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Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
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June 27, 2012

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

RECEIVED
JUN 29 2012
CONNECTICUT SITING COUNCIL

Re: **EM-VER-107-111213 – 525 Orange Center Road, Orange, Connecticut**
EM-VER-108-120123 – 691 Oxford Road, Oxford, Connecticut
EM-VER-111-120320 – 171 Town Hill Road, Plymouth, Connecticut
EM-VER-126-120214 – Birdseye Road, Shelton, Connecticut
EM-VER-139-120202B – 44 Fyler Place, Suffield, Connecticut

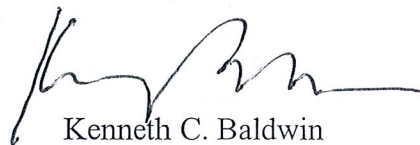
Completion of Construction Activity

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



Law Offices

BOSTON

PROVIDENCE

HARTFORD

NEW LONDON

STAMFORD

WHITE PLAINS

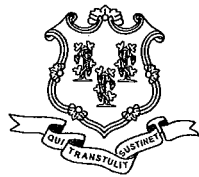
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STATE OF CONNECTICUT

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

April 4, 2012

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

RE: **EM-VER-111-120320** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 171 Town Hill Road, Plymouth, 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 March 19, 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,

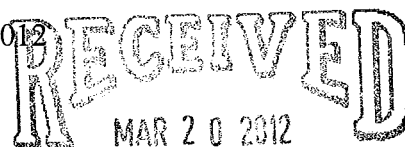
Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Vincent Festa, Jr., Mayor, Town of Plymouth
William Kuehn, Town Planner, Town of Plymouth
Hans Fiedler, T-Mobile
Julie Kohler, Esq., Cohen and Wolf P.C.

280 Trumbull Street
 Hartford, CT 06103-3597
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March 19, 2012



CONNECTICUT
 SITING COUNCIL

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

Re: **Notice of Exempt Modification – Antenna Swap
 171 Town Hill Road, Plymouth, Connecticut**

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) wireless telecommunications antennas at the 135-foot level on an existing 170-foot tower at the above-referenced address. The tower is owned by T-Mobile. Cellco’s use of the tower was approved by the Council in 2003. Cellco now intends to replace six (6) of its existing antennas with three (3) model BXA-171085-8BF PCS antennas and three (3) model BXA-70063-6CF LTE antennas, all at the same 135-foot level. Cellco also intends to install six (6) coax cable diplexers to its existing antenna platform. Attached behind Tab 1 are the specifications for the 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 Vincent Festa, Jr., Mayor of the Town of Plymouth. A copy of this letter is also being sent to Terryville Fair Lions Club, 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 cable diplexers will be located at the 135-foot level on the existing 170-foot tower.



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Linda Roberts
March 19, 2012
Page 2

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

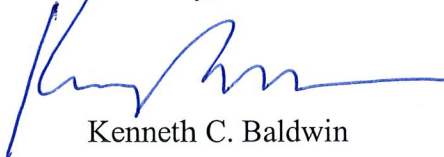
3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

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

Also attached is a Structural Analysis Report confirming that the tower and 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:

Vincent Festa, Jr., Plymouth Mayor
Terryville Fair Lions Club
Sandy M. Carter

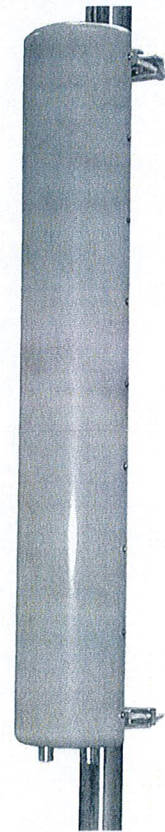


BXA-171085-8BF-EDIN-X

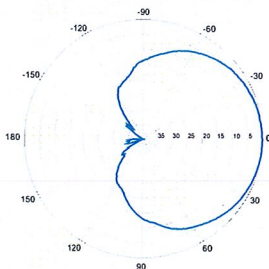
Replace "X" with desired electrical downtilt.

X-Pol | FET Panel | 85° | 16.4 dBi

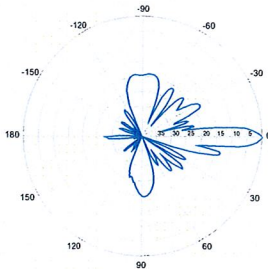
Electrical Characteristics	1710-2170 MHz				
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz		
Polarization	±45°	±45°	±45°		
Horizontal beamwidth	88°	85°	80°		
Vertical beamwidth	7°	7°	7°		
Gain	13.5 dBd / 15.6 dBi	13.9 dBd / 16.0 dBi	14.3 dBd / 16.4 dBi		
Electrical downtilt (X)	0, 2, 4				
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 m ² Side: 0.14 m ²	Front: 2.0 ft ² Side: 1.5 ft ²			
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-171085-8BF-EDIN-X-FP				



BXA-171085-8BF-EDIN-X

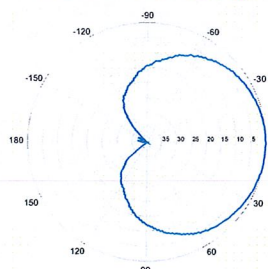


Horizontal | 1710-1880 MHz
BXA-171085-8BF-EDIN-0

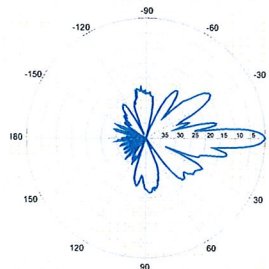


0° | Vertical | 1710-1880 MHz

BXA-171085-8BF-EDIN-X

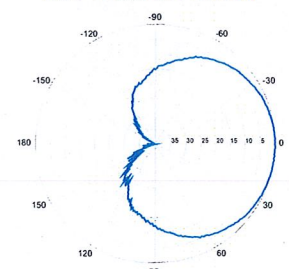


Horizontal | 1850-1990 MHz
BXA-171085-8BF-EDIN-0

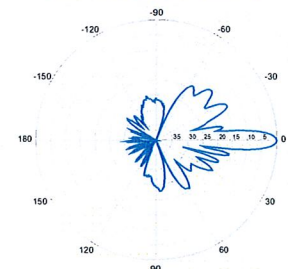


0° | Vertical | 1850-1990 MHz

BXA-171085-8BF-EDIN-X



Horizontal | 1920-2170 MHz
BXA-171085-8BF-EDIN-0



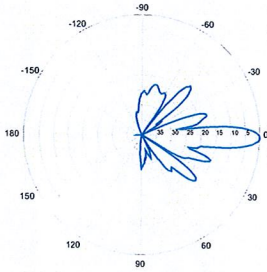
0° | Vertical | 1920-2170 MHz

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-171085-8BF-EDIN-X

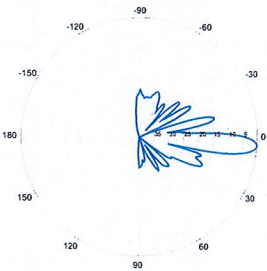
X-Pol | FET Panel | 85° | 16.4 dBi

BXA-171085-8BF-EDIN-2



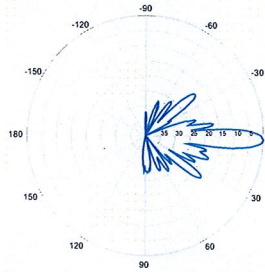
2° | Vertical | 1710-1880 MHz

BXA-171085-8BF-EDIN-4



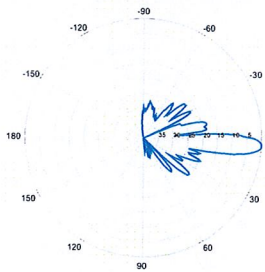
4° | Vertical | 1710-1880 MHz

BXA-171085-8BF-EDIN-2



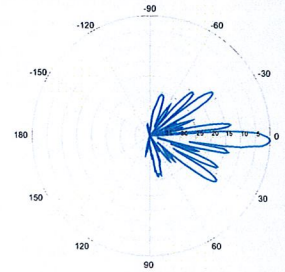
2° | Vertical | 1850-1990 MHz

BXA-171085-8BF-EDIN-4



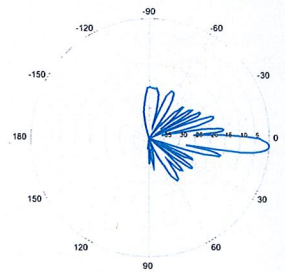
4° | Vertical | 1850-1990 MHz

BXA-171085-8BF-EDIN-2



2° | Vertical | 1920-2170 MHz

BXA-171085-8BF-EDIN-4



4° | Vertical | 1920-2170 MHz

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BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

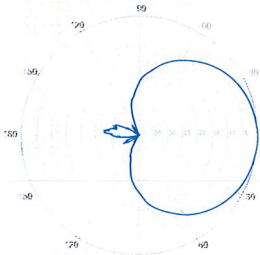
Replace "X" with desired electrical downtilt.

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



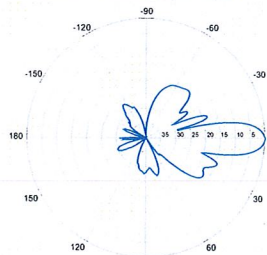
Electrical Characteristics	696-900 MHz		
Frequency bands	696-806 MHz	806-900 MHz	
Polarization	±45°		
Horizontal beamwidth	65°	63°	
Vertical beamwidth	13°	11°	
Gain	14.0 dBd (16.1 dBi)	14.5 dBd (16.6 dBi)	
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 10		
Impedance	50Ω		
VSWR	≤1.35:1		
Upper sidelobe 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 ² Side: 0.24 m ²	Front: 5.5 ft ² Side: 2.6 ft ²	
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



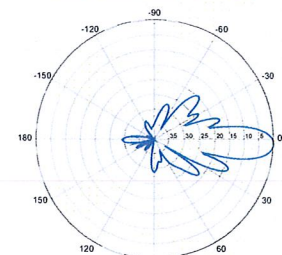
Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0

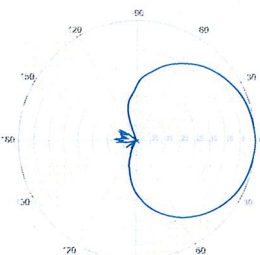


0° | Vertical | 750 MHz

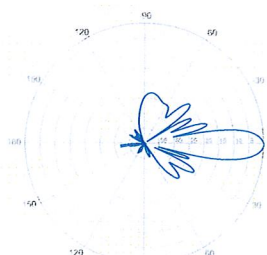
BXA-70063-6CF-EDIN-2



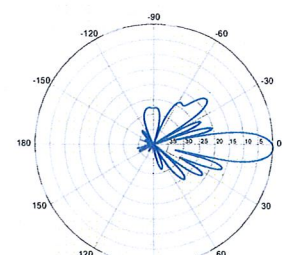
2° | Vertical | 750 MHz



Horizontal | 850 MHz



0° | Vertical | 850 MHz



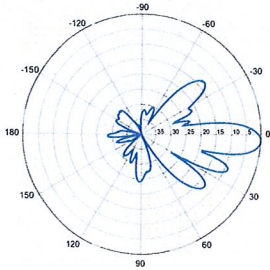
2° | Vertical | 850 MHz

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

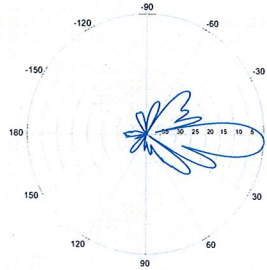
X-Pol | FET Panel | 63° | 14.5 dBd

BXA-70063-6CF-EDIN-3



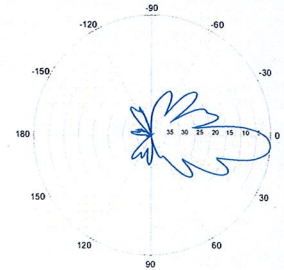
3° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-4

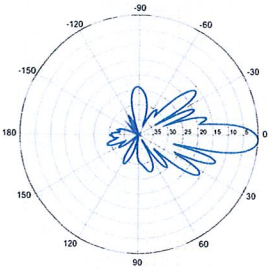


4° | Vertical | 750 MHz

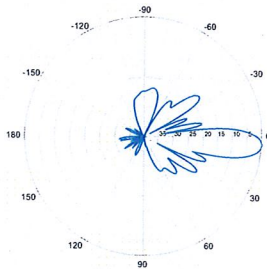
BXA-70063-6CF-EDIN-5



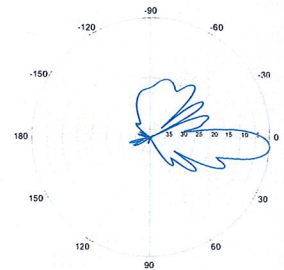
5° | Vertical | 750 MHz



3° | Vertical | 850 MHz

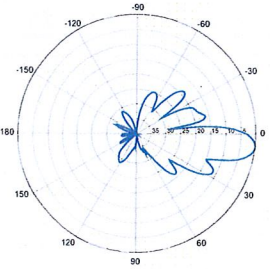


4° | Vertical | 850 MHz



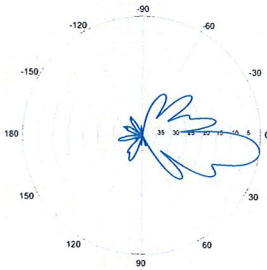
5° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-6



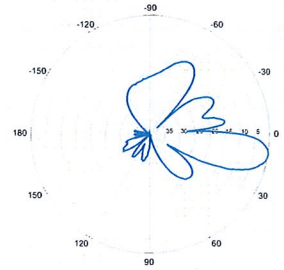
6° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-8

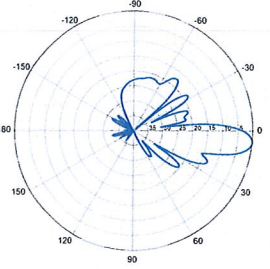


8° | Vertical | 750 MHz

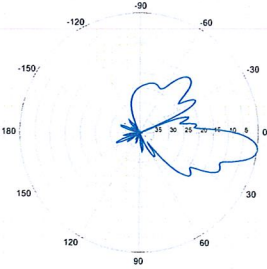
BXA-70063-6CF-EDIN-10



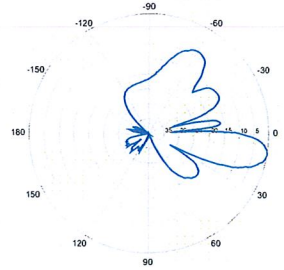
10° | Vertical | 750 MHz



6° | Vertical | 850 MHz



8° | Vertical | 850 MHz



10° | Vertical | 850 MHz

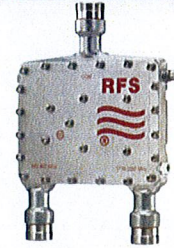
Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product.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



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
Frequency Range 1, MHz	698-960
Frequency Range 2, MHz	1710-2200
Application	LTE700, GSM900, UMTS, GSM1800, Cellular 800, PCS
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; 60/70@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

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

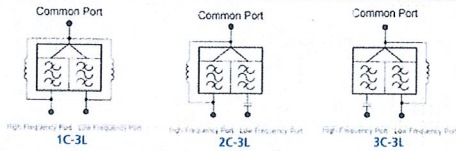


ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

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 FD9R6004/2C-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)	

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

Site Name: Plymouth		General		Power		Density							
Tower Height: Verizon @ 135ft													
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total					
*Sprint	11	492.18	155	0.0810	1962.5	1.0000	8.10%						
*Pocket	3	631	105	0.0617	2130	1.0000	6.17%						
*T-Mobile	8	95	165	0.0131	1935	1.0000	1.31%						
*Town	1	500	178	0.0057	147.32	0.2000	2.84%						
*Town	1	500	178	0.0057	224.78	0.2000	2.84%						
*Town	1	500	178	0.0057	50.39	0.2000	2.84%						
*Town	1	500	80	0.0281	425	0.2833	9.91%						
*Town	1	500	178	0.0057	442.3	0.2949	1.92%						
*Nextel	12	100	125	0.0276	851	0.5673	4.87%						
*Cingular	6	296	115	0.0483	880	0.5867	8.23%						
*Cingular	3	427	115	0.0348	1930	1.0000	3.48%						
Verizon PCS	11	249	135	0.0540	1970	1.0000	5.40%						
Verizon Cellular	9	256	135	0.0455	869	0.5793	7.85%						
Verizon AWS	1	668	135	0.0132	2145	1.0000	1.32%						
Verizon 700	1	839	135	0.0166	698	0.4653	3.56%						
								70.65%					
* Source: Siting Council													

Date: **February 9, 2012**

Kenneth Fann
T-Mobile Towers
12920 SE 38th Street
Bellevue, WA 98006
(425) 383-3978



Tower Engineering Professionals
3703 Junction Blvd
Raleigh, NC 27603
(919) 661-6351
rparker@tepgroup.net

Subject: Structural Analysis Report - Revision 1

Carrier Designation: Verizon Reconfiguration
Carrier Site Number: Unknown
Carrier Site Name: Plymouth, CT

T-Mobile Designation: T-Mobile Site Number: CT11417C
T-Mobile Site Name: Plymouth - Rt. 6

Engineering Firm Designation: TEP Project Number: 111647

Site Data: 171 Town Hill Road, Plymouth, Litchfield County, CT 06786
Latitude 41° 40' 6.2", Longitude -73° 1' 11.8"
170 Foot - Monopole Tower

Dear Mr. Fann,

Tower Engineering Professionals is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above mentioned tower.

The purpose of the analysis is to determine structural acceptability of the structure stress level. Based on our analysis we have determined the stress level for the structure and foundation, under the following load case, to be:

LC1: Existing + Proposed Equipment
Note: See Table 1 for the existing and proposed loading.

Sufficient Capacity

Structure Capacity	Controlling Component
97.2%	Pad and Pier Foundation

The analysis has been performed in accordance with the TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, ASCE 7-05 Minimum Design Loads for Buildings and Other Structures, and 2003 International Building Code w/ 2005 Connecticut supplements.

All modifications and equipment proposed in this report shall be installed in accordance with the appurtenances listed in Table 1 and the attached drawings for the determined available structural capacity to be effective.

We at Tower Engineering Professionals appreciate the opportunity of providing our continuing professional services to you and T-Mobile Towers. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Andrew T. Haldane, P.E.

Revision #	Date Issued	Description
0	May 12, 2011	Original structural analysis
1	February 9, 2012	Revised Verizon and T-Mobile loading and removed AT&T loading



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1) INTRODUCTION

This tower is a 170 foot monopole tower designed by Pirod in September of 2000. The tower was designed for a fastest mile wind speed of 80 mph with 0.5 in of radial ice per EIA/TIA-222-F for the appurtenances listed in Table 2. TEP did not visit the site. All information provided to TEP was assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and ASCE 7-05 Minimum Design Loads for Buildings and Other Structures using a fastest mile wind speed of 80 mph with no ice, 28 mph with 1.0 in of ice increasing with height, and 50 mph under service loads.

Table 1 - Existing/Proposed Antenna and Cable Information

Existing/Proposed	Elevation (Ft)	Quantity	Antenna Model	Mount Type	Quantity Coax	Coax Size (in)	Coax ¹ Location	Owner/Tenant
Existing	169	1	SRL 229	(4) Omni Mounts	4	7/8	Inside	Town
		1	PD455					
		1	PD220					
		1	ACP-305					
Existing	165	12	Standard T-Mobile Loading	Low Profile Platform	25	1 5/8	Inside	T-Mobile
Existing	155	9	DB980H90E-M	Low Profile Platform	9	1 5/8	Inside	Sprint
Proposed	135	3	Antel BXA-70063/6CF	Low Profile Platform	12	1 5/8	Inside	Verizon
		6	Antel LPA-80080/6CF					
		3	Antel BXA-171085/8BF					
		6	RFS FD9R6004/2CL					
Existing	125	1	Celwave 201	Low Profile Platform	1	1/2	Inside	Terryville FD
		12	DB846G90A-XY		15 ²	1 5/8 ²	Outside	Nextel
Existing	115	6	Kathrein Scala AP14/17-880/1940/088D/ADT/XXP	Low Profile Platform	12 ³	1 5/8 ³	Outside	Cingular
		12	LGP2140X					
Existing	105	3	APXV18-206517S-C	Flush	6	1 5/8	Outside	Pocket
Existing	80	1	PD455	4' Standoff	1	7/8	Outside	Landlord

Notes:

- 1) See Appendix B – "Coax Configuration" for feed line configuration
- 2) Coax assumed to be stacked 3-on-6-on-6
- 3) Coax assumed to be stacked 6-on-6

Table 2 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Quantity	Antenna Manufacturer	Antenna Model	Quantity Coax	Coax Size (in)	Coax Location
170	170	12	EMS Wireless	RR65-19-00XP	12	1 5/8	Interior
160	160	12	EMS Wireless	RR65-19-00XP	12	1 5/8	Interior
150	150	12	EMS Wireless	RR65-19-00XP	12	1 5/8	Interior
140	140	12	EMS Wireless	RR65-19-00XP	12	1 5/8	Interior
130	130	12	EMS Wireless	RR65-19-00XP	12	1 5/8	Interior
120	120	12	EMS Wireless	RR65-19-00XP	12	1 5/8	Interior

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Geotechnical Report	Dr. Clarence Welti, P.E., P.C. dated April 3, 2000 Project Name: Voice Stream Tower at Lions Club	-	T-Mobile
Tower Drawings	Pirod dated September 1, 2000 File No. A-117464	-	T-Mobile
Previous Structural Analysis	Semaan dated November 3, 2008	-	T-Mobile
Previous Structural Analysis	Tower Engineering Professionals dated May 12, 2011	111647	TEP
Correspondence	Correspondence from T-Mobile with regards to the existing, future, and proposed loading, SAW dated February 8, 2012	-	T-Mobile

3.1) Analysis Method

tnxTower (version 6.0.4.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) The tower and foundation were built in accordance with the manufacturer's specifications.
- 2) The tower and foundation have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Table 1 and Appendix B – "Coax Configuration."
- 4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by the Standard.
- 5) Tower Engineering Professionals, Inc. shall assume that all tower components are in sufficient condition to carry their full design capacity.
- 6) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance. See Table 6.
- 7) Tower Engineering Professionals, Inc (TEP) did not analyze antenna supporting mounts as part of this structural analysis report. TEP assumes that all antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier's responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not perform a site visit to verify the size, condition or capacity of the antenna mounts.
- 8) This report is not a construction document.

4) ANALYSIS RESULTS

Table 4 - Section Capacity Summary

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	SF*P_allow (lb)	% Capacity	Pass / Fail
L1	169 - 164.25	Pole	TP26x18x0.25	1	-2074.190	1062230.332	1.2	Pass
L2	164.25 - 129.125	Pole	TP34.063x21.5x0.313	2	-10217.600	1674087.971	27.6	Pass
L3	129.125 - 95.4583	Pole	TP41.75x32.153x0.375	3	-21373.301	2486284.837	50.5	Pass
L4	95.4583 - 62.625	Pole	TP49.063x39.806x0.375	4	-30274.900	2928654.198	68.8	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	SF*P allow (lb)	% Capacity	Pass / Fail	
L5	62.625 - 30.625	Pole	TP56.125x46.955x0.375	5	-40311.102	3355107.541	79.5	Pass	
L6	30.625 - 0	Pole	TP62.938x53.847x0.375	6	-53548.801	3684958.377	90.5	Pass	
							Summary		
							Pole (L6)	90.5	Pass
							RATING =	90.5	Pass

Table 5 - Component Stresses vs. Capacity - Foundation

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
-	Anchor Bolts	-	80.5	Pass
4	Pad and Pier Foundation	-	97.2	Pass

Notes:

4) See additional documentation in Appendix C - "Additional Calculations" for calculations supporting the % capacity listed.

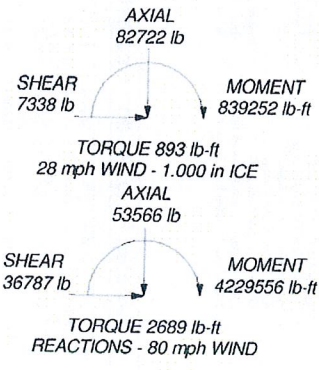
Structure Rating (max from all components) =	97.2%
---	--------------

4.1) Recommendations

- 1) If the load differs from that described in Table 1 of this report, Appendix B - "Coax Configuration" or the provisions of this analysis are found to be invalid, another structural analysis should be performed.

APPENDIX A
TNXTOWER OUTPUT

Section	1	2	3	4	5	6	
Length (ft)	4.750	37.500	37.500	37.500	37.500	36.875	32038.6
Number of Sides	18	18	18	18	18	18	
Thickness (in)	0.250	0.313	0.375	0.375	0.375	0.375	
Socket Length (ft)	2.375	3.833	4.667	5.500	6.250	53.847	
Top Dia (in)	18.000	21.500	32.153	39.906	46.955	62.938	
Bot Dia (in)	18.000	21.500	32.153	39.906	46.955	62.938	
Grade	26.000	34.083	41.750	49.063	56.125	8664.9	
Weight (lb)	279.0	3476.7	5555.3	6691.8	7771.0	8664.9	



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Side Arm Mount [SO 306-3] (Town)	169	BXA-171085-8BF-EDIN-2 w/ Mount Pipe (Verizon)	135
Side Arm Mount [SO 306-1] (Town)	169	BXA-171085-8BF-EDIN-2 w/ Mount Pipe (Verizon)	135
SRL229 (Town)	169	BXA-171085-8BF-EDIN-2 w/ Mount Pipe (Verizon)	135
PD455 (Town)	169	BXA-171085-8BF-EDIN-2 w/ Mount Pipe (Verizon)	135
PD220 (Town)	169	(2) FD9R6004 (Verizon)	135
ACP-305 (Town)	169	(2) FD9R6004 (Verizon)	135
Platform Mount [LP 401-1] (T-Mobile)	165	(2) FD9R6004 (Verizon)	135
(4) TMBXX-6516-R2M w/ Mount Pipe (T-Mobile)	165	Platform Mount [LP 401-1] (Nextel)	125
(4) TMBXX-6516-R2M w/ Mount Pipe (T-Mobile)	165	(4) DB846G90A-XY w/ Mount Pipe (Nextel)	125
(4) TMBXX-6516-R2M w/ Mount Pipe (T-Mobile)	165	(4) DB846G90A-XY w/ Mount Pipe (Nextel)	125
(4) ETW190VS12UB (T-Mobile)	165	(4) DB846G90A-XY w/ Mount Pipe (Nextel)	125
(4) ETW190VS12UB (T-Mobile)	165	201-4 (Terryville FD)	125
(4) ETW190VS12UB (T-Mobile)	165	Platform Mount [LP 401-1] (Cingular)	115
Platform Mount [LP 401-1] (Sprint)	155	(2) AP14/17-880/1940/088D/ADT/XXP (Cingular)	115
(3) DB980H90E-M w/ Mount Pipe (Sprint)	155	(2) AP14/17-880/1940/088D/ADT/XXP (Cingular)	115
(3) DB980H90E-M w/ Mount Pipe (Sprint)	155	(2) AP14/17-880/1940/088D/ADT/XXP (Cingular)	115
Platform Mount [LP 401-1] (Verizon)	135	(4) LGP214rn (Cingular)	115
BXA-70063/6CF w/ Mount Pipe (Verizon)	135	(4) LGP214rn (Cingular)	115
BXA-70063/6CF w/ Mount Pipe (Verizon)	135	(4) LGP214rn (Cingular)	115
BXA-70063/6CF w/ Mount Pipe (Verizon)	135	APXV18-206517S-C w/ Mount Pipe (Pocket)	105
BXA-70063/6CF w/ Mount Pipe (Verizon)	135	APXV18-206517S-C w/ Mount Pipe (Pocket)	105
(2) LPA-80080/6CF w/ Mount Pipe (Verizon)	135	APXV18-206517S-C w/ Mount Pipe (Pocket)	105
(2) LPA-80080/6CF w/ Mount Pipe (Verizon)	135	Side Arm Mount [SO 306-1] (Landlord)	80
(2) LPA-80080/6CF w/ Mount Pipe (Verizon)	135	PD455 (Landlord)	80

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Litchfield County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 28 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 90.5%

Tower Engineering Professionals		Job: CT11417C - Plymouth-Rt. 6	
3703 Junction Blvd. Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350		Project: TEP# 111647 - Rev 1	
Client: T-Mobile	Drawn by: rparker	App'd:	
Code: TIA/EIA-222-F	Date: 02/09/12	Scale: NTS	
Path:		Dwg No. E-1	

tnxTower		Job		Page	
Tower Engineering Professionals 3703 Junction Blvd. Raleigh, NC 27603 Phone: (919) 661-6651 Fax: (919) 661-6650		CT11417C - Plymouth-Rt. 6		3 of 16	
Project		TEP# 111647 - Rev 1		Date	
Client		T-Mobile		16:33:41 02/09/12	
Designed by		tparker		Designed by	
				tparker	

Description	Serial	Component Type	Placement	Total Number	Surround Position	Width or Penetration	Weight
(Circular)	(Circular)	(C/Au)	β		in.	in.	lb.
1-5/8 Integrated Ice-Weight Only (Circular)	B	Surface Ar (C/Au)	115,000 - 0,000	10	-0.109	0.000	0.001
LDP7-50A (1-5/8 FOAM) (Pocket)	C	Surface Ar (C/Au)	105,000 - 0,000	1	-0.109	1.980	0.001
1-5/8 Integrated Ice-Weight Only (Pocket)	C	Surface Ar (C/Au)	105,000 - 0,000	5	-0.109	0.000	0.001
LDP5-50A (7/8 FOAM) (Lambdoid)	C	Surface Ar (C/Au)	80,000 - 0,000	1	0.250	1.090	0.000
Piped #5 Climbing Ladder	B	Surface Ar (C/Au)	169,000 - 0,000	1	0.000	0.675	0.001
Safety Line 3/8	B	Surface Ar (C/Au)	169,000 - 0,000	1	0.000	0.375	0.000

Feed Line/Linear Appurtenances - Entered As Area

Description	Face Allow or Shield	Component Type	Placement	Total Number	C/A	Weight
(T-tower)	Leg	(C/Au)	β		ft/ft	lb
LDP5-50A (7/8 FOAM) (T-tower)	C	No	Inside Pole	4	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000
LDP7-50A (1-5/8 FOAM) (T-Mobile)	C	No	Inside Pole	25	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.001 0.001 0.001 0.001 0.001
LDP7-50A (1-5/8 FOAM) (Sprint)	C	No	Inside Pole	9	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.001 0.001 0.001 0.001 0.001
LDP7-50A (1-5/8 FOAM) (Verizon)	C	No	Inside Pole	12	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.001 0.001 0.001 0.001 0.001
LDP4-50A (1/2 FOAM) (Carrollville PD)	C	No	Inside Pole	1	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000

Feed Line/Linear Appurtenances Section Areas

Section	Elevation	C/A	C/P	C/F	C/W	C/B
	β	in	in	in	in	in
L1	169,000-164,250	0.132	-0.076	0.349	0.000	-0.317
L2	164,250-129,125	0.133	-0.077	0.354	0.000	-0.339
L3	129,125-95,458	0.040	-0.016	0.222	0.000	-0.369
L4	95,458-62,625	0.067	-0.041	0.277	0.000	-0.407
L5	62,625-30,625	0.038	0.041	0.230	0.000	-0.007
L6	30,625-0,000	0.059	0.043	0.237	0.000	-0.003

tnxTower		Job		Page	
Tower Engineering Professionals 3703 Junction Blvd. Raleigh, NC 27603 Phone: (919) 661-6651 Fax: (919) 661-6650		CT11417C - Plymouth-Rt. 6		4 of 16	
Project		TEP# 111647 - Rev 1		Date	
Client		T-Mobile		16:33:41 02/09/12	
Designed by		tparker		Designed by	
				tparker	

Tower Section	Tower Elevation	Face	Area	Area	C/A	Weight
	β	in	in	in	in	lb
L1	169,000-164,250	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	7.605
		C	0.000	0.000	0.000	21.645
L2	164,250-129,125	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	3.688
		C	0.000	0.000	0.000	10.15, 195
L3	129,125-95,458	A	0.000	0.000	0.000	363.563
		B	0.000	0.000	0.000	5.849
		C	0.000	0.000	0.000	246.190
L4	95,458-62,625	A	0.000	0.000	0.000	1565.723
		B	0.000	0.000	0.000	403.850
		C	0.000	0.000	0.000	375.646
L5	62,625-30,625	A	0.000	0.000	0.000	1454.012
		B	0.000	0.000	0.000	6.336
		C	0.000	0.000	0.000	393.600
L6	30,625-0,000	A	0.000	0.000	0.000	366.112
		B	0.000	0.000	0.000	1422.080
		C	0.000	0.000	0.000	376.688
		B	0.000	0.000	0.000	350.381
		C	0.000	0.000	0.000	1360.975

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation	Face	Area	Area	C/A	Weight
	β	in	in	in	in	lb
L1	169,000-164,250	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	32.119
		C	0.000	0.000	0.000	21.645
L2	164,250-129,125	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	237.515
		C	0.000	0.000	0.000	1015.195
L3	129,125-95,458	A	0.000	0.000	0.000	680.000
		B	0.000	0.000	0.000	825.707
		C	0.000	0.000	0.000	630.527
L4	95,458-62,625	A	0.000	0.000	0.000	1428.598
		B	0.000	0.000	0.000	894.763
		C	0.000	0.000	0.000	377.115
L5	62,625-30,625	A	0.000	0.000	0.000	844.009
		B	0.000	0.000	0.000	834.427
		C	0.000	0.000	0.000	1699.847
L6	30,625-0,000	A	0.000	0.000	0.000	770.949
		B	0.000	0.000	0.000	749.023
		C	0.000	0.000	0.000	1602.656

Feed Line Center of Pressure

Section	Elevation	C/A	C/P	C/F	C/W	C/B
	β	in	in	in	in	in
L1	169,000-164,250	0.132	-0.076	0.349	0.000	-0.317
L2	164,250-129,125	0.133	-0.077	0.354	0.000	-0.339
L3	129,125-95,458	0.040	-0.016	0.222	0.000	-0.369
L4	95,458-62,625	0.067	-0.041	0.277	0.000	-0.407
L5	62,625-30,625	0.038	0.041	0.230	0.000	-0.007
L6	30,625-0,000	0.059	0.043	0.237	0.000	-0.003

inxTower		Page 5 of 16	
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Client		Designed by	
T-Mobile		rparker	

Discrete Tower Loads

Description	Fair or Leg	Offset Type	Offices Hinc. Lateral Verr	Adjustment	Placement	C/A's	C/A's	C/A's	Weight
Side Arm Mount (ISO 306-3) (Tower)	C	None	0.000	0.000	169.000	No leg	3.550	3.550	126.000
						12" leg	6.190	6.190	187.120
						2" leg	8.830	8.830	248.240
						4" leg	14.110	14.110	370.480
						6" leg	21.180	21.180	544.200
Side Arm Mount (ISO 306-1) (Tower)	A	From Leg	2.000	-45.000	169.000	No leg	0.980	0.980	42.000
						12" leg	1.700	1.700	63.275
						1" leg	2.420	2.420	83.246
						2" leg	3.860	3.860	123.493
						4" leg	6.740	6.740	204.986
SRL279 (Tower)	A	From Leg	4.000	0.000	169.000	No leg	5.470	5.470	25.000
						12" leg	7.620	7.620	65.000
						1" leg	9.770	9.770	105.000
						2" leg	14.070	14.070	185.000
						4" leg	22.670	22.670	345.000
PD455 (Tower)	B	From Leg	4.000	0.000	169.000	No leg	3.560	3.560	23.000
						12" leg	7.130	7.130	46.000
						1" leg	10.700	10.700	69.000
						2" leg	17.840	17.840	115.000
						4" leg	32.120	32.120	207.000
PD220 (Tower)	C	From Leg	4.000	0.000	169.000	No leg	3.560	3.560	23.000
						12" leg	7.130	7.130	46.000
						1" leg	10.700	10.700	69.000
						2" leg	17.840	17.840	115.000
						4" leg	32.120	32.120	207.000
ACP-305 (Tower)	A	From Leg	4.000	0.000	169.000	No leg	3.560	3.560	23.000
						12" leg	7.130	7.130	46.000
						1" leg	10.700	10.700	69.000
						2" leg	17.840	17.840	115.000
						4" leg	32.120	32.120	207.000
Platform Mount (LP 401-1) (T-Mobile)	C	None	0.000	0.000	165.000	No leg	24.330	24.330	1645.000
						12" leg	30.220	30.220	2029.770
						1" leg	36.110	36.110	2414.540
						2" leg	47.890	47.890	3184.080
						4" leg	71.450	71.450	4723.160
(4) TMBXX-6516-R2M w/ Mount Pipe (T-Mobile)	A	From Leg	4.000	0.000	165.000	No leg	7.083	5.242	56.500
						12" leg	7.637	6.117	109.723
						1" leg	8.177	6.868	173.269
						2" leg	9.286	8.433	223.540
						4" leg	14.628	11.978	347.626
(4) TMBXX-6516-R2M w/ Mount Pipe (T-Mobile)	B	From Leg	4.000	0.000	165.000	No leg	7.083	5.242	56.500
						12" leg	7.637	6.117	109.723
						1" leg	8.177	6.868	173.269
						2" leg	9.286	8.433	223.540
						4" leg	14.628	11.978	347.626
(4) TMBXX-6516-R2M w/ Mount Pipe (T-Mobile)	C	From Leg	4.000	0.000	165.000	No leg	7.083	5.242	56.500
						12" leg	7.637	6.117	109.723
						1" leg	8.177	6.868	173.269
						2" leg	9.286	8.433	223.540

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T-Mobile		rparker	

Description	Fair or Leg	Offset Type	Offices Hinc. Lateral Verr	Adjustment	Placement	C/A's	C/A's	C/A's	Weight
(4) ETW190VS12UB (T-Mobile)	A	From Leg	4.000	0.000	165.000	4" leg	11.628	11.978	747.626
						No leg	0.664	0.367	14.600
						12" leg	0.778	0.461	19.541
						1" leg	0.901	0.564	26.012
						2" leg	1.172	0.796	44.320
						4" leg	1.817	1.164	107.888
(4) ETW190VS12UB (T-Mobile)	B	From Leg	4.000	0.000	165.000	No leg	0.664	0.367	14.600
						12" leg	0.778	0.461	19.541
						1" leg	0.901	0.564	26.012
						2" leg	1.172	0.796	44.320
						4" leg	1.817	1.164	107.888
(4) ETW190VS12UB (T-Mobile)	C	From Leg	4.000	0.000	165.000	No leg	0.664	0.367	14.600
						12" leg	0.778	0.461	19.541
						1" leg	0.901	0.564	26.012
						2" leg	1.172	0.796	44.320
						4" leg	1.817	1.164	107.888
Platform Mount (LP 401-1) (Sprint)	C	None	0.000	0.000	155.000	No leg	24.330	24.330	1645.000
						12" leg	30.220	30.220	2029.770
						1" leg	36.110	36.110	2414.540
						2" leg	47.890	47.890	3184.080
						4" leg	71.450	71.450	4723.160
(3) DBS80H90E-M w/ Mount Pipe (Sprint)	A	From Leg	4.000	0.000	155.000	No leg	4.036	3.619	30.400
						12" leg	4.947	4.481	63.985
						1" leg	5.219	4.819	107.353
						2" leg	5.870	5.495	215.658
						4" leg	8.046	6.995	549.354
(3) DBS80H90E-M w/ Mount Pipe (Sprint)	B	From Leg	4.000	0.000	155.000	No leg	4.036	3.619	30.400
						12" leg	4.947	4.481	63.985
						1" leg	5.219	4.819	107.353
						2" leg	5.870	5.495	215.658
						4" leg	8.046	6.995	549.354
(3) DBS80H90E-M w/ Mount Pipe (Sprint)	C	From Leg	4.000	0.000	155.000	No leg	4.036	3.619	30.400
						12" leg	4.947	4.481	63.985
						1" leg	5.219	4.819	107.353
						2" leg	5.870	5.495	215.658
						4" leg	8.046	6.995	549.354
Platform Mount (LP 401-1) (Verizon)	C	None	0.000	0.000	135.000	No leg	24.330	24.330	1645.000
						12" leg	30.220	30.220	2029.770
						1" leg	36.110	36.110	2414.540
						2" leg	47.890	47.890	3184.080
						4" leg	71.450	71.450	4723.160
BXA-700636CF w/ Mount Pipe (Verizon)	A	From Leg	4.000	0.000	135.000	No leg	7.751	5.180	38.900
						12" leg	8.295	6.114	92.961
						1" leg	8.846	6.924	157.958
						2" leg	9.974	7.593	312.982
						4" leg	12.335	12.132	753.963
BXA-700636CF w/ Mount Pipe (Verizon)	B	From Leg	4.000	0.000	135.000	No leg	7.751	5.180	38.900
						12" leg	8.295	6.114	92.961
						1" leg	8.846	6.924	157.958
						2" leg	9.974	7.593	312.982
						4" leg	12.335	12.132	753.963
BXA-700636CF w/ Mount Pipe (Verizon)	C	From Leg	4.000	0.000	135.000	No leg	7.751	5.180	38.900
						12" leg	8.295	6.114	92.961
						1" leg	8.846	6.924	157.958
						2" leg	9.974	7.593	312.982
						4" leg	12.335	12.132	753.963

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Client T-Mobile		Designed by		rparker

Description	Tace or Leg	Offset Type	Act/mth Adjustment	Placement	Cch Front	Cch Side	Wght
		Hoz Vert			ft	ft	lb
APXV18-2065175-C w/ Mount Pipe (Peak)	B	From Leg	0.000	105.000	9.122	11.402	648.835
		No Ice			5.167	4.463	54.400
		12" Ice			5.304	94.460	
		1" Ice			6.077	145.149	
		2" Ice			7.017	270.611	
		4" Ice			9.122	11.402	648.835
APXV18-2065175-C w/ Mount Pipe (Peak)	C	From Leg	0.000	105.000	5.167	5.304	54.400
		No Ice			5.305	451.149	
		1" Ice			6.017	7.809	270.611
		2" Ice			7.017	11.402	648.835
****	A	From Leg	0.000	80.000	9.880	2.180	42.000
Side Arm Mount ISO 3006-11 (Landscape)		No Ice			1.700	3.800	62.375
		12" Ice			2.420	5.420	82.746
		2" Ice			3.860	8.660	133.493
		4" Ice			6.740	15.140	304.986
PD655 (Landscape)	A	From Leg	0.000	80.000	3.560	3.560	23.000
		No Ice			7.130	7.130	46.000
		1" Ice			10.700	10.700	69.000
		2" Ice			17.840	17.840	115.000
		4" Ice			32.120	32.120	207.000

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Client T-Mobile		Designed by		rparker

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Y lb	Sum of Overturning Moments, M _t lb-ft	Sum of Overturning Moments, M _r lb-ft	Sum of Torques lb-ft
Wind 90 deg - Ice	7333.082	-9.233	-2149.039	-1748.971	-381.050	
Wind 120 deg - Ice	6346.018	3651.501	3847243.321	-799551.618	-94.344	
Wind 150 deg - Ice	3658.545	6333.819	672343.546	-39650.660	-42.584	
Wind 180 deg - Ice	-9.233	7318.995	778169.025	1176.139	462.764	
Wind 210 deg - Ice	-3674.537	-6743.052	673903.973	394564.823	386.170	
Wind 240 deg - Ice	-6355.252	3667.494	387486.125	681395.161	731.630	
Wind 270 deg - Ice	-7333.082	9.233	-4339.086	78381.196	881.050	
Wind 300 deg - Ice	-6346.018	-3651.501	-396582.412	679834.735	794.394	
Wind 330 deg - Ice	7658.545	-6333.819	-684142.571	391862.085	494.881	
Total Weight	53565.792		-2431.588	306.147		
Wind 0 deg - Service	10.349	-14348.538	-1595249.876	-1748.971	-4.222	
Wind 30 deg - Service	7191.509	-12431.373	-1323475.520	-799551.618	-520.888	
Wind 60 deg - Service	12445.849	-7183.232	-799416.196	-1383080.413	-906.526	
Wind 90 deg - Service	12435.301	-10.349	-2302.181	-1590033.929	-1049.261	
Wind 120 deg - Service	7173.065	7165.307	795580.470	-1381331.443	-910.848	
Wind 150 deg - Service	10.349	12421.024	159433.456	-795002.311	-528.373	
Wind 180 deg - Service	-1791.509	14348.538	1781869.100	1748.971	520.888	
Wind 210 deg - Service	-10.349	-7183.232	-798309.776	1383080.413	906.526	
Wind 240 deg - Service	-14348.538	7183.232	798309.776	1590033.929	1049.261	
Wind 270 deg - Service	-12445.849	10.349	264386.649	1381331.443	910.848	
Wind 300 deg - Service	-12435.301	-7165.307	-1380726.549	795002.311	528.373	
Wind 330 deg - Service	-7173.065	-12421.024				

Load Combinations

Description

Comb. No.

1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service

Force Totals

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M _t lb-ft	Sum of Overturning Moments, M _r lb-ft	Sum of Torques lb-ft
Leg Weight	32438.564					
Bracing Weight	0.000					
Total Member Self-Weight	32438.564					
Total Weight	53565.792			306.147		
Wind 0 deg - No Ice	26.493	-3675.238	-2431.588	-4171.218	11.064	
Wind 30 deg - No Ice	18410.469	-31824.315	-3540152.701	-2046494.794	-1333.473	
Wind 60 deg - No Ice	31861.375	-18389.073	-2047520.833	-3540379.711	-2320.706	
Wind 90 deg - No Ice	3675.050	-26.493	-6908.953	-4085540.711	-2686.408	
Wind 120 deg - No Ice	31824.381	18343.185	2034902.633	-3535902.346	-2331.770	
Wind 150 deg - No Ice	18364.581	31797.822	3530812.160	-3038759.770	-1352.638	
Wind 180 deg - No Ice	26.493	3675.238	4079991.878	4783.513	-11.064	
Wind 210 deg - No Ice	-18410.469	-31824.315	-3535289.525	2047107.089	1333.473	
Wind 240 deg - No Ice	-31861.375	-18389.073	-2028357.657	3540992.005	2320.706	
Wind 270 deg - No Ice	-3675.050	-26.493	-6908.953	4085133.006	2686.408	
Wind 300 deg - No Ice	-31824.381	18343.185	2034902.633	-3535902.346	-2331.770	
Wind 330 deg - No Ice	-18364.581	31797.822	3530812.160	-3038759.770	-1352.638	
Member Weight	10885.650			615.711		
Total Weight	81271.917			944.714	62.764	
Wind 0 deg - Ice	9.233	-7118.905	-780968.050	-1748.971	-386.170	
Wind 30 deg - Ice	3674.537	-6343.052	-685702.998	-393333.908	-906.526	
Wind 60 deg - Ice	6355.322	-3607.494	-680163.736	-731.630		

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		Client	T-Mobile	Designed by	rparker

Comb. No.	Description	Vertical lb	Horizontal, X lb	Horizontal, Z lb
30	Dead-Wind 0 deg. - Service	82722.165	0.000	0.010
31	Dead-Wind 120 deg. - Service	53565.793	36775.051	-26.493
32	Dead-Wind 150 deg. - Service	53565.794	36732.277	-26.493
33	Dead-Wind 180 deg. - Service	53565.793	36732.277	-26.493
34	Dead-Wind 210 deg. - Service	53565.793	36732.277	-26.493
35	Dead-Wind 240 deg. - Service	53565.793	36732.277	-26.493
36	Dead-Wind 270 deg. - Service	53565.793	36732.277	-26.493
37	Dead-Wind 300 deg. - Service	53565.793	36732.277	-26.493
38	Dead-Wind 330 deg. - Service	53565.793	36732.277	-26.493

Maximum Reactions

Location	Condition	Gov. Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	14	82722.166	0.001	0.010
	Max. H.	11	53565.793	36775.051	-26.493
	Max. H.	2	53565.794	36732.277	-26.493
	Max. M.	3	4223298.412	-26.493	36732.277
	Max. Torsion	5	-2688.583	-36775.051	26.493
	Min. Vert	1	53565.793	0.000	0.000
	Min. H.	8	53565.793	-36775.051	26.493
	Min. H.	8	53565.794	-36732.277	26.493
	Min. M.	11	-423230.286	36775.051	-26.493
	Min. Torsion	11	-2688.580	36775.051	-26.493

Tower Mast Reaction Summary

Lead Comb.	Vertical lb	Shear, lb	Overturning Moment, M. lb-ft	Overturning Moment, M. lb-ft	Torque lb-ft
Dead Only	53565.793	0.000	-2431.588	306.147	0.000
Dead-Wind 0 deg. - No Ice	53565.794	-26.493	-4232425.553	-4346.770	11.009
Dead-Wind 30 deg. - No Ice	53565.793	18410.469	-3661125.537	-2116429.727	-1334.845
Dead-Wind 60 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 90 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 120 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 150 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 180 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 210 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 240 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 270 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 300 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 330 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Ice-Temp	82722.166	0.000	-6083.422	-1039.284	-60.017
Dead-Wind 0 deg. - Ice-Temp	82722.165	3674.550	-6343.075	-723002.700	62.202
Dead-Wind 30 deg. - Ice-Temp	82722.165	6355.274	-3667.507	-417580.457	392.106
Dead-Wind 60 deg. - Ice-Temp	82722.165	7333.108	-9.233	-80333.064	77.000
Dead-Wind 90 deg. - Ice-Temp	82722.165	6346.041	3651.514	408351.250	894.818
Dead-Wind 120 deg. - Ice-Temp	82722.165	3658.558	6343.075	713615.652	1438.547
Dead-Wind 150 deg. - Ice-Temp	82722.165	9.233	7319.021	825965.016	-2321.492
Dead-Wind 180 deg. - Ice-Temp	82722.165	-9.233	6343.075	713615.652	-1438.547
Dead-Wind 210 deg. - Ice-Temp	82722.165	3658.558	6343.075	713615.652	-1438.547
Dead-Wind 240 deg. - Ice-Temp	82722.165	6346.041	3651.514	408351.250	894.818
Dead-Wind 270 deg. - Ice-Temp	82722.165	3655.274	-3667.507	-417580.457	392.106
Dead-Wind 300 deg. - Ice-Temp	82722.165	7333.108	-9.233	-80333.064	77.000
Dead-Wind 330 deg. - Ice-Temp	82722.165	6346.041	3651.514	408351.250	894.818

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		Client	T-Mobile	Designed by	rparker

Lead Comb.	Vertical lb	Shear, lb	Overturning Moment, M. lb-ft	Overturning Moment, M. lb-ft	Torque lb-ft
Dead Only	53565.793	0.000	-2431.588	306.147	0.000
Dead-Wind 0 deg. - No Ice	53565.794	-26.493	-4232425.553	-4346.770	11.009
Dead-Wind 30 deg. - No Ice	53565.793	18410.469	-3661125.537	-2116429.727	-1334.845
Dead-Wind 60 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 90 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 120 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 150 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 180 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 210 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 240 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 270 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 300 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Wind 330 deg. - No Ice	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845
Dead-Ice-Temp	82722.166	0.000	-6083.422	-1039.284	-60.017
Dead-Wind 0 deg. - Ice-Temp	82722.165	3674.550	-6343.075	-723002.700	62.202
Dead-Wind 30 deg. - Ice-Temp	82722.165	6355.274	-3667.507	-417580.457	392.106
Dead-Wind 60 deg. - Ice-Temp	82722.165	7333.108	-9.233	-80333.064	77.000
Dead-Wind 90 deg. - Ice-Temp	82722.165	6346.041	3651.514	408351.250	894.818
Dead-Wind 120 deg. - Ice-Temp	82722.165	3658.558	6343.075	713615.652	1438.547
Dead-Wind 150 deg. - Ice-Temp	82722.165	9.233	7319.021	825965.016	-2321.492
Dead-Wind 180 deg. - Ice-Temp	82722.165	-9.233	6343.075	713615.652	-1438.547
Dead-Wind 210 deg. - Ice-Temp	82722.165	3658.558	6343.075	713615.652	-1438.547
Dead-Wind 240 deg. - Ice-Temp	82722.165	6346.041	3651.514	408351.250	894.818
Dead-Wind 270 deg. - Ice-Temp	82722.165	3655.274	-3667.507	-417580.457	392.106
Dead-Wind 300 deg. - Ice-Temp	82722.165	7333.108	-9.233	-80333.064	77.000
Dead-Wind 330 deg. - Ice-Temp	82722.165	6346.041	3651.514	408351.250	894.818

Solution Summary

Lead Comb.	Vertical lb	Shear, lb	Overturning Moment, M. lb-ft	Overturning Moment, M. lb-ft	Torque lb-ft	% Error
1	53565.793	0.000	-2431.588	306.147	0.000	0.000%
2	53565.793	-26.493	-4232425.553	-4346.770	11.009	0.000%
3	53565.793	18410.469	-3661125.537	-2116429.727	-1334.845	0.000%
4	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
5	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
6	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
7	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
8	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
9	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
10	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
11	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
12	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
13	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
14	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
15	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
16	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
17	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
18	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
19	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
20	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
21	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
22	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
23	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
24	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
25	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
26	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
27	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
28	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
29	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
30	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
31	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
32	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
33	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
34	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
35	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%
36	53565.793	18810.375	-3661125.537	-2116429.727	-1334.845	0.000%

inxTower		Job		CT11417C - Plymouth-Rt. 6		Page		13 of 16	
Tower Engineering Professionals 5703 American Blvd. Raleigh, NC 27603 Phone: (919) 661-6551 Fax: (919) 661-6550		Project		TEPH# 111647 - Rev 1		Date		16:33:41 02/09/12	
		Client		T-Mobile		Designed by		rparker	

Load Comb.	PX lb	PY lb	PZ lb	Sum of Reactions	PX lb	PY lb	PZ lb	% Error
37	-12435.501	-53565.793	-7165.307	53565.793	7165.307	0.000%	0.000%	0.000%
38	-7173.665	-53565.793	-12421.024	53565.793	12421.025	0.000%	0.000%	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00029428
3	Yes	5	0.00000001	0.00065501
4	Yes	5	0.00000001	0.00065501
5	Yes	5	0.00000001	0.00065501
6	Yes	5	0.00000001	0.00065501
7	Yes	5	0.00000001	0.00065501
8	Yes	5	0.00000001	0.00065501
9	Yes	5	0.00000001	0.00065501
10	Yes	5	0.00000001	0.00065501
11	Yes	5	0.00000001	0.00065501
12	Yes	5	0.00000001	0.00065501
13	Yes	5	0.00000001	0.00065501
14	Yes	5	0.00000001	0.00065501
15	Yes	5	0.00000001	0.00022901
16	Yes	5	0.00000001	0.00024058
17	Yes	5	0.00000001	0.00024125
18	Yes	5	0.00000001	0.00025209
19	Yes	5	0.00000001	0.00025344
20	Yes	5	0.00025565	0.00021770
21	Yes	5	0.00000001	0.00021770
22	Yes	5	0.00000001	0.00025896
23	Yes	5	0.00000001	0.00022054
24	Yes	5	0.00000001	0.00024014
25	Yes	5	0.00000001	0.00011859
26	Yes	5	0.00000001	0.00006029
27	Yes	5	0.00000001	0.00006671
28	Yes	5	0.00000001	0.00027390
29	Yes	5	0.00000001	0.00008006
30	Yes	5	0.00000001	0.00006380
31	Yes	5	0.00000001	0.00014822
32	Yes	5	0.00000001	0.00006642
33	Yes	5	0.00000001	0.00005358
34	Yes	5	0.00000001	0.00028740
35	Yes	5	0.00000001	0.00006622
36	Yes	5	0.00000001	0.00006989
37	Yes	5	0.00000001	0.00006989
38	Yes	5	0.00000001	0.00006989

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horiz. Deflection in	Tilt	Twist
L1	169.16425	35.433	1.702	0.006

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Tower Engineering Professionals 5703 American Blvd. Raleigh, NC 27603 Phone: (919) 661-6551 Fax: (919) 661-6550		Project		TEPH# 111647 - Rev 1		Date		16:33:41 02/09/12	
		Client		T-Mobile		Designed by		rparker	

Section No.	Elevation ft	Horiz. Deflection in	Gov. Load Comb.	Tilt	Twist
L2	166.625 - 129.125	34.586	28	1.701	0.006
L3	132.958 - 95.4583	25.010	28	1.539	0.003
L4	100.125 - 62.625	13.527	28	1.340	0.002
L5	68.125 - 30.625	6.222	28	0.949	0.001
L6	36.875 - 0	1.801	28	0.453	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Horiz. Deflection in	Tilt	Twist	Radius of Curvature ft
169.000	Side Arm Mount ISO 306-3	28	35.433	1.702	0.006	29790
165.000	Platform Mount LP 401-1	28	34.008	1.700	0.005	29790
155.000	Platform Mount LP 401-1	28	30.478	1.674	0.004	16232
135.000	Platform Mount LP 401-1	28	23.676	1.534	0.003	8185
125.000	Platform Mount LP 401-1	28	20.477	1.476	0.003	6925
115.000	Platform Mount LP 401-1	28	17.474	1.391	0.002	5352
105.000	APXX18-2065175-C Mount Pipe	28	14.225	1.291	0.002	4916
80.000	Side Arm Mount ISO 306-1	28	3.568	1.001	0.001	

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horiz. Deflection in	Gov. Load Comb.	Tilt	Twist
L1	169.16425	90.433	3	4.345	0.016
L2	166.625 - 129.125	88.270	3	4.344	0.014
L3	132.958 - 95.4583	58.751	3	3.931	0.007
L4	100.125 - 62.625	34.043	4	3.167	0.004
L5	68.125 - 30.625	15.898	4	2.171	0.003
L6	36.875 - 0	4.756	4	1.158	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Horiz. Deflection in	Tilt	Twist	Radius of Curvature ft
169.000	Side Arm Mount ISO 306-3	3	90.433	4.345	0.016	11951
165.000	Platform Mount LP 401-1	3	86.802	4.341	0.015	11951
155.000	Platform Mount LP 401-1	3	77.800	4.276	0.009	6463
135.000	Platform Mount LP 401-1	3	60.450	3.970	0.007	3241
125.000	Platform Mount LP 401-1	4	52.287	3.770	0.007	2724
115.000	Platform Mount LP 401-1	4	44.568	3.547	0.006	2379
105.000	APXX18-2065175-C w/ Mount Pipe	4	37.356	3.299	0.005	2110
80.000	Side Arm Mount ISO 306-1	4	21.891	2.557	0.003	1933

APPENDIX B
COAX CONFIGURATION

(SPRINT - PROPOSED)
(9) 1 5/8" TO 155 FT

(VERIZON - EXISTING)
(12) 1 5/8" TO 135 FT

(POCKET - PROPOSED)
(6) 1 5/8" TO 105 FT

(TERRYVILLE FD - EXISTING)
(1) 1/2" TO 125 FT

(LANDLORD - EXISTING)
(1) 7/8" TO 80 FT

(TOWN - EXISTING)
(4) 7/8" TO 169 FT

(CINGULAR - EXISTING)
(12) 1 5/8" TO 115 FT

(NEXTEL - EXISTING)
(15) 1 5/8" TO 125 FT

(T-MOBILE - EXISTING)
(25) 1 5/8" TO 165 FT



COAX PLAN - N.T.S.

PREPARED BY:

TOWER ENGINEERING PROFESSIONALS
3703 JUNCTION BOULEVARD
RALEIGH, NC 27603-5263
(919) 661-6351
www.tepgroup.net

PREPARED FOR:

T-Mobile
T-MOBILE TOWERS
12920 SE 38TH STREET
BELLEVUE, WA 98006

PROJECT INFORMATION:

**SITE # CT11417C
PLYMOUTH-RT.6**
171 TOWN HILL ROAD
PLYMOUTH, CT 06786
(LITCHFIELD COUNTY)

REVISION: 1

TEP JOB #: 111647

SHEET NUMBER:

S-1

APPENDIX C
ADDITIONAL CALCULATIONS

JOB: 111647
 SHEET NUMBER: 1 OF 2
 CALCULATED BY: RAP DATE 2/9/2012
 CHECKED BY: MLG DATE 2/9/2012

Pad and Pier Foundation for Monopole - TIA-222-F

Q_a , ALLOWABLE SOIL PRESS. (ksf)	3
NET or GROSS	NET
SOIL DENSITY (pcf)	135

F'_c (ksi)	4
F'_y (ksi)	60

Base Reactions LC1: Maximum Wind

M , MOMENT (k-ft)	4229.6
P_t , TOTAL DOWNLOAD (k)	53.6
H , HORIZONTAL SHEAR (k)	36.8

Base Reaction LC 2: Ice Wind + Ice

M (k-ft)	4215.3
P_t (k)	67.6
H (k)	36.5

Try:	L (ft.)	B (ft.)	t (ft.)	Soil depth to TOP of mat (ft.)	Soil depth to BOT. of mat (ft.)	Pier dia./width (ft.)	Pier Height, h (cu.ft.)	Pier Shape
	27	27	2.5	6	8.5	7.50	6.50	Round

W_m , Weight of Mat (k) =	273.4
W_p , Weight of Pier (k) =	43.1
W_s , WEIGHT OF SOIL (k) =	554.7

Concrete Vol. (cu ft) 78.14

CHECK DESIGN CRITERIA

CHECK STABILITY:

	LC1	LC2
$Mst = P * (L/2) + (Vt+s * L/2) =$	12483.7 k-ft	12673.4 k-ft
$Mot = M + H * (t+h) =$	4560.6 k-ft	4543 k-ft
$SF = Mot/Mst =$	2.74 > 1.5	2.79 > 1.5

Capacity: 54.8%

CHECK BEARING PRESSURE

	LC1	LC2
$P = P_t + W_f + W_s =$	924.7 k	938.8 k
$e = M / P =$	4.93 ft	4.84 ft
$L/6 =$	4.50 ft	4.50 ft
Width of Wedge, $L' =$	25.70 ft	25.98 ft
0 Deg Wind: $Q_{max} =$	1.52 ksf	1.53 ksf
45 Deg Wind: $Q_{max} =$	2.18 ksf	2.18 ksf

Capacity: 72.6%

JOB: 111647
 SHEET NUMBER: 2 OF 2
 CALCULATED BY: RAP DATE 2/9/2012
 CHECKED BY: MLG DATE 2/9/2012

CHECK ONE WAY SHEAR

$V_u = 773.0 \text{ k}$
 $V_c = 795.3 \text{ k}$

Capacity: 97.19%

CHECK TWO WAY SHEAR: PUNCHING + UNBALANCED MOMENT

$V_u = 33.1 \text{ psi}$
 $\phi V_c = 189.7 \text{ psi}$

Capacity: 17.42%

CALCULATE REINFORCING REQUIRED

$F'_c = 4.0 \text{ ksi}$ $F'_y = 60.0 \text{ ksi}$

Temp & Shrinkage reinforcing, $A_{s,temp} = 0.32 \text{ in}^2/\text{ft}$ (ACI 318 Sec. 10.5.4)

BOTTOM REINFORCING

Bar Size = 9
 Bar Spacing, c-c: 8.8
 d = 25.3 in.

$M_u = 39.5 \text{ in-k/ft}$

$M_n = 0.9 \cdot A_s \cdot F_y \cdot d (1 - 0.59 \cdot A_s \cdot F_y / (b \cdot d \cdot F'_c))$

Solution: $A_{s,req} = 0.03 \text{ in}^2/\text{ft}$

Check, $A_s = 1.37 \text{ in}^2/\text{ft}$

Capacity: 23.64%
 $A_{s,temp}$ controls

TOP REINFORCING

Bar Size = 9
 Bar Spacing, c-c: 8.8
 d = 25.3 in.

$M_u = 781.0 \text{ in-k/ft}$

$M_n = 0.9 \cdot A_s \cdot F_y \cdot d (1 - 0.59 \cdot A_s \cdot F_y / (b \cdot d \cdot F'_c))$

Solution: $A_{s,req} = 0.58 \text{ in}^2/\text{ft}$

Bar Spacing, c-c:

$A_{s,req} > A_{s,t}$, use $A_{s,req}$

Check, $A_s = 1.37 \text{ in}^2/\text{ft}$

Top Reinforcing O.K.

Capacity: 42.41%