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

Internet: ct.gov/csc

Daniel F. Caruso
Chairman

September 2, 2008

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103

RE: **EM-VER-143-080725** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 1210 Highland Avenue, Torrington, Connecticut.

Dear Attorney Baldwin:

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 condition that the coax lines are installed per Figure 1 of the structural analysis report dated January 7, 2008 and sealed by Christopher Murphy, P.E.

The proposed modifications are to be implemented as specified here and in your notice dated July 25, 2008, including the placement of all necessary equipment and shelters within the tower compound. 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. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/MP/jb

c: The Honorable Ryan J. Bingham, Mayor, City of Torrington
Martin Connor, City Planner, City of Torrington
SBA

STATE OF CONNECTICUT

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Daniel F. Caruso
Chairman

August 25, 2008

Martin J. Connor, AICP
City Planner
City of Torrington
Municipal Building
140 Main Street
Torrington, CT 06790-5245

RE: **EM-VER-143-080717** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 136 Wright Road, Torrington, Connecticut.

EM-VER-143-080725 – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 1210 Highland Avenue, Torrington, Connecticut.

Dear Mr. Connor:

On July 17, 2008 and July 25, 2008, respectively, the Connecticut Siting Council (Council) received from Cellco Partnership d/b/a Verizon Wireless (Verizon Wireless) the above-noted notices of intent to modify existing telecommunications facilities at 136 Wright Road and 1210 Highland Avenue, Torrington. I am also in receipt of your letters dated July 29, 2008 and August 5, 2008 in which indicate your interest in reserving space on the above-noted telecommunications towers for municipal emergency services.

Please be advised that the applicant, Verizon Wireless, leases space on both towers as a tenant and does not own either tower. As such, Verizon Wireless does not control the reservation of tower space at either facility.

According to our records, Crown Castle USA, Inc. is the owner of the 136 Wright Road tower, and SBA Network Services, Inc. is the owner of the 1210 Highland Avenue tower. In light of this, I would recommend that the City of Torrington's (City) request(s) for tower space be provided in writing to the respective tower owner(s). Once an agreement is reached between the City and the tower owner(s), the co-location plans may be submitted to the Council for review and approval.

If I may be of any assistance in this matter, please do not hesitate to contact me.

Thank you for your attention and cooperation.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/MP

c: Honorable Mayor Ryan Bingham, City of Torrington

City Of Torrington

ORIGINAL

PLANNING AND ZONING COMMISSION
140 Main Street • Room 311
Torrington, CT 06790

Tel.: (860) 489-2220
Fax: (860) 489-2550

August 5, 2008

S. Derek Phelps, Executive Director
State of Connecticut Siting Council
Ten Franklin Square
New Briain, CT 06051

Re: EM-VER-143-080725, Cellco Partnership d/b/a Verizon Wireless, 1210 Highland Avenue

Dear Mr. Phelps:

Mayor Bingham asked me to respond to the notice received from you regarding a request from Cellco Partnership d/b/a Verizon Wireless to modify the existing telecommunications facility at 1210 Highland Avenue. I contacted our Police and Fire Departments regarding their needs in this area of the City. The City of Torrington Fire Department would like a spot reserved on the cell tower for future use. They have numerous "dead spots" in that area of the City. The Police and Fire Departments are in the process of updating their communications systems and looking at a combined dispatch. Please communicate our needs to the applicant.

If you have any questions, please call me at (860) 489-2220.

Sincerely yours,

Martin J Connor, AICP
City Planner

Mayor Ryan Bingham
John Field Jr., Fire Chief
Robert Milano, Police Chief

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

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Internet: ct.gov/csc

Daniel F. Caruso
Chairman

July 28, 2008

The Honorable Ryan J. Bingham
Mayor
City of Torrington
Municipal Building
140 Main Street
Torrington, CT 06790-5245

RE: **EM-VER-143-080725** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 1210 Highland Avenue, Torrington, Connecticut.

Dear Mayor Bingham:

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 August 11, 2008.

Thank you for your cooperation and consideration.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/jb

Enclosure: Notice of Intent

c: Martin Connor, City Planner, City of Torrington

ROBINSON & COL

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

EM-VER-143-080725

ORIGINAL

July 25, 2008

Via Hand Delivery

S. Derek Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Antenna Swap**
1210 Highland Avenue, Torrington, Connecticut

Dear Mr. Phelps:

Alltel Communications ("Alltel") currently maintains twelve antennas at the 200-foot level on an existing SBA tower located at 1210 Highland Avenue in Torrington, Connecticut.

As the Council is aware, on May 30, 2008, Cellco acquired Alltel's CT-1 RSA FCC license for Litchfield County, Connecticut. Cellco now intends to remove Alltel's twelve antennas and install six (6) BXA-80063/4CF cellular antennas and three (3) BXA-185063/8CF PCS antennas at the 200-foot level on the tower. Attached behind Tab 1 are the specifications for the proposed replacement antennas.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Ryan J. Bingham, Mayor of the City of Torrington. SBA Properties is the owner of the property on which the tower is located.

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

1. The proposed modifications will not result in the increase in the overall height of the existing structure. Cellco's replacement antennas will be located at the 200-foot level of the 265-foot tower.

2. The proposed antenna modifications will not require the extension of the site boundaries.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

4. The operation of the replacement antennas will not increase radio frequency (RF) power density levels at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative power density table for the facility is included behind Tab 2. (According to Council records, several wireless carriers are listed as being located at the 200 foot level. According to the attached Structural Report only Alltel antennas are located at the 200-foot level on the tower).

Also attached is a Structural Analysis Report confirming that the tower can support the proposed modifications. (See Tab 3).

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

Sincerely,

Kenneth C. Baldwin

KCB/ct
Enclosures
Copy to:
Ryan J. Bingham, Torrington Mayor
Sandy M. Carter

Slant +/- 45° Dual Polarized, Panel 63° / 13 dBd

BXA-80063/4CF ___

When ordering replace "___" with connector type.

Mechanical specifications

Length	1205 mm	47.4 in
Width	285 mm	11.2 in
Depth	126 mm	5.0 in
Depth with z-bracket	166 mm	6.5 in
[4] Weight	4.5 kg	9.9 lbs
Wind Area		
Fore/Aft	0.36 m^2	3.9 ft^2
Side	0.15 m^2	1.7 ft^2
Rated Wind Velocity (Safety factor 2.0)	>653 km/hr	>406 mph
Wind Load @ 100 mph (161 km/hr)		
Fore/Aft	522 N	117 lbs
Side	244 N	54.5 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting and Downtilting

Mounting brackets attach to a pipe diameter of Ø50-160 mm (2.0-6.3 in).

Mounting bracket kit #36210002
Downtilt bracket kit #36114003

Electrical specifications

	Frequency Range	806-900 MHz*
	Impedance	50Ω
[3]	Connector(s)	NE or E-DIN 2 ports / center
[1]	VSWR	≤ 1.4:1
	Polarization	Slant ± 45°
[1]	Isolation Between Ports	< -30 dB
[1]	Gain	13 dBd
[2]	Power Rating	500 W
[1]	Half Power Angle	
	H-Plane	63°
	E-Plane	15°
[1]	Electrical Downtilt	0°
[1]	Null Fill	5%
	Lightning Protection	Direct Ground

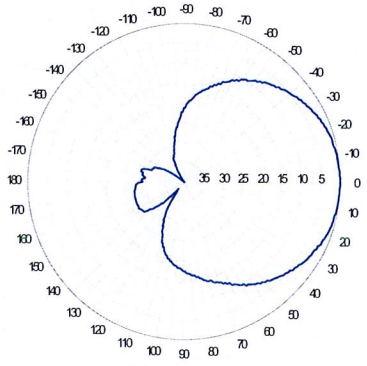
*Also available for 870-960 MHz. Refer to model BXA-87063/4CF _.

Patented Dipole Design: U.S. Patent No. 6,608,600 B2

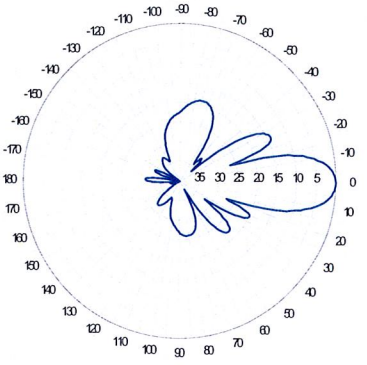
1) Typical values.
2) Power rating limited by connector only.
3) NE indicates an elongated N connector. E-DIN indicates an elongated DIN connector.
4) The antenna weight listed above does not include the bracket weight.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation pattern[1]



Horizontal



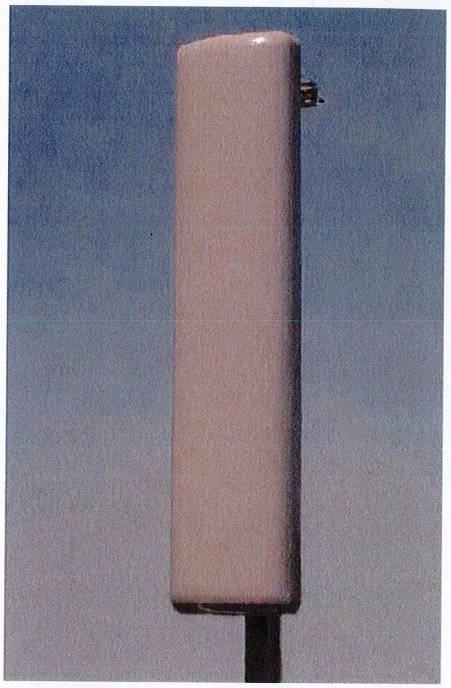
Vertical

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back ratio.

CF Denotes a Center-Fed Connector.

806-900 MHz



Amphenol Antel's Exclusive 3T (True Transmission Line Technology) Antenna Design:

- Watercut brass feedline assembly for consistent performance.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad band-width and superior performance.
- Air as insulation for virtually no internal signal loss.

This Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna available with center-fed connectors only.

Amphenol Antel, Inc.
The Antenna Technology Company

Amphenol Antel, Inc. 1300 Capital Drive Rockford, Illinois 61109 USA Tel. (815) 399-0001
Toll-Free (888) 417-9562 Fax. (815) 399-0156 antel@antelinc.com www.antelinc.com

Revision Date: 7/3/07

Slant +/- 45° Dual Polarized, Panel 63° / 18.5 dBi

BXA-185063/8CF ___

When ordering replace "___" with connector type.

Mechanical specifications

Length	1238 mm	48.8 in
Width	154 mm	6.1 in
Depth	80 mm	3.2 in
Depth with t-bracket	108 mm	4.3 in
[4] Weight	4.5 kg	10.0 lbs
Wind Area		
Fore/Aft	0.19 m^2	2.1 ft^2
Side	0.10 m^2	1.1 ft^2
Rated Wind Velocity (Safety factor 2.0)	>322 km/hr	>200 mph
Wind Load @ 100 mph (161 km/hr)		
Fore/Aft	288 N	65 lbs
Side	170 N	38 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting and Downtilting

Mounting brackets attach to a pipe diameter of Ø50-102 mm (2.0-4.0 in).

Mounting bracket kit #26799997
Downtilt bracket kit #26799999

The downtilt bracket kit includes the mounting bracket kit.

Electrical specifications

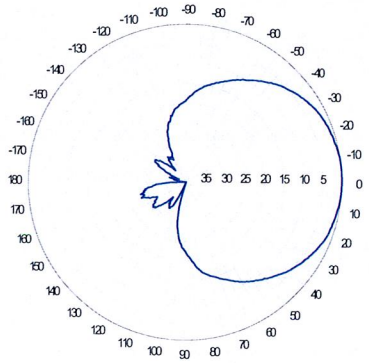
	Frequency Range	1850-1990 MHz
	Impedance	50Ω
[3]	Connector(s)	NE or E-DIN 2 ports / center or bottom
[1]	VSWR	≤ 1.4:1
	Polarization	Slant ± 45°
[1]	Isolation Between Ports	< -30 dB
[1]	Gain	18.5 dBi
[2]	Power Rating	250 W
[1]	Half Power Angle	
	H-Plane	63°
	E-Plane	7°
[1]	Electrical Downtilt	0°
[1]	Null Fill	5%
	Lightning Protection	Direct Ground

Patented Dipole Design: U.S. Patent No. 6,597,324 B2

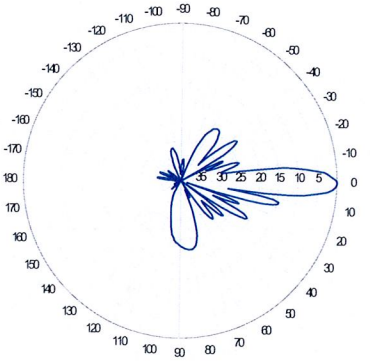
1) Typical values.
2) Power rating limited by connector only.
3) NE indicates an elongated N connector. E-DIN indicates an elongated DIN connector.
4) The antenna weight listed above does not include the bracket weight.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation pattern[1]



Horizontal



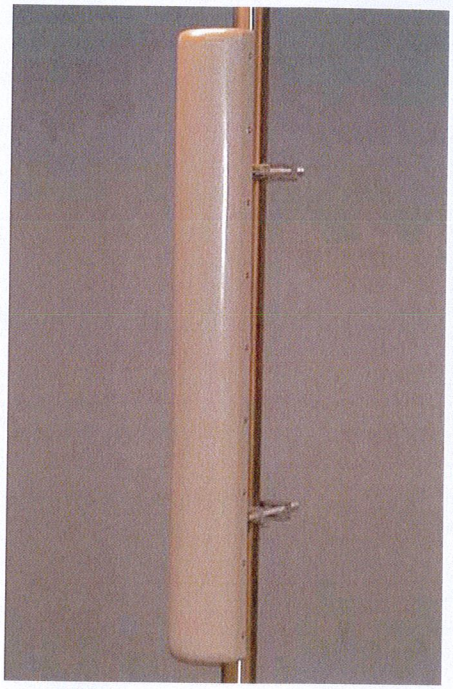
Vertical

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back ratio.

CF Denotes a Center-Fed Connector.

1850-1990 MHz



Amphenol Antel's Exclusive 3T (True Transmission Line Technology) Antenna Design:

- Watercut brass feedline assembly for consistent performance.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad band-width and superior performance.
- Air as insulation for virtually no internal signal loss.

This Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna can be ordered with center-fed or bottom-fed connectors.

Center-fed: BXA-185063/8CF + (NE or E-DIN)
Bottom-fed: BXA-185063/8BF + (NE or E-DIN)

Amphenol Antel, Inc. 1300 Capital Drive Rockford, Illinois 61109 USA Tel. (815) 399-0001
Toll-Free (888) 417-9562 Fax. (815) 399-0156 antel@antelinc.com www.antelinc.com

Amphenol Antel, Inc. The Antenna Technology Company

Revision Date: 7/11/07

	General	Power	Density					
Site Name: Torrington Alltel								
Tower Height: Verizon @ 200ft.								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS .EXP.**	**FRACTION MPE**	**Total**
*Misc unidentified antennas			var.				AT&T took	
*Nextel	9	100	200	0.0081	851	0.5673	field measurements	
*Marcus	1	100	60	0.0100	5800	1.0000	of power density levels	
*Marcus	1	100	100	0.0036	5800	1.0000	2/8/2002	
*AT&T			200				25.50%	
*Cingular	6	296	130	0.0378	880	0.5867	6.44%	
*Cingular	3	427	130	0.0273	1930	1.0000	2.73%	
Verizon	**9**	**485**	**200**	**0.0392**	**1970**	**1.0000**	**3.92%**	
Verizon	**9**	**200**	**200**	**0.0162**	**875**	**0.5830**	**2.78%**	
* Source: Siting Council								**41.37%**

Structural Analysis for SBA Network Services, Inc.

260' Guy Tower

Site Name: Torrington 2
Site ID: CT02303-A

FDH Project Number 08-0103E

Prepared By:

Adrian L. Creech

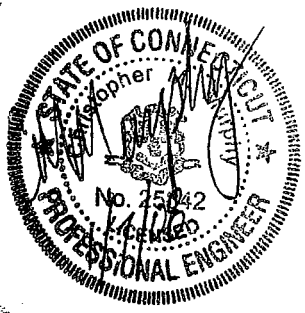
Adrian L. Creech, EI
Project Engineer

Reviewed By:

Christopher M. Murphy

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

FDH Engineering, Inc.
PO Box 99556
Raleigh, NC 27615
(919)-755-1012
info@fdh-inc.com



January 7, 2008

Prepared pursuant to EIA/TIA-222-F June 1996 Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

TABLE OF CONTENTS

2730 Rowland Rd., Suite 100 Raleigh, NC 27615 Ph: (919) 755-1012 Fax: (919) 755-1031 info@fdh-inc.com

EXECUTIVE SUMMARY

At the request of SBA Network Services, FDH Engineering performed an analysis of the existing guy tower located in Torrington, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads, pursuant to the *Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, TIA/EIA-222-F.* Information pertaining to the existing/proposed antenna loading, current tower geometry, and the member sizes was obtained from:

- PiRod, Inc. (File No. A-107657) original design drawings dated September 23, 1996
- All-Points Technology Corporation, P.C. (Project No. CT122160) structural analysis report dated January 21, 2002
- FDH Engineering, Inc (Project No. 05-0827E) structural analysis dated August 17, 2005 and modification drawings dated August 29, 2005
- SBA Network Services, Inc.

The basic design wind speed per *TIA/EIA-222-F* standards is 80 MPH without ice and 69 MPH with 1/2" radial ice.

Conclusions

With the existing and proposed antennas from Verizon in place at 200 ft., the tower meets the requirements of the *TIA/EIA-222-F* standards. Furthermore, provided the foundations were constructed per the original design drawings (see PiRod File No. 107657-1), the foundations should have the necessary capacity to support both the proposed and existing loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

Our structural analysis has been performed assuming all information provided to FDH is accurate and that the tower was properly erected and maintained per the original design drawings.

Recommendation

To ensure the requirements of the *TIA/EIA-222-F* standards are met with the existing and proposed loading in place, we have the following recommendations:

1. Coax lines must be installed as shown in **Figure 1**.

2730 Rowland Rd., Suite 100 Raleigh, NC 27615 Ph: (919) 755-1012 Fax: (919) 755-1031 info@fdh-inc.com

APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coax lines are shown in **Table 1**. *If the actual layout determined in the field deviates from this layout, FDH should be contacted to perform a revised analysis.*

Table 1 – Appurtenance Loading

Existing Loading:

Antenna	Centerline Elevation (ft)	Coax and Lines	Mount Type	Description
1	259	(1) 1-5/8"	(1) 10' Candelabra	(1) 20 ft. Whip
2	259	(1) 1-5/8"	(1) 10' Candelabra	(1) 12 ft. Whip
3-4	259	(1) 1/2" (2) 7/8"	(1) 10' Candelabra	(2) 16 ft. Whips
5-10	245	(12) 1-5/8"	(3) T-Frame Sector Mounts	(6) Powerwave 7770 (12) TMAs (12) Diplexers
11	222	(1) 1-5/8"	(1) 4' Standoff	(1) 14 ft. Whip
12	222	(1) 1-1/4"	Direct Mount	(1) 10 ft. Whip
13-16	218	(3) 1-1/4" (1) 7/8"	(1) 10' Candelabra	(2) 12 ft. Whips (1) 14 ft. Whip (1) 7 ft. Whip
17-20	218	(3) 1-1/4" (2) 7/8"	(1) 10' Candelabra	(2) 12 ft. Whips (1) 10 ft. Whip (1) 7 ft. Whip
21-23	218	(3) 1-1/4"	(1) 10' Candelabra	(2) 12 ft. Whips (1) 7 ft. Whip
24-35	200	(12) 1-5/8" [2]	(3) 15' Sector Mounts	(12) ALP 7130.16
36	178	(1) 7/8"	(1) 2' Standoff	(1) 12 ft. Whip
37	177	(1) 7/8"	(1) 4' Standoff	(1) 12 ft. Whip
38-39	176	(1) 1-1/4" (1) 7/8"	(1) 3' Standoff	(1) 7 ft. Whip (1) 2 ft. Yagi
40	171	(1) 1/2"	(1) 1' Standoff	(1) 2 ft. Dish
41	167	(1) 7/8"	(1) 6' Standoff	(1) 14 ft. Whip
42	163	(1) 7/8"	(1) 2' Standoff	(1) 7 ft. Whip
43	159	(1) 1-1/4"	(1) 1' Standoff	(1) 10 ft. Whip
44	140	(1) 7/8"	(1) 3' Standoff	(1) 10 ft. Whip
45	130	(1) 7/8"	(1) 2' Standoff	(1) 10 ft. Whip
46	121	(1) 1-5/8"	(1) 2' Standoff	(1) 3-Bay Shively Labs FM Antenna with Radome
47	100	(1) 1/2"	Direct Mount	(1) 2 ft. Dish
48	84	(1) 1-5/8"	(1) 2' Standoff	(1) 1-Bay Shively Labs FM Antenna with Radome
49	60	(1) 1/2"	Direct Mount	(1) 2 ft. Dish

1 See **Figure 1** for coax location.
2 According to info provided by SBA, Verizon will acquire Alltel's lease at 200 ft and will replace the antennas. If, replacement is needed, coax is to be installed per **Figure 1**. See the proposed loading below.

2730 Rowland Rd., Suite 100 Raleigh, NC 27615 Ph: (919) 755-1012 Fax: (919) 755-1031 info@fdh-inc.com

Proposed Loading:

Antenna No.	Centerline Elevation (ft)	Coax and Lines	Carrier	Mount	Description
1-9	200	(12) 1-5/8"	Verizon	(3) T-Frame Sector Mount	(6) Antel BXA-80063/4CF (3) Antel BXA-185063/8CF

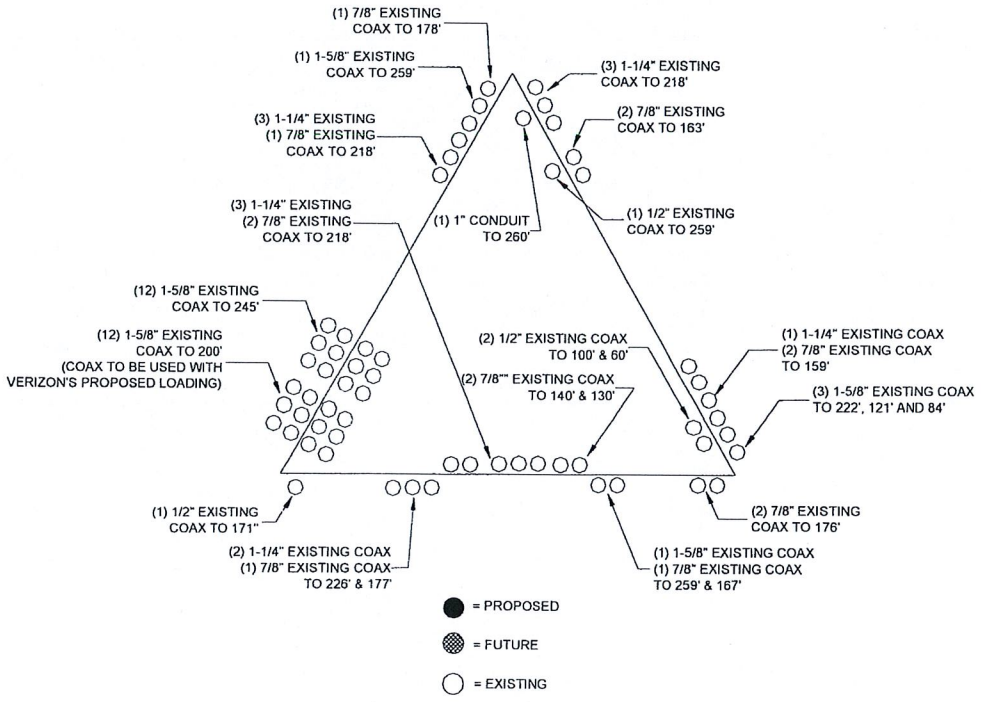


Figure 1 – Coax Layout

2730 Rowland Rd., Suite 100 Raleigh, NC 27615 Ph: (919) 755-1012 Fax: (919) 755-1031 info@fdh-inc.com

RESULTS

The following yield strength of steel for individual members was used for analysis:

Table 2 - Material Strength

Member Type	Yield Strength
Legs	50 ksi
Bracing	36 ksi

Table 3 displays the summary of the ratio (as a percentage) of actual force in the member to their allowable capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its allowable capacity. *Note: Capacities up to 105% are considered acceptable.* **Table 4** displays the factor of safety for each guy level. Values less than 2.0 indicate overstressing. **Table 5** displays the maximum foundation reactions.

If the assumptions outlined in this report differ from actual field conditions, FDH should be contacted to perform a revised analysis. Furthermore, as no information pertaining to the allowable twist and sway requirements for the existing or proposed appurtenances was provided, deflection and rotation were not taken into consideration when performing this analysis.

See the **Appendix** for detailed modeling information

Table 3 – Summary of Working Percentage of Structural Components

Section No.	Elevation ft	Component Type	Size	% Capacity
T1	260 - 257.5	Leg	1 1/2	3.1
		Diagonal	9/16	28.3
		Top Girt	L3x3x1/4	0.1
T2	257.5 - 255	Leg	1 1/2	7.6
		Diagonal	9/16	55.4
T3	255 - 252.5	Leg	1 1/2	12.0
		Diagonal	9/16	51.2
T4	252.5 - 250	Leg	1 1/2	16.6
		Diagonal	9/16	54.7
T5	250 - 247.5	Leg	1 1/2	21.4
		Diagonal	9/16	55.7
T6	247.5 - 245	Leg	1 1/2	26.5
		Diagonal	9/16	57.0
T7	245 - 242.5	Leg	1 1/2	43.3
		Diagonal	9/16	87.5
		Top Girt	C3x6	9.8
T8	242.5 - 240	Leg	1 1/2	53.9
		Diagonal	9/16	95.8
		Top Girt	C3x6	19.6
		Guy A@240.083	5/8	84.0
		Guy B@240.083	5/8	66.5
		Guy C@240.083	5/8	80.7
		Top Guy Pull-Off@240.083	3/4	16.8
T9	240 - 220	Leg	1 1/2	51.0

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Section No.	Elevation ft	Component Type	Size	% Capacity
		Diagonal	9/16	53.5
		Top Girt	3/4	7.4
		Bottom Girt	3/4	0.3
		Mid Girt	3/4	0.6
T10	220 - 200	Leg	1 1/2	61.3
		Diagonal	9/16	57.6
		Top Girt	3/4	1.3
		Bottom Girt	3/4	5.2
		Mid Girt	3/4	1.3
T11	200 - 197.5	Leg	1 1/2	76.0
		Diagonal	9/16	85.0
		Top Girt	C3x6	9.0
T12	197.5 - 195	Leg	1 1/2	89.7
		Diagonal	9/16	81.7
		Top Girt	C3x6	18.5
T13	195 - 192.5	Leg	1 1/2	91.5
		Diagonal	9/16	72.8
		Guy A@195	1/2	89.8
		Guy B@195	1/2	70.7
		Guy C@195	1/2	86.1
		Top Guy Pull-Off@195	C3x6	33.2
		Torque Arm Top@195	L3x3x1/2	15.1
		Torque Arm Bottom@195	L3x3x1/2	24.6
T14	192.5 - 190	Leg	1 1/2	81.8
		Diagonal	9/16	70.1
		Bottom Guy Pull-Off@195	C3x6	20.4
T15	190 - 187.5	Leg	1 1/2	65.3
		Diagonal	9/16	92.4
		Top Girt	3/4	36.7
T16	187.5 - 185	Leg	1 1/2	60.7
		Diagonal	9/16	74.7
T17	185 - 182.5	Leg	1 1/2	55.0
		Diagonal	9/16	76.1
T18	182.5 - 180	Leg	1 1/2	59.4
		Diagonal	9/16	66.5
		Bottom Girt	3/4	2.2
T19	180 - 160	Leg	1 1/2	78.7
		Diagonal	9/16	67.0
		Top Girt	3/4	2.1
		Bottom Girt	3/4	0.8
		Mid Girt	3/4	1.5
T20	160 - 140	Leg	1 1/2	76.3
		Diagonal	9/16	63.1
		Top Girt	3/4	1.3
		Mid Girt	3/4	2.0
		Guy A@140.083	1/2	97.9
		Guy B@140.083	1/2	74.2
		Guy C@140.083	1/2	92.9
		Top Guy Pull-Off@140.083	3/4	30.0
T21	140 - 120	Leg	1 1/2	99.8
		Diagonal	9/16	86.8
		Top Girt	3/4	7.9
		Bottom Girt	3/4	1.5
		Mid Girt	3/4	2.1

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Section No.	Elevation ft	Component Type	Size	% Capacity
T22	120 - 100	Leg	1 1/2	101.3
		Diagonal	9/16	55.6
		Top Girt	3/4	1.0
		Bottom Girt	3/4	1.2
		Mid Girt	3/4	1.9
T23	100 - 80	Leg	1 3/4	76.4
		Diagonal	5/8	71.2
		Top Girt	3/4	2.5
		Bottom Girt	3/4	3.4
		Mid Girt	3/4	2.0
T24	80 - 60	Leg	1 3/4	105.0
		Diagonal	5/8	73.3
		Top Girt	3/4	2.2
		Bottom Girt	3/4	2.0
		Guy A@70	1/2	66.1
		Guy B@70	1/2	53.8
		Guy C@70	1/2	62.0
		Top Guy Pull-Off@70	3/4	55.2
		Torque Arm Top@70	L3x3x1/2	10.8
		Torque Arm Bottom@70	L3x3x1/2	10.1
T25	60 - 40	Leg	1 3/4	87.6
		Diagonal	5/8	48.0
		Top Girt	3/4	2.8
		Bottom Girt	3/4	1.8
		Mid Girt	3/4	2.4
T26	40 - 20	Leg	1 3/4	68.2
		Diagonal	5/8	25.5
		Top Girt	3/4	1.6
		Bottom Girt	3/4	2.7
		Mid Girt	3/4	2.6
T27	20 - 5	Leg	1 3/4	68.8
		Diagonal	5/8	25.3
		Top Girt	3/4	2.6
		Mid Girt	3/4	5.4
T28	5 - 0	Leg	1 3/4	68.5
		Diagonal	5/8	2.7
		Top Girt	3/4	66.0

*Capacities include 1/3 allowable increase for wind.

Table 4 – Guy Wire Factor of Safety

Elevation ft	Size	Factor of Safety With Existing and Proposed Loading
240.1	5/8" EHS	2.38
194.9	1/2" EHS	2.23
140.1	1/2" EHS	2.04
70	1/2" EHS	3.02

*Factor of Safety must be greater than or equal to 2.0 per *TIA/EIA-222-F* standards.

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Table 5 – Maximum Base Reactions

Reaction	Existing and Proposed Loading	
	Horizontal	Vertical
Tower Base	1.0 k	121 k
Anchor @ 200'	56 k	42 k

GENERAL COMMENTS

This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA to verify that the tower modeled and analyzed is the correct structure. If there are substantial modifications made to the appurtenance loading provided by SBA, FDH Engineering should be notified immediately to perform a revised analysis.

LIMITATIONS

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of FDH Engineering, Inc.

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APPENDIX

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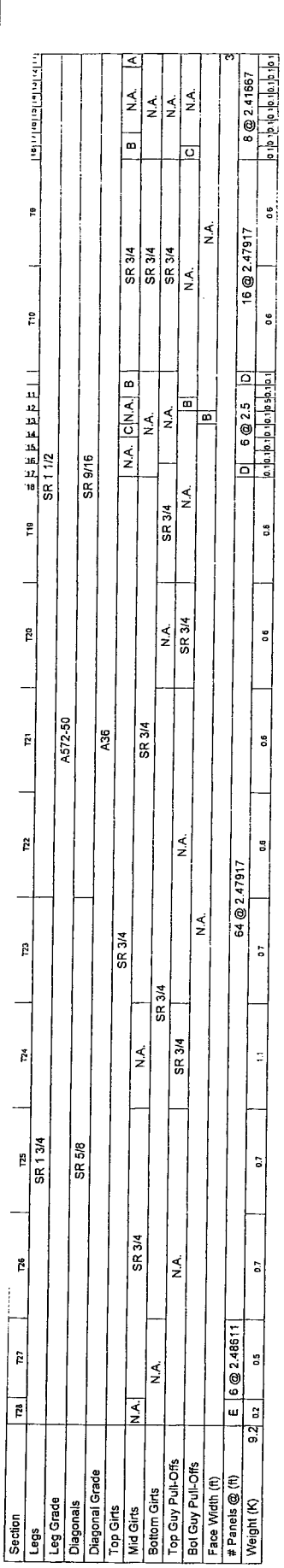
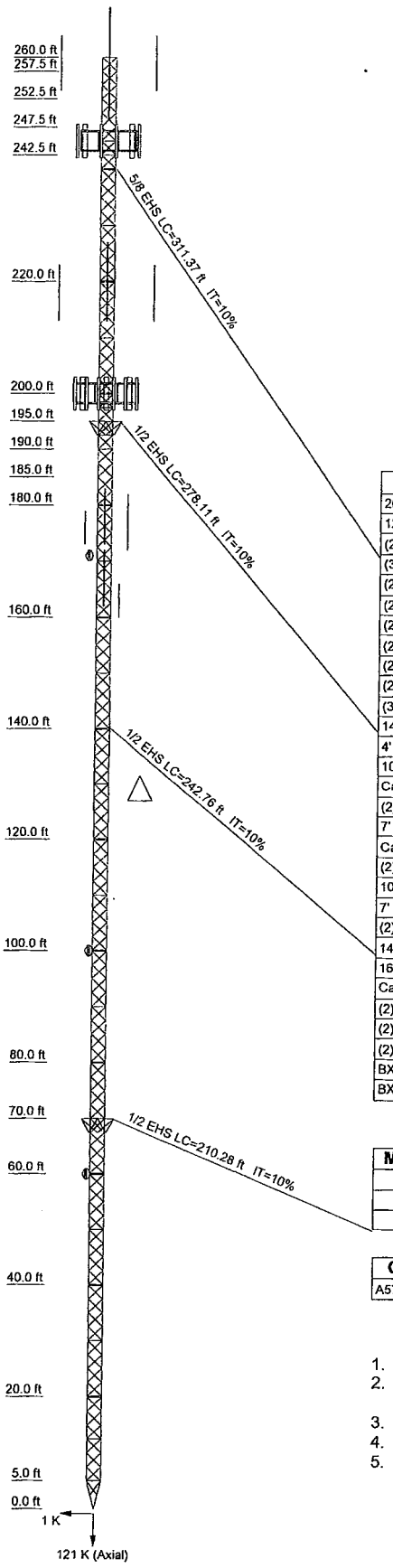
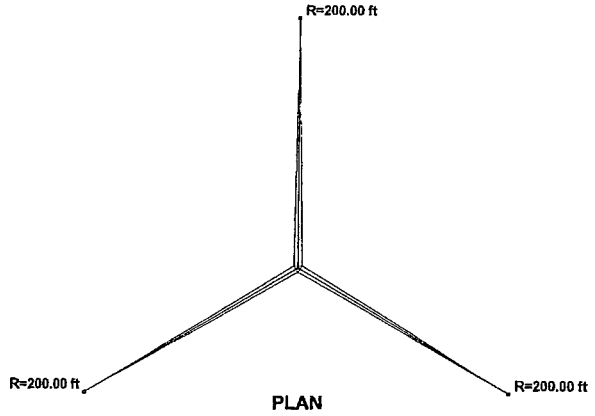






DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
20' Omni	259	BXA-185063/8CF	200
12' Omni	259	(3) 15' T-Frame	200
(2) 15' Omni	259	12' Omni	178
(3) Candelabra Arm	259	2' Standoff	178
(2) 7770.00	245	12' Omni	177
(2) 7770.00	245	4' Standoff	177
(2) 7770.00	245	7' Omni	176
(2) TMA	245	Yagi	176
(2) TMA	245	3' Standoff	176
(2) TMA	245	1' Standoff	171
(3) T-Frame Sector Mount	245	2' Dish	171
14' Omni	222	14' Omni	167
4' Standoff	222	6' Standoff	167
10' Omni	222	7' Omni	163
Candelabra Arm	218	2' Standoff	163
(2) 12' Omni	218	10' Omni	159
7' Omni	218	1' Standoff	159
Candelabra Arm	218	3' Standoff	140
(2) 12' Omni	218	10' Omni	140
10' Omni	218	10' Omni	130
7' Omni	218	2' Standoff	130
(2) 12' Omni	218	3-Bay Shively Labs FM Antenna w/ Radome	121
14' Omni	218		
16' Omni	218	2' Standoff	121
Candelabra Arm	218	2' Dish	100
(2) BXA-80063/4CF	200	2' Standoff	84
(2) BXA-80063/4CF	200	1-Bay Shively Labs FM Antenna w/ Radome	84
(2) BXA-80063/4CF	200		
BXA-185063/8CF	200	2' Dish	60
BXA-185063/8CF	200		

SYMBOL LIST

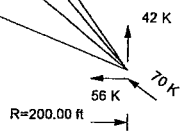
MARK	SIZE	MARK	SIZE
A	L3x3x1/4	D	1 @ 2.41667
B	C3x6	E	2 @ 2.5
C	SR 3/4		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 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 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 105%



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Tower Analysis

Job: Torrington 2 CT02303-A			
Project: 08-0103E			
Client: SBA Network Services	Drawn by: ALC		App'd:
Code: TIA/EIA-222-F	Date: 01/09/08		Scale: NTS
Path:			Dwg No. E-1