

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

February 25, 2008

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

RE: **EM-VER-013-080125** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 131 Gifford Lane, Bozrah, Connecticut.

Dear Attorney Baldwin:

At a public meeting held on February 14, 2008, the Connecticut Siting Council (Council) acknowledged 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 14, 2008 and sealed by Christopher Murphy, P.E.

The proposed modifications are to be implemented as specified here and in your notice dated January 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,

Daniel F. Caruso
Chairman

DFC/MP/cm

c: The Honorable William E. Ballinger, First Selectman, Town of Bozrah
Seymour Adelman, Planning and Zoning Chairman, Town of Bozrah
SBA



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Daniel F. Caruso
Chairman

January 28, 2008

The Honorable William E. Ballinger
First Selectman
Town of Bozrah
Town Hall
1 River Road
Bozrah, CT 06334-0158

RE: **EM-VER-013-080125** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 131 Gifford Lane, Bozrah, Connecticut.

Dear Mr. Ballinger:

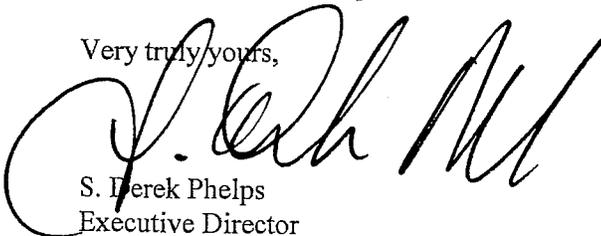
The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

The Council will consider this item at the next meeting scheduled for February 14, 2008, at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

If you have any questions or comments regarding this proposal, please call me or inform the Council by February 13, 2008.

Thank you for your cooperation and consideration.

Very truly yours,



S. Derek Phelps
Executive Director

SDP/jb

Enclosure: Notice of Intent

c: Seymour Adelman, Planning and Zoning Chairman, Town of Bozrah

EM-VER-013-080125

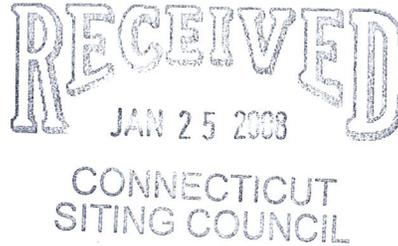
ORIGINAL

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

January 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
131 Gifford Lane, Bozrah, Connecticut**

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains a wireless telecommunications facility at the above referenced location. The Council approved Cellco’s use of this facility on December 14, 2000. Cellco intends to modify its installation by replacing six (6) DB844H90 antennas with four (4) DB846H80E-SX antennas and two (2) LPA-80063/4CF antennas at the same 162-foot height. Attached behind Tab 1 are the specifications for the existing and 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 William Ballinger, First Selectman of the Town of Bozrah. Pursuant to Council directive a copy of this letter is being sent to Betty L. Orr, the owner of the property on which the facility 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 any increase in the overall height of the existing structures. Cellco’s replacement antennas will be located at the same height and location as the existing antennas.

2. The proposed modifications will not involve any ground-mounted equipment and, therefore, will not require the extension of the site boundaries.



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S. Derek Phelps
January 25, 2008
Page 2

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.

Also attached is a Detailed Structural Analysis 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

Enclosures

Copy to:

William Ballinger, Bozrah First Selectman
Betty L. Orr
Sandy M. Carter





844H90EXYBAM

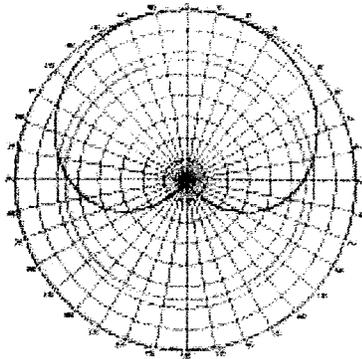
12 dBd
Log Periodic Antenna

824-896 MHz

dB Director®

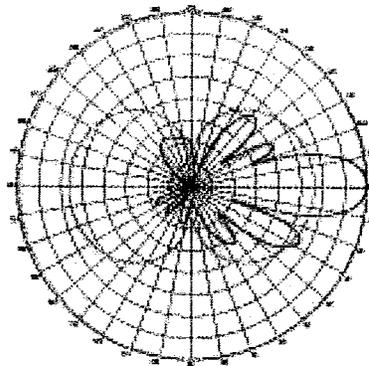
- Superior Azimuth pattern roll off, reducing sector to sector interference, improving call capacity.
- Extremely rugged, reliable design yet lightweight with low wind load.

90°

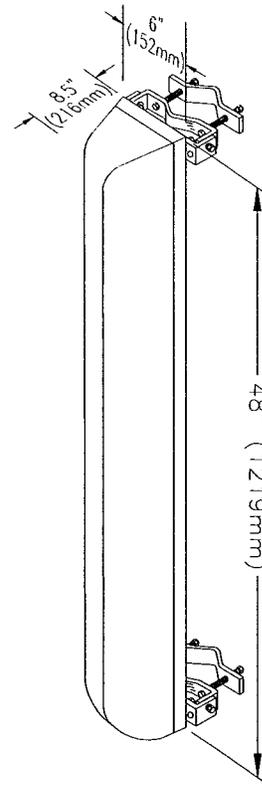


Azimuth
(Horizontal)

Elevation
(Vertical)



Scale: 10° radials, 5 dB per division



Electrical

Frequency:	824-896 MHz
Polarization:	Vertical
Gain:	12 dBd (14.1 dBi)
Azimuth BW:	90°
Elevation BW:	15.5°
USLS:	> 18 dB
Front-to-Back Ratio:	40 dB
VSWR:	1.22:1
PIM:	-150 dBc (2 tone, 20 watt)
Impedance:	50 Ohms
Max. Input Power:	500 Watts
Lightning Protection:	All metal parts are grounded

Mechanical

Weight:	10 lbs (4.5 kg)
Dimensions:	48" x 6" x 8.5" (1219 x 152 x 216 mm)
Max. Wind Area:	2.8 ft² (0.26 m²)
Max. Wind Load:	80 lbf (356N) 35.9 kp (at 100 mph)
Max. Wind Speed:	125 mph (201 km/h)
Radiators:	Brass
Reflector:	Pass. Aluminum
Radome:	ABS, UV Resistant
Mounting Hardware:	Galvanized Steel
Connector:	7/16 DIN (Back)
Color:	Gray

Mounting Options

Standard:	DB380 pipe mount kit included.
Downtilt:	DB5083 downtilt brackets, optional.

8635 Stemmons Freeway • Dallas, Texas U.S.A. 75247-3701
Dallas/Ft.Worth Area Tel: 214.631.0310 • Fax: 214.631.4706
Toll Free Tel: 1.800.676.5342 • Fax: 1.800.229.4706

www.decibelproducts.com
dbtech@decibelproducts.com



ISO9001 Compliant

Vertically Polarized Directed Dipole® Panel Antennas



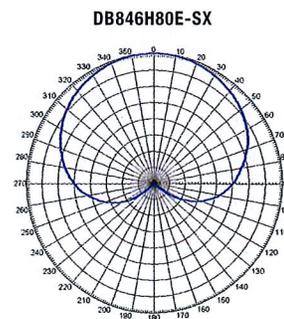
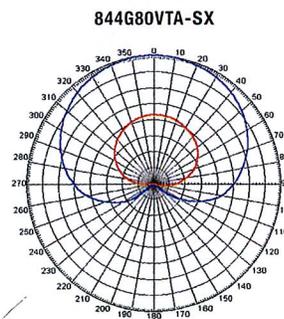
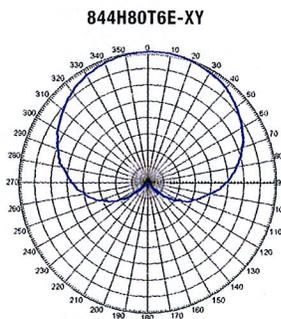
80° HORIZONTAL BEAMWIDTH

806 - 960 MHz

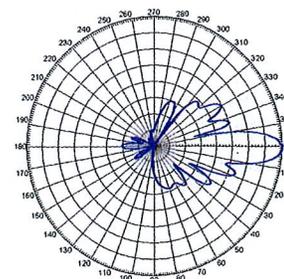
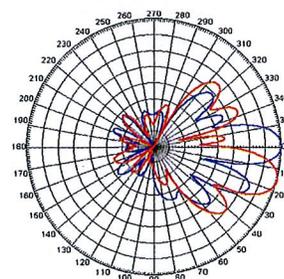
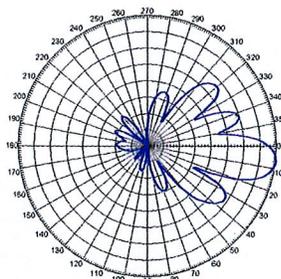
HORIZONTAL BEAMWIDTH	80°	80°	80°
FREQUENCY RANGE	806-960 MHz	806-896 MHz	806-896 MHz
	12.3 & 12.5 dBd / 6° Tilt	12.5 dBd / 0-16° Tilt	14 dBd / 0° Tilt
MODEL	844H80T6E-XY	844G80VTA-SX	DB846H80E-SX
TYPE	Directed Dipole®	Directed Dipole®	Directed Dipole®
ELECTRICAL SPECIFICATIONS			
Frequency Range (MHz)	806-896	870-960	806-896
Gain (dBd/dBi)	12.3 / 14.4	12.5 / 14.6	14 / 16.1
Horizontal Beamwidth (Deg.)	80	80	80
Elevation Beamwidth (Deg.)	15	15	10
USLS (dB)	>15	>15	>15
Null Fill (dB) – Below Peak	N/A	N/A	N/A
Beam Tilt (Deg.)	6	6	0
VSWR	<1.5:1	<1.5:1	<1.5:1
Front-To-Back Ratio (dB)	40	40	35
Isolation (dB)	N/A	N/A	N/A
Max. Input Power (Watts)	500	500	500
Polarization	Vertical	Vertical	Vertical
Connector Location	Back	Back	Back
Connector Type	7-16 DIN - Female	7-16 DIN - Female	7-16 DIN - Female
Optional Connectors	N/A	N/A	N/A
MECHANICAL SPECIFICATIONS			
Length (inch/mm)	48 / 1,219	48 / 1,219	48 / 1,219
Width (inch/mm)	6.5 / 165	6.5 / 165	10 / 254
Depth (inch/mm)	8 / 203	8 / 203	8.5 / 216
Net Weight (lbs/kg)	14 / 6.3	14 / 6.3	11.5 / 5.2
Max. Flat Plate Area (ft²/m²)	1.08 / 0.10	1.08 / 0.10	0.97 / 0.09
Max. Wind Load at 100 mph (lbf/N)	59 / 262	59 / 262	53 / 233
Max. Wind Speed (mph/kmh)	125 / 201	125 / 201	125 / 201
Radome Material	ABS, UV Resistant	ABS, UV Resistant	ABS, UV Resistant
Reflector Material	Pass. Aluminum	Pass. Aluminum	Pass. Aluminum
Radiator Material	Brass	Brass	Aluminum
Hardware Material	Galvanized Steel	Galvanized Steel	Galvanized Steel
Color	Light Gray	Light Gray	Light Gray
Std. Mounting Hardware	DB380	DB380	DB380
Optional Downtilt Kit	DB5083	DB5083	DB5083
Optional Special Mounting	DB5084-AZ	DB5084-AZ	DB5084-AZ

Specifications are subject to change. Please see our website for the latest information.

Azimuth Pattern



Elevation Pattern



Scale: 10° radials, 5 dB per division

X Pol

VERTICAL
Directed Dipole®

VERTICAL
Panel

Omni

Yagi

Vertically Polarized, Log Periodic 63° / 13 dBd

LPA-80063/4CF

When ordering replace "___" with connector type.

Mechanical specifications

Length	1205 mm	47.4 in
Width	386 mm	15.2 in
Depth	335 mm	13.2 in
Depth with z-bracket	375 mm	14.8 in
4) Weight	9.1 kg	20.0 lbs
Wind Area		
Fore/Aft	0.47 m ²	5.0 ft ²
Side	0.40 m ²	4.4 ft ²
Rated Wind Velocity (Safety factor 2.0)	>351 km/hr >218 mph	
Wind Load @ 100 mph (161 km/hr)		
Fore/Aft	665 N	149.5 lbs
Side	577 N	129.6 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). If the lock-down brace is used, the maximum diameter is Ø88.9 mm (3.5 in)

Mounting Bracket and Downtilt Bracket Kit #21699999

Electrical specifications

Frequency Range	806-960 MHz
Impedance	50Ω
3) Connector(s)	NE or E-DIN 1 port / center
1) VSWR	≤ 1.4:1
Polarization	Vertical
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	10%
Lightning Protection	Direct Ground

1) Typical values.

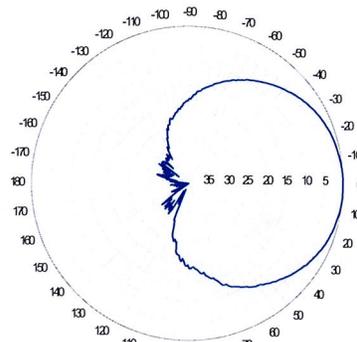
2) Power rating limited by connector only.

3) NE indicates an elongated N connector.
E-DIN indicates an elongated DIN connector.

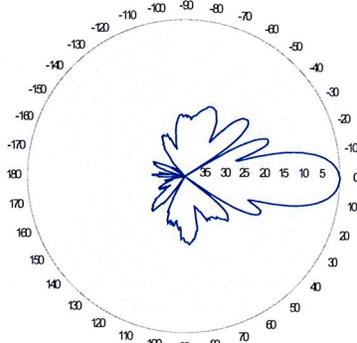
4) The antenna weight listed above does not include the bracket weight.

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

Radiation pattern¹⁾



Horizontal

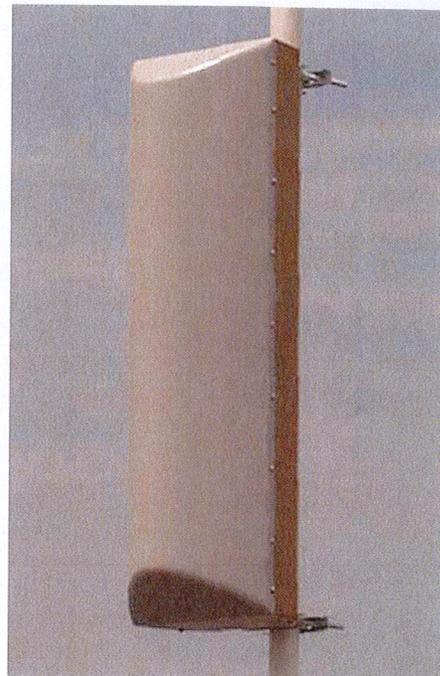


Vertical

Featuring upper side lobe suppression.

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.



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

- True log-periodic design allows for superior front-to-side characteristics to minimize sector overlap.
- 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 bandwidth 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 connector only.

CF Denotes a Center-Fed Connector.

806-960 MHz

Amphenol Antel, Inc.
The Antenna Technology Company

Revision Date: 7/5/07

**Structural Analysis for
SBA Network Services, Inc.**

193' Self Support Tower

**Site Name: Bozrah
Site ID: CT01105-S**

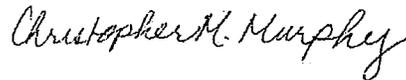
FDH Project Number 08-01208E

Prepared By:



Bradley Newman, EI
Project Engineer

Reviewed By:

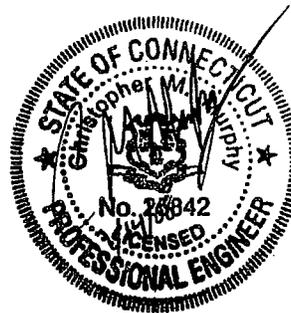


Christopher M. Murphy, PE
Vice President
CT PE License No. 25842

FDH Engineering, Inc.

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

January 14, 2008



Prepared pursuant to ANSI/TIA-222-G Structural Standards for Antenna Supporting Structures and Antennas

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EXECUTIVE SUMMARY

At the request of SBA Network Services, FDH Engineering performed an analysis of the existing self supported tower located in Bozrah, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads, pursuant to the *Structural Standards for Antenna Supporting Structures and Antennas, ANSI/TIA-222-G*. Information pertaining to the existing/proposed antenna loading, current tower geometry, and the member sizes was obtained from Pirod, Inc. (Eng. File No. A-115466-0-81663) original design drawings dated February 23, 1999 and SBA Network Services.

The *basic design wind speed* per *ANSI/TIA-222-G* standards is 120 mph without ice and 50 mph with 3/4" radial ice.

Conclusions

With the existing and proposed loading from Verizon in place at 162 ft, the tower meets the requirements of the *ANSI/TIA-222-G* standards. Furthermore, provided the foundations were constructed to support the original design reactions (see Pirod, Inc. Drawing No. 204669-B), the foundations should have the necessary capacity to support the existing and proposed 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 (i.e., the steel data, tower layout, existing antenna loading, and proposed antenna loading) and that the tower was properly erected and maintained per the original design drawings.

Recommendation

To ensure the requirements of the *ANSI/TIA-222-G* 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**.

APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coax lines are shown in Table 1.

Table 1 – Appurtenance Loading

Existing Loading:

Antenna	Centerline Elevation (ft)	Coax and Lines ¹	Carrier	Mount Type	Description
1-9	195	(12) 1-5/8" ²	T-Mobile	(1) 13' Low Profile Platform	(9) EMS RR90-17-02DP
10-21	182	(12) 1-5/8" ³	Cingular	(3) 12' T-Frames	(12) CSS DUO-1417-8686-40 (6) TMAs
22-27	175	(6) 1-5/8"	Sprint	(3) 12' T-Frames	(6) 6'x1' panels (assumed)
28-39	162	(12) 1-5/8" ⁴	Verizon	(3) 12' T-Frames	(6) Decibel DB844H90E-SX (6) Decibel DB948F85E-M
40-42	152	(6) 1-5/8"	AT&T	(3) 4' Standoffs (assumed)	(3) EMS RR90-17-00DP
43-44	30	(2) 1/2" ⁵	T-Mobile	Direct (assumed)	(2) Andrew PC1N0F-0190B-002M E911 antennas

¹ See Figure 1 for coax location.

² Currently, T-Mobile has (6) EMS RR90-17-02DP antennas and (12) 1-5/8" coax installed at 195 ft. According to information provided by SBA, T-Mobile may install up to (9) RR90-17-02DP and (12) coax at 195 ft. Analysis performed with total leased loading in place.

³ Currently, Cingular has (9) CSS DUO-1417-8686-40 antennas and (9) 1-5/8" coax installed at 182 ft. According to information provided by SBA, Cingular may install up to (12) DUO-1417-8686-40 antennas and (12) coax at 182 ft. Analysis performed with total leased loading in place.

⁴ The loading for Verizon will be altered. See the proposed loading below.

⁵ Currently, there is no loading at 30 ft. According to information provided by SBA, T-Mobile may install up to (2) Andrew PC1N0F-0190B-002M E911 antennas and (2) 1/2" at 30 ft. Analysis performed with total leased loading in place.

Proposed Loading:

Antenna	Centerline Elevation (ft)	Coax and Lines	Carrier	Mount Type	Description
1-12	162	(12) 1-5/8" ¹	Verizon	(3) 12' T-Frames	(6) Decibel DB948F85E-M (2) Antel LPA-80063/4CF (4) Decibel DB846H80E-SX

¹ This represents the final configuration for Verizon at 162 ft. According to information provided by SBA, Verizon will remove (6) Decibel DB844H90E-SX antennas and install (2) Antel LPA-80063/4CF antennas and (4) Decibel DB846H80E-SX antennas at 162 ft. Verizon will also reuse their existing (12) 1-5/8" coax for a total loading of (12) antennas and (12) coax at 162 ft.

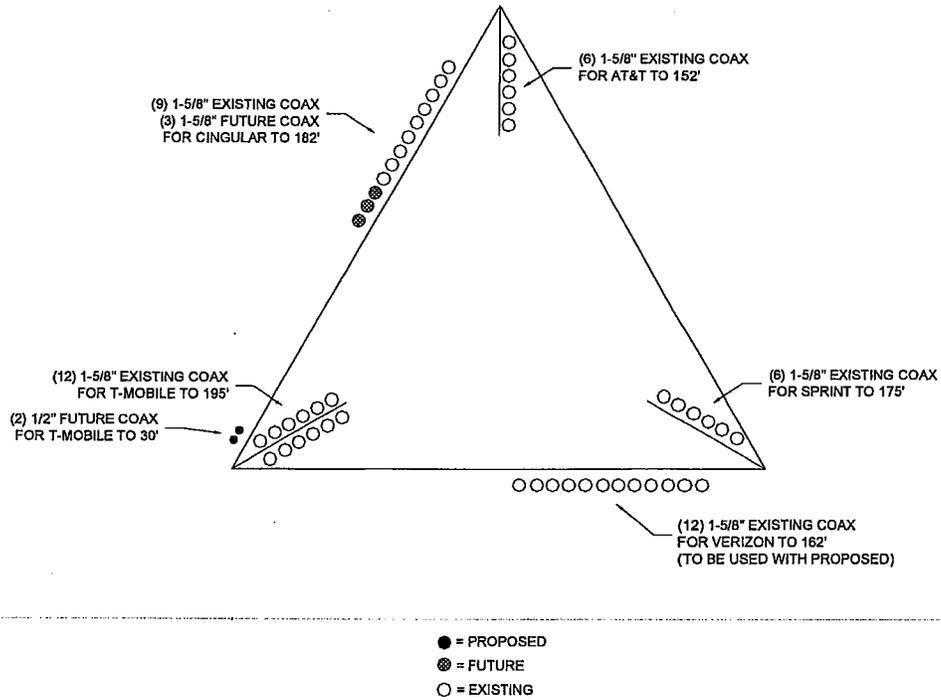


Figure 1 – Coax Layout

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
Diagonals	36 ksi & 50 ksi
Horizontals	50 ksi

Table 3 displays the summary of the ratio (as a percentage) of actual force in the member to their 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 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	Pass Fail
T1	193 - 185	Leg	1 3/4	8.0	Pass
		Diagonal	7/8	7.7	Pass
		Top Girt	7/8	7.9	Pass
		Bottom Girt	7/8	9.4	Pass
T2	185 - 170	Leg	1 3/4	48.5	Pass
		Diagonal	7/8	31.3	Pass
		Top Girt	7/8	2.2	Pass
		Bottom Girt	7/8	23.2	Pass
T3	170 - 150	Leg	2 1/4	76.2	Pass
		Diagonal	1	32.9	Pass
		Top Girt	1	14.1	Pass
		Bottom Girt	1	27.9	Pass
T4	150 - 140	Leg	Pirol 105244	82.8	Pass
		Diagonal	L2 1/2x2 1/2x3/16	77.6 94.0 (b)	Pass
T5	140 - 120	Leg	Pirol 105217	81.2	Pass
		Diagonal	L3x3x3/16	54.8 91.7 (b)	Pass
T6	120 - 100	Leg	Pirol 105218	74.9	Pass
		Diagonal	L3x3x3/16	67.2 90.9 (b)	Pass

Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
T7	100 - 80	Leg	Pirol 105219	68.7	Pass
		Diagonal	L3x3x5/16	56.2	Pass
T8	80 - 60	Leg	Pirol 105219	80.7	Pass
		Diagonal	L3x3x5/16	74.8	Pass
T9	60 - 40	Leg	Pirol 105220	72.1	Pass
		Diagonal	L3x3x5/16	95.1	Pass
T10	40 - 20	Leg	Pirol 105220	80.9	Pass
		Diagonal	L3 1/2x3 1/2x5/16	76.0	Pass
T11	20 - 0	Leg	Pirol 105220	89.3	Pass
		Diagonal	L3 1/2x3 1/2x5/16	101.3	Pass

Table 4 – Maximum Base Reactions

Load Type	Direction	Current Analysis (ANSI/TIA-222-G)	Original Design (TIA/EIA-222-F)
Individual Foundation	Horizontal	47 k	---
	Uplift	429 k	405 k
	Compression	470 k	449 k
Overturning Moment		7,830 k-ft	7,388 k-ft

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.

APPENDIX
