



September 19 2014

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

Regarding : Notice of Exempt Modification – Addition of 3 radio heads previously approved

Property Address: 383 Torrington Road Litchfield CT (the “Property”)

Applicant: New Cingular Wireless PC, LLC (“AT&T”)

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 140 foot Monopole (“tower”) location on the Property. AT&T’s facility consist of nine (9) wireless telecommunications antenna at 118 feet. The tower is owned by SBA Towers, Inc.. The Council approved the previous application on November 23rd 2012 reference number EM-CING-074-121108. This application (attached) granted AT&T the use of 6 radio heads at this location. The approval expired one year from the issue date. During that time AT&T made the changes to the site per the approval but only installed three(3) of the six (6) radio heads that they received approval. AT&T would now like to install the additional three(3) radio heads that were originally approved under EM-CING-074-121108.

Please accept this application as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A.§ 16-50j-72 (b)(2). In accordance with R.C.S.A.§ 16-50j-73, a copy of this letter is being sent to the Leo Paul Jr. Selectman for the Town of Litchfield. A copy of this letter is also being sent to SBA Towers, Inc., the owner of the structure that AT&T is located.

The planned modifications to AT&T’s facility fall squarely within those activities explicitly provided for in R.C.S.A.§ 16-50j-72 (b)(2).

1. The planned modifications will not result in an increase in the height of the existing structure. AT&T’s additional, previously approved 3 radio heads will be installed at 118 foot level of the 140 foot monopole.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore will not require an extension of the site boundary
3. The proposed modification will not increase the noise level at the facility by six decibel or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. An RF emissions calculation (attached) for AT&T’s modified facility was provided in the application which led to the November 23rd 2012 Decision.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications (please see attached structural analysis completed by Morrisson Hershfield Corporation on September 20th 2012

For the foregoing reasons AT&T respectfully request that the proposed addition of 3 radio heads previously approved be allowed within the exempt modifications under R.C.S.A. § 16-50j-72 (b)(2).

Sincerely,



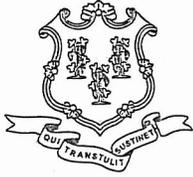
David P. Cooper
Director of Site Acquisition
Empire Telecom

CC: Leo Paul Jr. Selectman for the Town of Litchfield., SBA Towers, Inc.
CT1131 file

16 Esquire Road, Billerica, MA 01862

Mobile: 617-639-4908

Email: dcooper@empiretelecomm.com



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

November 23, 2012

Melanie Howlett
HPC Wireless Services
46 Mill Plain Road, Floor 2
Danbury, CT 06811

RE: **EM-CING-074-121108** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 383 Torrington Road, Litchfield, Connecticut.

Dear Ms. Howlett:

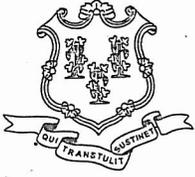
The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- 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 November 6, 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





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

November 9, 2012

The Honorable Leo Paul, Jr.
First Selectman
Town of Litchfield
P. O. Box 488
Litchfield, CT 06759

RE: **EM-CING-074-121108** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 383 Torrington Road, Litchfield, Connecticut.

Dear First Selectman Paul:

The Connecticut Siting Council (Council) received a request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72. A copy of which has already been provided to you.

If you have any questions or comments regarding the proposal, please call me or inform the Council by November 23, 2012.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts
Executive Director

LR/cm

c: Dennis Paul Tobin, Ph.D., Land Use Director, Town of Litchfield

EM-CING-074-121108

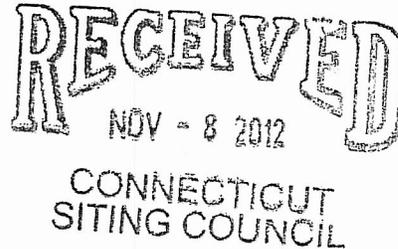
HPC Wireless Services
46 Mill Plain Rd.
Floor 2
Danbury, CT, 06811
P.: 203.797.1112



November 6, 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
383 Torrington Road, Litchfield, 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 First Selectman of the Town of Litchfield.

AT&T plans to modify the existing wireless communications facility owned by TowerCo., LLC and located at 383 Torrington Road, Litchfield (coordinates 41° -45' -58.62" N, 73° -10' -42.7" 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 on new pipe mounts attached to existing T-Arms, six (6) RRUs behind the LTEs and one (1) surge arrestor also on existing T-Arms, all at a centerline height of approximately 118'. AT&T will also place a DC power and fiber run along the existing coaxial cable run. These changes will not

extend the height of the approximately 139' structure.

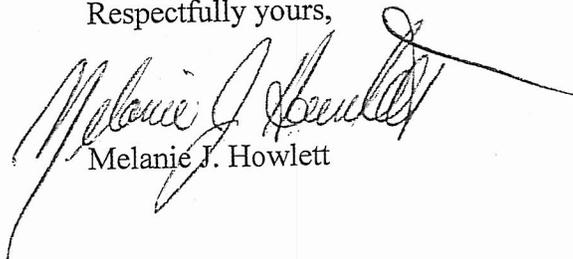
2. AT&T will place related equipment in an existing Equipment Shelter and mount a new GPS antenna on the existing Equipment Shelter. These changes will be within the existing compound and will have no effect on the site boundaries.

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 2.3%; the combined site operations will result in a total power density of approximately 30.91%.

Please do not hesitate to contact me by phone at (203) 610-1071, or by e-mail at mjhowlett@optonline.net, if there are any questions concerning this matter. Thank you for your consideration.

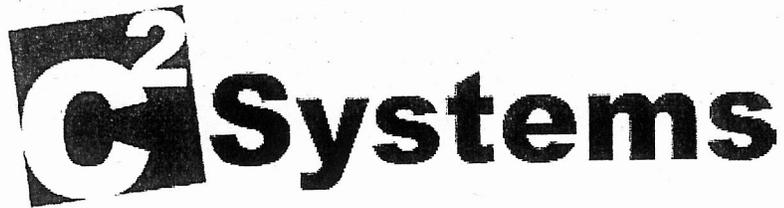
Respectfully yours,



Melanie J. Howlett

Attachments

cc: Honorable Leo Paul, Jr., First Selectman, Town of Litchfield
Old Tollgate Hills, LLC (underlying property owner)



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

Calculated Radio Frequency Emissions



at&t

CT1131

(Litchfield-Torrington Road)

383 Torrington Road, Litchfield, CT 06759

September 28, 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 383 Torrington Road in Litchfield, CT. The coordinates of the tower are 41° 45' 58.62" N, 73° 10' 42.7" W.

AT&T is proposing the following modifications:

- 1) Install three multi-band (700/850/1900/2100 MHz) antennas for their LTE network (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 patterns 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	115	850	2	100	0.0054	0.5667	0.96%
Cingular	115	1900	2	427	0.0232	1.0000	2.32%
Verizon PCS	138	1970	7	274	0.0362	1.0000	3.62%
Verizon cellular	138	869	9	301	0.0511	0.5793	8.83%
Verizon AWS	138	2145	1	686	0.0130	1.0000	1.30%
Verizon LTE	138	698	2	790	0.0298	0.4653	6.41%
T-Mobile	108	1945	8	126	0.0311	1.0000	3.11%
Sprint	127.5	1962.5	11	219.3	0.0534	1.0000	5.34%
AT&T UMTS	118	880	2	565	0.0029	0.5867	0.50%
AT&T UMTS	118	1900	2	875	0.0045	1.0000	0.45%
AT&T LTE	118	734	1	1313	0.0034	0.4893	0.69%
AT&T GSM	118	880	1	283	0.0007	0.5867	0.12%
AT&T GSM	118	1900	4	525	0.0054	1.0000	0.54%
						Total	30.91%

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 7/26/2012. 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 Morrison Hershfield Corp. Structural Analysis dated September 20, 2012.

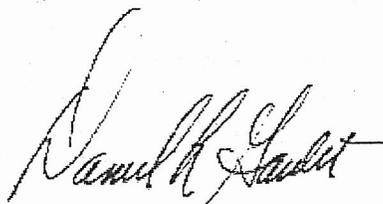
5. Conclusion

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 **30.91% 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

September 28, 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 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)
0.3-3.0	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 Exposure⁵

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.

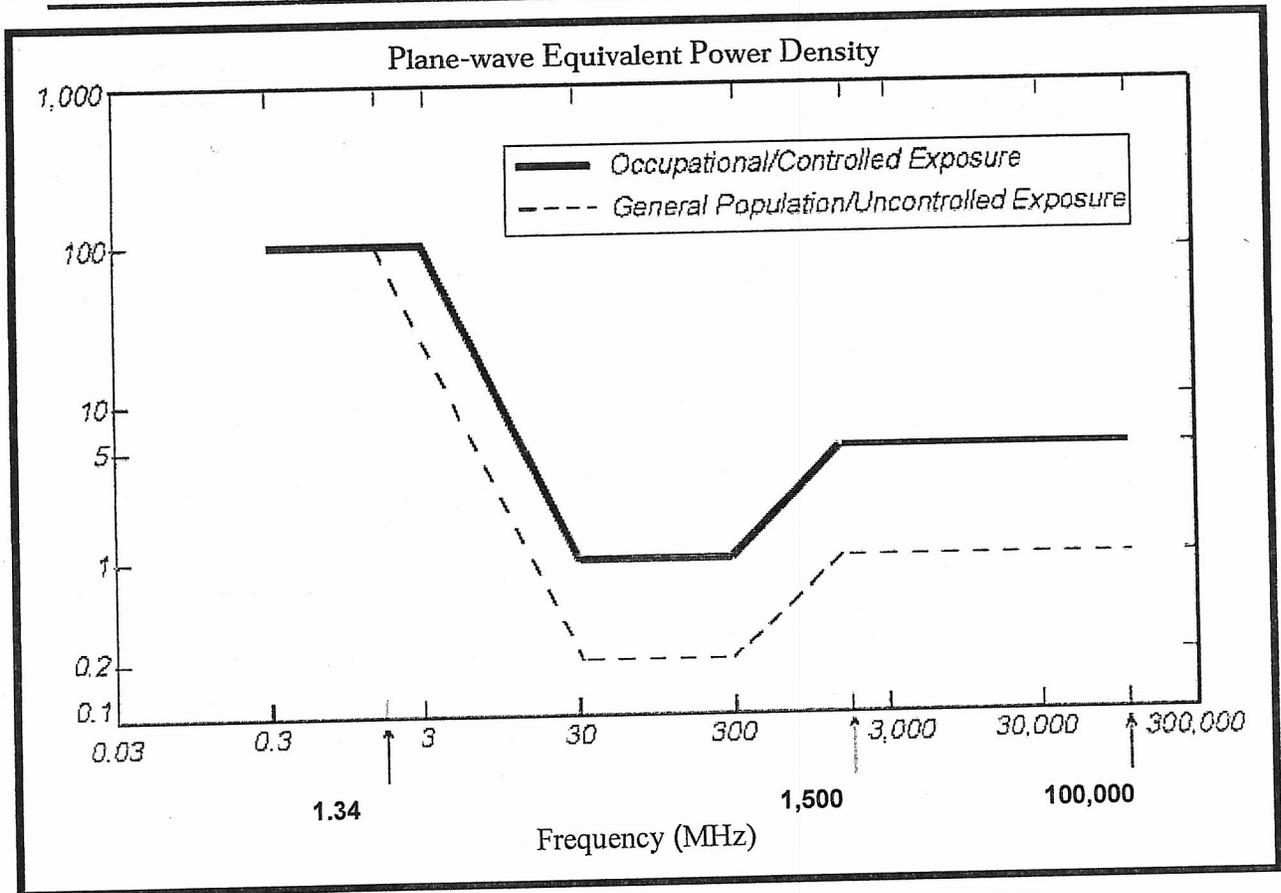
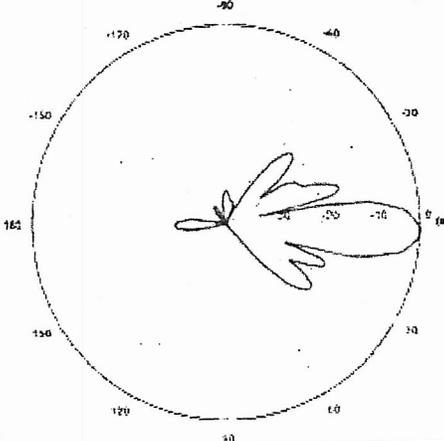
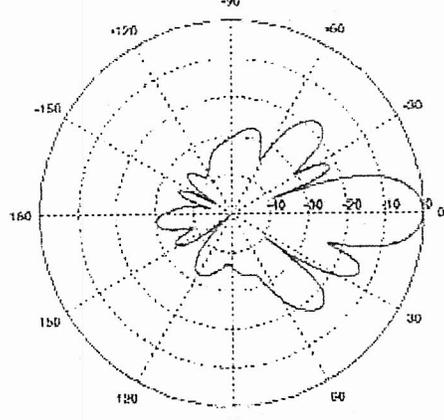
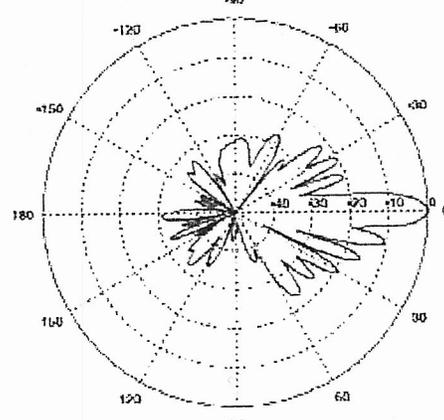


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

<p>700 MHz</p> <p>Manufacturer: KMW Model #: AM-X-CD-16-65-00T-RET Frequency Band: 698-894 MHz Gain: 13.4 dBd Vertical Beamwidth: 12.3° Horizontal Beamwidth: 65° Polarization: Dual Slant ± 45° Size L x W x D: 72.0" x 11.8" x 5.9"</p>	
<p>850 MHz</p> <p>Manufacturer: Powerwave Model #: 7770.00 Frequency Band: 824-896 MHz Gain: 11.5 dBd Vertical Beamwidth: 15° Horizontal Beamwidth: 82° Polarization: Dual Linear ± 45° Size L x W x D: 55.0" 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: 86° Polarization: Dual Linear ± 45° Size L x W x D: 55.0" x 11.0" x 5.0"</p>	

Tower Capacity 88.9%



Date: September 20, 2012

Mr. Stephen Rambeau
TowerCo, LLC
5000 Valleystone Drive
Cary, NC 27519
(919) 653-5737



MORRISON HERSHFIELD

Morrison Hershfield Corporation
66 Perimeter Center East, Ste. 600
Atlanta, GA. 30346
(770) 379-8500

Subject: Rigorous Structural Analysis Report

TowerCo Site Number: CT0006
TowerCo Site Name: Litchfield

Carrier: AT&T
Carrier Site Number: CT1131
Carrier Site Name: Litchfield-Torrington Road

Site Address: 383 Torrington Road, Litchfield, Litchfield County, CT
Site Coordinates: Latitude 41° 45' 58.6" N, Longitude -73° 10' 42.7" W
Tower Description: 139 ft – Monopole Tower

Morrison Hershfield Project Number: TC0-168 / 6123226

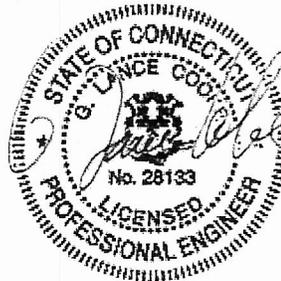
Dear Mr. Rambeau,

Morrison Hershfield Corporation has carried out a structural analysis of the above referenced structure for the existing and proposed antenna and equipment noted in Table 1. This rigorous analysis has been performed in accordance with the ANSI/TIA-222-F *Structural Standards for Antenna Supporting Structures and Antennas* using a 3-second gust wind speed of 80 mph and no radial ice, meeting the requirements of the 2005 Connecticut State Building Code with 2009 Amendments (IBC 2003). This analysis is subject to the assumptions noted.

Our analysis demonstrates that the existing tower and foundation **ARE in conformance** with the requirements of the above noted standards under the effects of loading described in Table 1.

We at *Morrison Hershfield Corporation* appreciate the opportunity of providing our continuing professional services to you and TowerCo. If you have any questions or need further assistance on this or any other projects please give us a call.

Sincerely,
Morrison Hershfield Corporation



G. Lance Cooke, P.E. (CT License No. PEN.0028133)
Senior Engineer

INTRODUCTION

This tower is a 139 ft monopole designed by EEL in April 13, 2007. The tower was originally designed for a wind speed of 85 mph with 0.5" radial ice per TIA/EIA-222-F.

This rigorous structural analysis was performed for this tower in accordance with the requirements of 2005 Connecticut State Building Code with 2009 Amendments (IBC 2003) and the ANSI/TIA-222-F Structural Standards for Antenna Supporting Structures and Antennas using a 3-second gust wind speed of 80 mph with no radial ice, 69 mph with 0.5 inch radial ice thickness, and 50 mph under service loads.

The structural analysis was based on the documentation listed in attached Project History.

1.0 ANALYSIS LOADING

The existing and proposed antennas, transmission lines, and other equipment considered in this analysis were provided by the client and are noted in Table 1.

Table 1 – Antenna Loads

Elev. (ft)	QTY.	Antenna/Appurtenance Description	Carrier	Coax QTY.	Coax Size	Notes
PROPOSED						
118	2	KMW AM-X-CD-16-65-00T-RET Panel Antenna	AT&T	3	3" Conduit Fiber DC Cable	1, 2
	1	Kathrein 800-10764V01 Panel Antenna		3		
	6	Ericsson RRUS11		6		
EXISTING						
140	3	Antel BXA-70063/6CF-2 Panel Antenna	Verizon	12	1-5/8"	2
	6	Antel LPA-80063/4CF Panel Antenna				
	3	Antel BXA-171063/8BF-2 Panel Antenna				
	6	FD9R6004/2C-3L				
	3	T-Arm				
128	6	76"x14"x7" Panel Antenna	Sprint/Nextel (Final)	4 1	1-5/8" 1/2"	3
	12	RRUs 24"x13"x7"				
	12	Combiners 12"x6"x2"				
	3	RRU Filters 24"x13"x7"				
	1	GPS				
	3	T-Arms				
118	6	Powerwave 7770 Panel Antenna	AT&T	12	1-5/8"	2
	12	Powerwave LGP21401 TMA				
	3	T-Arm				
108	9	RFS APX16PV-16PVL-E Panel Antenna	T-Mobile	18	1-5/8"	2
	12	TMA				
	1	LP Platform				

Notes:

1. Proposed loading is in addition to the existing loading at the same elevation. Proposed loading will be installed on the existing sector frame mounts.
2. Coax is routed inside the tower.
3. Sprint's Final configuration was found to control. It has been considered as existing in this analysis.



ANALYSIS PROCEDURE

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 attached at the end of this report.

2.0 ASSUMPTIONS

The analysis provided by Morrison Hershfield is based on the theoretical capacity of the structure and is not a condition assessment of the tower. Morrison Hershfield has not performed an engineering inspection of the tower and the analysis was completed based on information supplied by the customer. Morrison Hershfield has not made any independent determination of the accuracy of the information provided.

- 1) Tower and structures were built in accordance with the manufacturer's specifications and the applicable ANSI/TIA/EIA standard.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The tower is assumed to be in good condition and capable of supporting its full design capacity.
- 4) The foundation was properly designed and constructed for the original design loads.
- 5) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Table 1.
- 6) All existing/proposed antennas and antenna mounts are assumed to be adequate for the existing/proposed loads. Analysis of these antennas and antenna mounts is considered to be outside of the scope of this analysis. Morrison Hershfield has not performed an analysis of the existing/proposed antennas or antenna mounts.

If any assumptions are not valid or have been made in error, this analysis is invalid. Morrison Hershfield Corporation should be notified to determine the effect on the structural integrity of the tower.

3.0 SUMMARY OF RESULTS

The following tables summarize the location and utilized percentage of available capacity for each component of the tower. With consideration to the appropriate safety factors, 100% represents the full capacity of the component. Percentages below 100% indicate available capacity and conformance of the component. Percentages above 100% indicate an overstressed situation requiring structural modification to ensure conformance with the applicable codes and standards.

Based on our analysis results, the **tower and foundation ARE within capacity** to support the loads under the current loading scenario (Table 2).

Tower Section Capacity

Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
L1	139 - 94.5	Pole	TP31.46x20.5x0.25	68.1	Pass
L2	94.5 - 46.5807	Pole	TP42.65x29.8517x0.375	70.9	Pass
L3	46.5807 - 0	Pole	TP53.25x40.4758x0.375	77.8	Pass
				Summary	
			Pole (L3)	77.8	Pass
			RATING =	77.8	Pass





Project History

Project Number TCO-168
TowerCo Site ID: CT0006
TowerCo Site Name: Litchfield

Item ID	Site/Title and Submittal ID	Category	Issued To	Issued Date	Description
754651	CT0006_Litchfield_Airspace_Report	Unknown	Sprint	9/10/2007	Airspace Report
754656	CT0006_Litchfield_Design_Calculations	EEL	Sprint	4/13/2007	Tower Drawings
754658	CT0006_Litchfield_Foundation>Loading	EEL	Sprint	4/8/2008	Foundation Drawings
754659	CT0006_Litchfield_Geotech	Dr. Clarence Welti, P.E., P.C	Sprint	8/19/2005	Geotechnical Study
769894	CT0006_Litchfield_THVR	Jeffrey Gold	TowerCo	5/1/2008	Height Verification Form
807746	CT0006_Litchfield_Tower_Profile	Sitemaster	TowerCo	3/20/2012	Tower Profile
807748	CT0006_Litchfield_Site_Plan	Sitemaster	TowerCo	10/13/2010	Site Plan
857376	CT0006_Litchfield_Vertical_Structural_Analysis_Verizon_Reconfiguration_20120217	Vertical Solution	TowerCo	2/17/2012	Previous SA
890524	CT0006_Litchfield_Vertical_Structural_Analysis_Sprint-Nextel_Overlap_Reconfiguration_20120817	Vertical Solution	TowerCo	8/17/2012	Previous SA
890525	CT0006_Litchfield_Vertical_Structural_Analysis_Sprint-Nextel_Final_Reconfiguration_20120817	Vertical Solution	TowerCo	8/17/2012	Previous SA

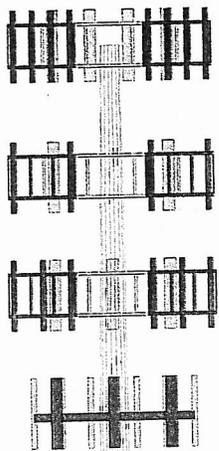
Section	1	2	3
Length (ft)	44.6"	52'-11/32"	52'-4-29/32"
Number of Slides	18	18	18
Thickness (in)	0.2500	0.3750	0.3750
Soclet Length (ft)	4.5"	59'-3 1/32"	40.4758
Top Dia (in)	20.5000	29.8517	40.4758
Bot Dia (in)	31.4600	42.6500	53.2500
Grade	A572-65	A572-65	A572-65
Weight (K)	3.1	7.6	9.9

139.0 ft

94.5 ft

46.6 ft

0.0 ft



DESIGNED APPURTENANCE LOADING

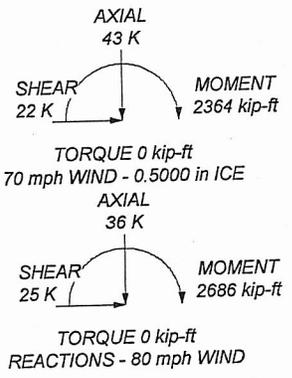
TYPE	ELEVATION	TYPE	ELEVATION
BXA-70063/6CF (Verizon)	140	(4) Sprint NMP_Combiner (Sprint (Final))	128
BXA-70063/6CF (Verizon)	140	(4) Sprint NMP_Combiner (Sprint (Final))	128
BXA-70063/6CF (Verizon)	140	(4) Sprint NMP_Combiner (Sprint (Final))	128
BXA-171063-8CF (Verizon)	140	(4) Sprint NMP_Combiner (Sprint (Final))	128
BXA-171063-8CF (Verizon)	140	(4) Sprint NMP_Combiner (Sprint (Final))	128
BXA-171063-8CF (Verizon)	140	(4) Sprint NMP_Combiner (Sprint (Final))	128
(2) LPA-80063/4CF (Verizon)	140	MAT Filter (Sprint (Final))	128
(2) LPA-80063/4CF (Verizon)	140	MAT Filter (Sprint (Final))	128
(2) LPA-80063/4CF (Verizon)	140	MAT Filter (Sprint (Final))	128
(2) LPA-80063/4CF (Verizon)	140	GPS (Sprint (Final))	128
(2) FD9R6004/2C-3L Diplexer (Verizon)	140	T-Arm (ATI)	118
(2) FD9R6004/2C-3L Diplexer (Verizon)	140	T-Arm (ATI)	118
(2) FD9R6004/2C-3L Diplexer (Verizon)	140	T-Arm (ATI)	118
(2) FD9R6004/2C-3L Diplexer (Verizon)	140	(2) 7770.00 (ATI)	118
(2) FD9R6004/2C-3L Diplexer (Verizon)	140	(2) 7770.00 (ATI)	118
(2) FD9R6004/2C-3L Diplexer (Verizon)	140	(2) 7770.00 (ATI)	118
T-Arm (Verizon)	139	(4) LGP21401 (ATI)	118
T-Arm (Verizon)	139	(4) LGP21401 (ATI)	118
T-Arm (Verizon)	139	(4) LGP21401 (ATI)	118
T-Arm (Sprint/Nextel)	128	(4) LGP21401 (ATI)	118
T-Arm (Sprint/Nextel)	128	AM-X-CW-16-65-00T-RET (ATI)	118
T-Arm (Sprint/Nextel)	128	AM-X-CW-16-65-00T-RET (ATI)	118
(2) 76"x14"x7" Panel w/ pipe mount (Sprint (Final))	128	800-10764 (ATI)	118
(2) 76"x14"x7" Panel w/ pipe mount (Sprint (Final))	128	(2) RRUS-11 (ATI)	118
(2) 76"x14"x7" Panel w/ pipe mount (Sprint (Final))	128	(2) RRUS-11 (ATI)	118
(2) 76"x14"x7" Panel w/ pipe mount (Sprint (Final))	128	(2) RRUS-11 (ATI)	118
(4) RRUS-11 1900 MHz (Sprint (Final))	128	LP Platform (T-Mobile)	108
(4) RRUS-11 1900 MHz (Sprint (Final))	128	(3) APX16PV-16PVL (T-Mobile)	108
(4) RRUS-11 1900 MHz (Sprint (Final))	128	(3) APX16PV-16PVL (T-Mobile)	108
(4) RRUS-11 1900 MHz (Sprint (Final))	128	(3) APX16PV-16PVL (T-Mobile)	108
(4) RRUS-11 1900 MHz (Sprint (Final))	128	(4) 12"x9"x6" TMA (T-Mobile)	108
(4) RRUS-11 1900 MHz (Sprint (Final))	128	(4) 12"x9"x6" TMA (T-Mobile)	108
(4) RRUS-11 1900 MHz (Sprint (Final))	128	(4) 12"x9"x6" TMA (T-Mobile)	108

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Litchfield County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 70 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 77.8%



<p>Morrison Hershfield Corp 66 Perimeter Center East Ste. 600 Atlanta, GA 30346 Phone: (770) 379-8500 FAX: (770) 379-8501</p>	Job: CT0006-ERP
	Project: ENGMH-321 (78%)
	Client: TowerCo
	Code: TIA/EIA-222-F
	Path:
Drawn by: acrotty	App'd:
Date: 09/20/12	Scale: NTS
	Dwg No. E-1

tnxTower Morrison Hershfield Corp 66 Perimeter Center East Ste. 600 Atlanta, GA 30346 Phone: (770) 379-8500 FAX: (770) 379-8501	Job	CT0006-ERP	Page	1 of 5
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	Client	TowerCo	Designed by	acrotty

Tower Input Data

There is a pole section.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

Tower is located in Litchfield County, Connecticut.

Basic wind speed of 80 mph.

Nominal ice thickness of 0.5000 in.

Ice density of 56 pcf.

A wind speed of 70 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 50 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.333.

Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

<ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile √ Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) Add IBC .6D+W Combination 	<ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area √ Use Clear Spans For KL/r Retension Guys To Initial Tension Bypass Mast Stability Checks Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas SR Members Have Cut Ends √ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing 	<ul style="list-style-type: none"> Treat Feedline Bundles As Cylinder Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feedline Torque Include Angle Block Shear Check <li style="padding-left: 20px;">Poles Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets
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Tapered Pole Section Geometry

Section	Elevation	Section Length	Splice Length	Number of Sides	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
	ft	ft	ft		in	in	in	in	
L1	139'-94'6"	44'6"	4'6"	18	20.5000	31.4600	0.2500	1.0000	A572-65 (65 ksi)
L2	94'6"-46'6"-31/32	52'5"-1/32"	5'9"-31/32"	18	29.8517	42.6500	0.3750	1.5000	A572-65 (65 ksi)
L3	46'6"-31/32"-0'	52'4"-29/32"		18	40.4758	53.2500	0.3750	1.5000	A572-65 (65 ksi)

tnxTower Morrison Hershfield Corp 66 Perimeter Center East Ste. 600 Atlanta, GA 30346 Phone: (770) 379-8500 FAX: (770) 379-8501	Job	CT0006-ERP	Page	2 of 5
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	Client	TowerCo	Designed by	acrotty

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _{AA}		Weight
							ft ² /ft	plf	
1 5/8 (Verizon) *****	C	No	Inside Pole	139' - 8'	12	No Ice 1/2" Ice	0.00 0.00	1.04 1.04	
1 5/8 (Sprint/Nextel)	B	No	Inside Pole	128' - 8'	4	No Ice 1/2" Ice	0.00 0.00	1.04 1.04	
1/2 (Sprint/Nextel) *****	B	No	Inside Pole	128' - 8'	1	No Ice 1/2" Ice	0.00 0.00	0.25 0.25	
1 5/8 (AT&T)	A	No	Inside Pole	118' - 8'	12	No Ice 1/2" Ice	0.00 0.00	1.04 1.04	
Fiber (0.364") (AT&T)	A	No	Inside Pole	118' - 8'	3	No Ice 1/2" Ice	0.00 0.00	0.12 0.12	
DC Power Cable (0.795") (AT&T)	A	No	Inside Pole	118' - 8'	6	No Ice 1/2" Ice	0.00 0.00	0.88 0.88	
3" Conduit (AT&T) *****	A	No	Inside Pole	118' - 8'	3	No Ice 1/2" Ice	0.00 0.00	6.25 6.25	
1 5/8 (T-Mobile)	C	No	Inside Pole	108' - 8'	18	No Ice 1/2" Ice	0.00 0.00	1.04 1.04	

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement ft	C _{AA}		Weight K	
			Horz Lateral ft	Vert ft			Front ft ²	Side ft ²		
T-Arm (Verizon)	A	From Face	2.00	0'	0.0000	139'	No Ice 1/2" Ice	10.54 14.46	10.54 14.46	0.34 0.41
T-Arm (Verizon)	B	From Face	2.00	0'	0.0000	139'	No Ice 1/2" Ice	10.54 14.46	10.54 14.46	0.34 0.41
T-Arm (Verizon)	C	From Face	2.00	0'	0.0000	139'	No Ice 1/2" Ice	10.54 14.46	10.54 14.46	0.34 0.41
BXA-70063/6CF (Verizon)	A	From Face	4.00	0'	0.0000	140'	No Ice 1/2" Ice	7.73 8.27	3.76 4.19	0.02 0.06
BXA-70063/6CF (Verizon)	B	From Face	4.00	0'	0.0000	140'	No Ice 1/2" Ice	7.73 8.27	3.76 4.19	0.02 0.06
BXA-70063/6CF (Verizon)	C	From Face	4.00	0'	0.0000	140'	No Ice 1/2" Ice	7.73 8.27	3.76 4.19	0.02 0.06
BXA-171063-8CF (Verizon)	A	From Face	4.00	0'	0.0000	140'	No Ice 1/2" Ice	2.94 3.26	2.16 2.46	0.02 0.04
BXA-171063-8CF (Verizon)	B	From Face	4.00	0'	0.0000	140'	No Ice 1/2" Ice	2.94 3.26	2.16 2.46	0.02 0.04
BXA-171063-8CF (Verizon)	C	From Face	4.00	0'	0.0000	140'	No Ice 1/2" Ice	2.94 3.26	2.16 2.46	0.02 0.04

tnxTower Morrison Hershfield Corp 66 Perimeter Center East Ste. 600 Atlanta, GA 30346 Phone: (770) 379-8500 FAX: (770) 379-8501	Job	CT0006-ERP	Page	3 of 5
	Project	ENGMH-321 (78%)	Date	14:20:33 09/20/12
	Client	TowerCo	Designed by	acrotty

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft ²	ft ²	K
(2) LPA-80063/4CF (Verizon)	A	From Face	4.00	0.0000	140'	No Ice	7.01	6.08	0.03
			0'	0'		1/2" Ice	7.42	6.48	0.08
(2) LPA-80063/4CF (Verizon)	B	From Face	4.00	0.0000	140'	No Ice	7.01	6.08	0.03
			0'	0'		1/2" Ice	7.42	6.48	0.08
(2) LPA-80063/4CF (Verizon)	C	From Face	4.00	0.0000	140'	No Ice	7.01	6.08	0.03
			0'	0'		1/2" Ice	7.42	6.48	0.08
(2) FD9R6004/2C-3L Diplexer (Verizon)	A	From Face	4.00	0.0000	140'	No Ice	0.37	0.08	0.00
			0'	0'		1/2" Ice	0.45	0.14	0.01
(2) FD9R6004/2C-3L Diplexer (Verizon)	B	From Face	4.00	0.0000	140'	No Ice	0.37	0.08	0.00
			0'	0'		1/2" Ice	0.45	0.14	0.01
(2) FD9R6004/2C-3L Diplexer (Verizon)	C	From Face	4.00	0.0000	140'	No Ice	0.37	0.08	0.00
			0'	0'		1/2" Ice	0.45	0.14	0.01
T-Arm (Sprint/Nextel)	A	From Face	2.00	0.0000	128'	No Ice	10.54	10.54	0.34
			0'	0'		1/2" Ice	14.46	14.46	0.41
T-Arm (Sprint/Nextel)	B	From Face	2.00	0.0000	128'	No Ice	10.54	10.54	0.34
			0'	0'		1/2" Ice	14.46	14.46	0.41
T-Arm (Sprint/Nextel)	C	From Face	2.00	0.0000	128'	No Ice	10.54	10.54	0.34
			0'	0'		1/2" Ice	14.46	14.46	0.41
(2) 76"x14"x7" Panel w/ pipe mount (Sprint (Final))	A	From Leg	3.00	0.0000	128'	No Ice	10.50	7.31	0.07
			0'	0'		1/2" Ice	11.16	8.51	0.14
(2) 76"x14"x7" Panel w/ pipe mount (Sprint (Final))	B	From Leg	3.00	0.0000	128'	No Ice	10.50	7.31	0.07
			0'	0'		1/2" Ice	11.16	8.51	0.14
(2) 76"x14"x7" Panel w/ pipe mount (Sprint (Final))	C	From Leg	3.00	0.0000	128'	No Ice	10.50	7.31	0.07
			0'	0'		1/2" Ice	11.16	8.51	0.14
(4) RRUS-11 1900 MHz (Sprint (Final))	A	From Leg	3.00	0.0000	128'	No Ice	2.92	2.92	0.06
			0'	0'		1/2" Ice	3.16	3.16	0.09
(4) RRUS-11 1900 MHz (Sprint (Final))	B	From Leg	3.00	0.0000	128'	No Ice	2.92	2.92	0.06
			0'	0'		1/2" Ice	3.16	3.16	0.09
(4) RRUS-11 1900 MHz (Sprint (Final))	C	From Leg	3.00	0.0000	128'	No Ice	2.92	2.92	0.06
			0'	0'		1/2" Ice	3.16	3.16	0.09
(4) Sprint NMP_Combiner (Sprint (Final))	A	From Leg	3.00	0.0000	128'	No Ice	0.99	0.48	0.01
			0'	0'		1/2" Ice	1.15	0.62	0.02
(4) Sprint NMP_Combiner (Sprint (Final))	B	From Leg	3.00	0.0000	128'	No Ice	0.99	0.48	0.01
			0'	0'		1/2" Ice	1.15	0.62	0.02
(4) Sprint NMP_Combiner (Sprint (Final))	C	From Leg	3.00	0.0000	128'	No Ice	0.99	0.48	0.01
			0'	0'		1/2" Ice	1.15	0.62	0.02
MAT Filter (Sprint (Final))	A	From Leg	3.00	0.0000	128'	No Ice	1.59	0.62	0.02
			0'	0'		1/2" Ice	1.76	0.74	0.03

tnxTower Morrison Hershfield Corp 66 Perimeter Center East Ste. 600 Atlanta, GA 30346 Phone: (770) 379-8500 FAX: (770) 379-8501	Job	CT0006-ERP	Page	4 of 5
	Project	ENGMH-321 (78%)	Date	14:20:33 09/20/12
	Client	TowerCo	Designed by	acrotty

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
			Vert		°	ft	ft ²	ft ²	K
			ft	ft					
			0'						
MAT Filter (Sprint (Final))	B	From Leg	3.00	0.0000	128'	No Ice	1.59	0.62	0.02
			0'			1/2" Ice	1.76	0.74	0.03
			0'						
MAT Filter (Sprint (Final))	C	From Leg	3.00	0.0000	128'	No Ice	1.59	0.62	0.02
			0'			1/2" Ice	1.76	0.74	0.03
			0'						
GPS (Sprint (Final))	C	None		0.0000	128'	No Ice	0.25	0.25	0.01
						1/2" Ice	0.38	0.38	0.01

T-Arm (AT&T)	A	From Face	2.00	0.0000	118'	No Ice	10.54	10.54	0.34
			0'			1/2" Ice	14.46	14.46	0.41
			0'						
T-Arm (AT&T)	B	From Face	2.00	0.0000	118'	No Ice	10.54	10.54	0.34
			0'			1/2" Ice	14.46	14.46	0.41
			0'						
T-Arm (AT&T)	C	From Face	2.00	0.0000	118'	No Ice	10.54	10.54	0.34
			0'			1/2" Ice	14.46	14.46	0.41
			0'						
(2) 7770.00 (AT&T)	A	From Face	4.00	0.0000	118'	No Ice	5.88	2.93	0.04
			0'			1/2" Ice	6.31	3.27	0.07
			0'						
(2) 7770.00 (AT&T)	B	From Face	4.00	0.0000	118'	No Ice	5.88	2.93	0.04
			0'			1/2" Ice	6.31	3.27	0.07
			0'						
(2) 7770.00 (AT&T)	C	From Face	4.00	0.0000	118'	No Ice	5.88	2.93	0.04
			0'			1/2" Ice	6.31	3.27	0.07
			0'						
(4) LGP21401 (AT&T)	A	From Face	4.00	0.0000	118'	No Ice	1.29	0.23	0.01
			0'			1/2" Ice	1.45	0.31	0.02
			0'						
(4) LGP21401 (AT&T)	B	From Face	4.00	0.0000	118'	No Ice	1.29	0.23	0.01
			0'			1/2" Ice	1.45	0.31	0.02
			0'						
(4) LGP21401 (AT&T)	C	From Face	4.00	0.0000	118'	No Ice	1.29	0.23	0.01
			0'			1/2" Ice	1.45	0.31	0.02
			0'						
AM-X-CW-16-65-00T-RET (AT&T)	C	From Face	4.00	0.0000	118'	No Ice	8.26	4.64	0.05
			0'			1/2" Ice	8.81	5.09	0.10
			0'						
AM-X-CW-16-65-00T-RET (AT&T)	B	From Face	4.00	0.0000	118'	No Ice	8.26	4.64	0.05
			0'			1/2" Ice	8.81	5.09	0.10
			0'						
800-10764 (AT&T)	A	From Face	4.00	0.0000	118'	No Ice	6.33	3.39	0.05
			0'			1/2" Ice	6.77	3.74	0.08
			0'						
(2) RRUS-11 (AT&T)	A	From Face	4.00	0.0000	118'	No Ice	2.94	1.25	0.06
			0'			1/2" Ice	3.17	1.41	0.07
			0'						
(2) RRUS-11 (AT&T)	B	From Face	4.00	0.0000	118'	No Ice	2.94	1.25	0.06
			0'			1/2" Ice	3.17	1.41	0.07
			0'						
(2) RRUS-11 (AT&T)	C	From Face	4.00	0.0000	118'	No Ice	2.94	1.25	0.06
			0'			1/2" Ice	3.17	1.41	0.07
			0'						

LP Platform	C	None		0.0000	108'	No Ice	18.01	18.01	1.12

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	Project	ENGMH-321 (78%)	Date	14:20:33 09/20/12
	Client	TowerCo	Designed by	acrotty

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz Lateral	Vert					
			ft	ft	°	ft	ft ²	ft ²	K
(T-Mobile)									
(3) APX16PV-16PVL (T-Mobile)	A	From Face	4.00	0.0000	108'	1/2" Ice	23.33	23.33	1.35
			0'			No Ice	6.70	2.84	0.05
			0'			1/2" Ice	7.13	3.17	0.08
(3) APX16PV-16PVL (T-Mobile)	B	From Face	4.00	0.0000	108'	No Ice	6.70	2.84	0.05
			0'			1/2" Ice	7.13	3.17	0.08
(3) APX16PV-16PVL (T-Mobile)	C	From Face	4.00	0.0000	108'	No Ice	6.70	2.84	0.05
			0'			1/2" Ice	7.13	3.17	0.08
(4) 12"x9"x6" TMA (T-Mobile)	A	From Face	4.00	0.0000	108'	No Ice	1.05	0.70	0.05
			0'			1/2" Ice	1.19	0.82	0.06
(4) 12"x9"x6" TMA (T-Mobile)	B	From Face	4.00	0.0000	108'	No Ice	1.05	0.70	0.05
			0'			1/2" Ice	1.19	0.82	0.06
(4) 12"x9"x6" TMA (T-Mobile)	C	From Face	4.00	0.0000	108'	No Ice	1.05	0.70	0.05
			0'			1/2" Ice	1.19	0.82	0.06

Section Capacity Table

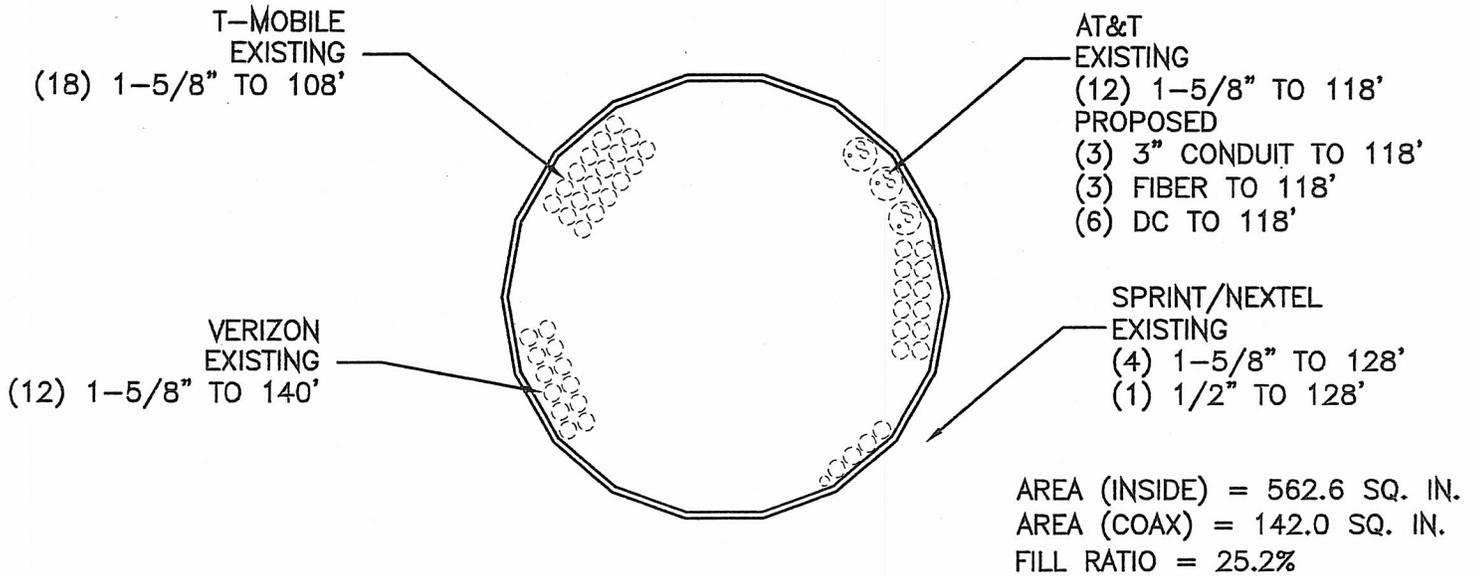
Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
L1	139 - 94.5	Pole	TP31.46x20.5x0.25	68.1	Pass
L2	94.5 - 46.5807	Pole	TP42.65x29.8517x0.375	70.9	Pass
L3	46.5807 - 0	Pole	TP53.25x40.4758x0.375	77.8	Pass
				Summary	
				Pole (L3)	77.8
				RATING =	77.8

NOTE: ACTUAL LOCATIONS OF EXISTING CABLES MAY VARY FROM THE LAYOUT SHOWN. PLEASE CONTACT MORRISON HERSHFIELD PRIOR TO INSTALLING PROPOSED LINES IF LAYOUT IS SUBSTANTIALLY DIFFERENT FROM THAT SHOWN.



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Project: TOWERCO
CT0006 / ENGMH-321
TC0-168



COAX CONFIGURATION PLAN - 108.0FT

Capacity of Additional Components

Component	Capacity (%)	Pass/Fail
Anchor Bolt	65.5	Pass
Base Plate	44.6	Pass
Foundation Rock Anchors*	88.9	Pass

*Foundation is reinforced with rock anchors. We have evaluated the foundation based on a comparison to the original design reactions. Based on this information, the foundation appears sufficient.

4.0 RECOMENDATIONS

1. All assumptions made in this analysis should be carefully reviewed. Morrison Hershfield should be contacted for any discrepancies so that a full assessment may be made to validate the results of this analysis.

ATTACHMENTS: Project History, Coax Sketch, Tower Profile, Program Output

