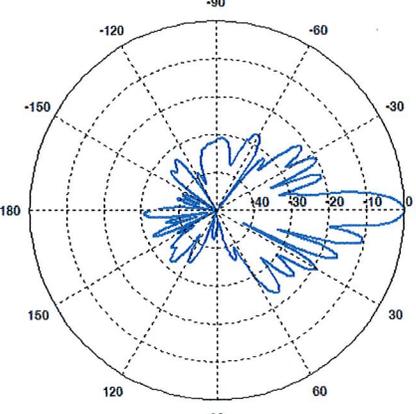


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

<p>700 MHz</p> <p>Manufacturer: Commscope Model #: SBNH-1D6565C Frequency Band: 698-806 MHz Gain: 13.6 dBd Vertical Beamwidth: 8.6° Horizontal Beamwidth: 71° Polarization: ±45° Size L x W x D: 96.4" x 11.9" x 7.1"</p>	
<p>850 MHz</p> <p>Manufacturer: Powerwave Model #: 7770.00 Frequency Band: 824-896 MHz Gain: 11.4 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 #: 7770.00 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>	


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Site Name: Brst - Bristol
Site Number: 302500

Address: 760 Beecher Rd
City: Bristol
State: Connecticut
Zip Code: 06010-7269
Latitude: 41 - 38 - 56.7 N 41.649
Longitude: 72 - 56 - 52.9 W -72.948

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[Map to MapQuest](#)

Tower Data

Tower Number: 302500
Structure Height (AGL): 127 ft.
Structure Height (AMSL): 1161 ft.
Clearance: 4 ft.
Total Height (AMSL): 1165 ft.
Type: Monopole
FAA #: 02-ANE-597-OE
FCC #: Not Required

Site Specs

MTA: New York
BTA: Hartford, CT
MSA/RSA: Hartford, CT
Ground Elevation AMSL: 1034 ft.
Datum: NAD83
County: HARTFORD
Region: USA
Comments:
Driving Instructions: From Hartford take I-84 west to RT 72 west. Follow to end. Go straight at end of ramp and at next street take a right. Go straight for a few miles until Memorial School is on right. At this intersection turn right on Willis. Go up hill to top, access road is just after # 760.

Utility Information

Telco Provider: AT&T
Power Provider: Connecticut Light & Power
Backup Generator: No

Contact Info

877-ATC-SITE
 (282-7483)

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Corporate Info

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 11th Floor
 Boston, MA 02116
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Martin, David C.

From: Eric Dahl <edahl@comcast.net>
Sent: Wednesday, May 09, 2012 1:39 PM
To: Martin, David C.
Cc: Cunliffe, Fred
Subject: RE: ExMod filing for 790 Willis Street, Bristol
Attachments: RE: AT&T CT1055 - ATC 302500 structural

Hi David,

You are correct, the tower is owned by American Tower. I was referring to the underlying property owner which is Connecticut Light and Power. As far as the discrepancy between the structural analysis and the narrative/ plans, I touched based with Andrew Gilbert at American Tower. He indicated that they are one and the same and that the structural was performed for the correct tower. I've attached correspondence from him which explains the discrepancy.

I hope that this addresses your concerns. Sorry for the confusion. Please let me know if you need require any additional information.

Eric Dahl
860-227-1975

From: Martin, David C. [mailto:David.C.Martin@ct.gov]
Sent: Tuesday, May 08, 2012 9:42 AM
To: edahl@comcast.net
Cc: Cunliffe, Fred
Subject: ExMod filing for 790 Willis Street, Bristol

Eric,

I have some questions on your recent AT&T exempt modification filing for 790 Willis Street in Bristol.

In your narrative, you identify the tower owner as CL&P. Our records indicate the present owner to be American Tower and that it was formerly owned by SNET. I know there are three towers right next to each other at this location and that at least one of them belongs to CL&P. But I thought AT&T was on the former SNET tower, which would make sense because SNET is a corporate ancestor of AT&T wireless. So, who is the owner of the tower on which AT&T's antennas are/will be located?

Also, the structural analysis refers to a 120-foot tall tower at 760 Beecher Road, whereas your narrative and the engineering drawings indicate a 128-foot tower at 790 Willis Street. Can you clear up this apparent discrepancy?

David Martin