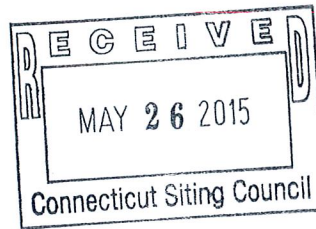


KENNETH C. BALDWIN

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



Also admitted in Massachusetts

May 20, 2015

ORIGINAL

Melanie Bachman  
Acting Executive Director  
Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051

Re: **EM-VER-015-130425 – Cellco Partnership d/b/a Verizon Wireless** ✓  
**623 Pine Street, Bridgeport, Connecticut**

Dear Ms. Bachman:

On May 13, 2013, the Siting Council acknowledged receipt of Cellco's notice of intent to modify its telecommunications facility at 623 Pine Street in Bridgeport, Connecticut. The modifications involved the replacement of its antennas, the installation of remote radio heads and the installation of a new fiber optic antenna cable.

As a condition of the acknowledgement, Cellco was required to provide the Council with a letter stating that the modifications referenced in the structural report were completed. Attached is a Professional Engineer's Tower Modification Certification Letter verifying that the modifications were completed in accordance with the Structural Analysis Report and all construction activity has now been completed.

If you have any questions please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Kenneth C. Baldwin".

Kenneth C. Baldwin

Attachment

Copy to:

Tim Parks  
Rachel A. Mayo

13822553-v1

May 20, 2015

**Mr. Tim Parks**

Verizon Wireless  
99 East River Drive  
East Hartford, Connecticut 06108

**Re: Existing Telecommunications Facility Tower Modification Certification Letter**

**Project:**               **Verizon Bridgeport SW**  
623 Pine Street  
Bridgeport, CT

**Tower Owner:**   **RCSC (Robert Knapp)**

**Engineer:**           **KM Consulting Engineers, Inc.**  
32 West Upper Ferry Road  
Ewing, NJ 08628

**Centek Project No.:** 14055.004 Rev-1

**CSC Exempt Mod Reference No.:** EM-VER-015-130425

Dear Mr. Parks,

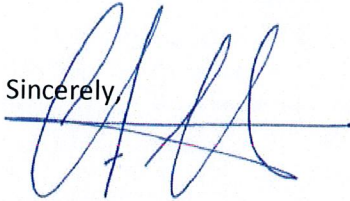
We are providing this "Existing Telecommunications Facility Tower Modification Certification Letter" with regard to the antenna upgrade by Verizon Wireless at the above referenced project.

The following are the basis for substantiating compliance with the KM Consulting Engineers structural analysis report (KM Project No. 121101.01) dated February 4, 2013:

- Review of the KM Consulting Engineers structural analysis report dated 02/04/2013.
- Review of the KM Consulting Engineers structural analysis report dated 08/23/2012.
- Review of the KM Consulting Engineers tower reinforcement drawings T-1, and ST-1 thru S-4 dated 08/10/2012.
- Field observations by Centek personnel of the completed reinforcements on 04/20/2015 which determined all tower reinforcements were installed in general compliance with the recommendations of the structural analysis report prepared by KM Consulting Engineers on 02/04/2013.

The modification design prepared by KM Consulting Engineers demonstrates the tower will not exceed 100 percent of the post construction structural rating. The work under this Contract has been reviewed and found, to the Engineer's best knowledge, information and belief, to be completed in general compliance with the documents referenced above. This certification is not a review of the adequacy or effectiveness of the modification/reinforcement solution

Sincerely,

A handwritten signature in blue ink, consisting of stylized, overlapping loops and a horizontal line extending to the right.

Carlo F. Centore, PE  
Principal ~ Structural Engineer

Cc: Steve Schadler, Tim Parks, Rachel Mayo



# 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](mailto:siting.council@ct.gov)

[www.ct.gov/csc](http://www.ct.gov/csc)

March 31, 2015

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

RE: **EM-VER-015-130425** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 623 Pine Street, Bridgeport, Connecticut.

Dear Attorney Baldwin:

The Connecticut Siting Council (Council) is in receipt of the request for an extension of construction time for this exempt modification, dated March 27, 2015. Pursuant to Condition No. 7 of the Council's decision letter dated May 13, 2013, I have considered your request for an extension of construction time for this exempt modification and grant a 90-day extension of time until July 8, 2015, to complete the construction of this project.

This extension is granted with the understanding that the Council will be notified should Cellco decide not to proceed with construction.

Sincerely,

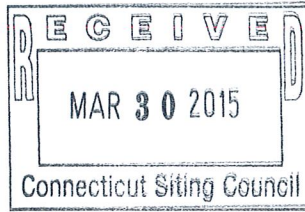
Melanie A. Bachman  
Acting Executive Director

MAB/MP/lm



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



Also admitted in Massachusetts

March 27, 2015

ORIGINAL

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

Re: **EM-VER-015-130425 – Cellco Partnership d/b/a Verizon Wireless  
623 Pine Street, Bridgeport, Connecticut**

Dear Ms. Bachman:

On May 13, 2013, the Siting Council acknowledged receipt of Cellco's notice of intent to modify its telecommunications facility at 623 Pine Street in Bridgeport, Connecticut. To accommodate Cellco's proposed modifications, the existing tower needed to be reinforced. Unfortunately, the tower modifications are taking longer than expected and will not be completed until approximately June 1, 2015. We will not, therefore, be able to provide you with the close-out letter required by April 9, 2015, and need to request an additional extension of 90 days to comply with the Council's condition of approval.

If you have any questions please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Kenneth C. Baldwin".

Kenneth C. Baldwin

Copy to:  
Tim Parks



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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[www.ct.gov/csc](http://www.ct.gov/csc)

January 14, 2015

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

**RE: Extension Request for Notification of Completion**

**EM-VER-155-130306** 14-20 Isham Road West Hartford  
**EM-VER-015-130425** 623 Pine Street Bridgeport

Dear Attorney Baldwin:

The Connecticut Siting Council (Council) is in receipt of your letters dated January 6, 2015, submitted on behalf of Cellco Partnership d/b/a Verizon Wireless, requesting an extension of time to submit a notice of completion of construction and associated post modification inspection reports for the above-referenced exempt modifications.

The Council hereby grants a 90-day extension of time to submit a notice of completion of construction and associated post modification inspection reports for the above-referenced exempt modifications to April 9, 2015.

This extension is granted with the understanding that the Council will be notified should Verizon need additional time beyond 90 days to submit a notice of completion and associated post modification inspection reports or decide not to proceed with construction.

Thank you for your attention to this matter.

Sincerely,

Melanie A. Bachman  
Acting Executive Director

MAB/cm



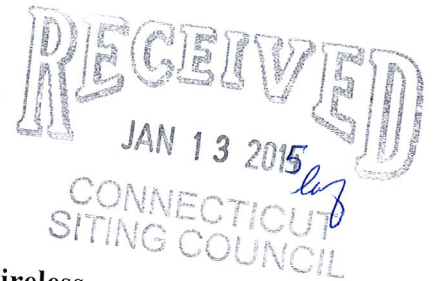
KENNETH C. BALDWIN

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

Also admitted in Massachusetts

January 6, 2015

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



Re: **EM-VER-015-130425 – Cellco Partnership d/b/a Verizon Wireless  
623 Pine Street, Bridgeport, Connecticut**

Dear Ms. Bachman:

On May 13, 2013, the Siting Council acknowledged receipt of Cellco's notice of intent to modify its telecommunications facility at 623 Pine Street in Bridgeport, Connecticut. To accommodate Cellco's proposed modifications, the existing tower needed to be reinforced. Unfortunately, the fabrication of steel required for the approved tower modifications are taking longer than originally expected. I am now being told that the tower work will be completed in approximately six to eight weeks. We will not, therefore, be able to provide you with the close-out letter required by the January 9, 2015 deadline and need to request an additional extension of 90-days to comply with the Council's condition of approval.

If you have any questions please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink that reads "Kenneth C. Baldwin".

Kenneth C. Baldwin

Copy to:

Sandy M. Carter



STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)

[www.ct.gov/csc](http://www.ct.gov/csc)

December 2, 2014

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

**RE: Extension Request for Notification of Completion**

**EM-VER-155-130306 14-20 Isham Road West Hartford**

**EM-VER-015-130425 623 Pine Street Bridgeport**

Dear Attorney Baldwin:

The Connecticut Siting Council (Council) is in receipt of your e-mail dated December 1, 2014, submitted on behalf of Cellco Partnership d/b/a Verizon Wireless, requesting an extension of time to submit a notice of completion of construction and associated post modification inspection reports for the above-referenced exempt modifications.

The Council hereby grants a 30-day extension of time to submit a notice of completion of construction and associated post modification inspection reports for the above-referenced exempt modifications to January 9, 2014.

This extension is granted with the understanding that the Council will be notified should Verizon need additional time beyond 30 days to submit a notice of completion and associated post modification inspection reports or decide not to proceed with construction.

Thank you for your attention to this matter.

Sincerely,

Melanie A. Bachman  
Acting Executive Director

MAB/cm





## Mulcahy, Carriann

---

**From:** Bachman, Melanie  
**Sent:** Monday, December 01, 2014 4:17 PM  
**To:** Mulcahy, Carriann  
**Subject:** FW: Compliance with conditions of Approval

Please print this e-mail as evidence of a written request for an extension for the two referenced sites below.

Also, please draft an extension letter to January 9, 2015.

Thank you!

**Melanie A. Bachman**  
**Staff Attorney/Acting Executive Director**  
**Connecticut Siting Council**  
**10 Franklin Square**  
**New Britain, CT 06051**  
**860-827-2951**



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---

**From:** Baldwin, Kenneth [<mailto:KBALDWIN@RC.com>]  
**Sent:** Monday, December 01, 2014 4:06 PM  
**To:** Bachman, Melanie  
**Cc:** Carter, Alexandria M; Mayo, Rachel  
**Subject:** Compliance with conditions of Approval

EM-VER-155-130306 – 14-20 Isham Road, West Hartford CT  
EM-VER- 015-130425 - 623 Pine Street, Bridgeport CT

Melanie

We had hoped to have the compliance letters and back up information for the above referenced Exempt Mod filings to you this afternoon. It now appears as though that is not going to happen due to circumstances beyond our control. Centek has been working hard to track down the appropriate structural information for each site so that it can provide the required P.E. letters. That has proven to be a much more difficult task than we had anticipated. My apologies.

We are working hard to finish up these last audit letters and would ask for an additional extension until the end of December to do so.

Thank you.

Ken

**Kenneth C. Baldwin**

Robinson & Cole LLP  
280 Trumbull Street

Hartford, CT 06103  
Direct 860-275-8345 | Fax 860-275-8299  
[kbaldwin@rc.com](mailto:kbaldwin@rc.com) | [www.rc.com](http://www.rc.com)  
[Bio](#) |

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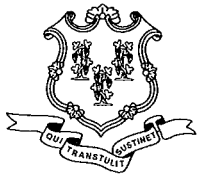
**Robinson+Cole**

Boston | Hartford | New York | Providence | Stamford  
Albany | Los Angeles | New London | Miami

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# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)

[www.ct.gov/csc](http://www.ct.gov/csc)

May 13, 2013

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

RE: **EM-VER-015-130425** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 623 Pine Street, Bridgeport, 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 following conditions:

- Verizon shall verify that the tower reinforcements depicted on drawings prepared by KM Consulting Engineers and dated August 29, 2012 have been completed;
- Within 45 days following completion of the antenna installation, Verizon shall provide documentation certified by a professional engineer that its installation complied with the recommendations of the structural analysis prepared by KM Consulting Engineers dated February 4, 2013 and stamped by Michael Bohlinger;
- Any deviation from the proposed modification as specified in this notice and supporting materials with the 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;
- Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated April 23, 2013. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,



Melanie A. Bachman  
Acting Executive Director

MAB/CDM/jb

c: The Honorable Bill Finch, Mayor, City of Bridgeport  
David Kooris, Planning Director, City of Bridgeport  
Radio Communications Corporation





STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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[www.ct.gov/csc](http://www.ct.gov/csc)

April 29, 2013

The Honorable Bill Finch  
Mayor  
City of Bridgeport  
City Hall Annex  
999 Broad Street  
Bridgeport, CT 06604

RE: **EM-VER-015-130425** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 623 Pine Street, Bridgeport, Connecticut.

Dear Mayor Finch:

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 May 13, 2013.

Thank you for your cooperation and consideration.

Very truly yours,

Melanie A. Bachman  
Acting Executive Director

MAB/jb

c: David Kooris, Planning Director, City of Bridgeport

# ROBINSON & COLE

EM-VER-015-130425

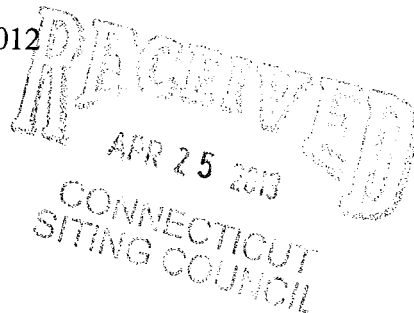
KENNETH C. BALDWIN

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

Also admitted in Massachusetts

April 23, 2012

Linda Roberts  
Executive Director  
Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051



Re: **Notice of Exempt Modification – Facility Modification  
623 Pine Street, Bridgeport, Connecticut**

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless's ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 110-foot level on an existing 250-foot tower at the above-referenced address. The tower is owned by Radio Communications Corporation. Cellco's use of the tower was approved by the Council in 2000.

On January 9, 2013 the Council approved Cellco's request to modify its Pine Street facility (EM-VER-015-121217), by adding three (3) additional antennas and three (3) Remote Radio Heads ("RRHs"). These modifications have not yet been completed.

Cellco has recently revised the scope of work for the Pine Street facility modifications. Cellco now intends to add three (3) new antennas and replace four (4) other existing antennas. The four (4) replacement antennas will include one (1) model BXA-185063-8CF PCS antenna and three (3) BXA-70063-6CF LTE antennas. The three (3) new antennas will be model BXA-171063-8BF AWS antennas. All new and replacement antennas will be located at the 110-foot level. Cellco also intends to install three (3) additional RRHs, for a total of six (6) RRHs, behind its antennas and one (1) HYBRIFLEX™ antenna cable, attached to the leg of the lattice tower. Included behind Tab 1 are the specifications for the replacement antennas, RRHs and HYBRIFLEX™ cable.

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 Finch, Mayor of the City of Bridgeport. A copy of this letter is also being



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12082369-v1

Linda Roberts  
April 23, 2013  
Page 2

sent to Radio Communications Corporation, 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 an increase in the height of the existing tower. Cellco's replacement antennas and RRHs will be located at the 110-foot level on the existing 250-foot tower.

2. The proposed modifications do not involve any change to ground-mounted equipment and, therefore, 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, or to levels that exceed state and local criteria.

4. The operation of the additional antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative power density table for Cellco's modified facility is included behind Tab 2.

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 Cellco's proposed modifications. (See Structural Analysis Report attached behind 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 Finch, Bridgeport Mayor  
Radio Communications Corporation  
Sandy M. Carter



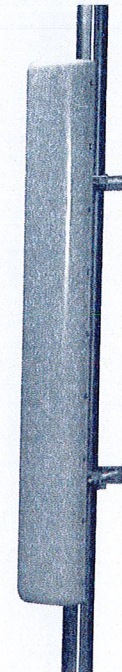


## BXA-185063-8CF-EDIN-X

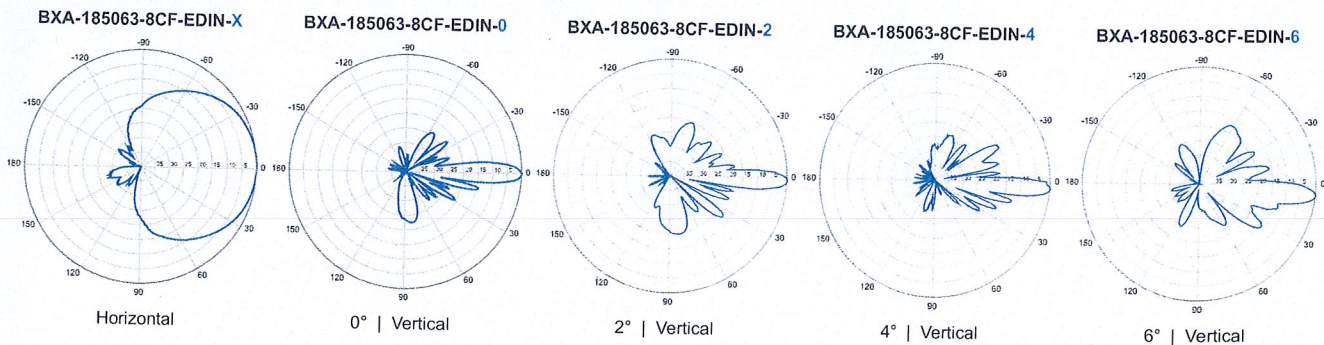
X-Pol | FET Panel | 63° | 18.5 dBi

Replace "X" with desired electrical downtilt

Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.



Electrical Characteristics		
Frequency bands	1850-1990 MHz	
Polarization	±45°	
Horizontal beamwidth	63°	
Vertical beamwidth	7°	
Gain	16.4 dBd (18.5 dBi)	
Electrical downtilt (X)	0, 2, 4, 6	
Impedance	50Ω	
VSWR	≤1.4:1	
Null fill	5% (-26.02 dB)	
Isolation between ports	< -30 dB	
Input power	250 W	
Lightning protection	Direct Ground	
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)	
Mechanical Characteristics		
Dimensions Length x Width x Depth	1238 x 154 x 80 mm      48.8 x 6.1 x 3.2 in	
Depth with t-brackets	108 mm      4.3 in	
Weight without mounting brackets	4.5 kg      10.0 lbs	
Survival wind speed	> 201 km/hr      > 125 mph	
Wind area	Front: 0.19 m <sup>2</sup> Side: 0.10 m <sup>2</sup> Front: 2.1 ft <sup>2</sup> Side: 1.1 ft <sup>2</sup>	
Wind load @ 161 km/hr (100 mph)	Front: 288 N    Side: 170 N      Front: 65 lbf    Side: 38 lbf	
Mounting Options		
Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm    2.0-4.0 in      2.3 kg    5.0 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm    2.0-4.0 in      3.6 kg    8.0 lbs
Concealment Configurations	For concealment configurations, order BXA-185063-8CF-EDIN-X-FP	



Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.



## BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

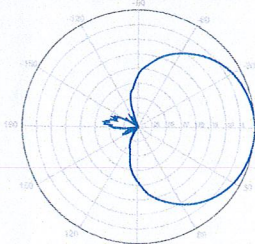
Replace "X" with desired electrical downtilt.

Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.



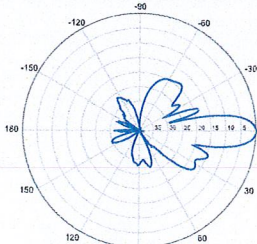
Electrical Characteristics	696-900 MHz		
Frequency bands	696-806 MHz	806-900 MHz	
Polarization	±45°		
Horizontal beamwidth	65°	63°	
Vertical beamwidth	13°	11°	
Gain	14.0 dBd (16.1 dBi)	14.5 dBd (16.6 dBi)	
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 10		
Impedance	50Ω		
VSWR	≤1.35:1		
Upper sidelobe suppression (0°)	-18.3 dB	-18.2 dB	
Front-to-back ratio (+/-30°)	-33.4 dB	-36.3 dB	
Null fill	5% (-26.02 dB)		
Isolation between ports	< -25 dB		
Input power with EDIN connectors	500 W		
Input power with NE connectors	300 W		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)		
Mechanical Characteristics			
Dimensions Length x Width x Depth	1804 x 285 x 132 mm	71.0 x 11.2 x 5.2 in	
Depth with z-brackets	172 mm	6.8 in	
Weight without mounting brackets	7.9 kg	17 lbs	
Survival wind speed	> 201 km/hr	> 125 mph	
Wind area	Front: 0.51 m <sup>2</sup> Side: 0.24 m <sup>2</sup>	Front: 5.5 ft <sup>2</sup> Side: 2.6 ft <sup>2</sup>	
Wind load @ 161 km/hr (100 mph)	Front: 759 N Side: 391 N	Front: 169 lbf Side: 89 lbf	
Mounting Options	Part Number	Fits Pipe Diameter	Weight
3-Point Mounting & Downtilt Bracket Kit	36210008	40-115 mm 1.57-4.5 in	6.9 kg 15.2 lbs
Concealment Configurations	For concealment configurations, order BXA-70063-6CF-EDIN-X-FP		

BXA-70063-6CF-EDIN-X



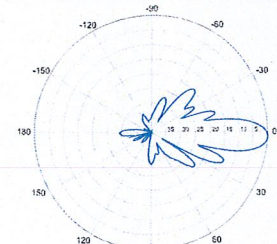
Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0

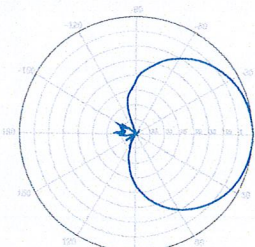


0° | Vertical | 750 MHz

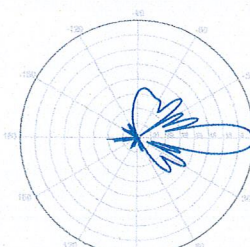
BXA-70063-6CF-EDIN-2



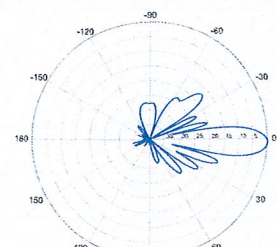
2° | Vertical | 750 MHz



Horizontal | 850 MHz



0° | Vertical | 850 MHz



2° | Vertical | 850 MHz

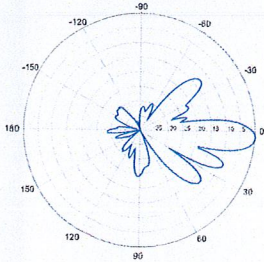
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**BXA-70063-6CF-EDIN-X**

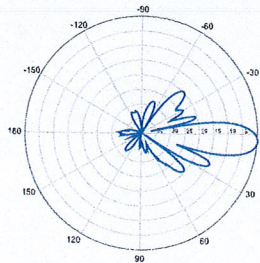
X-Pol | FET Panel | 63° | 14.5 dBd

**BXA-70063-6CF-EDIN-3**



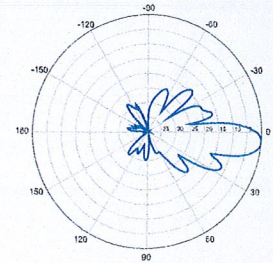
3° | Vertical | 750 MHz

**BXA-70063-6CF-EDIN-4**

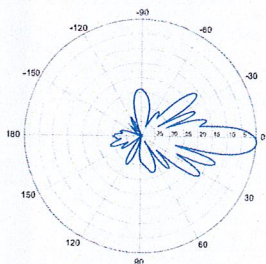


4° | Vertical | 750 MHz

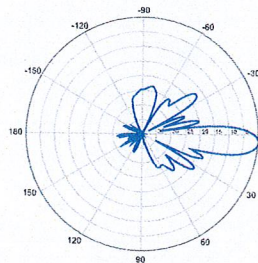
**BXA-70063-6CF-EDIN-5**



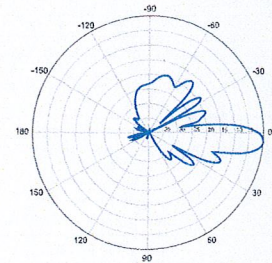
5° | Vertical | 750 MHz



3° | Vertical | 850 MHz

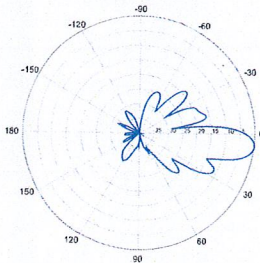


4° | Vertical | 850 MHz



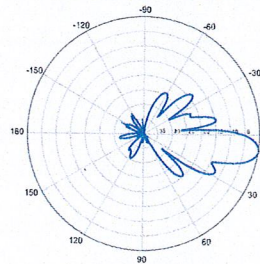
5° | Vertical | 850 MHz

**BXA-70063-6CF-EDIN-6**



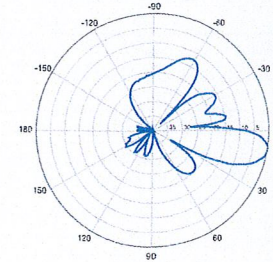
6° | Vertical | 750 MHz

**BXA-70063-6CF-EDIN-8**

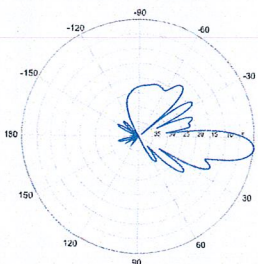


8° | Vertical | 750 MHz

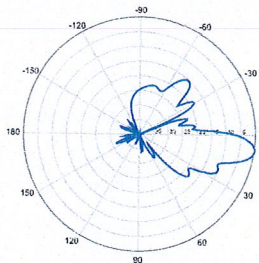
**BXA-70063-6CF-EDIN-10**



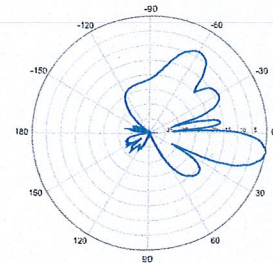
10° | Vertical | 750 MHz



6° | Vertical | 850 MHz



8° | Vertical | 850 MHz



10° | Vertical | 850 MHz

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## BXA-171063-8BF-EDIN-X

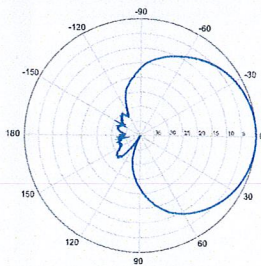
Replace "X" with desired electrical downtilt.

X-Pol | FET Panel | 63° | 17.4 dBi

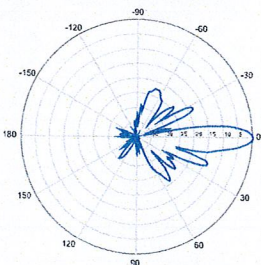
Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	68°	65°	60°
Vertical beamwidth	7°	7°	7°
Gain	14.5 dBd / 16.6 dBi	14.9 dBd / 17.0 dBi	15.3 dBd / 17.4 dBi
Electrical downtilt (X)	0, 2, 4, 8		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back ratio	> 30 dB		
In-band isolation	> 25 dB		
IM3 (20W carrier)	< -150 dBc		
Input power	300 W		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN / Female / Bottom		
Operating temperature	-40° to +60° C / -40° to +140° F		
Mechanical Characteristics			
Dimensions Length x Width x Depth	1225 x 154 x 105 mm	48.2 x 6.1 x 4.1 in	
Depth with t-brackets	133 mm	5.2 in	
Weight without mounting brackets	4.2 kg	9.2 lbs	
Survival wind speed	296 km/hr	184 mph	
Wind area	Front: 0.19 m <sup>2</sup> Side: 0.14 m <sup>2</sup>	Front: 2.0 ft <sup>2</sup>	Side: 1.5 ft <sup>2</sup>
Wind load @ 161 km/hr (100 mph)	Front: 281 N Side: 223 N	Front: 63 lbf	Side: 50 lbf
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171063-8BF-EDIN-X-FP		



BXA-171063-8BF-EDIN-X

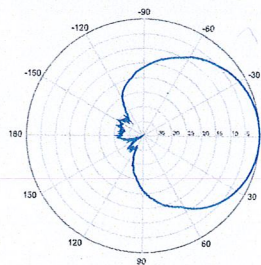


Horizontal | 1710-1880 MHz  
BXA-171063-8BF-EDIN-0

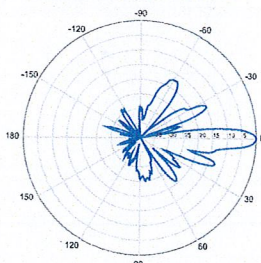


0° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-X

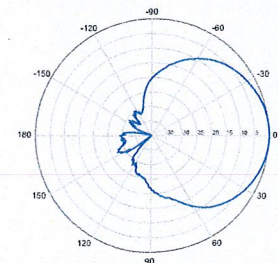


Horizontal | 1850-1990 MHz  
BXA-171063-8BF-EDIN-0

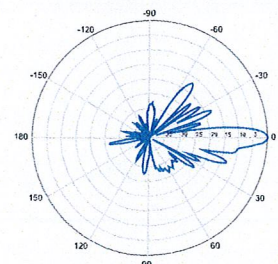


0° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-X



Horizontal | 1920-2170 MHz  
BXA-171063-8BF-EDIN-0



0° | Vertical | 1920-2170 MHz

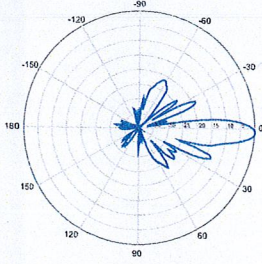
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## BXA-171063-8BF-EDIN-X

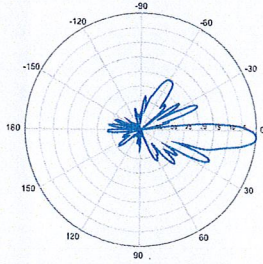
X-Pol | FET Panel | 63° | 17.4 dBi

**BXA-171063-8BF-EDIN-2**



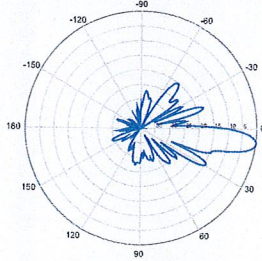
2° | Vertical | 1710-1880 MHz

**BXA-171063-8BF-EDIN-4**



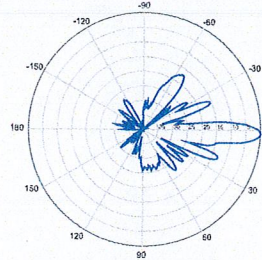
4° | Vertical | 1710-1880 MHz

**BXA-171063-8BF-EDIN-8**



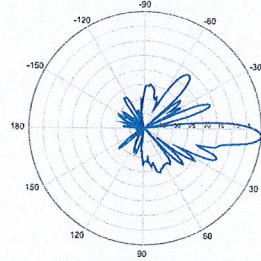
8° | Vertical | 1710-1880 MHz

**BXA-171063-8BF-EDIN-2**



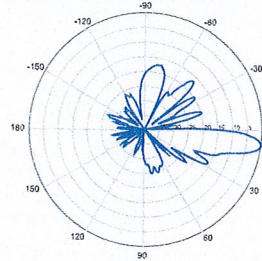
2° | Vertical | 1850-1990 MHz

**BXA-171063-8BF-EDIN-4**



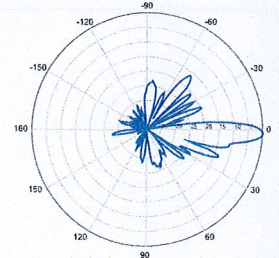
4° | Vertical | 1850-1990 MHz

**BXA-171063-8BF-EDIN-8**



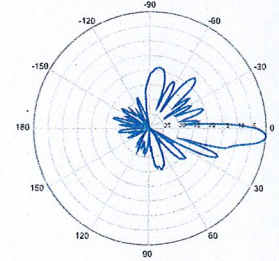
8° | Vertical | 1850-1990 MHz

**BXA-171063-8BF-EDIN-2**



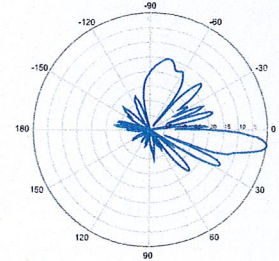
2° | Vertical | 1920-2170 MHz

**BXA-171063-8BF-EDIN-4**



4° | Vertical | 1920-2170 MHz

**BXA-171063-8BF-EDIN-8**



8° | Vertical | 1920-2170 MHz

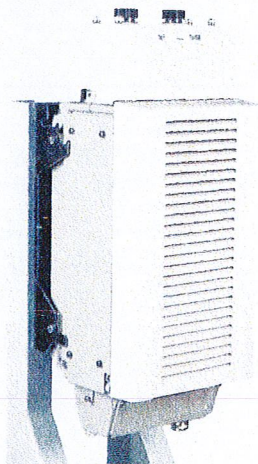
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## Alcatel-Lucent RRH2x40-AWS

### REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-AWS is a high-power, small form-factor Remote Radio Head (RRH) operating in the AWS frequency band (1700/2100MHz - 3GPP Band 4). The Alcatel-Lucent RRH2x40-AWS is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.



A distributed eNodeB expands deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent RRH2x40-AWS is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information. The Alcatel-Lucent RRH2x40-AWS has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to four-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 20 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-AWS is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low

capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH2x40-AWS installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

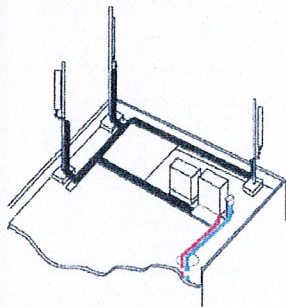
#### Fast, low-cost installation and deployment

The Alcatel-Lucent RRH2x40-AWS is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent RRH2x40-AWS is compact and weighs less than 20 kg (44 lb), eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day — a fraction of the time required for a traditional BTS.



## Excellent RF performance

Because of its small size and weight, the Alcatel-Lucent RRH2x40-AWS can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-AWS where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced. The Alcatel-Lucent RRH2x40-AWS provides more RF power while at the same time consuming less electricity.



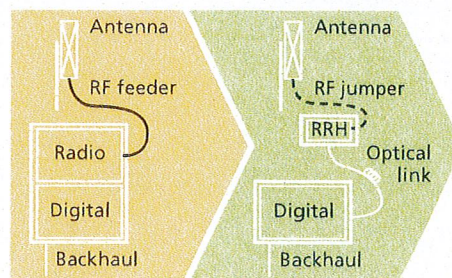
Macro

## Features

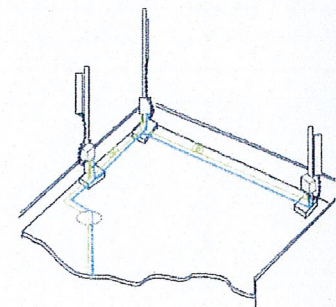
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless)
- Noise-free
- Best-in-class power efficiency, with significantly reduced energy consumption

## Benefits

- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning



RRH for space-constrained cell sites



Distributed

## Technical specifications

### Physical dimensions

- Height: 620 mm (24.4 in.)
- Width: 270 mm (10.63 in.)
- Depth: 170mm (6.7 in.)
- Weight (without mounting kit): less than 20 kg (44 lb)

### Power

- Power supply: -48VDC

### Operating environment

- Outdoor temperature range:
  - With solar load: -40°C to +50°C (-40°F to +122°F)
  - Without solar load: -40°C to +55°C (-40°F to +131°F)

- Passive convection cooling (no fans)
- Enclosure protection
  - IP65 (International Protection rating)

### RF characteristics

- Frequency band: 1700/2100 MHz (AWS); 3GPP Band 4
- Bandwidth: up to 20 MHz
- RF output power at antenna port: 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way with optional Rx Diversity module
- Noise figure: below 2.0 dB typical
- Antenna Line Device features
  - TMA and Remote electrical tilt (RET) support via AISG v2.0

### Optical characteristics

#### Type/number of fibers

- Single-mode variant
  - One Single Mode Single Fiber per RRH2x, carrying UL and DL using CWDM
  - Single mode dual fiber (SM/DF)
- Multi-mode variant
  - Two Multi-mode fibers per RRH2x: one carrying UL, the other carrying DL

### Optical fiber length

- Up to 500 m (0.31 mi), using MM fiber
- Up to 20 km (12.43 mi), using SM fiber

### Digital Ports and Alarms

- Two optical ports to support daisy-chaining
- Six external alarms

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**HYBRIFLEX™ RRH Hybrid Feeder Cabling Solution, 1-5/8", Single-Mode Fiber**

**Product Description**

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world's most innovative solution for RRH deployments.

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX® accessories can be used with HYBRIFLEX cable. Both pre-connectorized and on-site options are available.

**Features/Benefits**

- Aluminum corrugated armor with outstanding bending characteristics – minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding – Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design – Decreases tower loading
- Robust cabling – Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH – Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable – Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- Outdoor polyethylene jacket – Ensures long-lasting cable protection

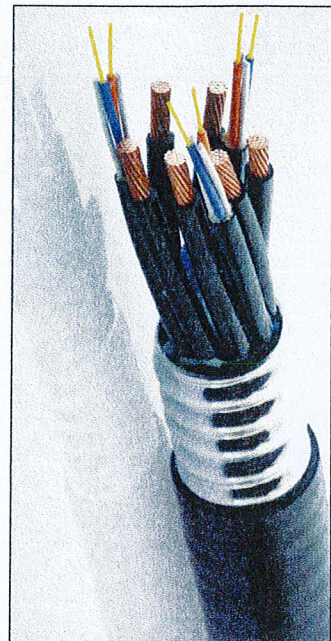


Figure 1: HYBRIFLEX Series

**Technical Specifications**

**Structure**

Outer Conductor Armor:	Corrugated Aluminum	[mm (in)]	46.5 (1.83)
Jacket:	Polyethylene, PE	[mm (in)]	50.3 (1.98)
UV-Protection:	Individual and External Jacket		Yes

**Mechanical Properties**

Weight, Approximate		[kg/m (lb/ft)]	1.9 (1.30)
Minimum Bending Radius, Single Bending		[mm (in)]	200 (8)
Minimum Bending Radius, Repeated Bending		[mm (in)]	500 (20)
Recommended/Maximum Clamp Spacing		[m (ft)]	1.0 / 1.2 (3.25 / 4.0)

**Electrical Properties**

DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	068 (0.205)
DC-Resistance Power Cable, 8.4mm <sup>2</sup> (8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)

**Fiber Optic Properties**

Version			Single-mode OM3
Quantity, Fiber Count			16 (8 pairs)
Core/Clad		[μm]	50/125
Primary Coating (Acrylate)		[μm]	245
Buffer Diameter, Nominal		[μm]	900
Secondary Protection, Jacket, Nominal		[mm (in)]	2.0 (0.08)
Minimum Bending Radius		[mm (in)]	104 (4.1)
Insertion Loss @ wavelength 850nm		dB/km	3.0
Insertion Loss @ wavelength 1310nm		dB/km	1.0
Standards (Meets or exceeds)			UL94-V0, UL1666 RoHS Compliant

**DC Power Cable Properties**

Size (Power)		[mm <sup>2</sup> (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm <sup>2</sup> (AWG)]	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		[mm (in)]	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-95-658 UL Type XHHW-2, UL 44 UL-L5 Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant

**Environment**

Installation Temperature		[°C (°F)]	-40 to +65 (-40 to 149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to 149)

\* This data is provisional and subject to change.

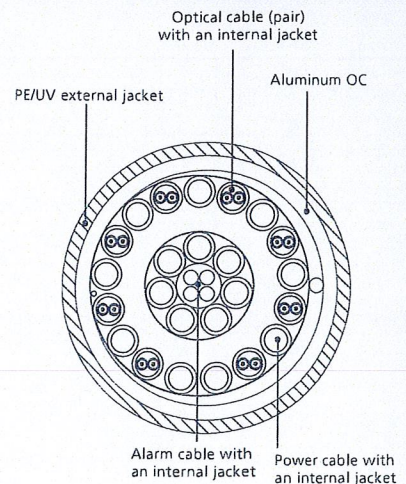


Figure 2: Construction Detail

All information contained in the present datasheet is subject to confirmation at time of ordering.



General		Power	Density			
Site Name: Bridgeport SW						
Tower Height: Verizon @ 110Ft.						
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.
						FRACTION MPE
						Total
*Sprint iDEN	12	100	85	0.0597	851	0.5673
*Clearwire	2	153	118	0.0079	2496	1.0000
*Clearwire	1	211	123	0.0050	18 GHz	0.50%
*Sprint WiMAX	3	562	85	0.0839	2657	1.0000
*Microwave	2	1096	240	0.0137	22500	1.0000
*T-Mobile LTE	2	24	180	0.0005	2100	1.0000
*T-Mobile GSM/UMTS	2	12	180	0.0003	1950	1.0000
*T-Mobile UMTS	2	12	180	0.0003	2100	1.0000
*Unknown	1	500	272	0.0024	162	0.2000
*Unknown	3	3500	267	0.0530	930	0.6200
*Unknown	6	500	260	0.0160	450	0.3000
*MetroPCS	7	734	126	0.1164	2310	1.0000
<b>Verizon PCS</b>	<b>15</b>	<b>449</b>	<b>110</b>	<b>0.2001</b>	<b>1970</b>	<b>1.0000</b>
<b>Verizon Cellular</b>	<b>9</b>	<b>277</b>	<b>110</b>	<b>0.0741</b>	<b>869</b>	<b>0.5793</b>
<b>Verizon AWS</b>	<b>1</b>	<b>1210</b>	<b>110</b>	<b>0.0360</b>	<b>2145</b>	<b>1.0000</b>
<b>Verizon 700</b>	<b>1</b>	<b>1026</b>	<b>110</b>	<b>0.0305</b>	<b>698</b>	<b>0.4653</b>
						<b>91.35%</b>
* Source: Siting Council						

# STRUCTURAL ANALYSIS REPORT

for



**verizon**wireless

Vital Site Services, Inc.  
37 Columbus Avenue  
Somerville, MA 02143

Bridgeport  
KM No. 121101.01

250 ft. Self Support Tower  
623 Pine Street  
Bridgeport, CT 06605

Prepared By:



**KM CONSULTING ENGINEERS, INC.**

32 West Upper Ferry Rd, Ewing, NJ 08628  
Ph: (609) 538-0400      [www.kmengr.com](http://www.kmengr.com)

February 4, 2013

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

**Verizon Wireless  
Bridgeport**

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2.0 TOWER INVENTORY.....	4
3.0 COMMENTARY.....	5
4.0 ANALYSIS PROCEDURE.....	6
5.0 TOWER ANALYSIS RESULT.....	7
6.0 RECOMMENDATION.....	8
6.0 APPENDIX.....	9
Load Case No. 1: Existing tower superstructure with existing inventory and proposed Verizon Wireless installation.	



## **1.0 EXECUTIVE SUMMARY**

### **Structure**

Owner: Radio Communications Tower  
Location: 623 Pine Street  
Bridgeport, CT 06605  
Manufacturer: Rohn

### **Equipment**

Existing tower inventory plus the proposed installation are detailed in Section 2.0 "Tower Inventory."

### **Synopsis**

Load Case No. 1: The existing tower superstructure with the current inventory and proposed Verizon Wireless installation.

The tower superstructure has sufficient capacity, and therefore meets the current TIA standards. The tower superstructure is rated at 96.3%.

Information on the existing foundations has been reviewed. Utilizing the proposed loading reactions of the tower, a foundation analysis indicates that the existing capacity of the foundation will meet the TIA/EIA-222-F and IBC standards.

## 2.0 TOWER INVENTORY

### DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Omni antenna	276.5	Panel Antenna w/mount pipe (Clearwire)	118
yaggi in radom	264		
Beacon	264	Panel Antenna w/mount pipe (Clearwire)	118
Omni antenna	264		
Omni antenna	264	GPS antenna (Verizon)	110
Top Platform	264	mounting frames w/stable bar (Verizon)	110
Omni antenna	256 - 239		
Omni antenna	238	mounting frames w/stable bar (Verizon)	110
(2) Ericsson AIR21 Panel Antenna (T-Mobile)	180	(2) APL-866513-42TO (Verizon)	110
mounting frames w/stable bar (T-Mobile)	180	(2) APL-866513-42TO (Verizon)	110
mounting frames w/stable bar (T-Mobile)	180	mounting frames w/stable bar (Verizon)	110
mounting frames w/stable bar (T-Mobile)	180	Lucent LNX-6514DS-T4M (Verizon)	110
mounting frames w/stable bar (T-Mobile)	180	Lucent LNX-6514DS-T4M (Verizon)	110
		Lucent P65-16-XL-2 (Verizon)	110
(2) Ericsson AIR21 Panel Antenna (T-Mobile)	180	MG D3-800T0 (Verizon)	110
		MG D3-800T0 (Verizon)	110
(2) Ericsson AIR21 Panel Antenna (T-Mobile)	180	RRH AWS (Verizon)	110
		RRH AWS (Verizon)	110
APX16PV_PVL (T-Mobile)	180	RRH AWS (Verizon)	110
APX16PV_PVL (T-Mobile)	180	BXA-171063-8BF (Verizon)	110
APX16PV_PVL (T-Mobile)	180	BXA-171063-8BF (Verizon)	110
TMA (T-Mobile)	180	BXA-171063-8BF (Verizon)	110
TMA (T-Mobile)	180	Distribution Box (Verizon)	110
TMA (T-Mobile)	180	RRH 700 (Verizon)	110
(2) MetroPCS Antenna (MetroPCS)	138	RRH 700 (Verizon)	110
(2) MetroPCS Antenna (MetroPCS)	138	RRH 700 (Verizon)	110
(2) MetroPCS Antenna (MetroPCS)	138	BXA-70063-6CF (Verizon)	110
mounting frames w/stable bar (MetroPCS)	138	BXA-70063-6CF (Verizon)	110
mounting frames w/stable bar (MetroPCS)	138	BXA-70063-6CF (Verizon)	110
mounting frames w/stable bar (MetroPCS)	138	BXA-185063-8CF (Verizon)	110
mounting frames w/stable bar (MetroPCS)	138	(2) APL-866513-42TO (Verizon)	110
		PX2F-52-N7A (County)	100
1' dish (Clearwire)	121	mounting frames w/stable bar (Nextel)	83
1' dish (Clearwire)	121	mounting frames w/stable bar (Nextel)	83
1' dish (Clearwire)	121	mounting frames w/stable bar (Nextel)	83
Panel Antenna w/mount pipe (Clearwire)	118	(4) sector antenna (Nextel)	83
		(4) sector antenna (Nextel)	83
		(4) sector antenna (Nextel)	83

\*Proposed inventory of (3) BXA-70063-6CF panel antennas, (3) BXA-171063-8BF panel antennas, (6) APL-866513-42TO panel antennas, (2) MG D3-800TO panel antennas, (1) BXA-185063-8CF panel antennas, (3) RRH AWS, (3) RRH 700, (1) GPS antenna, and (1) main distribution box @ 110' AGL

### **3.0 COMMENTARY**

Our scope of work is to determine if the existing structure is capable of withstanding the additional stresses/forces imposed by the installation of the proposed Verizon Wireless equipment noted in the tower inventory. The tower is a 250' tall Rohn self-support tower with a triangular platform located at the top.

Tower member sizes and layout and foundation information was taken from previous structural analysis by KM Consulting Engineers, Inc. (KMCE) dated June 27, 2012. Reinforcement drawings from KMCE dated August 19, 2012 were also included in the tower model. Antenna inventory was also taken from the above mentioned analysis.

The following report will provide analytical calculations and commentary regarding the capacity of the proposed tower and subsequent recommendations.

## **4.0 ANALYSIS PROCEDURE**

KM Consulting Engineers, Inc. carried out their structural analysis by correlating field inspection and tower member data into proprietary software designed specifically for communication tower analysis.

These programs run in conjunction with the guidelines set down in the TIA/EIA-222-F June 1996 Standard entitled "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures."

The existing tower is analyzed by placing wind forces on the structure in 30° positional increments around the tower (ie. wind pressure directly onto the tower corners, faces and parallel to the faces). This enables the user to "create" a three-dimensional representation, yielding results for worst case scenarios. In effect, the production of these results allows the user to study the structural integrity of the tower when influenced by wind forces from any direction.

The proceeding report includes analysis for the tower with the addition of antennas in the scenarios stated. For clarity, the analysis shall include worst case loadings and a typical elevation view with maximum foundation loads tabulated.

Should the client require to be furnished with a full copy of our analysis, we will gladly do so (approximately 80 pages).

### **Codes and Standards**

ACI - American Concrete Institute - *Building Code Requirements for Structural Concrete (ACI 318-05)*, 2005

AISC - American Institute of Steel Construction - *Manual of Steel Construction, Allowable Stress Design*, 14<sup>th</sup> edition, 2010

TIA - Telecommunications Industry Association – *TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures*, 1996

IBC 2003- International Building Code



## **5.0 TOWER ANALYSIS RESULTS**

The tower was analyzed for the inventory detailed in Section 2.0 "Tower Inventory".

Structural wind speed is in accordance with TIA/EIA-222-F listing applicable to Fairfield County, CT: 85 MPH (fastest mile), no ice and 74 MPH (fastest mile), 1/2" radial ice.

All allowable capacities have been calculated to comply with the permitted TIA allowable increases (for wind).

**Load Case No. 1:** Proposed inventory of (3) BXA-70063-6CF panel antennas, (3) BXA-171063-8BF panel antennas, (6) APL-866513-42TO panel antennas, (2) MG D3-800TO panel antennas, (1) BXA-185063-8CF panel antennas, (3) RRH AWS, (3) RRH 700, (1) GPS antenna, and (1) main distribution box

The tower superstructure has sufficient capacity, and therefore meets the current TIA standards. The tower superstructure is rated at 96.3%. The foundation is deemed acceptable.

The reinforcement drawings by KMCE dated August 29, 2012 were included in the analysis and assumed to be completed. The proposed Verizon installation cannot be completed until the reinforcement design is verified to be complete.

## **6.0 RECOMMENDATIONS**

Further to our calculations, we conclude that the tower superstructure and base foundation have adequate capacity and therefore meet the current TIA/EIA-222-F design standards. The tower has sufficient capacity to support the proposed Verizon Wireless installation.

The reinforcement drawings by KMCE dated August 29, 2012 were included in the analysis and assumed to be completed. The proposed Verizon installation cannot be completed until the reinforcement design is verified to be complete.

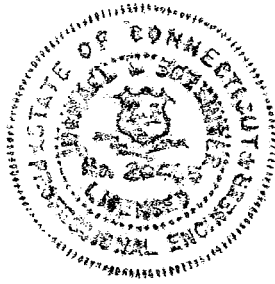
Please do not hesitate to contact our office with any questions or concerns regarding this report.

Sincerely,  
**KM CONSULTING ENGINEERS, INC.**

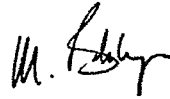
Prepared By:



Domenic Aversa, EIT  
Project Manager



Reviewed and Approved by:



Michael L. Bohlinger, PE  
Principal  
CT License No. 20405

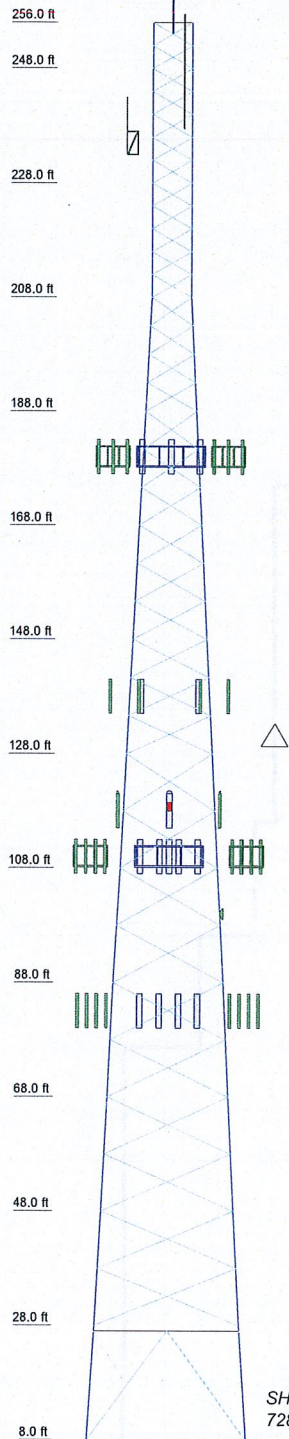
## **7.0 APPENDIX**



**LOAD CASE 1**



Section	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs			P10x5		ROHN 8 EH	ROHN 8 EHS	A572-50	ROHN 6 EH	ROHN 5 EH	ROHN 4 EH	ROHN 3 EH		A
Leg Grade					L4x4x0.31	L4x4x3/8	A572-50	L2 1/2x2 1/2x1/4	L2x2x1/4				B
Diagonals	ROHN 3 STD		L5x5x3/8										C
Diagonal Grade													
Top Chords	ROHN 3 STD												
Red. Diagonals	ROHN 3 STD												
Red. Hips	ROHN 1.5 STD												
Inner Bracing	ROHN 3 STD												
Face Width (ft)	27.8333	25.3333		19.25	17.0833	14.989	12.916	8.916	6.833		6.9	6.804	
# Panels @ (ft)	1 @ 19	10 @ 10							4 @ 5		12 @ 4		
Weight (lb)	49432.4	5822.3	6987.4	6922.3	4628.8	4185.6	3083.2	2800.2	1965.2	1666.8	1378.5	474.2	



**DESIGNED APPURTENANCE LOADING**

TYPE	ELEVATION	TYPE	ELEVATION
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Beacon	264	GPS antenna (Verizon)	110
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Omni antenna	264	mounting frames w/stable bar (Verizon)	110
Omni antenna	256 - 239	(2) APL-866513-42TO (Verizon)	110
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mounting frames w/stable bar (T-Mobile)	180	Lucent LNX-6514DS-T4M (Verizon)	110
mounting frames w/stable bar (T-Mobile)	180	Lucent LNX-6514DS-T4M (Verizon)	110
mounting frames w/stable bar (T-Mobile)	180	Lucent P65-16-XL-2 (Verizon)	110
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APX16PV_PVL (T-Mobile)	180	RRH AWS (Verizon)	110
TMA (T-Mobile)	180	RRH AWS (Verizon)	110
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TMA (T-Mobile)	180	BXA-171063-8BF (Verizon)	110
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Panel Antenna w/mount pipe (Clearwire)	118	BXA-185063-8CF (Verizon)	110
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		PX2F-52-N7A (County)	100
		mounting frames w/stable bar (Nextel)	83
		mounting frames w/stable bar (Nextel)	83
		mounting frames w/stable bar (Nextel)	83
		(4) sector antenna (Nextel)	83
		(4) sector antenna (Nextel)	83
		(4) sector antenna (Nextel)	83

**SYMBOL LIST**

MARK	SIZE	MARK	SIZE
A	ROHN 3 STD	C	L3x3x1/4
B	L1 3/4x1 3/4x3/16		

**MATERIAL STRENGTH**

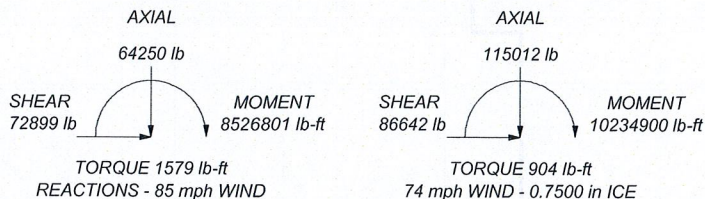
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			

**TOWER DESIGN NOTES**

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.75 in ice.
4. Deflections are based upon a 60 mph wind.
5. TOWER RATING: 96.3%

**MAX. CORNER REACTIONS AT BASE:**

DOWN: 462945 lb  
 UPLIFT: -375905 lb  
 SHEAR: 53235 lb

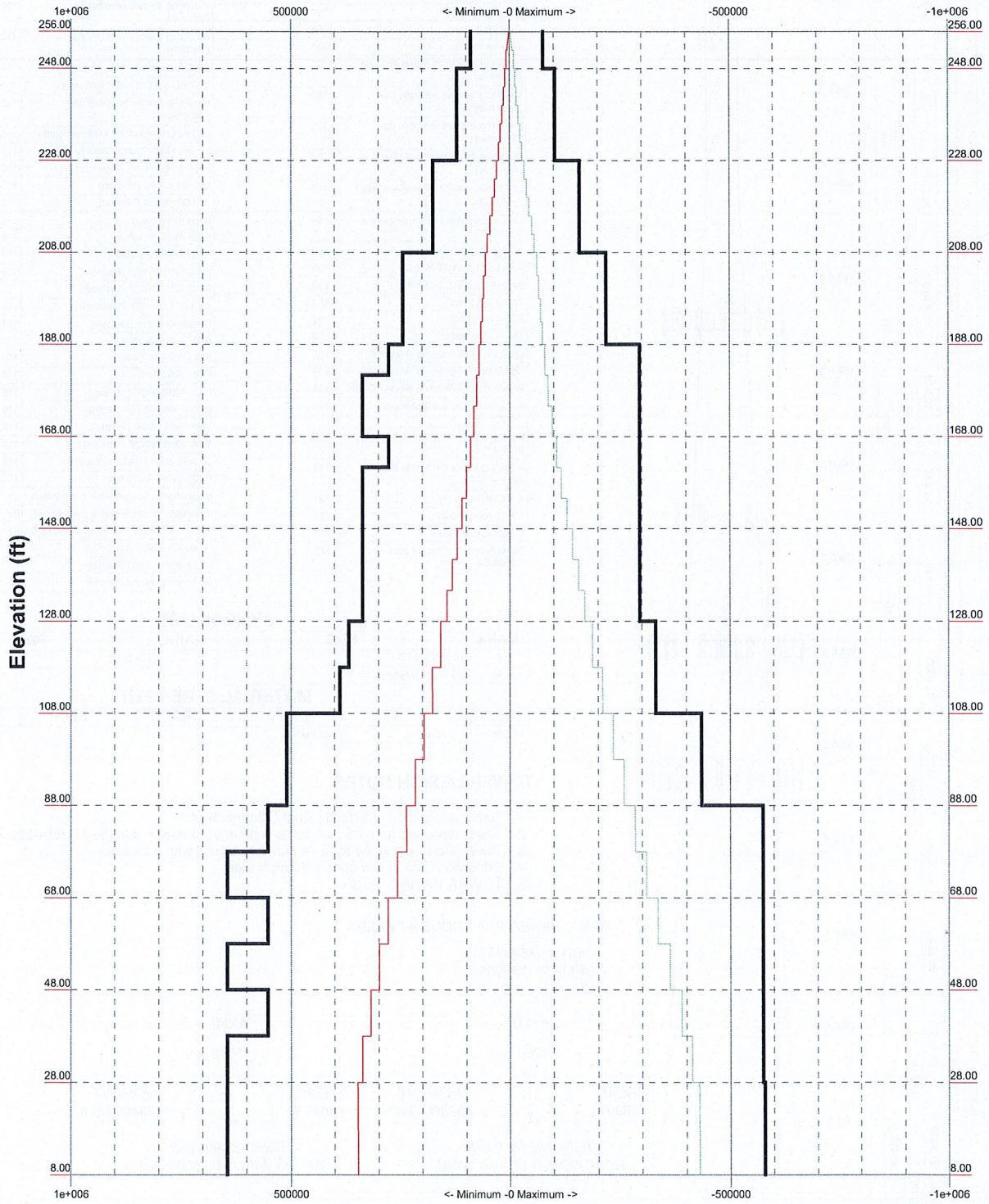


 Consulting Engineers	<b>KM Consulting Engineers, Inc.</b> 32 W Upper Ferry Road Ewing, NJ 08628 Phone: (609) 538-0400 FAX: (609) 538-8858		<b>Job: Bridgeport LC1</b> Project: 250' Rohn Self Support Tower Client: Verizon Wireless Code: TIA/EIA-222-F Path:		Drawn by: Michael Bohlinger Date: 02/04/13 Scale: NTS Dwg No. E-1
	App'd:				
	Date: 02/04/13				
	Scale: NTS				
	Dwg No. E-1				



TIA/EIA-222-F - 85 mph/74 mph 0.7500 in Ice

Leg Capacity ——— Leg Compression (lb)



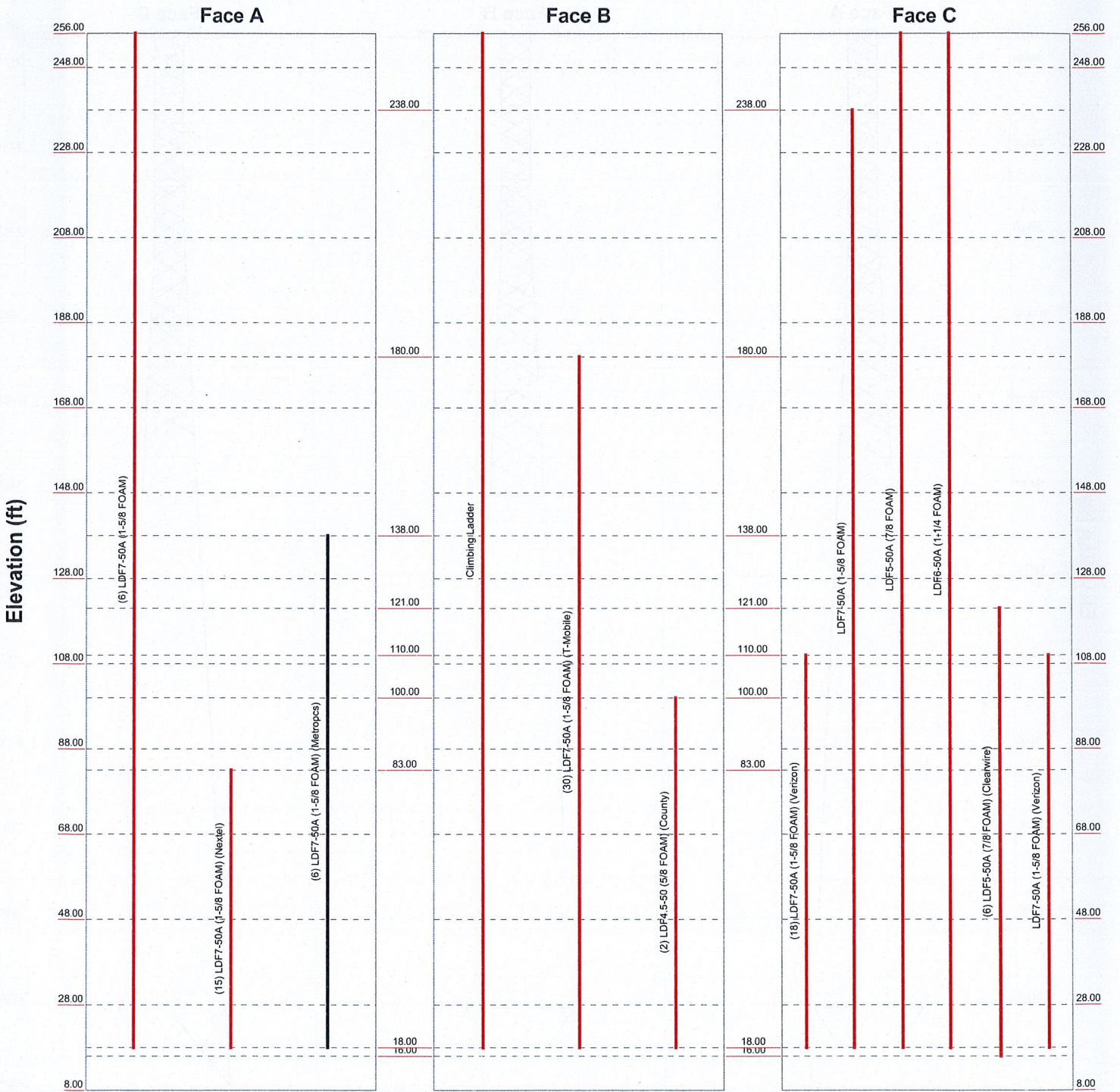
 Consulting Engineers	<b>KM Consulting Engineers, Inc.</b> 32 W Upper Ferry Road Ewing, NJ 08628 Phone: (609) 538-0400 FAX: (609) 538-8858		<b>Job: Bridgeport LC1</b>		
	Project: <b>250' Rohn Self Support Tower</b>				
	Client: Verizon Wireless		Drawn by: Michael Bohlinger		App'd:
	Code: TIA/EIA-222-F		Date: 02/04/13		Scale: NTS
	Path: K:\VSS mc\Bridgeport\Analysis 2-4-13\Engineering\Bridgeport LC1.eri				Dwg No. E-3



# Feedline Distribution Chart

## 8' - 256'

— Round   
 — Flat   
 — App In Face   
 — App Out Face   
 — Truss Leg



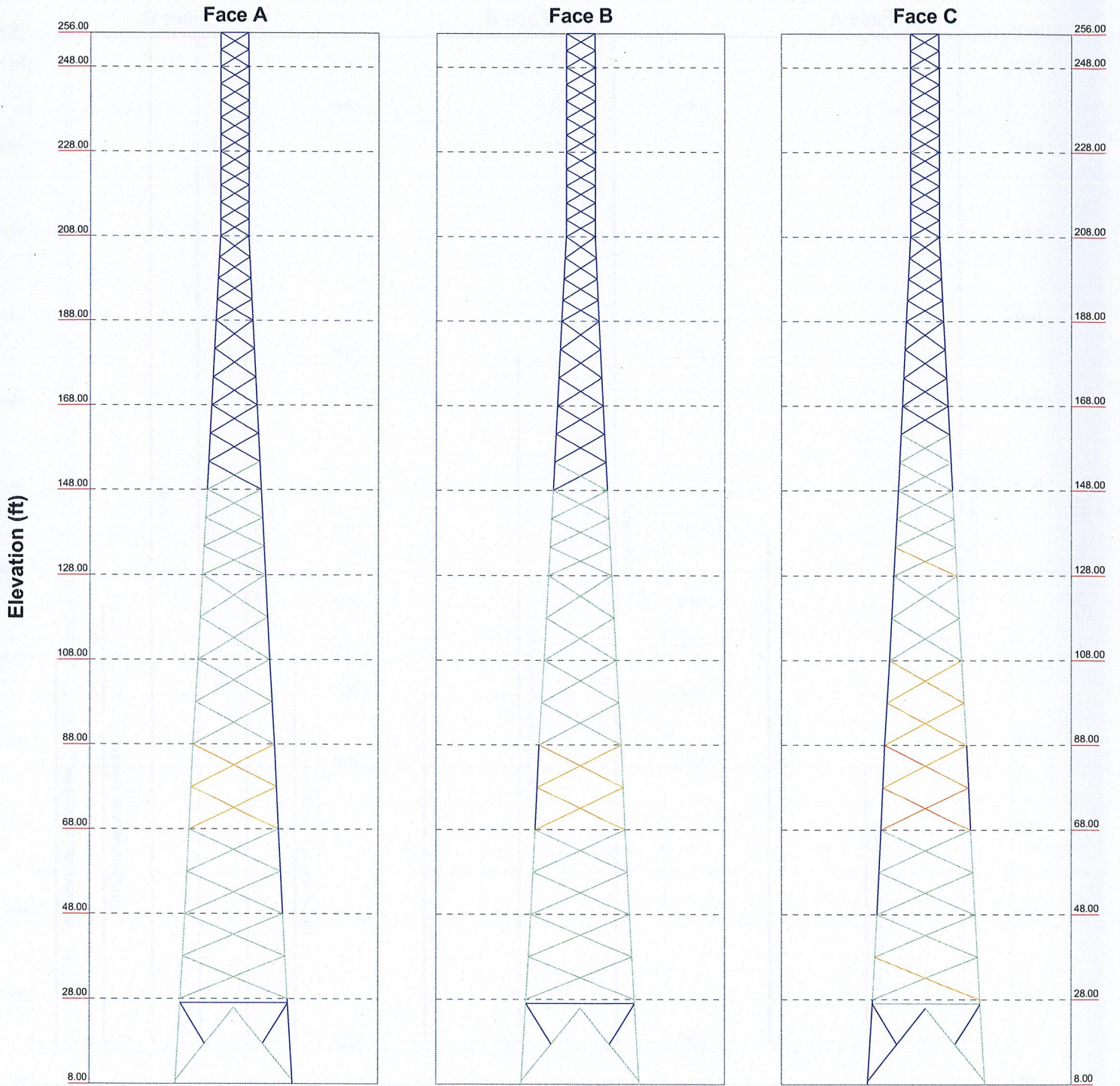
<p><b>KM Consulting Engineers, Inc.</b> 32 W Upper Ferry Road Ewing, NJ 08628 Phone: (609) 538-0400 FAX: (609) 538-8858</p>	<b>Job: Bridgeport LC1</b>		
	Project: <b>250' Rohn Self Support Tower</b>		
	Client: Verizon Wireless	Drawn by: Michael Bohlinger	App'd:
	Code: TIA/EIA-222-F	Date: 02/04/13	Scale: NTS
	Path: X:\VSS Inc\Bridgport\Analysis 2-4-13\Engineering\Bridgport LC1.eri	Dwg No. E-7	



# Stress Distribution Chart

8' - 256'

■ > 100% 
 ■ 90%-100% 
 ■ 75%-90% 
 ■ 50%-75% 
 ■ < 50% Overstress



**KM Consulting Engineers, Inc.**

32 W Upper Ferry Road  
 Ewing, NJ 08628  
 Phone: (609) 538-0400  
 FAX: (609) 538-8858

Job: **Bridgeport LC1**

Project: **250' Rohn Self Support Tower**

Client: Verizon Wireless Drawn by: Michael Bohlinger App'd:

Code: TIA/EIA-222-F Date: 02/04/13 Scale: NTS

Path: K:\WSS Inc\BridgeportAnalysis 2-4-13\Engineering\Bridgeport LC1.dwg Dwg No: E-8

<b>tnxTower</b>  <b>KM Consulting Engineers, Inc.</b> 32 W Upper Ferry Road Ewing, NJ 08628 Phone: (609) 538-0400 FAX: (609) 538-8858	<b>Job</b> Bridgeport LC1	<b>Page</b> 37 of 38
	<b>Project</b> 250' Rohn Self Support Tower	<b>Date</b> 11:03:40 02/04/13
	<b>Client</b> Verizon Wireless	<b>Designed by</b> Michael Bohlinger

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P <sub>allow</sub> lb	% Capacity	Pass Fail			
T1	256 - 248	Leg	ROHN 3 STD	3	-8780.61	76206.01	11.5	Pass			
		Diagonal	L1 3/4x1 3/4x3/16	8	-1479.94	6904.95	21.4	Pass			
		Top Girt	L3x3x1/4	4	-584.59	17508.29	3.3	Pass			
T2	248 - 228	Leg	ROHN 3 EH	21	-27706.30	102570.88	27.0	Pass			
		Diagonal	L2x2x1/4	23	-2785.98	13590.20	20.5	Pass			
T3	228 - 208	Leg	ROHN 4 EH	54	-56218.30	157673.90	35.7	Pass			
		Diagonal	L2x2x1/4	56	-3945.01	14108.47	28.0	Pass			
T4	208 - 188	Leg	ROHN 5 EH	87	-74536.70	218465.36	45.9 (b)	Pass			
		Diagonal	L2x2x1/4	89	-2372.93	8319.80	28.5	Pass			
T5	188 - 168	Leg	ROHN 6 EH	114	-96694.50	294794.27	32.8	Pass			
		Diagonal	L2 1/2x2 1/2x1/4	116	-4672.63	10570.13	44.2	Pass			
T6	168 - 148	Leg	ROHN 6 EH	135	-129071.00	294794.27	43.8	Pass			
		Diagonal	L3x3x1/4	137	-7315.94	14250.70	51.3	Pass			
T7	148 - 128	Leg	ROHN 6 EH	156	-169620.00	294787.61	59.2 (b)	Pass			
		Diagonal	L3x3x1/4	158	-9359.51	11088.25	57.5	Pass			
T8	128 - 108	Leg	ROHN 8 EHS	177	-210903.00	332528.83	84.4	Pass			
		Diagonal	L4x4x3/8	179	-12123.10	26862.75	63.4	Pass			
T9	108 - 88	Leg	ROHN 8 EH	192	-258963.00	435191.16	45.1	Pass			
		Diagonal	L4x4x0.31	194	-13545.70	18685.06	68.6 (b)	Pass			
T10	88 - 68	Leg	P10x.5	207	-310404.00	574275.04	59.5	Pass			
		Diagonal	L5x5x3/8	209	-16204.80	38315.75	72.5	Pass			
T11	68 - 48	Leg	P10x.5	222	-363053.00	574277.70	80.5 (b)	Pass			
		Diagonal	L5x5x3/8	224	-17278.70	32860.98	54.1	Pass			
T12	48 - 28	Leg	P10x.5	237	-413250.00	574259.04	42.3	Pass			
		Diagonal	L5x5x3/8	239	-18059.40	28177.62	96.3 (b)	Pass			
T13	28 - 8	Leg	P10x.5	252	-430453.00	578731.26	63.2	Pass			
		Diagonal	ROHN 3 STD	258	-23518.60	33932.05	52.6	Pass			
		Top Girt	ROHN 3 STD	253	-14282.00	27653.08	71.9 (b)	Pass			
		Redund Diag 1	ROHN 3 STD	267	-6526.29	39609.96	74.4	Pass			
		Bracing					69.3	Pass			
		Redund Hip 1	ROHN 1.5 STD	272	-72.17	10575.57	51.6	Pass			
		Bracing					16.5	Pass			
		Redund Hip Diagonal	ROHN 1.5 STD	273	-59.90	1948.97	23.0	Pass			
		Bracing					74.4	Pass			
		Inner Bracing	ROHN 3 STD	275	-223.09	25741.16	96.3	Pass			
		Summary									
									Leg (T13)	74.4	Pass
									Diagonal (T10)	96.3	Pass
							Top Girt (T13)	51.6	Pass		
							Redund Diag 1 Bracing (T13)	16.5	Pass		
							Redund Hip 1 Bracing (T13)	0.7	Pass		
							Redund Hip Diagonal	3.1	Pass		

<b>tnxTower</b>  <b>KM Consulting Engineers, Inc.</b> 32 W Upper Ferry Road Ewing, NJ 08628 Phone: (609) 538-0400 FAX: (609) 538-8858	<b>Job</b> Bridgeport LC1	<b>Page</b> 38 of 38
	<b>Project</b> 250' Rohn Self Support Tower	<b>Date</b> 11:03:40 02/04/13
	<b>Client</b> Verizon Wireless	<b>Designed by</b> Michael Bohlinger

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P <sub>allow</sub> lb	% Capacity	Pass Fail
						Bracing (T13)		
						Inner	23.0	Pass
						Bracing (T13)		
						Bolt Checks	96.3	Pass
						<b>RATING =</b>	<b>96.3</b>	<b>Pass</b>

Program Version 6.0.0.8 - 9/7/2011 File:K:/VSS Inc/Bridgeport/Analysis 2-4-13/Engineering/Bridgeport LC1.eri