



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

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

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

Daniel F. Caruso  
Chairman

March 15, 2011

Thomas J. Regan, Esq.  
Brown Rudnick LLP  
CityPlace I, 185 Asylum Street  
Hartford, CT 06103

RE: **EM-SPRINT-NEXTEL-135-110210** -- Sprint Nextel Corporation notice of intent to modify an existing telecommunications facility located at 168 Catoona Lane, Stamford, Connecticut.

Dear Attorney Regan:

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 February 10, 2011. 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 Michael A. Pavia, Mayor, City of Stamford  
Norman Cole, Acting Land Use Bureau Chief, City of Stamford  
American Tower Corporation



CONNECTICUT SITING COUNCIL  
Affirmative Action / Equal Opportunity Employer



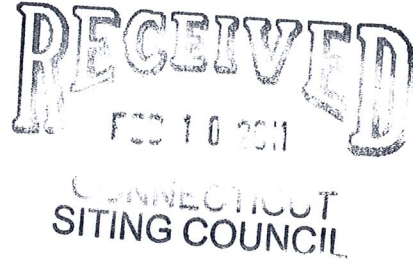
EM-SPRINT-NEXTEL-135-110210

THOMAS J. REGAN  
Direct Dial: (860) 509-6522  
tregan@brownrudnick.com

CityPlace I  
185 Asylum  
Street  
Hartford  
Connecticut  
06103  
tel 860.509.6500  
fax 860.509.6501

*Via Hand Delivery*

February 10, 2011



Daniel F. Caruso, Chairman  
Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051

**RE: Notice of Exempt Modification / Stamford @ 168 Catoona Lane**

Dear Mr. Caruso:

On behalf of Sprint Nextel Corporation ("Sprint"), enclosed for filing are an original and five (5) copies of Sprint's Notice of Exempt Modification for a Facility located at the above-referenced site.

I also enclose herewith a check in the amount of \$625.00 representing the filing fee.

I would appreciate it if you would date-stamp the enclosed copy of this transmittal letter and return it to the courier delivering this package.

If you have any questions, please feel free to contact me.

Very truly yours,

**BROWN RUDNICK LLP**

By: Thomas J. Regan  
Thomas J. Regan

Enclosures

cc w/ encl. via 1<sup>st</sup> Class Mail – Mayor Michael Pavia

# 40281288 v1 - REGANTJ - 025064/0018

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CONNECTICUT SITING COUNCIL

ORIGINAL

In re:

Sprint Nextel Corporation's Notice to Make an Exempt Modification to an Existing Facility at 168 Catoona Lane, Stamford, Connecticut. : EXEMPT MODIFICATION NO. : February 10, 2011

RECEIVED FEB 10 2011

NOTICE OF EXEMPT MODIFICATION

Pursuant to Conn. Agencies Regs. §§ 16-50j-73 and 16-50j-72(b) Sprint Nextel

CONNECTICUT SITING COUNCIL

Corporation ("Sprint") hereby gives notice to the Connecticut Siting Council ("Council") and the City of Stamford of Sprint's intent to make an exempt modification to an existing lattice tower (the "Tower") located at 168 Catoona Lane in Stamford, Connecticut. Specifically, Sprint plans to remove and replace existing antennas and install Tower Mounted Amplifiers ("TMA"). Under the Council's regulations (Conn. Agencies Regs. § 16-50j-72(b)), Sprint's plans do not constitute a modification subject to the Council's review because Sprint will not change the height of the tower, will not extend the boundaries of the compound, will not increase the noise levels at the site, and will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards.

Sprint is currently upgrading its existing installations throughout Connecticut. This upgrade is designed to enhance the performance of Sprint's network. Upon completion of the upgrades to Sprint's network, it will offer improved voice and data communications to residents and travelers in Connecticut. In order to accomplish the upgrade at this site, Sprint plans to remove and replace antennas, install TMA and install related electronic equipment at the base of the Tower.

The Tower is a 300-foot lattice tower located at 168 Catoona Lane in Stamford, Connecticut (latitude 41.05 N, longitude -73.56 W). The Tower is owned by American Tower

Corporation. Multiple carriers are currently located on the Tower. Presently, Sprint has 9 antennas over three sectors located on the Tower with a centerline of 150 feet. Sprint's base station equipment is located adjacent to the base of the Tower. A site plan with the Tower specifications is attached.

Sprint's plans to remove and replace 3 of its existing antennas with 3 upgraded antennas (one per sector). Additionally, Sprint proposes to install 3 TMA on the Tower, one per sector. The new antennas and TMAs will have the same centerline as the existing antennas – 150 feet. Sprint will continue to utilize its existing coax cables. To confirm that the Tower can support these changes, Sprint commissioned American Tower Corporation to complete the Structural Analysis Report of the Tower (attached). According to the report dated January 13, 2011, "The tower and foundation can support the existing and proposed loading..." (Page 3, Structural Analysis Report).

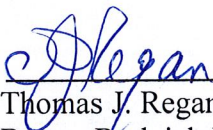
Within the existing compound Sprint will install one MCPA cabinet on the existing steel platform that is located on the existing 8-foot by 11-foot (approximately) concrete pad. Hence, no increase in the size of the concrete pad is necessary. Excluding brief, minor, construction-related noise during the addition of the antennas and dishes and the installation of the equipment cabinets, the proposed changes to the Tower will not increase noise levels at the site.

The installation of the new antennas and the TMAs will not adversely impact the health and safety of the surrounding community or the people working on the Tower. The total radio frequency exposure measured around the Tower will be below the National Council on Radiation Protection and Measurements' ("NCRP") standard adopted by the Federal Communications Commission ("FCC"). A cumulative power density analysis indicates that together, all of the

antennas on the Tower will emit 22.34% of the NCRP's standard for maximum permissible exposure. Therefore, the power density levels will be below the FCC mandated radio frequency exposure limits in all locations around the Tower, even with extremely conservative assumptions. The power density analysis is attached.

In conclusion, Sprint's proposed plan to remove and replace antennas, install 3 TMAs and associated base station equipment does not constitute a modification subject to the Council's jurisdiction because Sprint will not increase the height of the Tower, will not extend the boundaries of the site, will not increase the noise levels at the site, and the total radio frequency electromagnetic radiation power density will stay within all applicable standards. *See Conn. Agencies Regs. § 16-50j-72.*

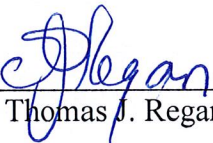
SPRINT NEXTEL CORPORATION

By:  \_\_\_\_\_  
Thomas J. Regan  
Brown Rudnick LLP  
185 Asylum Street, CityPlace I  
Hartford, CT 06103-3402  
Email - [tregan@brownrudnick.com](mailto:tregan@brownrudnick.com)  
Phone - 860.509.6522  
Fax - 860.509.6501

**Certificate of Service**

This is to certify that on this 10<sup>th</sup> day of February, 2011, the foregoing Notice of Exempt Modification was sent, via first class mail, to the following:

City of Stamford  
Mayor Michael Pavia  
888 Washington Boulevard  
Stamford, CT 06901

By:  \_\_\_\_\_  
Thomas J. Regan

# 40281219 v1 - 025064/0018

NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	08/11/2010
2	ISSUED FOR CONSTRUCTION	08/11/2010
3	ISSUED FOR CONSTRUCTION	08/11/2010

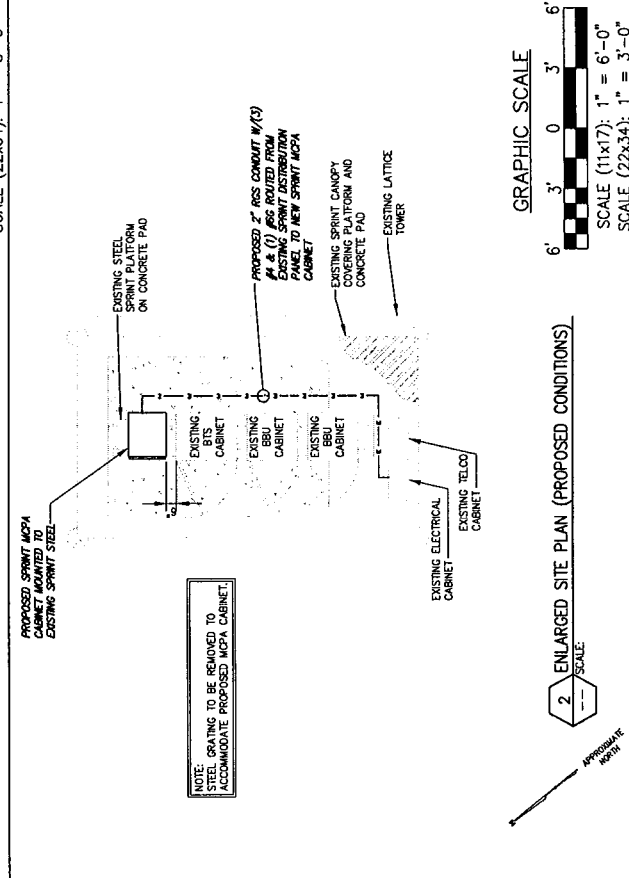
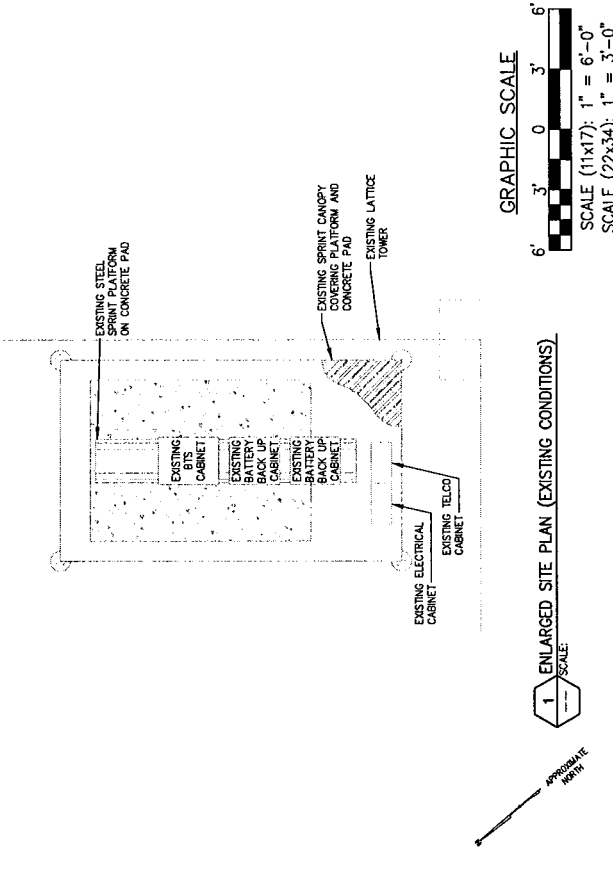
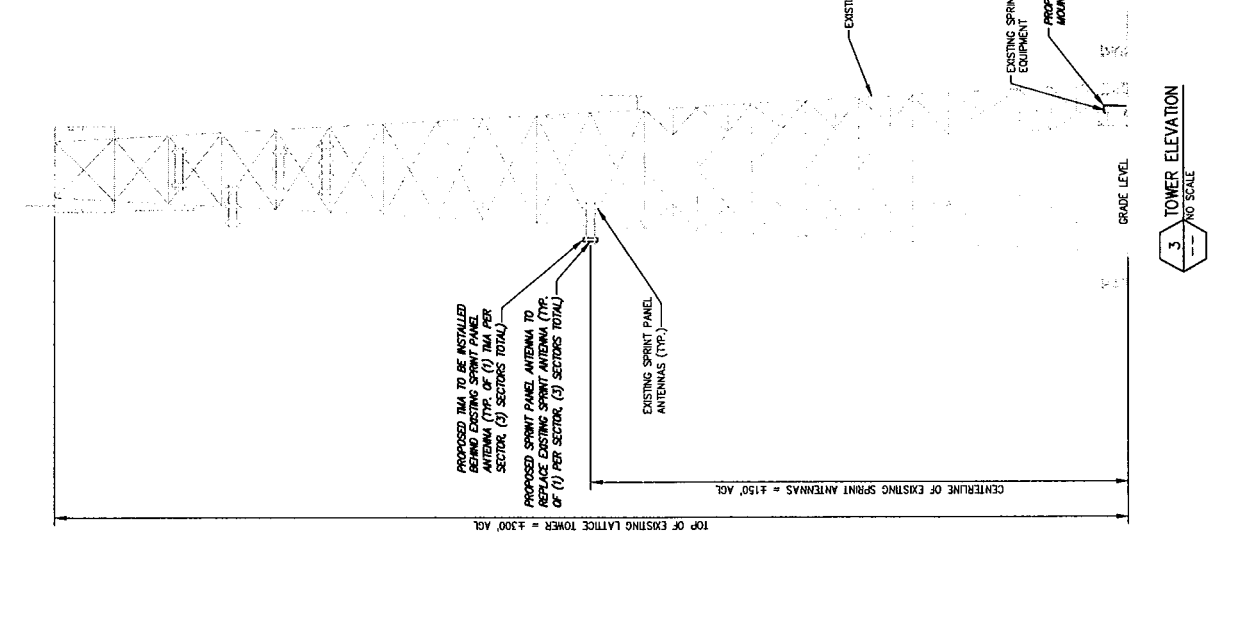
Drawn: J.P. Date: 1/2/10  
 Checked: J.P. Date: 1/2/10  
 Project Number: 1004005

Project Title: **CT08XC337 ATC TOWER**  
 188 CATOONALANE  
 STAMFORD, CT 06901



Drawing Scale: AS NOTED  
 Date: 05/27/10  
 Drawing Title: **EQUIPMENT PLAN & ELEVATION**  
 Drawing Number: **LE**

- NOTES:**
- BASEMAPPING BASED ON INFORMATION PROVIDED TO INFINITY ENGINEERING AND A FIELD VISIT COMPLETED BY INFINITY ENGINEERING.
  - NO ELECTRICAL ANALYSIS WAS COMPLETED AT TIME OF ISSUANCE OF THESE DRAWINGS. CONTRACTOR TO CONSULT WITH LOCAL, STATE, AND NATIONAL CODES FOR ALL ELECTRICAL CODES.
  - INFINITY ENGINEERING HAS NOT COMPLETED A STRUCTURAL ANALYSIS. CONTRACTOR TO PROVIDE ALL STRUCTURAL ANALYSIS AND INSTALLATION.
  - CONTRACTOR TO INSTALL NEW REFRIGERATION JUMPERS FROM EXISTING HARDLINE TO NEW REFRIGERATION JUMPERS FROM MIPA CABINET TO EXISTING BITS CABINET.
  - CONTRACTOR TO INSTALL NEW REFRIGERATION JUMPERS FROM MIPA CABINET TO EXISTING BITS CABINET.
  - CONTRACTOR TO INSTALL NEW REFRIGERATION JUMPERS FROM MIPA CABINET TO EXISTING BITS CABINET.
  - CONTRACTOR TO REMOVE EXISTING REFRIGERATION JUMPERS FROM EXISTING HARDLINE TO PROPOSED TMA.
  - PROPOSED TMA TO BE INSTALLED BEHIND EXISTING SPRINT PANEL.
  - EXISTING SPRINT PANEL ANTENNA TO BE REPLACED WITH (1) TMA PER SECTOR, (3) SECTORS TOTAL.
  - PROPOSED SPRINT MIPA CABINET TO BE MOUNTED IN EXISTING SPRINT LEASE AREA.





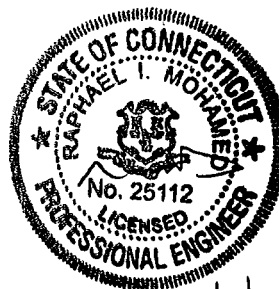
**AMERICAN TOWER®**  
CORPORATION

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## Structural Analysis Report

**Structure** : 300 ft Type H AT&T Tag Self Supported Tower  
**ATC Site Name** : Stamford (Katoona), CT  
**ATC Site Number** : 88018  
**Proposed Carrier** : Sprint Nextel  
**Carrier Site Name** : N/A  
**Carrier Site Number** : CT-BDR0126  
**County** : Fairfield  
**Engineering Number** : 45744724  
**Date** : January 13, 2011\*  
**Usage** : 100%

Submitted by:  
Scott Wirgau  
Project Engineer



1/14/11

**American Tower Engineering Services**  
400 Regency Forest Drive  
Cary, NC 27518  
Phone: 919-468-0112



**Introduction**

The purpose of this report is to summarize results of the structural analysis performed on the 300 ft Type H AT&T Tag Self Supported Tower located northeast of the intersection of Catoona Lane and Myano Lane, Stamford, CT 06902, Fairfield County (ATC Site No. 88018). The tower information was taken from an analysis by CSEI (ATC Eng. No. 73123451, dated September 29, 2005). The tower has been modified per design by ATC (Job No. 42439132, dated September 26, 2008 and Job No. 44209632, December 2, 2009).

**Analysis**

The tower was analyzed using Powerline Systems, Inc., Software. The analysis assumes that the tower is in good, undamaged, and non-corroded condition.

Basic Wind Speed: 85 mph (Fastest Mile)  
 Radial Ice: 74 mph (Fastest Mile) w/ 1/2" ice  
 Code: TIA/EIA-222-F / 2003 IBC Criteria per Section 1609.1.1, Exception (4) & Section 3108.4 w/ 2005 CT Supplements & 2008 CT Amendments

**Antenna Loads**

The following antenna loads were used in the tower analysis.

**Existing Antennas**

Elev. (ft)	Qty	Antennas	Mount	Coax	Carrier
311.0	1	4' Dish w/ Radome	Dish	(1) 7/8"	Marcus Comm.
303.0	1	AML PGLN1PR-MFF	Platform	-	Bell Industries
	1	Scala OGB9-900N/DT3		(1) 7/8"	
302.0	1	RFS 200		(1) 1 5/8"	Lojack
300.0	1	TX RX 101-68-10-X-03N		(1) 1 1/4"	Marcus Comm.
	1	15' Omni	-	-	
	1	16' Omni w/ Reflectors	-	-	
	1	DragonWave A-ANT-18G-2-C	(1) 7/8"	Clearwire	
2	DragonWave A-ANT-23G-1-C	(2) 7/8"			
3	DragonWave Horizon Compact	-			
294.0	6	Powerwave 7770.00	Side Arm	(12) 1 5/8"	AT&T Mobility
	6	Powerwave LGP21903		-	
	6	Powerwave LGP21401		-	
289.0	1	Dielectric TLP-08M-2E	Pipe	(1) 3 1/8"	Qualcomm
285.0	3	48" x 10" Panel	Pipe	-	AT&T Mobility
283.0	-	-	Catwalk	-	-
271.0	1	Rohde & Schwarz ADD090	Side Arm	(2) 7/8"	USCG
	1	TTA		(1) 1/4"	

Existing Antennas (continued)

Elev. (ft)	Qty	Antennas	Mount	Coax	Carrier
2690	1	Til Tek TA-2350-DAB	Side Arm	(1) EW20	XM Satellite
2650	6	CCI DTMA-1819-DD-12	Sector Frame	-	T-Mobile
	7	RFS APX16DWV-16DWVS-E-A20		(24) 1 5/8"	
2420	1	Sinclair SC381-HL	Side Arm	(1) 7/8"	USCG
	1	Sinclair SC281-L		(1) 7/8"	
2350	4	Dapa 58412	Sector Frame	(6) 1 5/8"	AT&T Mobility
	2	EMS RR90-17-04DP		(3) 1 5/8"	
	6	TTA		-	
2240	12	Decibel DB844H90E-XY	Sector Frame	(15) 1 5/8"	Sprint Nextel
2155	1	8' Omni	Side Arm	(1) 3/8"	Lojack
2125	-	-	Platform	-	-
2000	1	Sinclair SC281-L	Side Arm	(1) 7/8"	USCG
	2	TX RX 101-68-10-X-03N	Side Arm	(2) 1 1/4"	Marcus Comm.
1930	1	36" x 60" Panel	Side Arm	-	Town of Stamford
1800	3	Antel BCD-87010	Side Arm	(3) 7/8"	USA Mobility
1670	3	Argus LLPX310R	Side Arm	(6) 5/16"	Clearwire
	3	NextNet BTS-2500		(1) 2" Conduit	
1600	6	Kathrein 800 10504	Sector Frame	(12) 1 5/8"	Metro PCS
	6	RCU		(3) 3/8"	
1370	1	Antel BCD-87010 4	Side Arm	(1) 7/8"	Sensus Metering
1200	1	Channel Master Type 120	Dish	(1) 1/2"	USA Mobility
1000	1	TX RX 101-68-10-X-03N	Side Arm	(1) 1 1/4"	Marcus Comm.
	-	-	Platform	-	-
250	1	Til Tek TA-2324-LHCP	Dish	(1) 7/8"	XM Satellite
100	1	GPS Unit	Pipe	(1) 3/8"	Lojack

Proposed Antennas

Elev. (ft)	Qty	Antennas	Mount	Coax	Carrier
1480	9	Andrew HBX-9014DS-R2M	Sector Frame	(9) 1 5/8"	Sprint Nextel
	3	CCI CE-1819-200MC (TMA)		-	

Install proposed coax in same location as existing.

**Results**

The maximum structure usage is: 100%

Leg Forces	Original Design Reactions	Current Analysis Reactions	% Of Design
Uplift (Kips)	N/A	412.9	N/A
Axial (Kips)	N/A	511.3	N/A

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

**Conclusion**

Based on the analysis results, the structure meets the requirements per TIA/EIA-222-F and 2003 IBC standards with 2005 CT supplements and 2008 CT amendments.

The tower and foundation can support the existing and proposed antennas with the TX line distribution as described in this report.

If you have any questions or require additional information, please call 919-466-5086.

## **Standard Conditions**

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

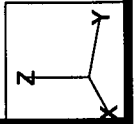
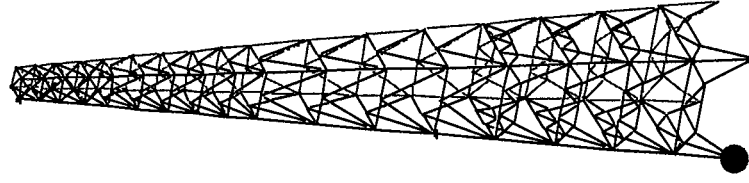
- Information supplied by the client regarding the structure itself, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to ATC Engineering Services and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated; and we, therefore, assume that their capacity has not significantly changed from the "as new" condition.

All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/EIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. ATC Engineering Services is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

American Tower Corp., Project: "88018-12-Sprint Nextel-01\_13\_11"  
Tower Version 10.62, 9:36:57 AM Thursday, January 13, 2011  
Undeformed geometry displayed



Project Name : 88018 Stamford (Katoona), CT  
 Project Notes: 300' Type 'H' AT&T Tag Tower  
 Project File : R:\Engineering Services\12 - ATC\88018\Sprint Nextel 01-13-11\88018-12-Sprint Nextel-01\_13\_11.tow  
 Date run : 9:00:17 AM Thursday, January 13, 2011  
 by : Tower Version 10.62  
 Licensed to : American Tower Corp.

Successfully performed nonlinear analysis

The model has 0 warnings.

Member check option: TIA/EIA 222-F  
 Connection rupture check: Not Checked  
 Crossing diagonal check: Fixed  
 Loads from file: r:\engineering services\12 - atc\88018\sprint nextel 01-13-11\88018-loads-sprint nextel-01\_13\_11.eia

\*\*\* Analysis Results:

Maximum element usage is 99.94% for Angle "H 21" in load case "W -45"

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Shear Force (kips)	Residual Shear Force (kips)	Horizontal Moment (ft-k)	Vertical Moment (ft-k)	Residual Horizontal Moment (ft-k)	Residual Vertical Moment (ft-k)	Bending Moment (ft-k)	Usage %
W 0	OP	-44.51	-24.15	330.49	50.64	-0.38	-5.38	-2.21	5.39	0.00	
W 0	OX	-43.01	24.87	325.07	49.69	0.07	-5.10	2.22	5.10	0.00	
W 0	OY	-36.21	-17.13	-233.83	40.06	0.56	-5.55	2.04	5.88	0.00	
W 180	OP	37.43	16.36	-234.93	40.85	-0.35	-5.83	-2.01	5.84	0.00	
W 180	OX	36.23	-16.99	-231.80	40.02	0.34	-5.88	2.02	5.89	0.00	
W 180	OY	44.48	24.74	323.04	49.63	0.07	5.15	-2.22	5.63	0.00	
W 45	OP	-52.09	-12.66	43.35	23.74	4.72	-4.30	0.00	6.14	0.00	
W 45	OX	-46.56	46.48	-408.74	65.79	4.90	-4.92	-0.01	6.95	0.00	
W 45	OY	-12.21	20.16	43.56	23.57	4.11	4.95	-3.44	6.21	0.00	
W -45	OP	-51.84	13.02	48.56	24.92	-4.93	4.23	3.42	6.76	0.00	
W -45	OX	-51.84	53.56	501.52	65.88	-4.93	4.11	3.44	6.94	0.00	
W -45	OY	-41.33	-43.82	-403.28	65.88	-3.75	5.12	0.03	6.98	0.00	
W 90	OP	-24.15	-43.83	333.51	50.93	-0.42	2.20	5.45	5.88	0.00	
W 90	OX	-16.33	37.77	-236.72	43.18	0.52	-2.01	5.89	5.89	0.00	
W 90	OY	-17.30	-36.23	-234.82	40.15	5.88	-0.39	2.05	5.75	0.00	
W 90	OP	15.20	37.67	-234.16	41.01	-5.91	0.32	-2.01	5.92	0.00	
W 90	OX	-23.97	44.70	329.64	50.72	5.45	0.42	-2.22	5.47	0.00	
W 90	OY	24.90	43.01	323.91	49.70	-5.12	-0.04	2.23	5.12	0.00	
W 0 Ice	OP	-41.43	-22.98	322.58	40.05	-5.58	-0.59	2.05	5.61	0.00	
W 0 Ice	OX	-39.93	23.68	319.02	46.43	1.19	-3.39	1.97	3.59	0.00	
W 0 Ice	OY	33.32	14.36	-194.62	36.29	-1.46	6.39	-1.80	6.55	0.00	
W 180 Ice	OP	33.32	14.12	-191.58	36.19	-1.45	6.45	-1.81	6.61	0.00	
W 180 Ice	OX	32.23	-14.91	-191.50	35.51	1.66	6.18	-1.84	6.40	0.00	
W 180 Ice	OY	41.39	-22.74	321.90	47.23	-1.51	3.73	1.97	4.02	0.00	
W 45 Ice	OP	-49.47	-49.71	485.81	70.13	2.81	-2.75	-0.90	3.94	0.00	
W 45 Ice	OX	-41.87	41.80	-354.00	59.16	5.44	-2.60	3.15	6.03	0.00	
W 45 Ice	OY	10.33	-19.03	62.41	21.66	-2.59	-5.61	-9.01	4.82	0.00	
W -45 Ice	OP	20.16	11.08	66.42	23.00	-3.63	-2.57	3.13	2.86	0.00	
W -45 Ice	OX	48.33	50.03	480.15	69.36	-3.03	2.56	-0.40	3.64	0.00	
W -45 Ice	OY	3.88	18.28	352.32	59.96	-5.47	-5.18	3.07	5.74	0.00	
W 90 Ice	OP	-22.97	-41.72	322.31	47.63	-3.71	0.03	7.97	6.00	0.00	
W 90 Ice	OX	-14.58	33.60	-186.31	36.54	6.43	1.53	-1.96	4.01	0.00	
W 90 Ice	OY	15.23	-32.21	-192.05	35.63	6.10	-1.67	1.84	6.59	0.00	
W 0 Ice	OP	23.64	-39.94	319.69	46.51	-1.66	-1.97	3.57	3.57	0.00	
W -90 Ice	OP	14.14	33.51	-192.74	36.37	-6.47	1.44	-1.80	6.63	0.00	
W -90 Ice	OX	-22.74	41.58	323.15	47.39	-3.75	1.54	-1.97	4.05	0.00	
W -90 Ice	OY	23.64	39.93	316.88	46.40	-3.44	-1.16	1.98	3.63	0.00	
W -90 Ice	OP	-15.03	32.21	-192.24	35.54	-6.16	-1.67	1.84	6.38	0.00	

Summary of Joint Support Reactions For All Load Cases in Direction of Leg:

Load Case	Support Origin Joint	Long. Force (kips)	Tran. Force (kips)	Residual Shear Force (kips)	Residual Horizontal Force (kips)	Residual Vertical Force (kips)	Total Long. Force (kips)	Total Tran. Force (kips)	Total Vertical Force (kips)
W 0	OP	-44.51	-24.15	330.49	50.64	-0.38	-5.38	-2.21	5.39
W 180	OP	37.43	16.36	-234.93	40.85	-0.35	-5.83	-2.01	5.84
W 45	OP	-52.09	-12.66	43.35	23.74	4.72	-4.30	0.00	6.14
W -45	OP	-51.84	13.02	48.56	24.92	-4.93	4.23	3.42	6.76
W 90	OP	-24.15	-43.83	333.51	50.93	-0.42	2.20	5.45	5.88
W 0 Ice	OP	-41.43	-22.98	322.58	40.05	-5.58	-0.59	2.05	5.61
W -90 Ice	OP	33.32	14.12	-191.58	36.19	-1.45	6.45	-1.81	6.61
W 45 Ice	OP	-49.47	-49.71	485.81	70.13	2.81	-2.75	-0.90	3.94
W -45 Ice	OP	20.16	11.08	66.42	23.00	-3.63	-2.57	3.13	2.86
W 90 Ice	OP	-22.97	-41.72	322.31	47.63	-3.71	0.03	7.97	6.00
W -90 Ice	OP	14.14	33.51	-192.74	36.37	-6.47	1.44	-1.80	6.63
W -90 Ice	OP	-22.74	41.58	323.15	47.39	-3.75	1.54	-1.97	4.05
W -90 Ice	OP	-15.03	32.21	-192.24	35.54	-6.16	-1.67	1.84	6.38

W	OP	IP	L	LP	333.459	24.362	24.422	3.767	24.130	-44.51	-24.15	330.49
W 0	OP	IP	L	LP	333.459	24.362	24.422	3.767	24.130	-44.51	-24.15	330.49
W 0	OP	IP	L	LP	328.015	23.408	23.470	-4.825	22.988	-43.01	24.87	325.07
W 0	OP	IP	L	LP	236.222	21.908	21.960	-4.875	21.792	-36.21	17.13	323.83
W 180	OP	IP	L	LP	235.347	23.010	23.070	-1.869	22.945	37.43	16.36	-234.93
W 180	OP	IP	L	LP	235.135	23.105	23.166	-1.895	-23.084	37.43	16.18	-232.72
W 180	OP	IP	L	LP	234.195	22.046	22.098	-2.700	-21.933	36.23	16.99	-231.80
W 180	OP	IP	L	LP	325.986	23.541	23.603	-4.816	-23.107	43.03	24.74	323.04
W 45	OP	IP	L	LP	331.247	24.462	24.524	-3.724	-24.238	44.48	-23.97	328.28
W 45	OP	IP	L	LP	511.257	30.953	31.010	22.108	21.831	-53.07	-53.35	506.64
W 45	OP	IP	L	LP	432.644	33.202	33.264	15.335	17.413	-20.09	-12.66	43.35
W 45	OP	IP	L	LP	412.910	30.030	30.094	21.272	15.020	1.21	-20.16	45.56
W 45	OP	IP	L	LP	45.872	22.950	22.983	-17.353	18.250	-21.24	13.02	48.56
W 45	OP	IP	L	LP	48.881	24.282	24.323	-16.019	14.035	-51.94	53.66	501.22
W 45	OP	IP	L	LP	505.815	30.868	30.985	-22.731	21.269	-1.48	19.57	45.30
W 45	OP	IP	L	LP	45.628	22.023	22.024	-16.716	22.148	-47.33	45.85	-408.28
W 90	OP	IP	L	LP	412.461	30.182	30.236	-20.672	3.665	-24.15	44.85	332.21
W 90	OP	IP	L	LP	335.188	24.562	24.622	-23.148	-1.782	16.39	-37.77	236.72
W 90	OP	IP	L	LP	239.156	23.185	23.245	-4.361	-2.823	23.07	33.84	226.15
W 90	OP	IP	L	LP	239.087	23.396	23.459	-22.968	-4.361	23.07	33.84	226.15
W 90	OP	IP	L	LP	332.589	23.284	23.300	-23.252	-3.658	-2.50	41.97	323.46
W 90	OP	IP	L	LP	326.833	23.584	23.641	-23.709	-3.658	-2.50	41.97	323.46
W 90	OP	IP	L	LP	267.853	23.701	23.751	-21.884	-2.788	-2.90	43.01	322.91
W 90	OP	IP	L	LP	327.665	21.593	21.595	-21.984	21.394	-41.43	22.98	321.94
W 90	OP	IP	L	LP	321.721	20.598	20.652	-4.006	20.320	-39.93	23.68	319.02
W 90	OP	IP	L	LP	196.444	20.440	20.440	-2.316	20.221	-32.20	15.10	194.29
W 180	OP	IP	L	LP	193.773	21.403	21.452	-2.331	-21.322	33.32	14.36	-194.62
W 180	OP	IP	L	LP	193.674	20.651	20.651	-3.100	-20.417	33.32	14.12	-191.58
W 180	OP	IP	L	LP	318.930	20.600	20.651	-3.100	-20.417	33.32	14.91	-191.50
W 180	OP	IP	L	LP	324.622	21.684	21.736	-3.991	-21.544	41.39	-22.74	321.90
W 45	OP	IP	L	LP	490.067	27.659	27.764	19.749	19.515	-49.47	-49.71	485.81
W 45	OP	IP	L	LP	61.098	21.006	21.066	14.457	15.240	-18.99	-10.71	60.82
W 45	OP	IP	L	LP	357.801	28.183	28.280	19.967	20.040	-41.87	-41.80	-354.00
W 45	OP	IP	L	LP	66.726	20.786	20.787	15.185	14.195	-10.35	-19.03	62.41
W 45	OP	IP	L	LP	484.279	22.099	22.099	-15.180	16.061	-20.16	11.08	66.42
W 45	OP	IP	L	LP	61.834	27.610	27.714	19.928	18.736	-48.33	50.03	480.05
W 90	OP	IP	L	LP	356.768	19.928	19.928	-19.449	13.489	-9.68	18.48	61.53
W 90	OP	IP	L	LP	329.049	28.367	28.475	-19.449	20.797	-42.56	41.22	-352.96
W 90	OP	IP	L	LP	198.113	21.714	21.766	-21.579	-2.851	-22.97	-41.70	328.31
W 90	OP	IP	L	LP	197.225	20.588	20.637	-21.579	-2.851	-22.97	-41.70	328.31
W 90	OP	IP	L	LP	322.537	20.389	20.440	-20.167	3.252	-3.23	33.50	193.91
W 90	OP	IP	L	LP	194.942	20.582	20.633	-17.625	-4.132	73.94	33.51	193.69
W 90	OP	IP	L	LP	325.568	21.982	21.982	-17.625	-4.132	73.94	33.51	193.69
W 90	OP	IP	L	LP	194.581	20.784	20.784	-21.865	-2.868	-2.74	41.58	321.15
W 90	OP	IP	L	LP	235.528	21.982	21.982	-21.865	-2.868	-2.74	41.58	321.15
W 90	OP	IP	L	LP	194.418	20.596	20.597	-20.331	3.114	-15.03	32.21	192.24

Overturning Moment Summary For All Load Cases:

Load Case Transverse Longitudinal Resultant

W	OP	IP	L	LP	Moment (ft-k)	Moment (ft-k)
W 0	OP	IP	L	LP	25859.471	25859.662
W 180	OP	IP	L	LP	25664.585	25664.777
W 45	OP	IP	L	LP	21002.923	29774.391
W 90	OP	IP	L	LP	20993.500	29583.534
W 0	OP	IP	L	LP	25987.672	25987.849
W 90	OP	IP	L	LP	25766.731	25766.909
W 0	OP	IP	L	LP	23756.020	23756.367
W 180	OP	IP	L	LP	23487.874	23488.225
W 45	OP	IP	L	LP	19352.246	19279.056
W 90	OP	IP	L	LP	19046.571	19271.785
W 0	OP	IP	L	LP	23849.930	23849.930
W 90	OP	IP	L	LP	23575.311	23575.684

EIA Sections Information:

Section Label	Z (ft)	Top Count	Bottom Count	Joint Width (ft)	Member Width (ft)	Top Bottom Width (ft)	Gross Area (ft <sup>2</sup> )	Face Adjust Factor	Ar Adjust Factor	Dead Load Factor
291.42-300	300.000	291.420	8	20	9.00	10.06	81.76	1.1670	1.1670	1.1670
282.84-291.42	291.420	282.840	8	16	10.06	11.12	90.84	1.2150	1.2150	1.2150
272.67-282.84	282.840	272.670	8	16	11.12	12.37	119.43	1.1960	1.1960	1.1960
262.15-272.67	272.670	262.500	12	24	12.37	13.63	132.19	1.2030	1.2030	1.2030
250.262.5	262.500	250.000	16	24	13.63	15.17	179.95	1.2010	1.2010	1.2010
237.5-250	250.000	237.500	16	24	15.17	16.71	199.22	1.2070	1.2070	1.2070
225-237.5	237.500	225.000	16	24	16.71	18.25	218.49	1.2130	1.2130	1.2130
212.5-225	225.000	212.500	16	24	18.25	19.75	237.76	1.2190	1.2190	1.2190







\*\*\* Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case Maximum Element

Usage	Label	Type
W 0	97.44	D 1P Angle
W 180	97.92	D 1P Angle
W -45	96.76	H 2XY Angle
W 45	96.90	H 2XY Angle
W -90	98.33	D 2P Angle
W 90	98.43	D 2P Angle
W 0 Ice	90.68	D 3P Angle
W 180 Ice	91.33	D 3P Angle
W -45 Ice	91.71	H 2XY Angle
W 45 Ice	94.71	H 2XY Angle
W 90 Ice	91.55	D 4P Angle
W -90 Ice	91.90	D 4X Angle

\*\*\* Weight of structure (lbs): 119944.4  
Weight of Angles\*Section DLF: 1570.0  
Weight of Equipment: 120514.4  
Total:

\*\*\* End of Report

Site: 86018 SAW  
 Engineer: Date: 01/13/11  
 Windspeed: 85 mph  
 Site Name: Stamford (Kona), CT

nr: -0.12333 Taper Change: 300  
 PW<sub>ave</sub>: 46 FV<sub>ave</sub>: 9

Joint Label	Symmetry	X Coord. (ft)	Y Coord. (ft)	Z Coord. (ft)	X Disp. (in)	Y Disp. (in)	Z Disp. (in)	X Rest.	Y Rest.	Z Rest.	Sub-Brace (YN)	Drop
1	X-Symmetry	21.45833	21.45833	21.45833	0	0	0	Free	Free	Free		
2	X-Symmetry	19.91667	19.91667	50	Free	Free	Free	Free	Free	Free		
3	X-Symmetry	18.375	18.375	75	Free	Free	Free	Free	Free	Free		
4	X-Symmetry	16.83333	16.83333	100	Free	Free	Free	Free	Free	Free		
5	X-Symmetry	15.29167	15.29167	125	Free	Free	Free	Free	Free	Free		
6	X-Symmetry	13.75	13.75	150	Free	Free	Free	Free	Free	Free		
7	X-Symmetry	12.20833	12.20833	175	Free	Free	Free	Free	Free	Free		
8	X-Symmetry	10.66667	10.66667	200	Free	Free	Free	Free	Free	Free		
9	X-Symmetry	9.125	9.125	225	Free	Free	Free	Free	Free	Free		
10	X-Symmetry	7.58333	7.58333	250	Free	Free	Free	Free	Free	Free		
11	X-Symmetry	6.04167	6.04167	275	Free	Free	Free	Free	Free	Free		
12	X-Symmetry	4.5	4.5	300	Free	Free	Free	Free	Free	Free		
13	X-Symmetry	6.8125	6.8125	262.5	Free	Free	Free	Free	Free	Free		
14	X-Symmetry	6.18533	6.18533	272.67	Free	Free	Free	Free	Free	Free		
15	X-Symmetry	5.55833	5.55833	282.8	Free	Free	Free	Free	Free	Free		
16	X-Symmetry	4.93167	4.93167	292.93	Free	Free	Free	Free	Free	Free		
17	X-Symmetry	4.305	4.305	303.06	Free	Free	Free	Free	Free	Free		

Count	Type	Height	Drop	Vert
1	2-Elb	7.03	7.03	
2	3-Elb	7.03	7.03	
3	4-Elb	7.03	7.03	
4	5-Elb	7.03	7.03	
5	6-Elb	7.03	7.03	
6	7-Elb	7.03	7.03	
7	8-Elb	7.03	7.03	
8	9-Elb	7.03	7.03	
9	10-Elb	7.03	7.03	
10	11-Elb	7.03	7.03	
11	12-Elb	7.03	7.03	
12	13-Elb	7.03	7.03	
13	14-Elb	7.03	7.03	
14	15-Elb	7.03	7.03	
15	16-Elb	7.03	7.03	
16	17-Elb	7.03	7.03	
17	18-Elb	7.03	7.03	
18	19-Elb	7.03	7.03	
19	20-Elb	7.03	7.03	
20	21-Elb	7.03	7.03	
21	22-Elb	7.03	7.03	
22	23-Elb	7.03	7.03	
23	24-Elb	7.03	7.03	
24	25-Elb	7.03	7.03	
25	26-Elb	7.03	7.03	
26	27-Elb	7.03	7.03	
27	28-Elb	7.03	7.03	
28	29-Elb	7.03	7.03	
29	30-Elb	7.03	7.03	
30	31-Elb	7.03	7.03	
31	32-Elb	7.03	7.03	
32	33-Elb	7.03	7.03	
33	34-Elb	7.03	7.03	
34	35-Elb	7.03	7.03	
35	36-Elb	7.03	7.03	
36	37-Elb	7.03	7.03	
37	38-Elb	7.03	7.03	
38	39-Elb	7.03	7.03	
39	40-Elb	7.03	7.03	
40	41-Elb	7.03	7.03	
41	42-Elb	7.03	7.03	
42	43-Elb	7.03	7.03	
43	44-Elb	7.03	7.03	
44	45-Elb	7.03	7.03	
45	46-Elb	7.03	7.03	

Build-Up Diagram	Build-Up Diag. Plug	Build-Up Vector
1	1	0
2	2	2
3	3	5
4	4	8
5	5	11
6	6	14
7	7	17
8	8	20
9	9	23
10	10	26
11	11	29
12	12	32
13	13	35
14	14	38
15	15	41
16	16	44
17	17	47
18	18	50
19	19	53
20	20	56
21	21	59
22	22	62
23	23	65
24	24	68
25	25	71
26	26	74
27	27	77
28	28	80
29	29	83
30	30	86
31	31	89
32	32	92
33	33	95
34	34	98
35	35	101
36	36	104
37	37	107
38	38	110
39	39	113
40	40	116
41	41	119
42	42	122
43	43	125
44	44	128
45	45	131
46	46	134

1: Build-Up Horiz. w/ A  
 2: Build-Up Horiz. w/ M  
 3: A', Typical A brace  
 4: X', Typical X brace  
 5: Drop: Use only for types 1 & 2.

Sections: 17

Type: 11

Joint Label	Symmetry	X Coord. (ft)	Y Coord. (ft)	Z Coord. (ft)	X Disp. (in)	Y Disp. (in)	Z Disp. (in)	X Rest.	Y Rest.	Z Rest.	Sub-Brace (YN)	Drop
1	X-Symmetry	21.45833	21.45833	21.45833	0	0	0	Free	Free	Free		
2	X-Symmetry	19.91667	19.91667	50	Free	Free	Free	Free	Free	Free		
3	X-Symmetry	18.375	18.375	75	Free	Free	Free	Free	Free	Free		
4	X-Symmetry	16.83333	16.83333	100	Free	Free	Free	Free	Free	Free		
5	X-Symmetry	15.29167	15.29167	125	Free	Free	Free	Free	Free	Free		
6	X-Symmetry	13.75	13.75	150	Free	Free	Free	Free	Free	Free		
7	X-Symmetry	12.20833	12.20833	175	Free	Free	Free	Free	Free	Free		
8	X-Symmetry	10.66667	10.66667	200	Free	Free	Free	Free	Free	Free		
9	X-Symmetry	9.125	9.125	225	Free	Free	Free	Free	Free	Free		
10	X-Symmetry	7.58333	7.58333	250	Free	Free	Free	Free	Free	Free		
11	X-Symmetry	6.04167	6.04167	275	Free	Free	Free	Free	Free	Free		
12	X-Symmetry	4.5	4.5	300	Free	Free	Free	Free	Free	Free		
13	X-Symmetry	6.8125	6.8125	262.5	Free	Free	Free	Free	Free	Free		
14	X-Symmetry	6.18533	6.18533	272.67	Free	Free	Free	Free	Free	Free		
15	X-Symmetry	5.55833	5.55833	282.8	Free	Free	Free	Free	Free	Free		
16	X-Symmetry	4.93167	4.93167	292.93	Free	Free	Free	Free	Free	Free		
17	X-Symmetry	4.305	4.305	303.06	Free	Free	Free	Free	Free	Free		

Count	Type	Height	Drop	Vert
1	2-Elb	7.03	7.03	
2	3-Elb	7.03	7.03	
3	4-Elb	7.03	7.03	
4	5-Elb	7.03	7.03	
5	6-Elb	7.03	7.03	
6	7-Elb	7.03	7.03	
7	8-Elb	7.03	7.03	
8	9-Elb	7.03	7.03	
9	10-Elb	7.03	7.03	
10	11-Elb	7.03	7.03	
11	12-Elb	7.03	7.03	
12	13-Elb	7.03	7.03	
13	14-Elb	7.03	7.03	
14	15-Elb	7.03	7.03	
15	16-Elb	7.03	7.03	
16	17-Elb	7.03	7.03	
17	18-Elb	7.03	7.03	
18	19-Elb	7.03	7.03	
19	20-Elb	7.03	7.03	
20	21-Elb	7.03	7.03	
21	22-Elb	7.03	7.03	
22	23-Elb	7.03	7.03	
23	24-Elb	7.03	7.03	
24	25-Elb	7.03	7.03	
25	26-Elb	7.03	7.03	
26	27-Elb	7.03	7.03	
27	28-Elb	7.03	7.03	
28	29-Elb	7.03	7.03	
29	30-Elb	7.03	7.03	
30	31-Elb	7.03	7.03	
31	32-Elb	7.03	7.03	
32	33-Elb	7.03	7.03	
33	34-Elb	7.03	7.03	
34	35-Elb	7.03	7.03	
35	36-Elb	7.03	7.03	
36	37-Elb	7.03	7.03	
37	38-Elb	7.03	7.03	
38	39-Elb	7.03	7.03	
39	40-Elb	7.03	7.03	
40	41-Elb	7.03	7.03	
41	42-Elb	7.03	7.03	
42	43-Elb	7.03	7.03	
43	44-Elb	7.03	7.03	
44	45-Elb	7.03	7.03	
45	46-Elb	7.03	7.03	

Sections: 17



15  
3 4 14 55 X X X X  
4 1 14 56 57 X X X  
2 2 15 58 59 X X X  
3 4 16 60

Legs

Site No.:	88018
Engineer:	SAW
Date:	01/13/2011
Carrier:	Sprint Nextel

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape <sup>(1)</sup>	Diameter or Length (in)	Thickness <sup>(2)</sup> (in)	F <sub>y</sub> (ksi)
1	0-25	L	8	1.125	36
2	25-50	L	8	1.125	36
3	50-75	L	8	1.125	36
4	75-100	L	8	1	36
5	100-125	L	8	0.875	36
6	125-150	L	8	0.875	36
7	150-175	L	8	0.75	36
8	175-200	L	8	0.625	36
9	200-212.5	L	6	0.75	36
10	212.5-225	L	6	0.75	36
11	225-237.5	L	6	0.5625	36
12	237.5-250	L	6	0.5625	36
13	250-262.5	L	6	0.4375	36
14	262.5-272.6	L	5	0.4375	36
15	272.67-282.8	L	5	0.4375	36
16	282.84-291.4	L	5	0.3125	36
17	291.42-300	L	5	0.3125	36
18					
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Notes:

- <sup>(1)</sup> Type of Leg Shape: R = Round or P = Bent Plate or S = Schiffie
- <sup>(2)</sup> For Solid Round Leg Shapes Thickness Equals Zero.
- <sup>(3)</sup> Adjust for Bent Plate Leg Shapes.

Diagonals

Site No.:	88018
Engineer:	SAW
Date:	01/13/2011
Carrier:	Sprint Nextel

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape <sup>(1)</sup>	Diameter <sup>(2)</sup> (in)	Web Length <sup>(3)</sup> (in)	Flange Length <sup>(4)</sup> (in)	Thickness (in)	F <sub>y</sub> (ksi)	Is Diag. Tension Only? (Y/N)
1	0-25	2L		3	4	0.3125	36	
2	25-50	2L		3	3.5	0.25	36	
3	50-75	2L		2.5	3.5	0.25	36	
4	75-100	2L		2.5	3.5	0.25	36	
5	100-125	2L		3	4	0.25	36	
6	125-150	2L		3	4	0.25	36	
7	150-175	2L		3	4	0.25	36	
8	175-200	2L		3.5	3.5	0.25	36	
9	200-212.5	2L		2.5	2.5	0.25	36	
10	212.5-225	2L		2.5	2.5	0.25	36	
11	225-237.5	2L		2.5	2	0.25	36	
12	237.5-250	2L		2.5	2	0.25	36	
13	250-262.5	2L		2.5	2	0.25	36	
14	262.5-272.6	L		3.5	3.5	0.25	36	
15	272.67-282.8	L		3.5	3.5	0.25	36	
16	282.84-291.4	L		3	3	0.25	36	
17	291.42-300	L		3	3	0.25	36	
18								
19								
20								
21								
22								
23								
24								
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27								
28								
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								

Notes:

- (1) Type of Diagonal Shape: R = Round, L = Single-Angle or 2L = Double-Angle.
- (2) Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.
- (3) Applies to Single-Angle and Double-Angle Shapes only.
- (4) Applies to Double-Angle Shapes only.
- (5) Applies to Single-Angle Shapes only.

Horizontals

Site No.: 88018  
 Engineer: SAW  
 Date: 01/13/2011  
 Carrier: Sprint Nextel

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape <sup>(1)</sup>	Diameter <sup>(2)</sup> (in)	Web Length <sup>(3)</sup> (in)	Flange Length <sup>(3)</sup> (in)	Thickness (in)	F <sub>y</sub> (ksi)
1	0-25	2L		3.5	2.5	0.25	36
2	25-50	2L		3.5	2.5	0.25	36
3	50-75	2L		3.5	2.5	0.25	36
4	75-100	2L		3	2.5	0.25	36
5	100-125	2L		3	2.5	0.25	36
6	125-150	2L		3	2.5	0.25	36
7	150-175	2L		2.5	2.5	0.25	36
8	175-200	2L		2.5	2.5	0.25	36
9	200-212.5	2L		2.5	2.5	0.25	36
10	212.5-225	2L		2.5	2.5	0.25	36
11	225-237.5	2L		2.5	2.5	0.25	36
12	237.5-250	2L		2.5	2.5	0.25	36
13	250-262.5	2L		2.5	2.5	0.25	36
14	262.5-272.6	L		3	2.5	0.25	36
15	272.67-282.8	2L		3	2.5	0.25	36
16	282.84-291.4	L		3	2.5	0.25	36
17	291.42-300	C		8	11.5	0.25	36
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							

Notes:

- <sup>(1)</sup> Type of Horizontal Shape: R = Round, L = Single-Angle, 2L = Double-Angle, C = Channel, W = W SI
- <sup>(2)</sup> Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.
- <sup>(3)</sup> Applies to Single-Angle and Double-Angle Shapes only.
- <sup>(4)</sup> Applies to Double-Angle Shapes only.
- <sup>(5)</sup> Applies to Single-Angle Shapes only.



Built-up Diagonals

Site No.:	88018
Engineer:	SAW
Date:	01/13/2011
Carrier:	Sprint Nextel

When inputting thickness values, include all decimal places.  
 Input diags. from left to center & from base section upward.

Tower Built-up Diag. #	Section Elevations (ft)	Type of Shape <sup>[1]</sup>	Diameter <sup>[2]</sup> (in)	Web Length <sup>[3]</sup> (in)	Flange Length <sup>[3]</sup> (in)	Thickness (in)	F <sub>y</sub> (ksi)
1	0-25	2L		3	2	0.25	36
2	0-25	2L		4	3	0.25	36
3	25-50	2L		2.5	2	0.25	36
4	25-50	2L		2.5	2	0.25	36
5	25-50	2L		3	3	0.25	36
6	50-75	2L		3	3	0.25	36
7	50-75	2L		2.5	2	0.25	36
8	50-75	2L		3	2	0.25	36
9	75-100	2L		3	3	0.25	36
10	75-100	2L		2.5	2	0.25	36
11	75-100	2L		2.5	2.5	0.375	36
12							
13							
14							
15							
16							
17							
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19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

**Notes:**

- <sup>[1]</sup> Type of Diagonal Shape: **R** = Round, **L** = Single-Angle or **2L** = Double-Angle.
- <sup>[2]</sup> Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Ec
- <sup>[3]</sup> Applies to Single-Angle and Double-Angle Shapes only.
- <sup>[4]</sup> Applies to Double-Angle Shapes only.
- <sup>[5]</sup> Applies to Single-Angle Shapes only.

**Built-up Horizontals**

Site No.:	88018
Engineer:	SAW
Date:	01/13/2011
Carrier:	Sprint Nextel

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape <sup>[1]</sup>	Diameter <sup>[2]</sup> (in)	Web Length <sup>[3]</sup> (in)	Flange Length <sup>[3]</sup> (in)	Thickness (in)	F <sub>y</sub> (ksi)	Is Horiz. Tension Only? (Y/N)
1	0-25	2L		2.5	3	0.25	36	Y
2	25-50	2L		2.5	3	0.25	36	
3	50-75	2L		2.5	3	0.375	36	
4	75-100	2L		3.5	3.5	0.25	36	
5								
6								
7								
8								
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**Notes:**

- <sup>[1]</sup> Type of Horizontal Shape: R = Round, L = Single-Angle or 2L = Double-Angle.
- <sup>[2]</sup> Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.
- <sup>[3]</sup> Applies to Single-Angle and Double-Angle Shapes only.
- <sup>[4]</sup> Applies to Double-Angle Shapes only.
- <sup>[5]</sup> Applies to Single-Angle Shapes only.

Site No.:	88018
Engineer:	SAW
Date:	01/13/11
Carrier:	Sprint Nextel

Dish Types		Joint Orientation	
S	Standard	XY	Y
R	Standard w/ Radome		
H	High Performance	90°	
G	Grid	X	P
C	Conical Horn		

Dish Height (ft)	Dish Dia. (ft)	Dish Angle (deg)	Dish Type	Joint Orientation
311	4	90	R	X
25	2	180	R	P
120	4	90	S	X
300	2	90	H	XY
300	1	0	H	Y
300	1	270	H	X

Description	From (ft)	To (ft)	Quantity	Shape	Width or Diameter (in)	Perimeter (in)	Unit Weight (lb/ft)	Part of Face Solidity Ratio	Include In Wind Load
Marcus-311	265	300	1	Round	1.11	3.49	0.54	No	No
Bell-303	265	300	1	Round	1.11	3.49	0.54	No	No
Lojack-302	265	300	1	Round	1.98	6.22	1.08	No	Yes
Marcus-300	265	300	1	Round	1.55	4.87	0.66	No	No
AT&T-294	265	294	6	Round	1.98	6.22	2.16	Yes	Yes
Qualcomm-28	265	289	1	Round	4	12.57	5.39	No	No
USCG-271	265	271	2	Round	1.11	3.49	0.54	No	No
XM-269	265	269	1	Round	5.02	15.77	5.39	No	No
Weight-265	5	265	20	Round	1.98	6.22	1.08	No	No
T-Mobile-266	5	265	12	Round	1.98	6.22	2.16	Yes	Yes
AT&T-248	5	248	3	Round	1.98	6.22	1.08	No	No
USCG-242	5	242	2	Round	1.11	3.49	0.54	No	No
AT&T-235	5	235	9	Round	1.98	6.22	1.08	No	No
Sprint-224	5	224	15	Round	1.98	6.22	1.08	Yes	Yes
Lojack-216	5	216	1	Round	0.44	1.38	0.08	No	No
USCG-200	5	200	1	Round	1.11	3.49	0.54	No	No
Marcus-200	5	200	2	Round	1.55	4.87	0.66	No	No
USA Mob-18C	5	180	3	Round	1.11	3.49	0.54	No	No
Metro-160	5	160	12	Round	1.98	6.22	1.08	No	No
MetroB-160	5	160	3	Round	0.44	1.38	0.08	No	No
Sprint-148	5	148	9	Round	1.98	6.22	1.08	No	No
Sensus-137	5	137	1	Round	1.11	3.49	0.54	No	No
Marcus-100	5	100	1	Round	1.55	4.87	0.66	No	No
XM-25	5	25	1	Round	1.11	3.49	0.54	No	No
Lojack-10	5	10	1	Round	0.44	1.38	0.08	No	No
USA Mob-12C	5	120	1	Round	0.63	1.98	0.14	No	No
USA Mob-6	5	6	1	Round	0.3	0.94	0.06	No	No
Metro-160B	5	160	3	Round	0.44	1.38	0.08	No	No
Clearwire-167	5	167	1	Round	2.375	7.46	3.65	No	No
Clearwire-300	5	300	2	Round	1.11	3.49	0.54	Yes	Yes
ClearwireB-30	5	300	1	Round	1.11	3.49	0.54	No	No

Equipment Label	Attach Label	Equipment Property Set	EIA Antenna Orientation Angle (deg)
4' RAD 1 @311'	17X	4 ft RAD Dish	90
2' RAD 2 @25'	1P	2 ft RAD Dish	180
4' STD 3 @120'	5X	4 ft STD Dish	90
2' HP 4 @300'	17XY	2 ft HP Dish	90
1' HP 6 @300'	17Y	1 ft HP Dish	0
1' HP 7 @300'	17X	1 ft HP Dish	270

Coax	Dia. (in)	Weight(lb/ft)
1/4"	0.3	0.064
3/8"	0.44	0.084
1/2"	0.63	0.144
7/8"	1.11	0.544
1-1/4"	1.55	0.664
1-5/8"	1.98	1.08
2-1/4"	2.38	1.16
WC281	3.11	5.39

Site: 88018
Carrier: Sprint Nextel

Engineer: SAW
Date: 01/13/11

Section Label	Section Color	Joint Defining Bottom Section	Dead Load Adj. Factor					Adj. Factor Flat	Adj. Factor Round	Area Multiplier
0-25		0P	1.252248					1.252248	1.252248	1
25-50		1P	1.234112					1.234112	1.234112	1
50-75		2P	1.229416					1.229416	1.229416	1
75-100		3P	1.223885					1.223885	1.223885	1
100-125		4P	1.279022					1.279022	1.279022	1
125-150		5P	1.265796					1.265796	1.265796	1
150-175		6P	1.257222					1.257222	1.257222	1
175-200		7P	1.232462					1.232462	1.232462	1
200-212.5		8P	1.224989					1.224989	1.224989	1
212.5-225		9P	1.219136					1.219136	1.219136	1
225-237.5		10P	1.213172					1.213172	1.213172	1
237.5-250		11P	1.207112					1.207112	1.207112	1
250-262.5		12P	1.200971					1.200971	1.200971	1
262.5-272.67		13P	1.203142					1.203142	1.203142	1
272.67-282.84		14P	1.196498					1.196498	1.196498	1
282.84-291.42		15P	1.214686					1.214686	1.214686	1
291.42-300		16P	1.167358					1.167358	1.167358	1

Site: 88018  
Carrier: Sprint Nextel

Engineer: SAW  
Date: 01/13/11

Group Label	Group Description	Angle Type	Angle Size	Material Type	Element Type	Group Type	Optimize Group
Leg S1	L 8" x 8" x 1.125"	SAE	8X8X1.13	A 36	Beam	Leg	None
Leg S2	L 8" x 8" x 1.125"	SAE	8X8X1.13	A 36	Beam	Leg	None
Leg S3	L 8" x 8" x 1.125"	SAE	8X8X1.13	A 36	Beam	Leg	None
Leg S4	L 8" x 8" x 1"	SAE	8X8X1	A 36	Beam	Leg	None
Leg S5	L 8" x 8" x 0.875"	SAE	8X8X0.88	A 36	Beam	Leg	None
Leg S6	L 8" x 8" x 0.875"	SAE	8X8X0.88	A 36	Beam	Leg	None
Leg S7	L 8" x 8" x 0.75"	SAE	8X8X0.75	A 36	Beam	Leg	None
Leg S8	L 8" x 8" x 0.625"	SAE	8X8X0.63	A 36	Beam	Leg	None
Leg S9	L 6" x 6" x 0.75"	SAE	6X6X0.75	A 36	Beam	Leg	None
Leg S10	L 6" x 6" x 0.75"	SAE	6X6X0.75	A 36	Beam	Leg	None
Leg S11	L 6" x 6" x 0.5625"	SAE	6X6X0.56	A 36	Beam	Leg	None
Leg S12	L 6" x 6" x 0.5625"	SAE	6X6X0.56	A 36	Beam	Leg	None
Leg S13	L 6" x 6" x 0.4375"	SAE	6X6X0.44	A 36	Beam	Leg	None
Leg S14	L 5" x 5" x 0.4375"	SAE	5X5X0.44	A 36	Beam	Leg	None
Leg S15	L 5" x 5" x 0.4375"	SAE	5X5X0.44	A 36	Beam	Leg	None
Leg S16	L 5" x 5" x 0.3125"	SAE	5X5X0.31	A 36	Beam	Leg	None
Leg S17	L 5" x 5" x 0.3125"	SAE	5X5X0.31	A 36	Beam	Leg	None
Diag S1	B/B L3"x4"x0.3125"	DAS	4X3X0.31	A 36	Beam	Other	None
Diag S2	B/B L3"x3.5"x0.25"	DAS	3.5X3X0.25	A 36	Beam	Other	None
Diag S3	B/B L2.5"x3.5"x0.25"	DAS	3.5X2.5X0.25	A 36	Beam	Other	None
Diag S4	B/B L2.5"x3.5"x0.25"	DAS	3.5X2.5X0.25	A 36	Beam	Other	None
Diag S5	B/B L3"x4"x0.25"	DAS	4X3X0.25	A 36	Beam	Other	None
Diag S6	B/B L3"x4"x0.25"	DAS	4X3X0.25	A 36	Beam	Other	None
Diag S7	B/B L3"x4"x0.25"	DAS	4X3X0.25	A 36	Beam	Other	None
Diag S8	B/B L3.5"x3.5"x0.25"	DAE	3.5X3.5X0.25	A 36	Beam	Other	None
Diag S9	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A 36	Beam	Other	None
Diag S10	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A 36	Beam	Other	None
Diag S11	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	A 36	Beam	Other	None
Diag S12	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	A 36	Beam	Other	None
Diag S13	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	A 36	Beam	Other	None
Diag S14	L 3.5" x 3.5" x 0.25"	SAE	3.5X3.5X0.25	A 36	Beam	Other	None
Diag S15	L 3.5" x 3.5" x 0.25"	SAE	3.5X3.5X0.25	A 36	Beam	Other	None
Diag S16	L 3" x 3" x 0.25"	SAE	3X3X0.25	A 36	Beam	Other	None
Diag S17	L 3" x 3" x 0.25"	SAE	3X3X0.25	A 36	Beam	Other	None
Horiz 1	B/B L3.5"x2.5"x0.25"	DAL	3.5X2.5X0.25	A 36	Beam	Other	None
Horiz 2	B/B L3.5"x2.5"x0.25"	DAL	3.5X2.5X0.25	A 36	Beam	Other	None
Horiz 3	B/B L3.5"x2.5"x0.25"	DAL	3.5X2.5X0.25	A 36	Beam	Other	None
Horiz 4	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	A 36	Beam	Other	None
Horiz 5	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	A 36	Beam	Other	None
Horiz 6	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	A 36	Beam	Other	None
Horiz 7	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A 36	Beam	Other	None
Horiz 8	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A 36	Beam	Other	None
Horiz 9	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A 36	Beam	Other	None
Horiz 10	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A 36	Beam	Other	None
Horiz 11	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A 36	Beam	Other	None
Horiz 12	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A 36	Beam	Other	None
Horiz 13	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	A 36	Beam	Other	None
Horiz 14	L 3" x 2.5" x 0.25"	SAU	3X2.5X0.25	A 36	Beam	Other	None
Horiz 15	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	A 36	Beam	Other	None
Horiz 16	L 3" x 2.5" x 0.25"	SAU	3X2.5X0.25	A 36	Beam	Other	None
Horiz 17	C8x11.5	CHN	C8x11.5	A 36	Beam	Other	None
LD 1	B/B L3"x2"x0.25"	DAL	3X2X0.25	A 36	Beam	Other	None
LD 2	B/B L4"x3"x0.25"	DAL	4X3X0.25	A 36	Beam	Other	None
LD 4	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	A 36	Beam	Other	None
LD 5	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	A 36	Beam	Other	None
LD 6	B/B L3"x3"x0.25"	DAE	3X3X0.25	A 36	Beam	Other	None
LD 7	B/B L3"x3"x0.25"	DAE	3X3X0.25	A 36	Beam	Other	None
LD 8	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	A 36	Beam	Other	None
LD 9	B/B L3"x2"x0.25"	DAL	3X2X0.25	A 36	Beam	Other	None
LD 10	B/B L3"x3"x0.25"	DAE	3X3X0.25	A 36	Beam	Other	None
LD 11	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	A 36	Beam	Other	None
LD 12	B/B L2.5"x2.5"x0.375"	DAE	2.5X2.5X0.38	A 36	Beam	Other	None
LH 1	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	A 36	T-Only	Other	None
LH 2	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	A 36	Beam	Other	None
LH 3	B/B L2.5"x3"x0.375"	DAS	3X2.5X0.38	A 36	Beam	Other	None

LH 4	B/B L3.5"x3.5"x0.25" DAE	3.5X3.5X0.25	A 36	Beam	Other	None
DUM 1	Dummy Bracing Merr DUM	0.1X0.1X1	A 36	Beam	Fictitious	None

Site: 68016  
 Carter/Sprint Nestle

Engineer: SAW  
 Date: 01/13/11

Boil Type: XX A325 N Ss  
 XX A325 X Ss

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Real Code	Ratio R1	Ratio R2	Ratio R3	Boil Type	# Bolts	# Bolt Holes	# Shear Planes	Connect Leg
L 1	Leg S1		XY-Symmetry	6P	1P			0.2812	0.2812	0.2812					0
L 2	Leg S2		XY-Symmetry	1P	2P			0.2812	0.2812	0.2812					1
L 3	Leg S3		XY-Symmetry	2P	3P			0.2812	0.2812	0.2812					2
L 4	Leg S4		XY-Symmetry	3P	4P			0.2812	0.2812	0.2812					3
L 5	Leg S5		XY-Symmetry	4P	5P			0.333333	0.333333	0.333333					4
L 6	Leg S6		XY-Symmetry	5P	6P			0.333333	0.333333	0.333333					5
L 7	Leg S7		XY-Symmetry	6P	7P			0.333333	0.333333	0.333333					6
L 8	Leg S8		XY-Symmetry	7P	8P			0.333333	0.333333	0.333333					7
L 9	Leg S9		XY-Symmetry	8P	9P			0.5	0.5	0.5					8
L 10	Leg S10		XY-Symmetry	9P	10P			0.5	0.5	0.5					9
L 11	Leg S11		XY-Symmetry	10P	11P			0.5	0.5	0.5					10
L 12	Leg S12		XY-Symmetry	11P	12P			0.5	0.5	0.5					11
L 13	Leg S13		XY-Symmetry	12P	13P			0.5	0.5	0.5					12
L 14	Leg S14		XY-Symmetry	13P	14P			0.5	0.5	0.5					13
L 15	Leg S15		XY-Symmetry	14P	15P			0.5	0.5	0.5					14
L 16	Leg S16		XY-Symmetry	15P	16P			0.5	0.5	0.5					15
L 17	Leg S17		XY-Symmetry	16P	17P			0.5	0.5	0.5					16

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D Label	Diag Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Real Code	Ratio R1	Ratio R2	Ratio R3	Boil Type	# Bolts	# Bolt Holes	# Shear Planes	Connect Leg
D 1	Diag S1	XY-Symmetry	0P	H6P			0.333333	1	0.333333					
D 2	Diag S1	XY-Symmetry	0P	H1P			0.333333	1	0.333333					
D 3	Diag S2	XY-Symmetry	1P	H6P			0.333333	0.666667	0.333333					
D 4	Diag S2	XY-Symmetry	1P	H8P			0.333333	0.666667	0.333333					
D 5	Diag S3	XY-Symmetry	2P	H10P			0.333333	0.666667	0.333333					
D 6	Diag S3	XY-Symmetry	2P	H8P			0.333333	0.666667	0.333333					
D 7	Diag S4	XY-Symmetry	3P	H14P			0.333333	0.666667	0.333333					
D 8	Diag S4	XY-Symmetry	3P	H12P			0.333333	0.666667	0.333333					
D 9	Diag S5	XY-Symmetry	4P	A9P			0.333333	0.666667	0.333333					
D 10	Diag S5	XY-Symmetry	4P	A10P			0.333333	0.666667	0.333333					
D 11	Diag S6	XY-Symmetry	5P	A11P			0.333333	0.666667	0.333333					
D 12	Diag S6	XY-Symmetry	5P	A12P			0.333333	0.666667	0.333333					
D 13	Diag S7	XY-Symmetry	6P	A13P			0.333333	0.666667	0.333333					
D 14	Diag S7	XY-Symmetry	6P	A14P			0.333333	0.666667	0.333333					
D 15	Diag S8	XY-Symmetry	7P	A15P			0.32	0.59	0.32					
D 16	Diag S8	XY-Symmetry	7P	A16P			0.32	0.59	0.32					
D 17	Diag S9	XY-Symmetry	8P	A17P			0.5	1	0.5					
D 18	Diag S9	XY-Symmetry	8P	A18P			0.5	1	0.5					
D 19	Diag S10	XY-Symmetry	9P	A19P			0.5	1	0.5					
D 20	Diag S10	XY-Symmetry	9P	A20P			0.5	1	0.5					
D 21	Diag S11	XY-Symmetry	10P	A21P			0.5	1	0.5					
D 22	Diag S11	XY-Symmetry	10P	A22P			0.5	1	0.5					
D 23	Diag S12	XY-Symmetry	11P	A23P			0.5	1	0.5					
D 24	Diag S12	XY-Symmetry	11P	A24P			0.5	1	0.5					
D 25	Diag S13	XY-Symmetry	12P	A25P			0.5	1	0.5					
D 26	Diag S13	XY-Symmetry	12P	A26P			0.5	1	0.5					
D 27	Diag S14	XY-Symmetry	13P	A27P			0.52	0.75	0.52					
D 28	Diag S14	XY-Symmetry	13P	A28P			0.52	0.75	0.52					
D 29	Diag S15	XY-Symmetry	14P	A29P			0.52	0.75	0.52					
D 30	Diag S15	XY-Symmetry	14P	A30P			0.52	0.75	0.52					
D 31	Diag S16	XY-Symmetry	15P	A31P			0.52	0.75	0.52					
D 32	Diag S16	XY-Symmetry	15P	A32P			0.52	0.75	0.52					
D 33	Diag S17	XY-Symmetry	16P	A33P			0.52	0.75	0.52					
D 34	Diag S17	XY-Symmetry	16P	A34P			0.52	0.75	0.52					

Count Type Brace  
 1 0 1 3 0  
 2 0 1 3 0  
 3 1 2 3 0  
 4 1 2 3 0  
 5 2 2 3 0  
 6 2 2 3 0  
 7 3 2 3 0  
 8 2 2 3 0  
 9 4 A 2 0  
 10 4 A 2 0  
 11 A 2 0  
 12 5 A 2 0  
 13 6 A 2 0  
 14 A 2 0  
 15 7 A 2 0  
 16 7 A 2 0  
 17 A 1 0  
 18 8 A 1 0  
 19 9 A 1 0  
 20 9 A 1 0  
 21 10 A 1 0  
 22 10 A 1 0  
 23 11 A 1 0  
 24 11 A 1 0  
 25 12 A 1 0  
 26 12 A 1 0  
 27 13 X 1 0  
 28 13 X 1 0  
 29 14 X 1 0  
 30 14 X 1 0  
 31 15 X 1 0  
 32 15 X 1 0  
 33 16 X 1 0  
 34 16 X 1 0  
 35 17  
 36 17  
 37 18  
 38 18  
 39 19  
 40 19  
 41 20  
 42 20  
 43 21  
 44 21  
 45 22  
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 79 39  
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H Label	Horiz Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Real Code	Ratio R1	Ratio R2	Ratio R3	Boil Type	# Bolts	# Bolt Holes	# Shear Planes	Connect Leg
H 1	Horiz 1	XY-Symmetry	1P	A1P			0.5	0.5	0.5					
H 2	Horiz 1	XY-Symmetry	1P	A2P			0.5	0.5	0.5					
H 3	Horiz 2	XY-Symmetry	2P	A3P			0.5	0.5	0.5					
H 4	Horiz 2	XY-Symmetry	2P	A4P			0.5	0.5	0.5					
H 5	Horiz 3	XY-Symmetry	3P	A5P			0.5	0.5	0.5					
H 6	Horiz 3	XY-Symmetry	3P	A6P			0.5	0.5	0.5					
H 7	Horiz 4	XY-Symmetry	4P	A7P			0.5	1	0.5					
H 8	Horiz 4	XY-Symmetry	4P	A8P			0.5	1	0.5					
H 9	Horiz 5	XY-Symmetry	5P	A9P			1	1	1					
H 10	Horiz 5	XY-Symmetry	5P	A10P			1	1	1					
H 11	Horiz 6	XY-Symmetry	6P	A11P			1	1	1					
H 12	Horiz 6	XY-Symmetry	6P	A12P			1	1	1					
H 13	Horiz 7	XY-Symmetry	7P	A13P			1	1	1					
H 14	Horiz 7	XY-Symmetry	7P	A14P			1	1	1					
H 15	Horiz 8	XY-Symmetry	8P	A15P			1	1	1					
H 16	Horiz 8	XY-Symmetry	8P	A16P			1	1	1					
H 17	Horiz 9	XY-Symmetry	9P	A17P			1	1	1					
H 18	Horiz 9	XY-Symmetry	9P	A18P			1	1	1					
H 19	Horiz 10	XY-Symmetry	10P	A19P			1	1	1					
H 20	Horiz 10	XY-Symmetry	10P	A20P			1	1	1					
H 21	Horiz 11	XY-Symmetry	11P	A21P			1	1	1					
H 22	Horiz 11	XY-Symmetry	11P	A22P			1	1	1					
H 23	Horiz 12	XY-Symmetry	12P	A23P			1	1	1					
H 24	Horiz 12	XY-Symmetry	12P	A24P			1	1	1					
H 25	Horiz 13	XY-Symmetry	13P	A25P			1	1	1					

Count Type Vert  
 1 1 1 0  
 2 1 1 0  
 3 2 2 0  
 4 2 2 0  
 5 3 2 0  
 6 3 2 0  
 7 4 2 0  
 8 4 2 0  
 9 5 A 0  
 10 5 A 0  
 11 6 A 0  
 12 6 A 0  
 13 7 A 0  
 14 7 A 0  
 15 8 A 0  
 16 8 A 0  
 17 9 A 0  
 18 9 A 0  
 19 10 A 0  
 20 10 A 0  
 21 11 A 0  
 22 11 A 0  
 23 12 A 0  
 24 12 A 0  
 25 13 A 0

H26	Horiz 13	XY-Symmetry	13P	A26P	1	0	1	1	1
H27	Horiz 14	Y-Symmetry	14P	14X	1	0	0.5	1	0.5
H28	Horiz 14	X-Symmetry	14P	14Y	1	0	0.5	1	0.5
H29	Horiz 15	Y-Symmetry	15P	15X	1	0	0.5	1	0.5
H30	Horiz 15	X-Symmetry	15P	15Y	1	0	0.5	1	0.5
H31	Horiz 16	Y-Symmetry	16P	16X	1	0	0.5	1	0.5
H32	Horiz 16	X-Symmetry	16P	16Y	1	0	0.5	1	0.5
H33	Horiz 17	Y-Symmetry	17P	17X	1	0	0.5	1	0.5
H34	Horiz 17	X-Symmetry	17P	17Y	1	0	0.5	1	0.5

26	13	A	0
27	14	X	1
28	14	X	1
29	15	X	1
30	15	X	1
31	16	X	1
32	16	X	1
33	17	X	1
34	17	X	1
35	18		
36	18		
37	19		
38	19		
39	20		
40	20		
41	21		
42	21		
43	22		
44	22		
45	23		
46	23		
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74	37		
75	38		
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77	39		
78	39		
79	40		
80	40		

H37	Horiz 2	Y-Symmetry	ASP	A3X	1	5	1	1	1
H38	Horiz 2	X-Symmetry	A4P	A4Y	1	5	1	1	1
H39	Horiz 3	Y-Symmetry	ASP	ASX	1	5	1	1	1
H40	Horiz 3	X-Symmetry	ADP	ADY	1	5	1	1	1
H41	Horiz 4	Y-Symmetry	A7P	ATX	1	5	1	1	1
H42	Horiz 4	X-Symmetry	ABP	ABY	1	5	1	1	1

1	1	1	
2	1	1	
3	2	2	0
4	2	2	0
5	3	2	0
6	3	2	0
7	4	2	0
8	4	2	0
9	5	A	
10	5	A	
11	6	A	
12	6	A	
13	7	A	
14	7	A	
15	8	A	
16	8	A	
17	9	A	
18	9	A	
19	10	A	
20	10	A	
21	11	A	
22	11	A	
23	12	A	
24	12	A	
25	13	A	
26	13	A	
27	14	X	
28	14	X	
29	15	X	
30	15	X	

LH1	LH1	Y-Symmetry	H1P	H1X	1	0	0.5	1	0.5
LH2	LH1	X-Symmetry	H2P	H2Y	1	0	0.5	1	0.5
LH3	LH2	XY-Symmetry	H3P	H3P	1	0	1	2	1
LH4	LH2	XY-Symmetry	H6P	H6P	1	0	1	2	1
LH5	LH3	XY-Symmetry	H8P	H11P	1	0	1	2	1
LH6	LH3	XY-Symmetry	H10P	H12P	1	0	1	2	1
LH7	LH4	XY-Symmetry	H13P	H15P	1	0	0.998	1.995	0.998
LH8	LH4	XY-Symmetry	H14P	H16P	1	0	0.998	1.995	0.998

1	1	1	
2	1	1	
3	2	2	
4	2	2	
5	3	2	
6	3	2	
7	4	2	
8	4	2	
9	5	A	
10	5	A	
11	6	A	
12	6	A	
13	7	A	
14	7	A	
15	8	A	
16	8	A	
17	9	A	
18	9	A	
19	10	A	
20	10	A	
21	11	A	
22	11	A	
23	12	A	
24	12	A	
25	13	A	
26	13	A	
27	14	X	
28	14	X	
29	15	X	
30	15	X	

LD1	LD1	XY-Symmetry	H1P	1P	1	0	0.88	0.88	0.88
LD2	LD1	XY-Symmetry	H2P	1P	1	0	0.88	0.88	0.88
LD3	LD2	XY-Symmetry	H1P	A1P	1	0	0.82	0.82	0.82
LD4	LD2	XY-Symmetry	H2P	A2P	1	0	0.82	0.82	0.82
LD7	LD4	XY-Symmetry	H5P	2P	1	0	0.87	0.87	0.87
LD8	LD4	XY-Symmetry	H6P	2P	1	0	0.87	0.87	0.87
LD9	LD5	XY-Symmetry	H5P	A3P	1	0	0.83	0.83	0.83
LD10	LD5	XY-Symmetry	H6P	A4P	1	0	0.83	0.83	0.83
LD11	LD6	XY-Symmetry	A3P	H7P	1	0	0.84	0.84	0.84
LD12	LD6	XY-Symmetry	A4P	H8P	1	0	0.84	0.84	0.84
LD13	LD7	XY-Symmetry	H9P	3P	1	0	0.855	0.855	0.855
LD14	LD7	XY-Symmetry	H10P	3P	1	0	0.855	0.855	0.855
LD15	LD8	XY-Symmetry	H9P	ASP	1	0	0.83	0.83	0.83
LD16	LD8	XY-Symmetry	H10P	ASP	1	0	0.83	0.83	0.83
LD17	LD9	XY-Symmetry	ASP	H11P	1	0	0.84	0.84	0.84
LD18	LD9	XY-Symmetry	ADP	H12P	1	0	0.84	0.84	0.84
LD19	LD10	XY-Symmetry	H13P	4P	1	0	0.86	0.86	0.86
LD20	LD10	XY-Symmetry	H14P	4P	1	0	0.86	0.86	0.86
LD21	LD11	XY-Symmetry	H13P	A7P	1	0	0.84	0.84	0.84
LD22	LD11	XY-Symmetry	H14P	A8P	1	0	0.84	0.84	0.84
LD23	LD12	XY-Symmetry	A7P	H13P	1	0	0.85	0.85	0.85
LD24	LD12	XY-Symmetry	A8P	H16P	1	0	0.85	0.85	0.85

1	1	1	
2	1	1	
3	1	1	
4	1	1	
5	1	1	
6	1	1	
7	2	2	
8	2	2	
9	2	2	
10	2	2	
11	2	2	
12	2	2	
13	3	2	
14	3	2	
15	3	2	
16	3	2	
17	3	2	
18	3	2	
19	4	2	
20	4	2	
21	4	2	
22	4	2	
23	4	2	
24	4	2	
25	5	A	
26	5	A	
27	5	A	
28	5	A	
29	5	A	
30	5	A	
31	6	A	
32	6	A	
33	6	A	
34	6	A	
35	6	A	
36	6	A	



37	7	A
38	7	A
39	7	A
40	7	A
41	7	A
42	7	A
43	8	A
44	8	A
45	8	A
46	8	A

BR 1	DUM 1	XY-Symmetry	A1P	A2P	1	4	1	1	1
BR 3	DUM 1	XY-Symmetry	A3P	A4P	1	4	1	1	1
BR 4	DUM 1	XY-Symmetry	A3P	A4XY	1	4	1	1	1
BR 5	DUM 1	XY-Symmetry	ASP	ASP	1	4	1	1	1
BR 6	DUM 1	XY-Symmetry	ASP	ASXY	1	4	1	1	1
BR 7	DUM 1	XY-Symmetry	A7P	ASP	1	4	1	1	1
BR 8	DUM 1	XY-Symmetry	A7P	ASXY	1	4	1	1	1
BR 9	DUM 1	XY-Symmetry	A8P	A10P	1	4	1	1	1
BR 11	DUM 1	XY-Symmetry	A11P	A12P	1	4	1	1	1
BR 13	DUM 1	XY-Symmetry	A13P	A14P	1	4	1	1	1
BR 15	DUM 1	XY-Symmetry	A15P	A16P	1	4	1	1	1
BR 17	DUM 1	XY-Symmetry	A17P	A18P	1	4	1	1	1
BR 19	DUM 1	XY-Symmetry	A19P	A20P	1	4	1	1	1
BR 21	DUM 1	XY-Symmetry	A21P	A22P	1	4	1	1	1
BR 23	DUM 1	XY-Symmetry	A23P	A24P	1	4	1	1	1
BR 25	DUM 1	XY-Symmetry	A25P	A26P	1	4	1	1	1

BR 61	DUM 1	XY-Symmetry	H1P	H2P	1	4	1	1	1
BR 62	DUM 1	XY-Symmetry	H1P	H2XY	1	4	1	1	1
BR 64	DUM 1	XY-Symmetry	H5P	H6P	1	4	1	1	1
BR 65	DUM 1	XY-Symmetry	H5P	H6XY	1	4	1	1	1
BR 66	DUM 1	XY-Symmetry	H7P	H8P	1	4	1	1	1
BR 67	DUM 1	XY-Symmetry	H5P	H10P	1	4	1	1	1
BR 68	DUM 1	XY-Symmetry	H8P	H10XY	1	4	1	1	1
BR 69	DUM 1	XY-Symmetry	H11P	H12P	1	4	1	1	1
BR 70	DUM 1	XY-Symmetry	H13P	H14P	1	4	1	1	1
BR 71	DUM 1	XY-Symmetry	H13P	H14XY	1	4	1	1	1
BR 72	DUM 1	XY-Symmetry	H15P	H16P	1	4	1	1	1

47	5	A
48	8	A
49	9	A
50	9	A
51	9	A
52	9	A
53	9	A
54	9	A
55	10	A
56	10	A
57	10	A
58	10	A
59	10	A
60	10	A
61	11	A
62	11	A
63	11	A
64	11	A
65	11	A
66	11	A
67	12	A
68	12	A
69	12	A
70	12	A
71	12	A
72	12	A
73	13	A
74	13	A
75	13	A
76	13	A
77	13	A
78	13	A
79	14	X
80	14	X
81	14	X
82	14	X
83	14	X
84	14	X
85	15	X
86	15	X
87	15	X
88	15	X
89	15	X
90	15	X
1	1	1
2	1	1
3	2	2
4	2	2
5	3	2
6	3	2
7	4	2
8	4	2
9	5	A
10	5	A
11	6	A
12	6	A
13	7	A
14	7	A
15	8	A
16	8	A
17	9	A
18	9	A
19	10	A
20	10	A
21	11	A
22	11	A
23	12	A
24	12	A
25	13	A
26	13	A
27	14	X
28	14	X
29	15	X
30	15	X
31	16	X
32	16	X
33	17	X
34	17	X
35	18	
36	18	
37	19	
38	19	
39	20	
40	20	
41	21	
42	21	
43	22	
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59	30	
60	30	
61	31	
62	31	
63	32	
64	32	
65	33	
66	33	
67	34	
68	34	
69	35	
70	35	
71	36	
72	36	
73	37	
74	37	
75	38	
76	38	
77	39	
78	39	
79	40	
80	40	
1	1	1
2	1	1
3	1	1
4	2	2
5	2	2
6	2	2
7	3	2
8	3	2
9	3	2
10	4	2
11	4	2
12	4	2
13	5	A
14	5	A
15	5	A
16	6	A
17	6	A
18	6	A
19	7	A
20	7	A
21	7	A
22	8	A
23	8	A
24	8	A
25	9	A
26	9	A
27	9	A
28	10	A

29	10	A
30	10	A
31	11	A
32	11	A
33	11	A
34	12	A
35	12	A
36	12	A
37	13	A
38	13	A
39	13	A
40	14	X
41	14	X
42	14	X
43	15	X
44	15	X
45	15	X

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**Task: Determine Point Loads**

**Tower Height:** 300 ft  
**County:** KS-15676 Horn Antennas ~128 ft  
**Wind Speed:** 85 mph  
**Radial Ice Diameter:** 0.5 in

**Site No.:** 88018  
**Engineer:** SAW  
**Date:** 01/13/2011  
**Carrier:** Sprint Nextel

No.	Carrier	Elevation (ft)	Quantity	Number of Azimuths	Model	Height (ft)	Width (ft)	Depth (ft)	Weight (lbs/ea)	Flat/Round Reduction (F/R)	C <sub>1</sub> C <sub>2</sub> C <sub>3</sub> (ft <sup>2</sup> )	Weight (lb)
1		300	2	2	15' Omni & 16' Grid Omni	186	4	4	50	R	1,000	4,000
2		300	1	4	Platform	0.01	0.01	0.01	0.01	R	0.001	4.00
3		283	1	4	Catwalk	0.01	0.01	0.01	0.01	R	1,000	2.75
4		212.5	1	3	Platform	0.01	0.01	0.01	0.01	R	1,000	3.00
5	Bell Industries	100	1	3	Platform	0.01	0.01	0.01	0.01	R	1,000	3.00
6	Bell Industries	303	1	1	Scales OGB9-900N/DT3 + TTA	116.6	2	2	15	R	1,500	0.20
7	Lojack	302	1	1	Side Arm	249.6	2.4	2.4	20	R	1,000	0.20
8	Marcus Comm.	300	1	1	RF5 200	189.6	3.5	3.5	70	R	1,000	0.20
9	Marcus Comm.	294	6	3	Side Arm	55	11	5	35	F	0.900	0.20
10	AT&T Mobility	289	3	3	TX RX 101-68-10-X-03N	0.01	0.01	0.01	0.01	R	0.001	0.40
11	Qualcomm	289	1	1	Powerwave 7770.00 + TTA & Dipl.	0.01	0.01	0.01	0.01	R	1,000	0.23
12	USCG	271	1	1	Dielectric TLP	0.01	0.01	0.01	0.01	R	0.001	0.20
13	USCG	269	1	1	Robt. & Schwab ADD090	70	2.3	2.3	15	R	1,000	0.20
14	USCG	269	1	1	Til Tek TA-2350-DAB	13.2	5.5	3.2	14.3	F	0.670	0.40
15	USCG	265	6	3	Side Arm	55.9	13.3	3.1	40.7	F	0.650	0.00
16	AT&T Mobility	235	4	3	CCIDTMA-1819-DD-12	148.3	4.5	4.5	47	R	1,000	0.20
17	AT&T Mobility	235	2	3	Same Mounts as Above	251	5	5	79	R	1,000	0.20
18	AT&T Mobility	224	12	3	Sinclair SC281-L	53.3	6.3	2.7	11	F	0.770	0.40
19	Sprint Nextel	224	3	3	Daps 58410	56	8	2.8	13.5	F	0.750	0.00
20	Lojack	215.5	1	1	Same Mounts as Above	48	8.5	6	10	F	0.860	0.40
21	Lojack	215.5	1	1	Desibel DBR44H90E-XY	96	3	3	30	R	1,000	0.20
22	USCG	200	1	1	8' Omni	251	5	5	79	R	1,000	0.20
23	USCG	200	2	2	Sinclair SC281-L	189.6	3.5	3.5	70	R	1,000	0.20
24	USA Mobility	180	3	3	Side Arm	134	2.6	2.6	26.5	R	1,000	0.20
25	Metro PCS	160	6	3	TX RX 101-68-10-X-03N	54	6.1	2.7	17.6	F	0.780	0.40
26	Sprint Nextel	148	9	3	Anel BCD-57010	50.3	6.8	3.8	13	F	0.820	0.00
27	Sensus Metering	137	1	1	Side Arm	134	2.6	2.6	26.5	R	1,000	0.20
28	Marcus Comm.	100	1	1	Kathren 800 10504	189.6	3.5	3.5	70	R	1,000	0.20
29	Marcus Comm.	100	1	1	Side Arm	12	6	6	10	R	1,000	0.00
30	Lojack	10	1	1	GFS Unit	48	10	6	30	F	0.810	0.00
31	Lojack	285	3	3	48" x 10" Panel	12	6	6	20	F	1,000	0.00
32	AT&T Mobility	271	1	1	Pipe	56	8	2.8	13.5	F	0.750	0.00
33	USCG	248	1	3	TTA						1,000	0.00
34	AT&T Mobility	248	1	3	RR90-17-04DP						1,000	0.00

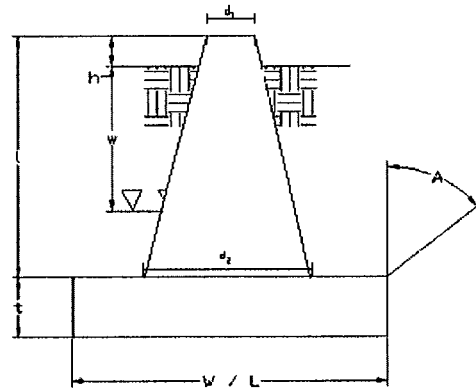
31	AT&T Mobility	235	6	3	TTA	12	6	6	20	F	0.670	0.00
32	AT&T Mobility	235	3	3	-	36	60	4	75	F	1.000	0.00
	Town of Stamford	193	1	1	36" x 60" Panel							
	Town of Stamford	193	1	1	Pipe							
33	Metro PCS	160	6	3	TTA	12	6	6	20	F	0.670	0.10
	Metro PCS	160	6	3	-							
34	Sprint Nextel	148	6	3	CCI CE-1819-200MC (TMA)	14.3	8.4	3.2	12	F	0.690	0.00
	Sprint Nextel	148	3	3	-							
35	USA Mobility	6	1	1	Trumble Acutime 2000	5	6.1	6.1	1.3	R	1.000	0.10
	USA Mobility	6	1	1	Pipe							
36	Clearwire	300	3	3	DragonWave Horizon Compact	4.9	9.3	9.3	10.6	F	1.000	2.50
	Clearwire	300	3	3	Slit Arm							
37	Clearwire	167	3	3	Argus LFPX10R	42	11.8	4.5	28.6	F	0.700	0.00
	Clearwire	167	1	3	-							
38	Clearwire	167	3	3	Nextel BTS-2500	19.3	11.3	5.1	35	F	0.730	0.00
	Clearwire	167	1	3	-							
39												
40												

No.	Elevation (ft)	C <sub>A</sub> C <sub>C</sub> (ft <sup>2</sup> )	C <sub>A</sub> C <sub>C</sub> (ft <sup>2</sup> )	Force (k)	Force (tee) (k)	Weight (k)	Weight (tee) (k)	Σ Force (k)	Σ Force (tee) (k)	Σ Weight (k)	Σ Weight (tee) (k)
1	300	12.40	15.58	0.469	0.442	0.100	0.210	0.47	0.44	0.10	0.21
2	300	55.00	74.25	2.079	2.105	4.000	5.200	2.55	2.55	4.10	5.41
3	283	0.00	0.00	0.000	0.000	0.000	0.000	0.00	0.00	0.00	0.00
3	283	40.00	54.00	1.487	1.506	2.750	3.575	1.49	1.51	2.75	3.58
4	212.5	0.00	0.00	0.000	0.000	0.000	0.000	0.00	0.00	0.00	0.00
4	212.5	50.00	67.50	1.713	1.734	3.000	3.900	1.71	1.73	3.00	3.90
5	100	0.00	0.00	0.000	0.000	0.000	0.000	0.00	0.00	0.00	0.00
5	100	50.00	67.50	1.381	1.398	3.000	3.900	1.38	1.40	3.00	3.90
6	303	2.92	4.41	0.110	0.125	0.015	0.034	0.11	0.13	0.02	0.03
6	302	3.00	4.05	0.114	0.115	0.200	0.260	0.22	0.24	0.22	0.29
6	302	4.99	7.10	0.189	0.202	0.020	0.067	0.19	0.20	0.02	0.07
7	302	3.00	4.05	0.114	0.115	0.200	0.260	0.30	0.32	0.22	0.33
7	300	5.53	7.15	0.209	0.203	0.070	0.120	0.21	0.20	0.07	0.12
8	300	3.00	4.05	0.113	0.115	0.200	0.260	0.32	0.32	0.27	0.38
8	294	31.76	35.28	1.194	1.194	0.210	0.406	1.19	0.89	0.21	0.41
9	294	33.75	45.56	1.268	1.284	1.200	1.560	2.46	2.28	1.41	1.97
9	289	0.00	0.00	0.000	0.000	0.000	0.000	0.00	0.00	0.00	0.00
10	289	22.75	30.71	0.851	0.861	0.230	0.299	0.85	0.86	0.23	0.30
10	271	0.00	0.00	0.000	0.000	0.000	0.000	0.00	0.00	0.00	0.00
10	271	20.76	28.03	0.762	0.772	0.200	0.260	0.76	0.77	0.20	0.26
11	269	1.34	1.95	0.049	0.054	0.015	0.028	0.05	0.05	0.02	0.03
12	269	3.00	4.05	0.110	0.111	0.200	0.260	0.16	0.16	0.22	0.29
12	265	2.84	3.61	0.104	0.099	0.086	0.116	0.10	0.10	0.09	0.12
13	265	33.75	45.56	1.231	1.247	1.200	1.560	1.33	1.35	1.29	1.68
13	265	32.89	35.99	1.200	0.985	0.285	0.519	1.20	0.98	0.28	0.52
14	265	0.00	0.00	0.000	0.000	0.000	0.000	0.00	0.00	0.00	0.00
14	242	5.56	6.84	0.198	0.182	0.047	0.096	0.20	0.18	0.05	0.10
15	242	3.00	4.05	0.107	0.108	0.200	0.260	0.30	0.29	0.25	0.36
15	242	10.46	12.60	0.372	0.336	0.079	0.170	0.37	0.34	0.08	0.17
16	242	3.00	4.05	0.107	0.108	0.200	0.260	0.48	0.44	0.28	0.43
16	235	10.40	12.28	0.367	0.325	0.044	0.117	0.32	0.32	0.04	0.12
17	235	33.75	45.56	1.190	1.205	1.200	1.560	1.56	1.53	1.24	1.68
17	235	6.56	7.28	0.224	0.193	0.027	0.072	0.22	0.19	0.03	0.07
18	235	0.00	0.00	0.000	0.000	0.000	0.000	0.00	0.00	0.00	0.00
18	224	40.94	46.71	1.423	1.218	0.120	0.433	1.42	1.22	0.12	0.44
19	224	33.75	45.56	1.174	1.188	1.200	1.560	2.60	2.41	1.32	2.60
19	215.5	2.40	3.23	0.083	0.083	0.030	0.052	0.08	0.08	0.03	0.05
20	215.5	3.00	4.05	0.103	0.104	0.200	0.260	0.19	0.19	0.23	0.31
20	200	10.46	12.60	0.352	0.318	0.079	0.170	0.35	0.32	0.08	0.17
20	200	3.00	4.05	0.101	0.102	0.200	0.260	0.45	0.42	0.28	0.43
21	200	11.06	14.30	0.372	0.361	0.140	0.240	0.37	0.36	0.14	0.24
21	200	6.00	8.10	0.202	0.205	0.400	0.520	0.57	0.57	0.54	0.76
22	180	8.71	12.15	0.285	0.298	0.080	0.162	0.28	0.30	0.08	0.16
23	180	9.00	12.15	0.294	0.298	0.600	0.780	0.58	0.60	0.68	0.94
23	160	15.65	18.55	0.494	0.479	0.106	0.214	0.49	0.44	0.11	0.21
24	160	33.75	45.56	1.066	1.079	1.200	1.560	1.56	1.52	1.31	1.77
24	148	24.77	28.98	0.765	0.671	0.117	0.298	0.77	0.67	0.12	0.30
25	148	33.75	45.56	1.043	1.056	1.200	1.560	1.81	1.73	1.32	1.86
25	137	2.90	4.05	0.088	0.092	0.027	0.054	0.09	0.09	0.03	0.05
25	137	3.00	4.05	0.091	0.092	0.200	0.260	0.18	0.18	0.23	0.31
26	100	5.53	7.15	0.153	0.148	0.070	0.120	0.15	0.15	0.07	0.12
27	100	3.00	4.05	0.083	0.084	0.200	0.260	0.24	0.23	0.27	0.38
27	10	0.40	0.51	0.006	0.005	0.010	0.017	0.01	0.01	0.01	0.02
28	10	0.00	0.00	0.000	0.000	0.000	0.000	0.01	0.01	0.01	0.02
28	285	11.34	12.73	0.422	0.356	0.090	0.177	0.42	0.36	0.09	0.18
29	285	0.00	0.00	0.000	0.000	0.000	0.000	0.42	0.36	0.09	0.18
29	271	0.70	0.88	0.026	0.024	0.020	0.027	0.03	0.02	0.02	0.03
30	271	0.00	0.00	0.000	0.000	0.000	0.000	0.03	0.02	0.02	0.03
30	248	3.18	3.64	0.114	0.098	0.014	0.036	0.11	0.10	0.01	0.04
30	248	0.00	0.00	0.000	0.000	0.000	0.000	0.11	0.10	0.01	0.04





Site Name: **Stamford (Katoona), CT**  
 Site Number: **88018**  
 Engineer: **SAW**  
 Date: **1/13/2011**



**Design Loads (Unfactored)**

Compression/Leg: 511.3 k  
 Uplift/Leg: 412.9 k  
  
 Face Width - Top of Pier 4.00 ft  
 Face Width - Bottom of Pier 8.00 ft  
 Total Length of Pier 8.00 ft  
 Height of Pedestal Above Ground 0.50 ft  
 Width of Pad (W): 18.00 ft  
 Length of Pad (L): 18.00 ft  
 Thickness of Pad (t): 3.00 ft  
 Unit Weight of Concrete: 150.0 pcf  
 Unit Weight of Soil: 100.0 pcf  
 Friction Angle of Uplift (A): 21 Degrees  
 Allowable Compressive Bearing Pressure: 20000 psf  
 Cohesion: 3000 psf

**Axial Capacities**

Volume Pier 298.7 ft<sup>3</sup>  
 Volume Pad 972.0 ft<sup>3</sup>  
 Weight Pad 145.8 kips  
 Weight Pier 44.8 kips  
  
 Volume Soil 3290.2 ft<sup>3</sup>  
 Weight Soil 299.2 kips

**Uplift Check**

TIA Case 1  $\frac{\text{Wt. Soil} + \text{Wt. Concrete}}{1.5}$   
  
 TIA Case 2  $\frac{\text{Wt. Soil} + \text{Wt. Concrete}}{2.0 \quad 1.25}$

	Allowable Uplift	Ratio	Result
TIA Case 1:	435.9	0.95	OK
TIA Case 2:	411.4	1.00	OK

**Compression Check**

Allow. Compression	Ratio	Result
6480.0	0.08	OK



**Electromagnetic Exposure Analysis  
Sprint  
CT03XC337  
February 4, 2011**

**Executive Summary:**

A power density study has been performed utilizing the transmit power of all proposed transceiver equipment to be installed on the tower. This theoretical result has been combined with empirical data recorded during a field survey of the existing installed transmitters (see below). This report takes into consideration the cumulative effect of both the proposed Sprint transmitting elements and the existing transmitting elements currently located on the tower. This report assumes a worse case scenario of all new elements radiating from the same point in space simultaneously. Careful review of the data indicates that the site, as is and as proposed, is in compliance with applicable Federal standards for Maximum Permissible Exposure levels for RF power density.

**Background:**

FCC 96-326 is the standard FCC guideline for power density. The guidelines are given in terms of  $\text{mW/cm}^2$  and the maximum limits are termed 'Maximum Permissible Exposure' (MPE) for both occupational (controlled) and general (uncontrolled) cases. Because these guidelines are based upon the same limits as those in the American National Standards Institute/Institute of Electrical and Electronics Engineering (ANSI/IEEE) guidelines, they also include the safety factors of 10 and 50 for occupational and general public scenarios respectively.

Additionally, FCC Bulletin OET 65 is the standard for evaluating compliance with FCC guidelines. GIANT Solutions has adopted these methods and procedures and others based on sound engineering practice to ensure that the theoretical calculations performed to complete this analysis will over-predict field strength levels at ground distances close to the transmitting elements. A more realistic approach to calculating power densities at areas near the base of the tower was utilized by taking advantage of the relative gain patterns of the directional antennas being proposed by Sprint. Directional antennas focus energy toward the horizon. This results in a pattern of losses and gains relative to the direction of propagation due to elevation angle changes. Equation 6 from OET 65 was utilized in conjunction with the antenna vertical gain patterns to predict the field strength levels at various points away from the base of the tower. This equation takes into consideration a four-fold increase in power density by assuming a 100% reflection of incoming radiation at the ground level.

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125 Guy Park Avenue  
Amsterdam, NY 12010  
(518)-843-7467

$$S = \frac{1.65 \times \text{ERP} \times G}{\Pi \times R^2}$$

Where:

S = Power density in microwatts per centimeter squared.

ERP = Effective Radiated Power in microwatts (uW).

R = Straight-line distance between antenna centerline and head level in centimeters (cm).

$\Pi$  = 3.14

G = Relative numeric gain of the antenna at specified angle of declination such that

$$G = 10^{(dB/10)}$$

and, **dB** = relative antenna gain in dB (available from the antenna manufacturer).

Sprint has provided to GIANT Solutions the following information for the proposed installation required for analysis of these transmitting elements. These parameters were utilized to calculate the maximum exposure levels in and around the compound for the proposed installation.

- PCS B-Band, 4 carriers, 16 W per carrier. On all three sectors, adding a Cellextender that will increase the signal's power by 6 dB.

With this information, the signal's additional power was calculated to increase by 48 W per carrier.

This site currently has several antennas installed. Applicable transmit parameters for all existing equipment was unavailable, thus a field study was conducted to determine existing exposure levels. The details and results of the field study are included at the end of this report.

Power density levels were calculated for the additional Sprint transmitting equipment utilizing the methods and procedures previously referenced at a transmitting height of 123' AGL. These values were then compared to the applicable Maximum Permissible Exposure limits for General Population /Uncontrolled and Occupation/Controlled exposure<sup>1</sup>. The ratio of the calculated value to the maximum permissible exposure value was then computed to analyze the results as a percentage of the maximum allowable levels. For example, an antenna operating in the frequency range of 1900 MHz with a calculated value of power density equal to 0.03 mW/cm<sup>2</sup> would be operating at 3% of the allowable General Public standard which is defined

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<sup>1</sup> FCC Bulletin OET 65 Table 1

as  $1\text{mW}/\text{cm}^2$ . These values were then summed to analyze the combined effect of all proposed transmitting equipment.

These calculated values were then added to the RF exposure measurements from the field survey to get the total combined field strength of the existing and proposed equipment.

Areas closest to the transmitting elements surrounding the site compound were considered for this report. Points further away from surveyed areas will see a decrease in power density due to the attenuation of radio waves traveling through free space.

Results of the cumulative total indicate that no area accessible to the general public will exceed 22.34% of the maximum permissible limit for General Public/Uncontrolled access. **This is 4.5 times less than the allowed maximum.** This is based on the highest measured level in the area as described below. As indicated previously, a conservative approach was taken in calculating the power density levels at the site since it is unlikely that all of the transmitters at the site will be transmitting simultaneously at maximum power. The actual levels experienced at the site will likely be lower.

GIANT Solutions LLC  
125 Guy Park Avenue  
Amsterdam, NY 12010  
(518)-843-7467

## RF Exposure Measurements

Site Name: CT03XC337  
Date Collected: 01/26/2011  
Time: 13:16– 14:51  
Survey Meter: Model # NARDA BN 2251/02  
Serial # L-0098  
Date of Last Calibration: 1/2010  
Calibration Due: 1/2013  
Operator: Harold Briggs

Measurements were made at this facility utilizing the above-referenced Narda Meter. This equipment is designed to measure cumulative RF fields over the 3MHz – 40 GHz spectrum band. Due to the wide band nature of the measuring device the minimum detectable level for occupational exposure is approximately 5% of the Occupational threshold. Site data provided for this facility indicates a number of transmitters operating at the site and through visual inspection it was determined that there were no AM transmitters present. As a result, it was assumed that all existing elements were transmitting in the spectrum band measured. The weather was clear and the operating temperature was approximately 50 degrees F.

The test equipment was set to read percent of the total exposure limit as defined by the Federal Communications Commission Regulations ("FCC") for Exposure limits.

The unit was then carried around the tower site, taking two individual sets of data. The sets of data were taken over a period of approximately 30 minutes, and included the area directly around the antenna site. Measurements were taken in all accessible areas.

Multiple trips were made around the compound looking for the largest signals to contribute to the percent of the standard being displayed on the monitor. Logged data was collected around the tower as well as spatial averaging to provide an additional means of data comparison. The highest average electrical field detected was 22.04% of the FCC general public/uncontrolled standard for human exposure in the areas accessible to the public.

Based upon these measurements, there were no instances when the measured data indicated that the site, as operating at the time of measurement, was not in full compliance with all applicable FCC RF exposure guidelines.

Martin Blatz  
RF Engineer

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2/4/2011

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GIANT Solutions LLC  
125 Guy Park Avenue  
Amsterdam, NY 12010  
(518)-843-7467



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

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

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

Daniel F. Caruso  
Chairman

February 23, 2011

The Honorable Michael A. Pavia  
Mayor  
City of Stamford  
Stamford Government Center  
888 Washington Boulevard  
P. O. Box 10152  
Stamford, CT 06904-2152

RE: **EM-SPRINT-NEXTEL-135-110210** – Sprint Nextel Corporation notice of intent to modify an existing telecommunications facility located at 168 Catoona Lane, Stamford, Connecticut.

Dear Mayor Pavia:

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 March 9, 2011.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts  
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: Norman Cole, Acting Land Use Bureau Chief, City of Stamford