ROBINSON & COLE LLP

KENNETH C. BALDWIN

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

Also admitted in Massachusetts

December 28, 2012

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

Re: **EM-VER-063-120423 – 185 Fiske Road, Hampton, Connecticut**
EM-VER-075-120423 – 333 Grassy Hill Road, Lyme, Connecticut
EM-VER-086-120330 – 557 Route 82, Montville, Connecticut
EM-VER-097-120522 – 201 South Main Street, Newtown, Connecticut
EM-VER-107-111219 – Ogg Meadow Road, Orange, Connecticut
EM-VER-141-120423 – 720 Quinebaug Road, Thompson, Connecticut
EM-VER-121-120229 – 399 West Road, Salem, Connecticut

Completion of Construction Activity

Dear Ms. Roberts:

The purpose of this letter is to notify the Siting Council that construction activity associated with the above-referenced Cellco Partnership d/b/a Verizon Wireless telecommunications facilities has been completed.

If you have any questions or need any additional information regarding this facility please do not hesitate to contact me.

Sincerely,

Kenneth C. Baldwin

Copy to:
Sandy M. Carter

12012142-v1

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

June 8, 2012

Kenneth C. Baldwin, Esq.
280 Trumbull Street
Hartford, CT 06051

RE: **EM-VER-097-120522-** Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 201 South Main Street, Newtown, 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:

- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated May 22, 2012. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

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

Very truly yours,

Linda Roberts

Linda Roberts
Executive Director

LR/CDM/jb

c: The Honorable Patricia E. Llodra, First Selectman, Town of Newtown
Gary Frenette, Zoning Enforcement Officer, Town of Newtown
Hans Fiedler, T-Mobile
Julie Kohler, Esq., Cohen and Wolf, P.C.

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
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www.ct.gov/csc

May 23, 2012

The Honorable Patricia E. Llodra
First Selectman
Town of Newtown
Town Hall
3 Primrose Street
Newtown, CT 06470-5307

RE: **EM-VER-097-120522**- Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 201 South Main Street, Newtown, Connecticut.

Dear First Selectman Llodra:

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

If you have any questions or comments regarding this proposal, please call me or inform the Council by June 7, 2012.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts

Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: Gary Frenette, Zoning Enforcement Officer, Town of Newtown

ROBINSON & COLE

EM-VER-097-120522

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ORIGINAL

May 21, 2012

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

Re: **Notice of Exempt Modification – Antenna Swap**
201 South Main Street, Newtown, Connecticut

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 127-foot level of the existing 150-foot tower at the above-referenced address. The tower is owned by T-Mobile. The Council approved Cellco's use of this tower in 2002. Cellco now intends to modify its installation by replacing all of its existing antennas with six (6) model APL 866513-42T0 cellular antennas; two (2) model BXA-171063-8BF PCS antennas; one (1) model BXA-101063-12BF PCS antenna; and three (3) model SLCP 2X6014 LTE antennas, all at the same 127-foot level on the tower. Cellco also intends to install six (6) coax cable diplexers on Cellco's antenna platform. Attached behind Tab 1 are the specifications for the proposed replacement antennas and cable diplexers.

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 E. Patricia Llodra, First Selectwoman for the Town of Newtown. A copy of this letter is also being sent to Abp CT (Newtown) LLC, 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 any increase in the height of the existing tower. Cellco's antennas will be located at the same 127-foot level on the existing tower.

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

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) 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.

Also attached is a Structural Analysis Report confirming that the tower and the tower foundation can support Cellco's 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

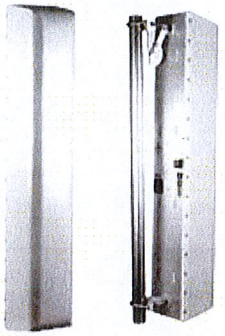
Enclosures
Copy to:
E. Patricia Llodra, Newtown First Selectwoman
Abp CT (Newtown) LLC
Sandy M. Carter

Product Data Sheet **APL866513-42T0**

Maximizer® Log Periodic Antenna, 806-894, 65deg, 15.1dBi, 1.2m, FET, 0deg

Product Description

The Celwave® Maximizer series is a log periodic dipole array which uses a patented design to achieve a front-to-back ratio of 45 dB, the highest front-to-back ratio in the industry. Maximizers are available to cover ESMR, AMPS, PCS and DCS frequency ranges. They use RFS's patented monolithic CELlite® technology, which eliminates cable and soldered joints to reduce the possibility of inter-modulation products. The CELlite technology assures high reliability and excellent repeatability of electrical characteristics. The cellular Maximizers are available in 65°, 80° and 90° horizontal beamwidths and the PCS/DCS Maximizers are available in 65° and 90° horizontal beamwidths. Patent number 6,133,889.



FRONT BACK

Features/Benefits

• 45 dB front-to-back ratio reduces co-channel interference.• Monolithic construction reduces IM.• No solder joints, high reliability.• Surface treated components prevent galvanic corrosion.• UV stabilized radome assures long life without radome deterioration due to UV exposure.

Technical Specifications

Electrical Specifications

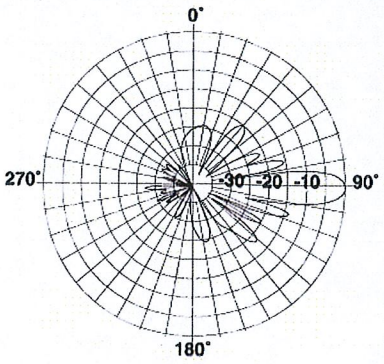
Frequency Range, MHz	806-894
Horizontal Beamwidth, deg	65
Vertical Beamwidth, deg	15
Electrical Downtilt, deg	0
Gain, dBi (dBd)	15.1 (13)
1st Upper Sidelobe Suppression, dB	>20
Upper Sidelobe Suppression, dB	>20
Front-To-Back Ratio, dB	45
Polarization	Vertical
VSWR	< 1.5:1
Impedance, Ohms	50
Maximum Power Input, W	500
Lightning Protection	Direct Ground

Mechanical Specifications

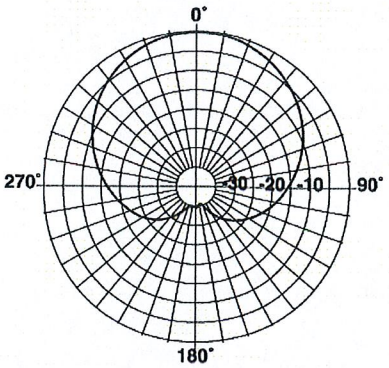
Dimensions - HxWxD, mm (in)	1219 x 234 x 203 (48 x 9.2 x 8)
Weight w/o Mtg Hardware, kg (lb)	7 (15.7)
Shipping Weight, kg (lb)	9.1 (20)
Packing Dimensions, HxWxD, mm (in)	1594 x 343 x 349 (62.75 x 13.5 x 13.75)

Ordering Information

Mounting Hardware	APM21-3



Vertical Pattern



Horizontal Pattern

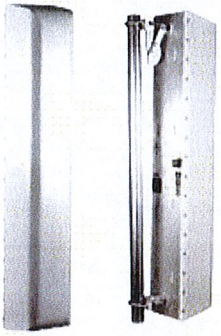
Other Documentation

Product Data Sheet **APL866513-42T0**

Maximizer® Log Periodic Antenna, 806-894, 65deg, 15.1dBi, 1.2m, FET, 0deg

Product Description

The Celwave® Maximizer series is a log periodic dipole array which uses a patented design to achieve a front-to-back ratio of 45 dB, the highest front-to-back ratio in the industry. Maximizers are available to cover ESMR, AMPS, PCS and DCS frequency ranges. They use RFS's patented monolithic CELlite® technology, which eliminates cable and soldered joints to reduce the possibility of inter-modulation products. The CELlite technology assures high reliability and excellent repeatability of electrical characteristics. The cellular Maximizers are available in 65°, 80° and 90° horizontal beamwidths and the PCS/DCS Maximizers are available in 65° and 90° horizontal beamwidths. Patent number 6,133,889.



FRONT BACK

Features/Benefits

- **45 dB front-to-back ratio reduces co-channel interference.• Monolithic construction reduces IM.• No solder joints, high reliability.• Surface treated components prevent galvanic corrosion.• UV stabilized radome assures long life without radome deterioration due to UV exposure.**

Technical Specifications

Electrical Specifications

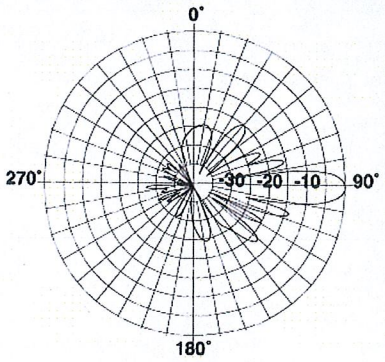
Frequency Range, MHz	806-894
Horizontal Beamwidth, deg	65
Vertical Beamwidth, deg	15
Electrical Downtilt, deg	0
Gain, dBi (dBd)	15.1 (13)
1st Upper Sidelobe Suppression, dB	>20
Upper Sidelobe Suppression, dB	>20
Front-To-Back Ratio, dB	45
Polarization	Vertical
VSWR	< 1.5:1
Impedance, Ohms	50
Maximum Power Input, W	500
Lightning Protection	Direct Ground

Mechanical Specifications

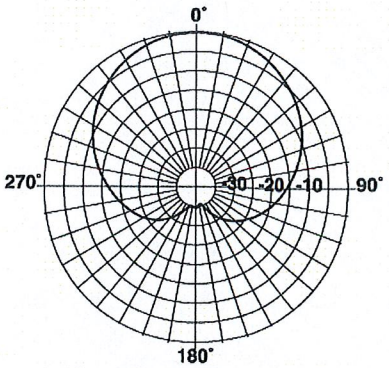
Dimensions - HxWxD, mm (in)	1219 x 234 x 203 (48 x 9.2 x 8)
Weight w/o Mtg Hardware, kg (lb)	7 (15.7)
Shipping Weight, kg (lb)	9.1 (20)
Packing Dimensions, HxWxD, mm (in)	1594 x 343 x 349 (62.75 x 13.5 x 13.75)

Ordering Information

Mounting Hardware	APM21-3



Vertical Pattern



Horizontal Pattern

Other Documentation

BXA-171063-8BF-EDIN-X

Replace "X" with desired electrical downtilt.

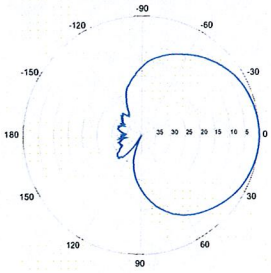
X-Pol | FET Panel | 63° | 17.4 dBi

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 isolation	> 30 dB		
In-band isolation	> 28 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	1232 x 154 x 105 mm	48.5 x 6.1 x 4.1 in
Depth with t-brackets	133 mm	5.2 in
Weight without mounting brackets	4.8 kg	10.5 lbs
Survival wind speed	296 km/hr	184 mph
Wind area	Front: 0.19 m² Side: 0.14 m²	Front: 2.0 ft² Side: 1.5 ft²
Wind load @ 161 km/hr (100 mph)	Front: 281 N Side: 223 N	Front: 63 lbf Side: 50 lbf

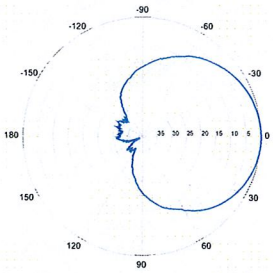
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171063-8BF-EDIN-X-FP		

BXA-171063-8BF-EDIN-X



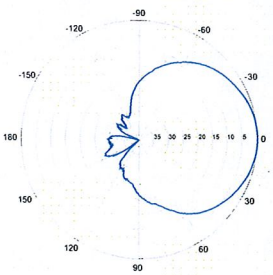
Horizontal | 1710-1880 MHz

BXA-171063-8BF-EDIN-X



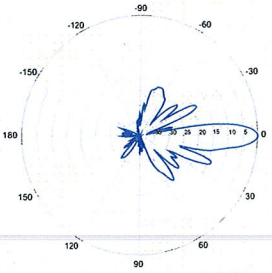
Horizontal | 1850-1990 MHz

BXA-171063-8BF-EDIN-X



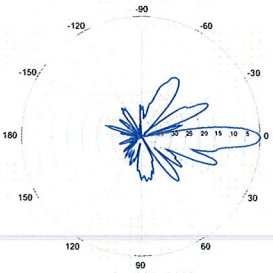
Horizontal | 1920-2170 MHz

BXA-171063-8BF-EDIN-0



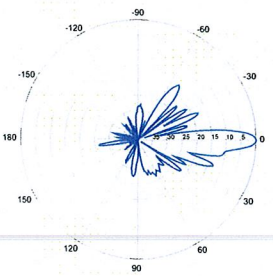
0° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-0



0° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-0

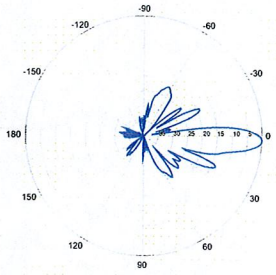


0° | Vertical | 1920-2170 MHz

BXA-171063-8BF-EDIN-X

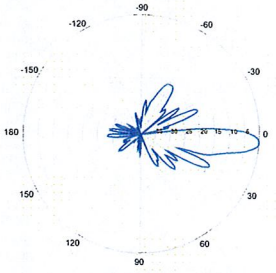
X-Pol | FET Panel | 63° | 17.4 dBi

BXA-171063-8BF-EDIN-2



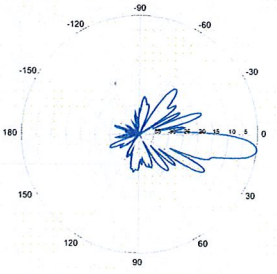
2° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-4



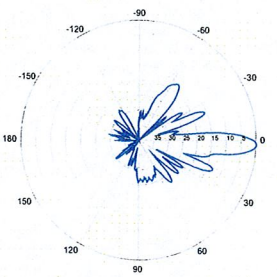
4° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-8



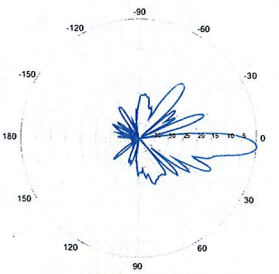
8° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-2



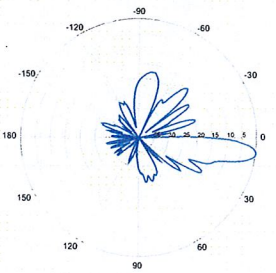
2° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-4



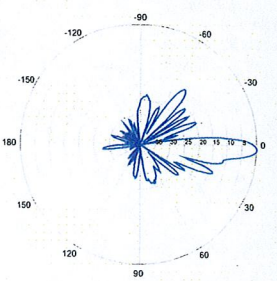
4° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-8



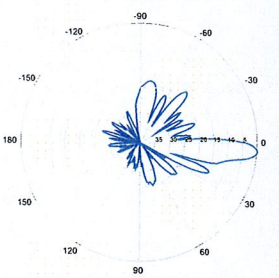
8° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-2



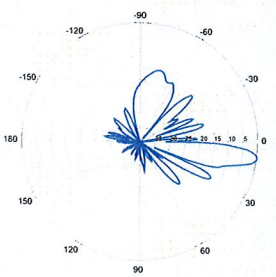
2° | Vertical | 1920-2170 MHz

BXA-171063-8BF-EDIN-4



4° | Vertical | 1920-2170 MHz

BXA-171063-8BF-EDIN-8



8° | Vertical | 1920-2170 MHz

Amphenol ANTENNA SOLUTIONS

BXA-171063-12BF-EDIN-X

Replace "X" with desired electrical downtilt.

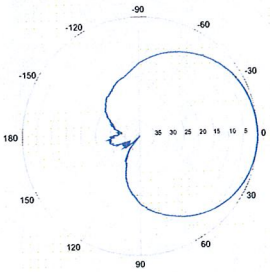
X-Pol | FET Panel | 63° | 19.0 dBi

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	4.5°	4.5°	4.5°
Gain	16.1 dBd / 18.2 dBi	16.5 dBd / 18.6 dBi	16.9 dBd / 19.0 dBi
Electrical downtilt (X)	0, 2, 5		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back ratio	> 30 dB		
In-band isolation	> 28 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	1820 x 154 x 105 mm	71.7 x 6.1 x 4.1 in
Depth with z-brackets	133 mm	5.2 in
Weight without mounting brackets	6.8 kg	15 lbs
Survival wind speed	> 201 km/hr	> 125 mph
Wind area	Front: 0.28 m² Side: 0.19 m²	Front: 3.1 ft² Side: 2.1 ft²
Wind load @ 161 km/hr (100 mph)	Front: 460 N Side: 304 N	Front: 103 lbf Side: 68 lbf

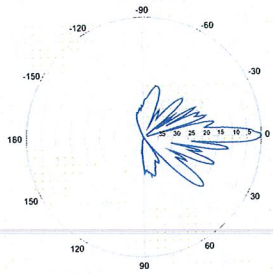
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171063-12BF-EDIN-X-FP		

BXA-171063-12BF-EDIN-X



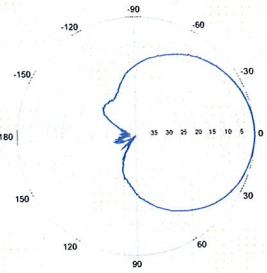
Horizontal | 1710-1880 MHz

BXA-171063-12BF-EDIN-0



0° | Vertical | 1710-1880 MHz

BXA-171063-12BF-EDIN-X



Horizontal | 1850-1990 MHz

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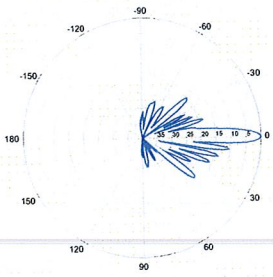

0° | Vertical | 1850-1990 MHz

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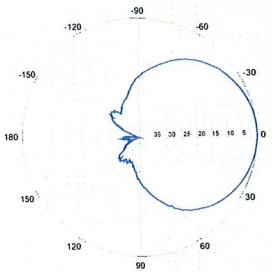

Horizontal | 1920-2170 MHz

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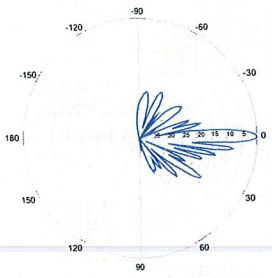
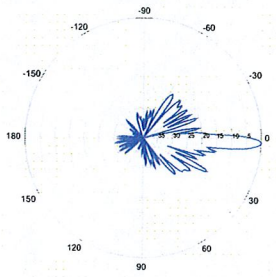


0° | Vertical | 1920-2170 MHz

BXA-171063-12BF-EDIN-X

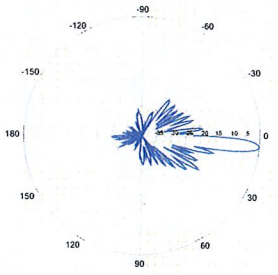
X-Pol | FET Panel | 63° | 19.0 dBi

BXA-171063-12BF-EDIN-2



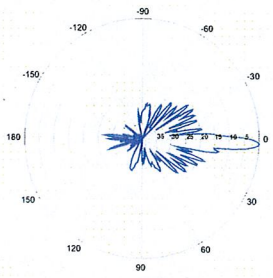
2° | Vertical | 1710-1880 MHz

BXA-171063-12BF-EDIN-5



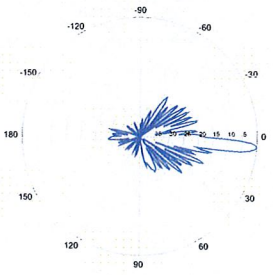
5° | Vertical | 1710-1880 MHz

BXA-171063-12BF-EDIN-2



2° | Vertical | 1850-1990 MHz

BXA-171063-12BF-EDIN-5



5° | Vertical | 1850-1990 MHz

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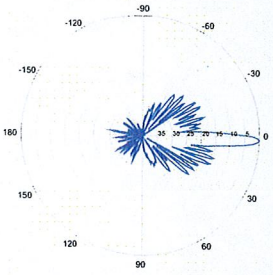
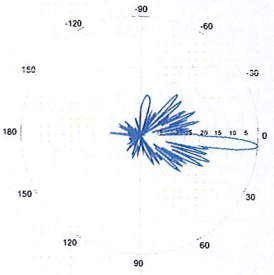


2° | Vertical | 1920-2170 MHz

BXA-171063-12BF-EDIN-5



5° | Vertical | 1920-2170 MHz

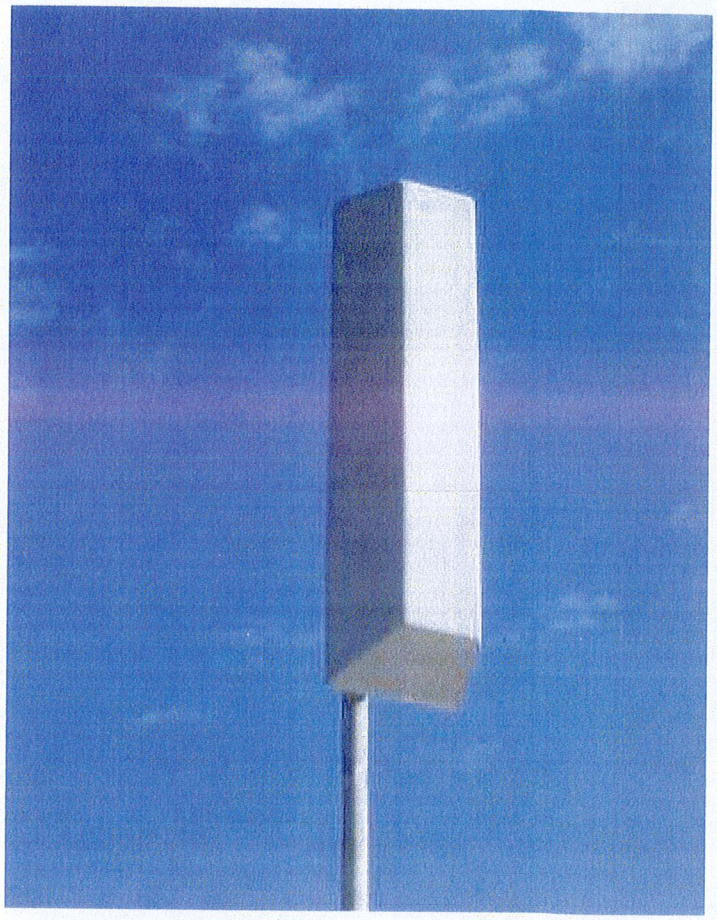
Swedcom

SLCP 2x6014

Dual (2x) Circularly Polarized log-periodic antenna

Features

- ❑ **Transmit Diversity Gain**
- ❑ **Can be configured to combine space & polarization diversity**
- ❑ **Outstanding performance over the entire band (700 - 800 MHz)**
- ❑ **Excellent Axial Ratio**
- ❑ **Optimized for 4G & 3G systems**
- ❑ **Low intermodulation**
- ❑ **Improved Side-to-side rejection**
- ❑ **Fading reduction**
- ❑ **Excellent isolation between ports**



Electrical specifications

Frequency range:	**700-800 MHz**	
Impedance:	**50 ohm**	
Connector type:	**7/16 Din**	
Return loss:	**18 dB**	
Polarization:	**Circular**	
Gain ea. port [Circular]:	**2x14 dBdC**	
Gain ea. port [Linear]:	**2x11 dBdL**	
Axial Ratio:	**2 dB**	
Isolation between ports (TX band):	**30 dB**	
Front-to-back ratio:	**30 dB**	
Intermodulation (2x20W):	**IM3**	**150 dB**
	IM5	**160 dB**
	IM7/9	**170 dB**
Power rating:	**2x 500 W**	
H-plane (-3 dB point):	**2x 55°**	
V-plane (-3 dB point):	**2x 16°**	
Lightning protection:	**DC grounded**	

Mechanical specifications

Overall height:	**53 in**	**[1346 mm]**
Width:	**14 in**	**[356 mm]**
Depth:	**11 in**	**[279 mm]**
Weight (excluding brackets):	**20 lbs**	**[9 Kg]**
Wind load measured up to:	**150 mph**	**[240 Km/h]**
Wind area (side of antenna):	**5.15 sq. ft.**	**[0.48 sq.m]**
Lateral thrust at 113 mph/ 180 Km/h (worst case):	**263 lbs**	**[1171 N]**

Materials

Radiating Elements:	**Aluminum**
Transformer (Power distribution)	**Ceramic PCB**
Chassis:	**Aluminum**
Radome:	**Grey Fiberglass/PVC**
Mounting bolts:	**Stainless steel**

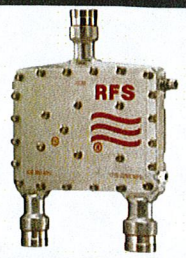
The SLCP 2x6014 is made in the U.S.A.

Product Data Sheet **FD9R6004/2C-3L**

ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

Product Description

The ShareLite FD9R6004 Series of diplexers are designed to enable feeder sharing between systems in the 698-960 MHz range and in the 1710-2200 MHz range. The diplexer is equipped with in-line connector placement so it can be installed in the BTS cabinet or at the tower top. This is especially valuable in crowded sites or when the feeders are not easily accessible. Due to its wideband design, the FD9R6004 Series can accommodate many combining solutions between 698-960 MHz and 1710-2200 MHz systems such as LTE 700 MHz, Cellular 800 MHz with PCS, GSM900 with GSM1800, or GSM900 with UMTS. This diplexer features a highly selective filter. It provides a high level of isolation between ports, while keeping the insertion loss on both paths at an extremely low level. The FD9R6004 diplexers are available with various DC pass options, helpful in configurations with or without the Tower Mount Amplifiers installed.



Features/Benefits

- **LTE ready design**
- **Extremely Low Insertion Loss**
- **High level of Rejection between bands – Protection against interferences**
- **Extremely High Power Handling Capability**
- **Integrated DC block/bypass versions available**
- **Very compact & small size design – Easy installation and reduced tower load**
- **In-line long-neck connectors for easy connection & waterproofing**
- **Exceptional reliability & environmental protection (IP 67)**
- **Equipped with 1 * Breathable Vent – Prevent any humidity inside the product**
- **Mounting hardware for Wall and Pole mount provided (P/N SEM2-1A)**
- **Grounding already provided through the mounting bracket**
- **Kit available for easy dual mount**

Technical Specifications

Product Type	Diplexer/Cross Band Coupler
Application	LTE700, GSM900, UMTS, GSM1800, Cellular 800, PCS
Frequency Range 1, MHz	698-960
Frequency Range 2, MHz	1710-2200
Configuration	Sharelite Single diplexer, outdoor, DC pass in the 1710-2170MHz path, with mounting hardware SEM2-1A
Mounting	Wall Mounting: With 4 screws (maximum 6mm diameter); Pole Mounting: With included clamp set 40-110mm (1.57-4.33)
Return Loss All Ports Min/Typ, dB	19/23
Power Handling Continuous, Max, W	1250 at common port; 750 in low frequency path & 500 in high frequency path
Power Handling Peak, Max, W	15000 in low frequency path & 8000 in high frequency path
Impedance, Ohms	50
Insertion Loss, Path 1, dB	0.07 typ.
Insertion Loss, Path 2, dB	0.13 typ.
Rejection Between Bands Min/Typ, dB	58/64@698-960MHz; 57/70@1710-2200MHz
IMP Level at the COM Port, Typ, dBm	-112 @ 2x43
DC Pass in Low Frequency Path	No
DC Pass in High Frequency Path	Yes
Temperature Range, °C (°F)	-40 to +60 (-40 to +140)
Environmental	ETSI 300-019-2-4 Class 4.1E
Ingress Protection	IP 67
Lightning Protection	EN/IEC61000-4-5 Level 4
Connectors	In-line long-neck 7-16-Female
Weight, kg (lb)	1.2 (2.6)
Shipping Weight, kg (lb)	3.2 (7) for 2 * single units in 1 * box, 9.8 (21.6) for 6 * units = 3 * Boxes in 1 * overwrap
Dimensions, H x W x D, mm (in)	147 x 164 x 37 (5.8 x 6.5 x 1.5)
Shipping Dimensions, H x W x D, mm (in)	254 x 406 x 82 (10 x 16 x 3.2) for 2 * Single Units in 1 * box, 280 x 406 x 241 (11 x 16 x 9.5) for 6 * units = 3 * Boxes in 1 * overwrap
Volume, L	0.43
Housing	Aluminum

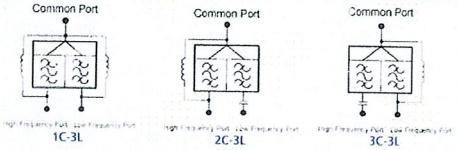
Notes

ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

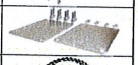
Other Documentation

FD9R6004/2C-3L Installation Instructions: Wideband_Diplexer_Installation_Rev5.pdf

Selection Guide Diplexer 698-960 / 1710-2200MHz					
	Model Number	Full DC Pass	DC Pass High Band	DC Pass Low Band	Mounting Hardware Included
Single	FD9R6004/1C-3L				X
	FD9R6004/2C-3L				X
	FD9R6004/3C-3L				X
Dual	KIT-FD9R6004/1C-DL				X
	KIT-FD9R6004/2C-DL				X
	KIT-FD9R6004/3C-DL				X



The FD9R6004 Series is upgradeable to a Dual Diplexer kit by means of 2 diplexers and mounting hardware kits SEM2-1A and SEM2-3

Mounting Hardware and Ground Cable Ordering Information		
Model Number	Description	
SEM2-1A	Mounting Hardware, Pole mount ø40-110mm (Included with the Single and Dual Diplexer) Wall Screws M6 (Not included with the product)	
SEM2-3	Assembly kit for 2 pcs of FD9R6004/xC-3L (Can be ordered separately but included with the Dual Diplexer Kit)	
CA020-2	Ground Cable, 2m, includes lugs (Optional)	
CA030-2	Ground Cable, 2m, includes lugs (Optional)	
SEM6	Mounting Hardware for 6 Diplexers, Tower Base (Optional)	

	General	Power	Density					
Site Name: Newtown S								
Tower Height: Verizon @ 127Ft.								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T UMTS	1	500	110	0.0149	880	0.5867	2.53%	
*AT&T UMTS	1	500	110	0.0149	1900	1.0000	1.49%	
*AT&T GSM	6	427	110	0.0761	1900	1.0000	7.61%	
*AT&T LTE	1	500	110	0.0149	740	0.4933	3.01%	
*VoiceStream	12	267.5	150	0.0513	1930	1.0000	5.13%	
*Sprint	11	378.97	137	0.0799	1962.5	1.0000	7.99%	
Verizon PCS	**7**	**370**	**127**	**0.0577**	**1970**	**1.0000**	**5.77%**	
Verizon Cellular	**9**	**285**	**127**	**0.0572**	**869**	**0.5793**	**9.87%**	
Verizon AWS	**1**	**926**	**127**	**0.0206**	**2145**	**1.0000**	**2.06%**	
Verizon 700	**1**	**726**	**127**	**0.0162**	**698**	**0.4653**	**3.48%**	
								48.95%
* Source: Siting Council								

GPD GROUP®
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

STRUCTURAL ANALYSIS REPORT

REVIEWED
By Aaron T. Chandler at 9:12 am, May 15, 2012

T-Mobile TOWERS

SITE NUMBER: CT11217A
SITE NAME: NEWTOWN/RT-25

SITE ADDRESS: 201 MAIN STREET
NEWTOWN, CT 06470

NEW ANTENNA INSTALLATION
ON AN EXISTING
150' MONOPOLE
BY:

verizonwireless

May 10, 2012

GPD Project #: 2012850.36

MONOPOLE

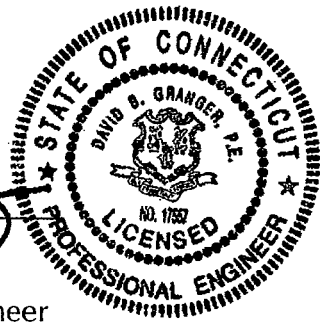
STRUCTURAL ANALYSIS REPORT

CT11217A NEWTOWN/RT-25
201 Main Street
Newtown, Connecticut 06470
GPD Project #: 2012850.36

New Antenna Installation
Existing 150 ft Monopole

For:
T-Mobile Towers
Bellevue, Washington

Prepared By:



David B. Granger, P.E.
Registered Professional Engineer
Connecticut #: 17557

May 10, 2012

Glaus, Pyle, Schomer, Burns and DeHaven, Inc. dba GPD Group **ENGINEERS • ARCHITECTS • PLANNERS**
520 South Main Street • Suite 2531 • Akron • Ohio • 44311-1010 • Tel: 330-572-2100 • Fax: 330-572-2101

TABLE OF CONTENTS

APPENDICES

EXECUTIVE SUMMARY

The purpose of this analysis is to verify whether the design for the existing tower is structurally capable of carrying the new antenna and coax loads as specified by Verizon to T-Mobile Towers. This report was commissioned by Ms. MeganJo MacLeod of T-Mobile Towers.

The design for the existing structure meets the requirements of TIA/EIA-222-F and the 2005 Connecticut State Building Code for a fastest - mile wind speed of 85 mph with 1/2" of radial ice (w/ 25% wind load reduction) for the proposed antenna configuration.

The foundation reactions, with the proposed loading configuration, were found to be less than the capacity of the existing foundation design. Therefore, the existing foundation is adequate, assuming it was properly constructed according to original design.

Section Results

Monopole	% Capacity	Result
133′ – 150′	15.0%	Pass
98.4′ – 133′	46.9%	Pass
64.8′ – 98.4′	58.4%	Pass
31.9′ – 64.8′	68.6%	Pass
0′ – 31.9′	74.7%	Pass
Anchor Rods	71.4%	Pass
Base Plate	81.4%	Pass
Foundation	**% Capacity**	**Result**
Overturning	97.6%	Pass
Bearing	84.3%	Pass
Tower Rating:	**97.6%**	

TOWER DESCRIPTION

The existing monopole is located in Newtown, Connecticut. It was originally designed for Voicestream Wireless by PiROD, Inc. of Plymouth, Indiana. The tower was originally designed load for an 85 mph wind speed with 1/2" of radial ice (w/ 25% wind load reduction) in accordance with EIA/TIA-222-F. The tower was originally designed to hold the following:

Original Design

Antennas:	
Elev. 150'	(12) EMS RR90-17 Antennas on (3) 15' Universal T-Frames, (12) 1-5/8" internal coax
Elev. 140'	(12) EMS RR90-17 Antennas on a 13' LP Platform, (12) 1-5/8" internal coax
Elev. 130'	(12) EMS RR90-17 Antennas on a 13' LP Platform, (12) 1-5/8" internal coax

The existing monopole has five major sections connected with slip joints. It has 18 sides and is evenly tapered from 56.13" (flat-flat) at the base to 21.83" (flat-flat) at the top. The structure is galvanized and has no tower lighting.

DOCUMENTS PROVIDED:

Description	**Remarks**	**Source**
Tower Drawings	PiROD Eng. File #: A-117711, dated 10/17/00	T-Mobile
Foundation Drawings	PiROD Eng. File #: A-117711, dated 10/17/00	T-Mobile
Geotechnical Report	Clarence Welti Associates, Inc. Site #: CT-11-217A, dated 10/16/00	T-Mobile
Site Inspection Report	SiteMaster, dated 4/17/08	T-Mobile
Previous Structural Analysis	GPD Project #: 2011711.27, dated 11/3/11	GPD

TOWER MATERIALS

Data on the steel strength was available from the information provided. The following table details the steel strength used in the analysis.

Monopole	ASTM A572 (65 KSI Yield Strength)
Anchor Rods	ASTM A687 (150 KSI Tensile Strength)
Base Plate	ASTM A572 (50 KSI Yield Strength)

TOWER LOADING

The following data shows the major loading that the tower supports. The existing, reserved, and proposed antenna information was provided by T-Mobile Towers.

Existing & Reserved Configuration

Elevation	Carrier	Antennas
148′	T-Mobile	(12) Andrew TMBXX-6516-R2M Antennas, (6) Andrew ETW190VS12UB TMAs, & (1) 4′ HP MW Dish on (3) 15′ T-Frames, w/ (25) 1-5/8″ internal coax
140′	Sprint	(3) Decibel DB980H90T2EM Antennas & (6) Decibel DB980F90EM Antennas on a 12′ LP Platform, w/ (9) 1-5/8″ internal coax
127′	Verizon	(3) Powerwave P65-16XL-2 Antennas, (4) Decibel DB846H80E Antennas, (3) Rymsa MG D3-800T0 Antennas, (2) Andrew DB846F65ZAXY Antennas & (6) Celwave FDR6004/2C-3L Diplexers on a 12′ LP Platform, w/ (12) 1-5/8″ external coax
110′	AT&T	(3) Powerwave 7770 Antennas, (3) Powerwave P65-16-XLH-RR Antennas, (6) Powerwave LGP 21401 TMAs, (6) Ericsson RRUS-11 Units & (1) Raycap DC6-48-60-18-8F DC Unit on a 12′ LP Platform, w/ (12) 1-1/4″ internal coax, (1) internal LTE fiber cable & (2) internal LTE DC cables

Proposed Configuration

Elevation	Carrier	Antennas
148′	T-Mobile	(12) Andrew TMBXX-6516-R2M Antennas, (6) Andrew ETW190VS12UB TMAs, & (1) 4′ HP MW Dish on (3) 15′ T-Frames, w/ (25) 1-5/8″ internal coax
140′	Sprint	(3) Decibel DB980H90T2EM Antennas & (6) Decibel DB980F90EM Antennas on a 12′ LP Platform, w/ (9) 1-5/8″ internal coax
127′	**Verizon**	**(3) Swedcom SLCP-2x6014 Antennas,** **(6) Celwave APL866513-42T0 Antennas,** **(1) Antel BXA-171063/12BF Antenna,** **(2) Antel BXA-171063/8BF Antennas &** **(6) RFS FD9R6004/2C-3L Diplexers on a 12′ LP Platform,** **w/ (12) 1-5/8″ external coax**
110′	AT&T	(3) Powerwave 7770 Antennas, (3) Powerwave P65-16-XLH-RR Antennas, (6) Powerwave LGP 21401 TMAs, (6) Ericsson RRUS-11 Units & (1) Raycap DC6-48-60-18-8F DC Unit on a 12′ LP Platform, w/ (12) 1-1/4″ internal coax, (1) internal LTE fiber cable & (2) internal LTE DC cables

Note: - **BOLD** type indicates the proposed carrier's final configuration.
- The proposed diplexers at 127′ and existing TMAs at 110′ are assumed to be behind the antennas and shielded from effects of wind.
- The proposed external coax to 127′ shall be banded flush to the tower in (2) rows of (6).
- See Appendix 2 for proposed and existing feedline plan.

The purpose of this independent structural analysis review is to determine if the design for the existing tower, with the proposed configuration, is in conformance to the latest TIA/EIA-222-F standard requirements.

ANALYSIS

The purpose of this independent structural analysis review is to determine if the design for the existing tower, with the proposed configuration, is in conformance to the latest TIA/EIA-222-F standard requirements. TnxTower (Version v6.0.4.0), a commercially available software program, was used to create a three-dimensional model of the tower and calculate member stresses for various dead, live, wind, and ice load cases. All loads were computed in accordance with the ANSI/TIA/EIA-222-F standard and all local building code requirements. Selected output from the analysis is included in Appendix 1.

The requirements of TIA/EIA-222-F and the 2005 Connecticut State Building Code are for a fastest-mile wind speed of 85 mph with 1/2" of radial ice. A 25% reduction in wind load is allowed when wind and ice are applied simultaneously. TIA/EIA-222-F requires towers within Fairfield County, Connecticut be analyzed with an 85 mph fastest-mile wind speed.

ANALYSIS FASTEST-MILE WIND SPEED:	85 MPH

The tower and foundations are assumed, for the purpose of this analysis, to have been properly fabricated, constructed, maintained, and to be in good condition with no structural defects. This is not a condition assessment of the tower and has been provided without the benefit of detailed tower photos, a detailed tower mapping, or a GPD Group site visit. This analysis assumes all antennas and coax have been installed in a neat and orderly fashion. Proposed antennas are assumed to be installed on standard sized mounts. The existing/proposed mounts are assumed to have been verified by the carrier to support the existing/proposed loading for the required various load cases.

CONCLUSIONS AND RECOMMENDATIONS

Based on the computer structural analysis results, the design for the existing 150' monopole meets the requirements of the TIA/EIA-222-F and the 2005 Connecticut State Building Code for a fastest-mile wind speed of 85 mph with 1/2" of radial ice (with 25% wind load reduction) for the proposed antenna configuration.

The foundation reactions, with the proposed loading, were found to be less than the capacity of the capacity of the existing foundation design. Therefore, the existing foundation is adequate assuming it was properly constructed according to original design.

Summary of Findings

Monopole	Satisfactory
Anchor Rods	Satisfactory
Base Plate	Satisfactory
Foundation	Satisfactory

Therefore, based on our analysis results, the design for the existing structure is structurally unsatisfactory for the proposed loading configuration.

DISCLAIMER OF WARRANTIES

GPD GROUP has not performed a site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD GROUP in connection with this Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. All tower components have been assumed to only resist dead loads when no other loads are applied. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

GPD GROUP does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD GROUP provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation, if any, that should be considered in the structural analysis

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD GROUP, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

GPD GROUP makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD GROUP will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD GROUP pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDICES

1. TnxTower Analysis Printout

2. Tower Elevation Drawing and Feedline Plan

3. Anchor Rod and Base Plate Analysis

4. Foundation Analysis

tnxTower	Job	Page
	CT11217A NEWTOWN/RT-25	1 of 6
GPD Group 520 South Main Street, Suite 2531 Akron, OH 44311 Phone: (330) 572-2100 FAX: (330) 572-3709	Project 2012850.36	Date 17:48:09 05/10/12
	Client T-Mobile Towers	Designed by Teveslage

Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 74 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF7-50A (1-5/8 FOAM)	A	No	Inside Pole	148.00 - 8.00	25	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	140.00 - 8.00	9	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	A	No	CaAa (Out Of Face)	127.00 - 8.00	2	No Ice	0.20	0.82
						1/2" Ice	0.30	2.33
LDF7-50A (1-5/8 FOAM)	A	No	CaAa (Out Of Face)	127.00 - 8.00	10	No Ice	0.00	0.82
						1/2" Ice	0.00	2.33
LDF6-50A (1-1/4 FOAM)	B	No	Inside Pole	110.00 - 8.00	12	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
7/8" DC Power Cable	B	No	Inside Pole	110.00 - 8.00	2	No Ice	0.00	0.60
						1/2" Ice	0.00	0.60
1/2" Fiber Cable	B	No	Inside Pole	110.00 - 8.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
Step Pegs	C	No	CaAa (Out Of Face)	150.00 - 0.00	1	No Ice	0.00	2.72
						1/2" Ice	0.00	3.51
Safety Line 3/8	C	No	CaAa (Out Of Face)	150.00 - 0.00	1	No Ice	0.00	0.22
						1/2" Ice	0.00	0.75

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
PiROD 15' Lightweight T-Frame (GPD)	A	From Leg	1.88 0.68 0.00	20.0000	148.00	No Ice 1/2" Ice	11.20 17.80	2.71 4.93	295.00 411.00
PiROD 15' Lightweight	B	From Leg	1.88	20.0000	148.00	No Ice	11.20	2.71	295.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
T-Frame (GPD)			0.68 0.00			1/2" Ice	17.80	4.93	411.00
PiROD 15' Lightweight T-Frame (GPD)	C	From Leg	1.88 0.68 0.00	20.0000	148.00	No Ice 1/2" Ice	11.20 17.80	2.71 4.93	295.00 411.00
(4) TMBXX-6516-R2M	A	From Leg	3.76 1.37 0.00	20.0000	148.00	No Ice 1/2" Ice	6.83 7.29	3.82 4.19	34.60 74.36
(4) TMBXX-6516-R2M	B	From Leg	3.76 1.37 0.00	20.0000	148.00	No Ice 1/2" Ice	6.83 7.29	3.82 4.19	34.60 74.36
(4) TMBXX-6516-R2M	C	From Leg	3.76 1.37 0.00	20.0000	148.00	No Ice 1/2" Ice	6.83 7.29	3.82 4.19	34.60 74.36
(2) ETW190VS12UB	A	From Leg	3.76 1.37 0.00	20.0000	148.00	No Ice 1/2" Ice	0.66 0.78	0.35 0.44	11.00 15.83
(2) ETW190VS12UB	B	From Leg	3.76 1.37 0.00	20.0000	148.00	No Ice 1/2" Ice	0.66 0.78	0.35 0.44	11.00 15.83
(2) ETW190VS12UB	C	From Leg	3.76 1.37 0.00	20.0000	148.00	No Ice 1/2" Ice	0.66 0.78	0.35 0.44	11.00 15.83
Valmont 13' Platform w/o rails (GPD)	C	None		0.0000	140.00	No Ice 1/2" Ice	24.80 26.20	24.80 26.20	1500.00 2500.00
DB980H90T2E-M	A	From Centroid-Leg	3.46 2.00 0.00	30.0000	140.00	No Ice 1/2" Ice	3.80 4.18	2.19 2.56	8.50 28.62
DB980H90T2E-M	B	From Centroid-Leg	1.37 3.76 0.00	70.0000	140.00	No Ice 1/2" Ice	3.80 4.18	2.19 2.56	8.50 28.62
DB980H90T2E-M	C	From Centroid-Leg	2.57 3.06 0.00	50.0000	140.00	No Ice 1/2" Ice	3.80 4.18	2.19 2.56	8.50 28.62
(2) DB980F90E-M	A	From Centroid-Leg	3.46 2.00 0.00	30.0000	140.00	No Ice 1/2" Ice	3.90 4.28	2.29 2.65	8.50 29.47
(2) DB980F90E-M	B	From Centroid-Leg	1.37 3.76 0.00	70.0000	140.00	No Ice 1/2" Ice	3.90 4.28	2.29 2.65	8.50 29.47
(2) DB980F90E-M	C	From Centroid-Leg	2.57 3.06 0.00	50.0000	140.00	No Ice 1/2" Ice	3.90 4.28	2.29 2.65	8.50 29.47
MTS 14.5' LP Platform	C	None		0.0000	127.00	No Ice 1/2" Ice	17.46 22.44	17.46 22.44	1349.00 1624.58
SLCP 2x6014	A	From Centroid-Leg	3.46 2.00 0.00	30.0000	127.00	No Ice 1/2" Ice	7.21 7.65	5.67 6.09	20.00 70.49
SLCP 2x6014	B	From Centroid-Leg	1.37 3.76 0.00	70.0000	127.00	No Ice 1/2" Ice	7.21 7.65	5.67 6.09	20.00 70.49
SLCP 2x6014	C	From Centroid-Leg	2.57 3.06 0.00	50.0000	127.00	No Ice 1/2" Ice	7.21 7.65	5.67 6.09	20.00 70.49
(2) APL866513-42T0	A	From Centroid-Leg	3.46 2.00 0.00	30.0000	127.00	No Ice 1/2" Ice	4.29 4.67	3.73 4.10	15.70 46.99

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(2) APL866513-42T0	B	From Centroid-Leg	1.37 3.76 0.00	70.0000	127.00	No Ice 1/2" Ice	4.29 4.67	3.73 4.10	15.70 46.99
(2) APL866513-42T0	C	From Centroid-Leg	2.57 3.06 0.00	50.0000	127.00	No Ice 1/2" Ice	4.29 4.67	3.73 4.10	15.70 46.99
BXA-171063/12BF	A	From Centroid-Leg	3.46 2.00 0.00	30.0000	127.00	No Ice 1/2" Ice	4.73 5.18	3.57 4.01	15.00 42.20
BXA-171063-8BF	B	From Centroid-Leg	1.37 3.76 0.00	70.0000	127.00	No Ice 1/2" Ice	2.94 3.26	2.16 2.46	10.50 29.28
BXA-171063-8BF	C	From Centroid-Leg	2.57 3.06 0.00	50.0000	127.00	No Ice 1/2" Ice	2.94 3.26	2.16 2.46	10.50 29.28
(2) FD9R6004/2C-3L	A	From Centroid-Leg	3.46 2.00 0.00	30.0000	127.00	No Ice 1/2" Ice	0.00 0.00	0.08 0.14	3.10 5.40
(2) FD9R6004/2C-3L	B	From Centroid-Leg	1.37 3.76 0.00	70.0000	127.00	No Ice 1/2" Ice	0.00 0.00	0.08 0.14	3.10 5.40
(2) FD9R6004/2C-3L	C	From Centroid-Leg	2.57 3.06 0.00	50.0000	127.00	No Ice 1/2" Ice	0.00 0.00	0.08 0.14	3.10 5.40
12' LP Platform	C	None		0.0000	110.00	No Ice 1/2" Ice	25.00 30.00	25.00 30.00	1500.00 1750.00
7770.00	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	39.00 71.63
7770.00	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	39.00 71.63
7770.00	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	39.00 71.63
P65-16-XLH-RR	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	8.40 8.95	4.70 5.15	63.00 110.28
P65-16-XLH-RR	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	8.40 8.95	4.70 5.15	63.00 110.28
P65-16-XLH-RR	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	8.40 8.95	4.70 5.15	63.00 110.28
(2) LGP21401	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	0.00 0.00	0.23 0.31	14.10 21.26
(2) LGP21401	B	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	0.00 0.00	0.23 0.31	14.10 21.26
(2) LGP21401	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	0.00 0.00	0.23 0.31	14.10 21.26
(2) RRUS-11	A	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	4.42 4.71	1.19 1.35	55.00 80.77
(2) RRUS-11	B	From	4.00	0.0000	110.00	No Ice	4.42	1.19	55.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
		Centroid-Leg	0.00 0.00			1/2" Ice	4.71	1.35	80.77
(2) RRUS-11	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	4.42 4.71	1.19 1.35	55.00 80.77
DC6-48-60-18-8F	C	From Centroid-Leg	4.00 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	2.22 2.44	2.22 2.44	20.00 39.25

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
4' HP	C	Paraboloid w/Shroud (HP)	From Leg	3.76 1.37 0.00	20.0000		148.00	4.00	No Ice 1/2" Ice	12.57 13.10	50.00 130.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
148.00	4' HP	29	24.989	1.4301	0.0129	35690
140.00	Valmont 13' Platform w/o rails (GPD)	29	22.597	1.4163	0.0114	17849
127.00	MTS 14.5' LP Platform	29	18.813	1.3557	0.0090	9163
110.00	12' LP Platform	29	14.213	1.2085	0.0061	5992

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
L1	150 - 133 (1)	TP26x21.83x0.25	17.00	0.00	0.0	39.000	19.8584	-3616.68	774479.00	0.005
L2	133 - 98.45 (2)	TP34.0625x24.7764x0.3125	37.50	0.00	0.0	39.000	32.5302	-11787.60	1268680.00	0.009
L3	98.45 - 64.8 (3)	TP41.75x32.4841x0.375	37.50	0.00	0.0	39.000	47.8643	-18832.70	1866710.00	0.010
L4	64.8 - 32 (4)	TP49.0625x39.8387x0.375	37.50	0.00	0.0	39.000	56.3401	-27160.40	2197260.00	0.012
L5	32 - 0 (5)	TP56.125x46.9597x0.375	37.50	0.00	0.0	39.000	66.3564	-37996.00	2587900.00	0.015

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	150 - 133 (1)	TP26x21.83x0.25	77414.42	7.591	39.000	0.195	0.00	0.000	39.000	0.000
L2	133 - 98.45 (2)	TP34.0625x24.7764x0.3125	525028.33	23.971	39.000	0.615	0.00	0.000	39.000	0.000
L3	98.45 - 64.8 (3)	TP41.75x32.4841x0.375	1184666.67	29.974	39.000	0.769	0.00	0.000	39.000	0.000
L4	64.8 - 32 (4)	TP49.0625x39.8387x0.375	1928958.33	35.177	39.000	0.902	0.00	0.000	39.000	0.000
L5	32 - 0 (5)	TP56.125x46.9597x0.375	2914416.67	38.269	39.000	0.981	0.00	0.000	39.000	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V lb	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T lb-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	150 - 133 (1)	TP26x21.83x0.25	8574.32	0.432	26.000	0.033	810.08	0.039	26.000	0.001
L2	133 - 98.45 (2)	TP34.0625x24.7764x0.3125	18492.30	0.568	26.000	0.044	2427.22	0.054	26.000	0.002
L3	98.45 - 64.8 (3)	TP41.75x32.4841x0.375	21725.00	0.454	26.000	0.035	2542.27	0.031	26.000	0.001
L4	64.8 - 32 (4)	TP49.0625x39.8387x0.375	24704.90	0.438	26.000	0.034	2661.53	0.024	26.000	0.001
L5	32 - 0 (5)	TP56.125x46.9597x0.375	27822.50	0.419	26.000	0.032	2773.68	0.018	26.000	0.001

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 133 (1)	0.005	0.195	0.000	0.033	0.001	0.200 ✔	1.333	H1-3+VT ✔
L2	133 - 98.45 (2)	0.009	0.615	0.000	0.044	0.002	0.625 ✔	1.333	H1-3+VT ✔
L3	98.45 - 64.8 (3)	0.010	0.769	0.000	0.035	0.001	0.779 ✔	1.333	H1-3+VT ✔
L4	64.8 - 32 (4)	0.012	0.902	0.000	0.034	0.001	0.915 ✔	1.333	H1-3+VT ✔
L5	32 - 0 (5)	0.015	0.981	0.000	0.032	0.001	0.996 ✔	1.333	H1-3+VT ✔

tnxTower	Job	Page
	CT11217A NEWTOWN/RT-25	6 of 6
GPD Group 520 South Main Street, Suite 2531 Akron, OH 44311 Phone: (330) 572-2100 FAX: (330) 572-3709	**Project** 2012850.36	**Date** 17:48:09 05/10/12
	Client T-Mobile Towers	**Designed by** Teveslage

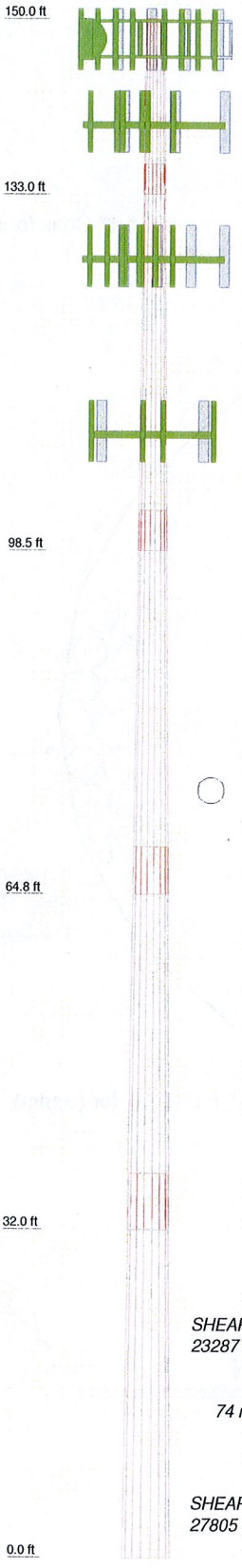
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	150 - 133	Pole	TP26x21.83x0.25	1	-3616.68	1032380.46	15.0	Pass
L2	133 - 98.45	Pole	TP34.0625x24.7764x0.3125	2	-11787.60	1691150.37	46.9	Pass
L3	98.45 - 64.8	Pole	TP41.75x32.4841x0.375	3	-18832.70	2488324.33	58.4	Pass
L4	64.8 - 32	Pole	TP49.0625x39.8387x0.375	4	-27160.40	2928947.46	68.6	Pass
L5	32 - 0	Pole	TP56.125x46.9597x0.375	5	-37996.00	3449670.56	74.7	Pass
							Summary	
						Pole (L5)	74.7	Pass
						RATING =	**74.7**	**Pass**

TOWER ELEVATION DRAWING AND FEEDLINE PLAN

Section	1	2	3	4	5
Length (ft)	17.00	37.50	37.50	37.50	37.50
Number of Sides	18	18	18	18	18
Thickness (in)	0.2500	0.3125	0.3750	0.3750	0.3750
Socket Length (ft)	2.95	3.85	4.70	5.50	
Top Dia (in)	21.8300	24.7764	32.4841	39.8387	46.9597
Bot Dia (in)	26.0000	34.0625	41.7500	49.0625	56.1250
Grade			A572-65		
Weight (lb)	1086.3	3684.0	5580.4	6694.3	7771.4

Total Weight: 24816.4



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
PiROD 15' Lightweight T-Frame (GPD)	148	(2) APL866513-42T0	127
PiROD 15' Lightweight T-Frame (GPD)	148	BXA-171063/12BF	127
PiROD 15' Lightweight T-Frame (GPD)	148	BXA-171063-8BF	127
(4) TMBXX-6516-R2M	148	BXA-171063-8BF	127
(4) TMBXX-6516-R2M	148	(2) FD9R6004/2C-3L	127
(4) TMBXX-6516-R2M	148	(2) FD9R6004/2C-3L	127
(2) ETW190VS12UB	148	(2) FD9R6004/2C-3L	127
(2) ETW190VS12UB	148	MTS 14.5' LP Platform	127
(2) ETW190VS12UB	148	7770.00	110
4' HP	148	7770.00	110
DB980H90T2E-M	140	7770.00	110
DB980H90T2E-M	140	P65-16-XLH-RR	110
DB980H90T2E-M	140	P65-16-XLH-RR	110
(2) DB980F90E-M	140	P65-16-XLH-RR	110
(2) DB980F90E-M	140	(2) LGP21401	110
(2) DB980F90E-M	140	(2) LGP21401	110
Valmont 13' Platform w/o rails (GPD)	140	(2) LGP21401	110
SLCP 2x6014	127	(2) RRUS-11	110
SLCP 2x6014	127	(2) RRUS-11	110
SLCP 2x6014	127	(2) RRUS-11	110
(2) APL866513-42T0	127	DC6-48-60-18-8F	110
(2) APL866513-42T0	127	12' LP Platform	110

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 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 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 74.7%

AXIAL
47547 lb

SHEAR
23287 lb

MOMENT
2491823 lb-ft

TORQUE 3847 lb-ft
74 mph WIND - 0.5000 in ICE

AXIAL
38009 lb

SHEAR
27805 lb

MOMENT
2914415 lb-ft

TORQUE 4691 lb-ft
REACTIONS - 85 mph WIND

GPD Group
Consulting Engineers
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Phone: (330) 572-2100
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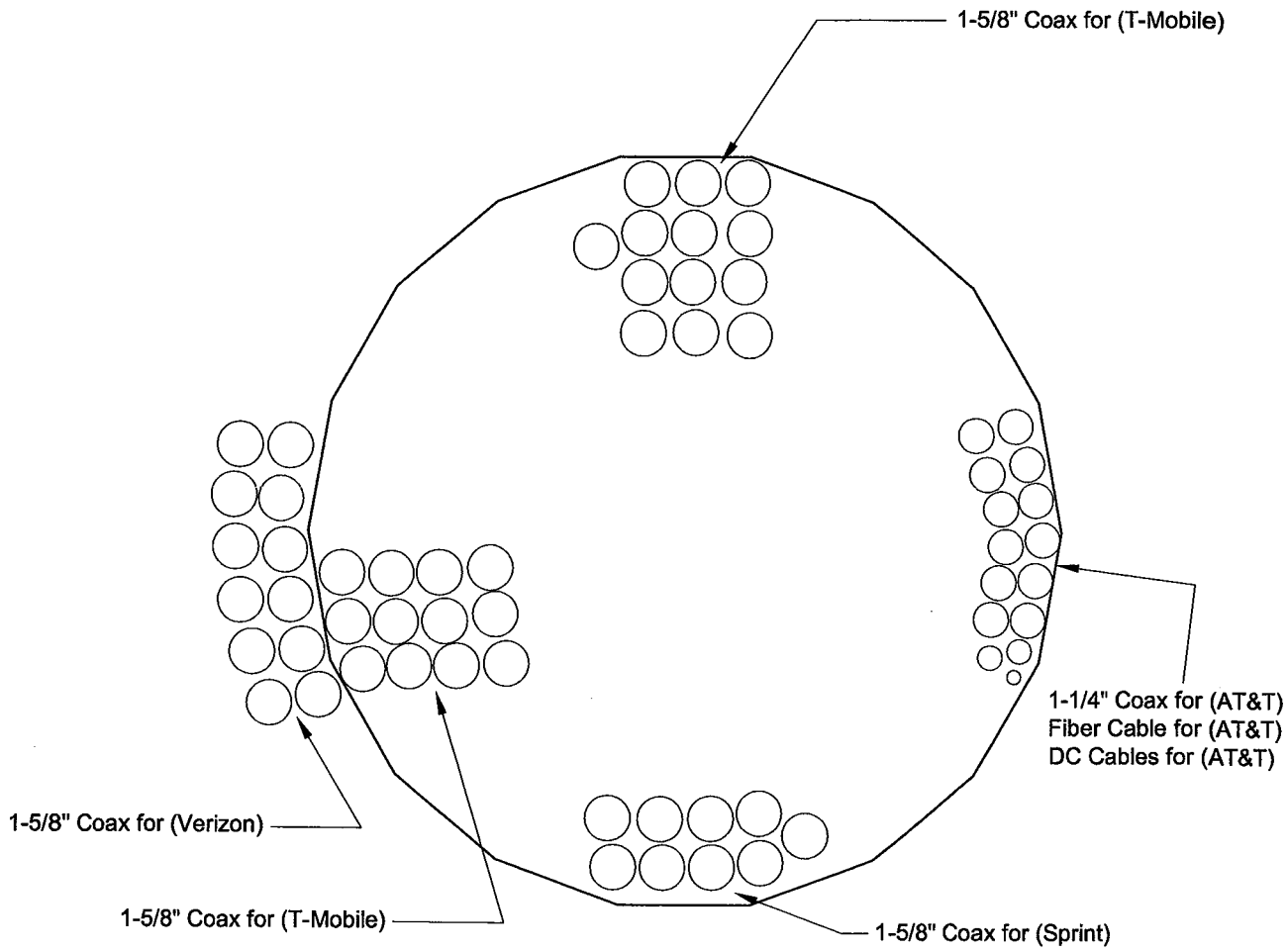
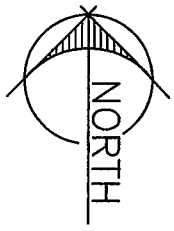
Job: CT11217A NEWTOWN/RT-25			
Project: 2012850.36			
Client: T-Mobile Towers	Drawn by: Teveslage		App'd:
Code: TIA/EIA-222-F	Date: 05/10/12		Scale: NTS
Path: C:\Users\Teveslage\Desktop\SAs\2012\850\36\TNX\CT11217A.eri			Dwg No. E-1



FEEDLINE PLAN

NOT TO SCALE



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CT11217A NEWTOWN/RT-25

JOB NO. 2012850.36
DATE 5/10/2012
DRAWN BY TRE

ANCHOR ROD AND BASE PLATE ANALYSIS

Anchor Rod and Base Plate Stresses
CT11217A NEWTOWN/RT-25
2012850.36

Overturning Moment =	2914.42	k*ft
Axial Force =	38.01	k
Shear Force =	27.81	k

Acceptable Stress Ratio =	105.0%

Anchor Rods		
Number of Rods =	39	
Type =	Bolt	
Rod Ultimate Strength (Fu) =	150	ksi
ASIF =	1.333	
Rod Circle =	61	in
Rod Diameter =	1.25	in
Area =	1.23	in^2
Max Tension on Rod =	57.82	kips
Max Compression on Rod =	59.77	kips
Allow. Rod Force =	80.99	kips
Anchor Rod Capacity =	**71.4%**	**OK**

Base Plate		
Location =	External	
Plate Strength (F_y) =	50	ksi
Outside Diameter =	65	in
Plate Thickness =	1.5	in
b =	4.16	in
Le =	4.44	in
fb =	30.27	ksi
Fb =	50	ksi
BP Capacity =	**60.5%**	**OK**

Stiffeners		
Configuration =	Every Rod	
Thickness =	0.75	in
Width =	4.5	in
Notch =	0.5	in
Height =	8	in
Stiffener Strength (F_y) =	36	ksi
Weld Info. Known? =	Yes	
Vertical Weld Size =	0.5	in
Horiz. Weld Type =	Fillet	
Fillet Size =	0.5	in
Weld Strength =	70	ksi
Stiffener Vertical Force =	40.33	kips
Vert. Weld Capacity =	36.0%	kips
Horiz. Weld Capacity =	57.0%	kips
Stiffener Capacity =	81.4%	kips
Controlling Capacity =	**81.4%**	**OK**

Pole		
Pole Diameter =	56.125	in
Number of Sides =	18	
Thickness =	0.375	in
Pole Yield Strength =	65	ksi

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Mat Foundation Analysis
CT11217A NEWTOWN/RT-25
2012850.36

General Info	
Code	TIA/EIA-222-F (ASD)
Bearing On	Soil
Foundation Type	Mono Pad
Pier Type	Round
Reinforcing Known	Yes
Max Capacity	1

Tower Reactions		
Moment, M	2914.415	k-ft
Axial, P	38.009	k
Shear, V	27.805	k

Pad & Pier Geometry		
Pier Diameter, ø	7	ft
Pad Length, L	21	ft
Pad Width, W	21	ft
Pad Thickness, t	2	ft
Depth, D	6	ft
Height Above Grade, HG	0.5	ft

Pad & Pier Reinforcing		
Rebar Fy	60	ksi
Concrete Fc'	4	ksi
Clear Cover	3	in
Reinforced Top & Bottom?	Yes	
Pad Reinforcing Size	# 8	
Pad Quantity Per Layer	27	
Pier Rebar Size	# 8	
Pier Quantity of Rebar	36	

Soil Properties		
Soil Type	Granular	
Soil Unit Weight	128	pcf
Angle of Friction, ø	34	°
Bearing Type	Net	
Ultimate Bearing	10	ksf
Water Table Depth	36	ft
Frost Depth	3.333	ft

Bearing Summary			Load Case
Qxmax	3.48	ksf	1D+1W
Qymax	3.48	ksf	1D+1W
Qmax @ 45°	4.54	ksf	1D+1W
$Q_{(all)\ Gross}$	5.38	ksf	
Controlling Capacity	**84.3%**	**Pass**	

Overturning Summary (Required FS=1.5)			Load Case
FS(ot)x	1.54	≥1.5	1D+1W
FS(ot)y	1.54	≥1.5	1D+1W
Controlling Capacity	**97.6%**	**Pass**