



HPC Wireless Services
22 Shelter Rock Lane.
Building C
Danbury, CT, 06810
P.: 203.797.1112

March 3, 2014

ORIGINAL
RECEIVED
MAR - 7 2014

VIA OVERNIGHT COURIER

Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051
Attn: Ms. Melanie Bachmann, Acting Executive Director

CONNECTICUT
SITING COUNCIL

Re: Sirius XM HAR013A – exempt modification
190 Colt Highway, Farmington, Connecticut

Dear Ms. Bachmann:

This letter and attachments are submitted on behalf of Sirius XM, f/k/a XM Satellite (“Sirius XM”). Sirius XM is making modifications to certain existing sites throughout the country in order to improve its service to subscribers. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction that constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the Chairman of the Town Council of the Town of Farmington.

Sirius XM plans to modify the existing wireless communications facility owned by Communications Site Management LLC and located at 190 Colt Highway in the Town of Farmington (coordinates 41°-42’-13.14” N, 72°-49’-54.09” W). Attached are a compound plan and elevation depicting the planned changes, and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration. Also included is a power density report reflecting the modification to Sirius XM’s operations at the site.

The changes to the facility do not constitute a modification as defined in Connecticut General Statutes (“C.G.S.”) Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. Sirius XM will remove three (3) panel antennas and existing pipe mounts, with a center line of 460' AGL; one (1) Omni Directional Antenna will be installed on a new standoff mount, with a center line of 460' AGL; one (1) 1.8M VSAT Dish will be added to the existing ice canopy, with a center line of 35' AGL, on an existing steel post; one (1) GPS antenna will be installed on a pipe to pipe mount on the existing ice canopy, with a center line of 33' AGL.
2. The proposed changes will not extend the site boundaries. Sirius XM will replace one cabinet inside the existing shelter. These changes will be within the existing compound and will have no effect on the site boundaries.
3. The proposed changes will not increase the noise level at the existing facility by six decibels or more. The incremental effect of the proposed changes will be negligible.
4. The changes to the facility will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site. As indicated on the attached report prepared by EBI Consulting, Sirius XM's operations at the site will result in a power density of approximately 0.85427% of the applicable standard; the combined site operations will result in a total power density of approximately 58.274%.

Please feel free to contact me by phone at (860) 798-65974 or by e-mail at bgaudet@hpcwireless.com with questions concerning this matter. Thank you for your consideration.

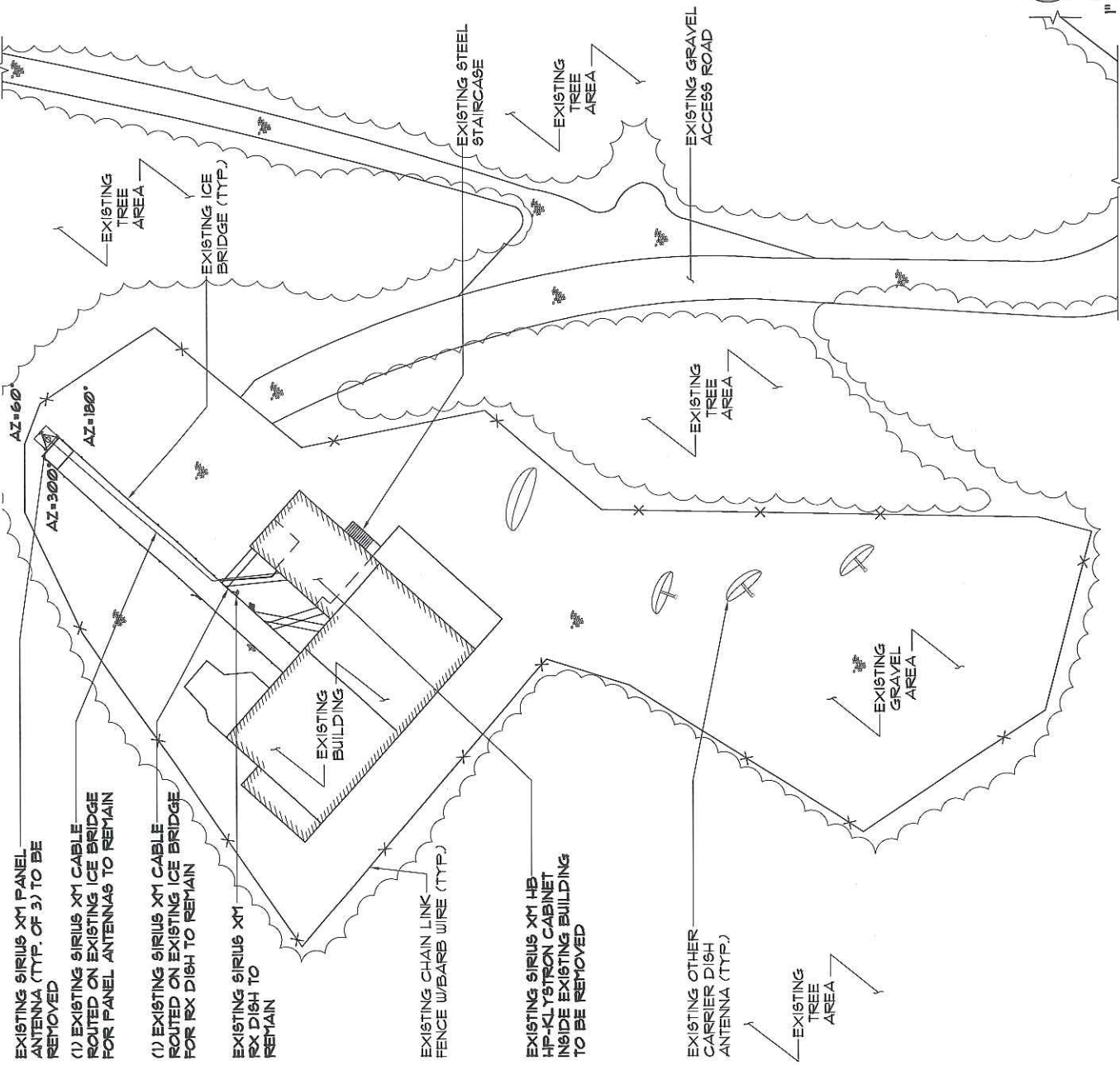
Respectfully yours,



Brian Gaudet

cc: Honorable Jeffrey J. Hogan, Chairperson, Town Council, Town of Farmington
Ms. Kathleen Eagen, Town Manager, Town of Farmington
Communications Site Management LLC, c/o Chase Enterprises (underlying property owner)

SCALE: 1" = 60'-0"



1221 AVENUE OF THE AMERICAS
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(212) 584-5120



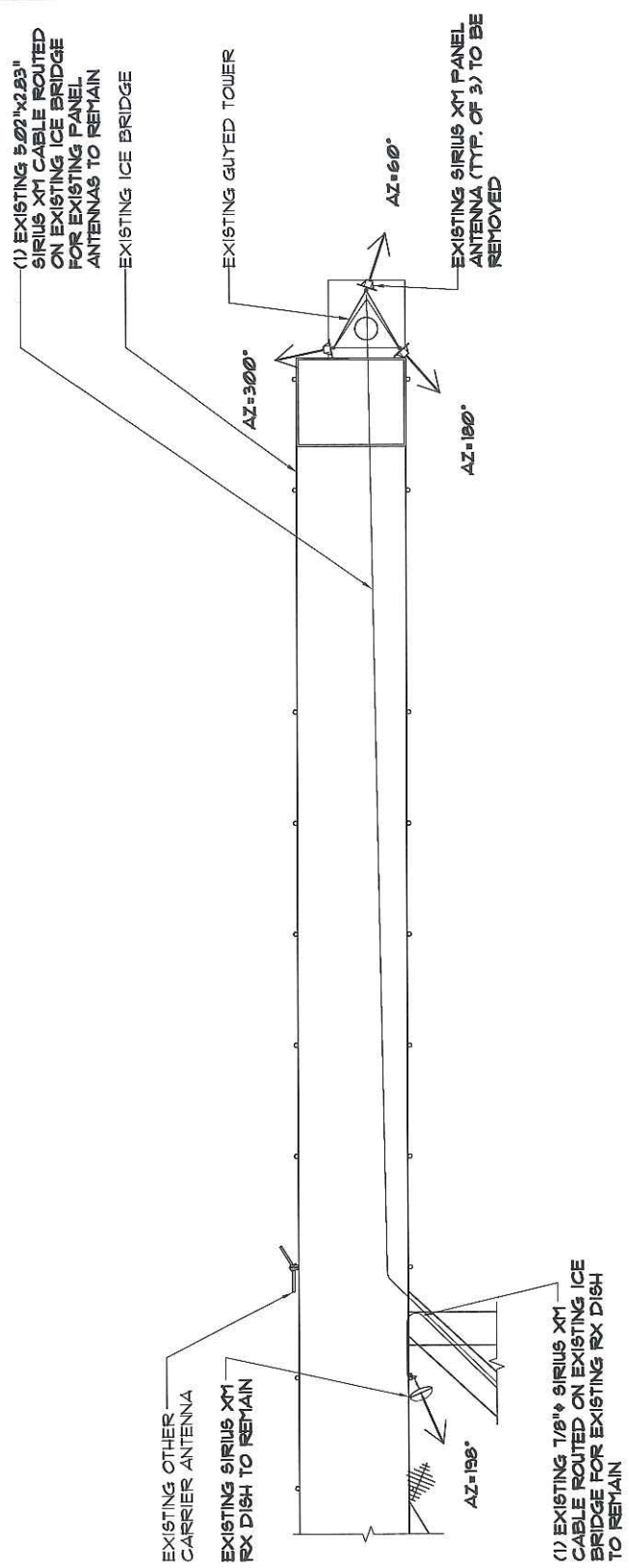
9600 W. BRYN MAWR AVE., SUITE 200
ROSEMONT, ILLINOIS 60018
TEL: 847-292-0200
FAX: 847-292-0206
www.FullertonEngineering.com

SITE NAME	RATTLESNAKE			#	DATE	DESCRIPTION	INT.
					8/26/13	LEASE EXHIBIT	SS
SITE NUMBER	HAR013A/ HAR_15-08				9/6/13	REV. 1	AB
SITE ADDRESS	130 COLT HIGHWAY (RT. 6) FARMINGTON, CT 06032			TITLE	EXISTING OVERALL SITE PLAN		LE-1

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SCALE:
1" = 30'-0"



Sirius XM
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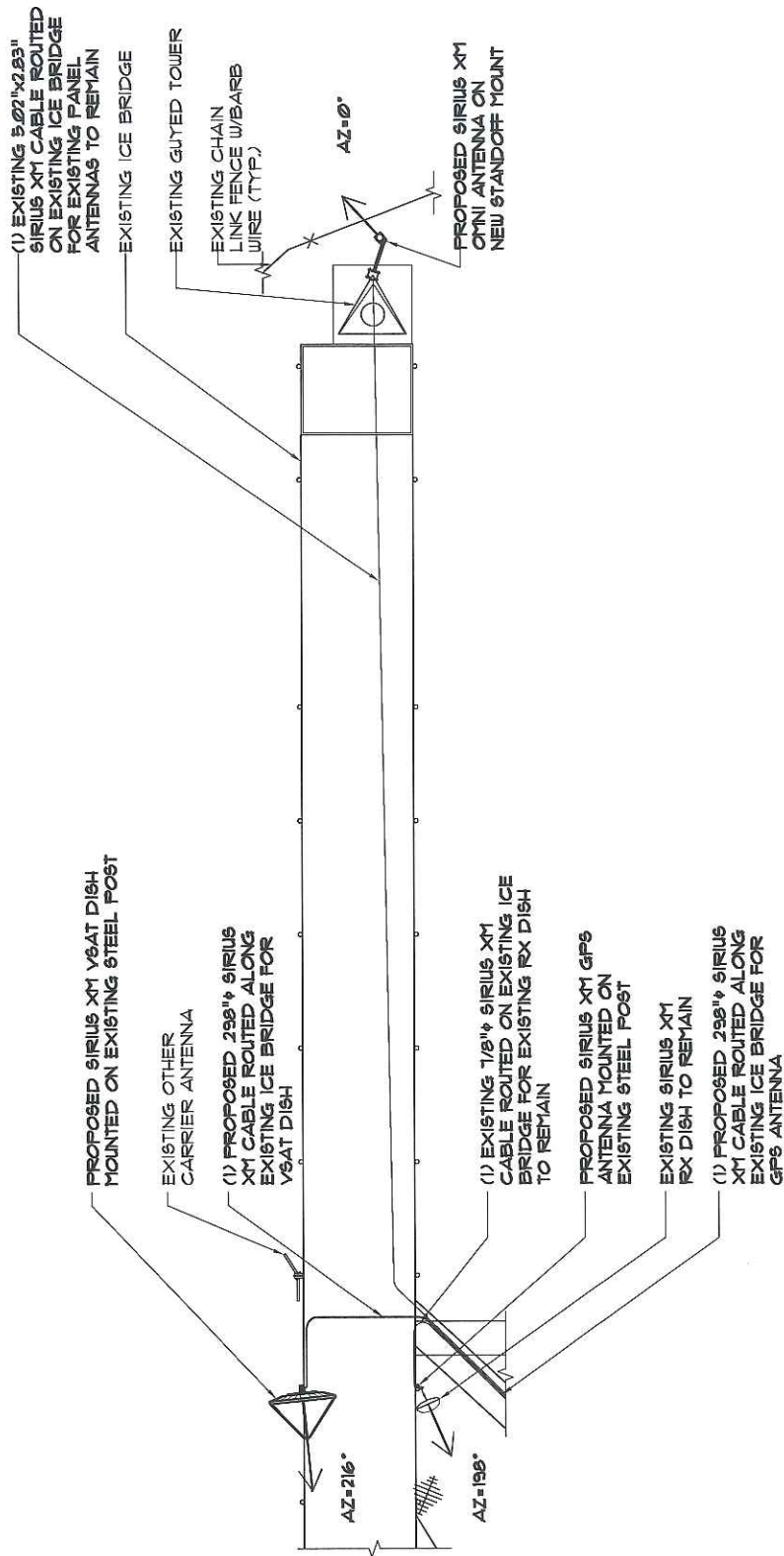
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SITE NAME	RATTLESNAKE		#	DATE	DESCRIPTION	INT.
				8/26/13	LEASE EXHIBIT	SS
SITE NUMBER	HAR013A/ HAR 15-08			3/6/13	REV. 1	AB
SITE ADDRESS	190 COLT HIGHWAY (RT. 6) FARMINGTON, CT 06032		TITLE	EXISTING ENLARGED SITE PLAN		LE-2

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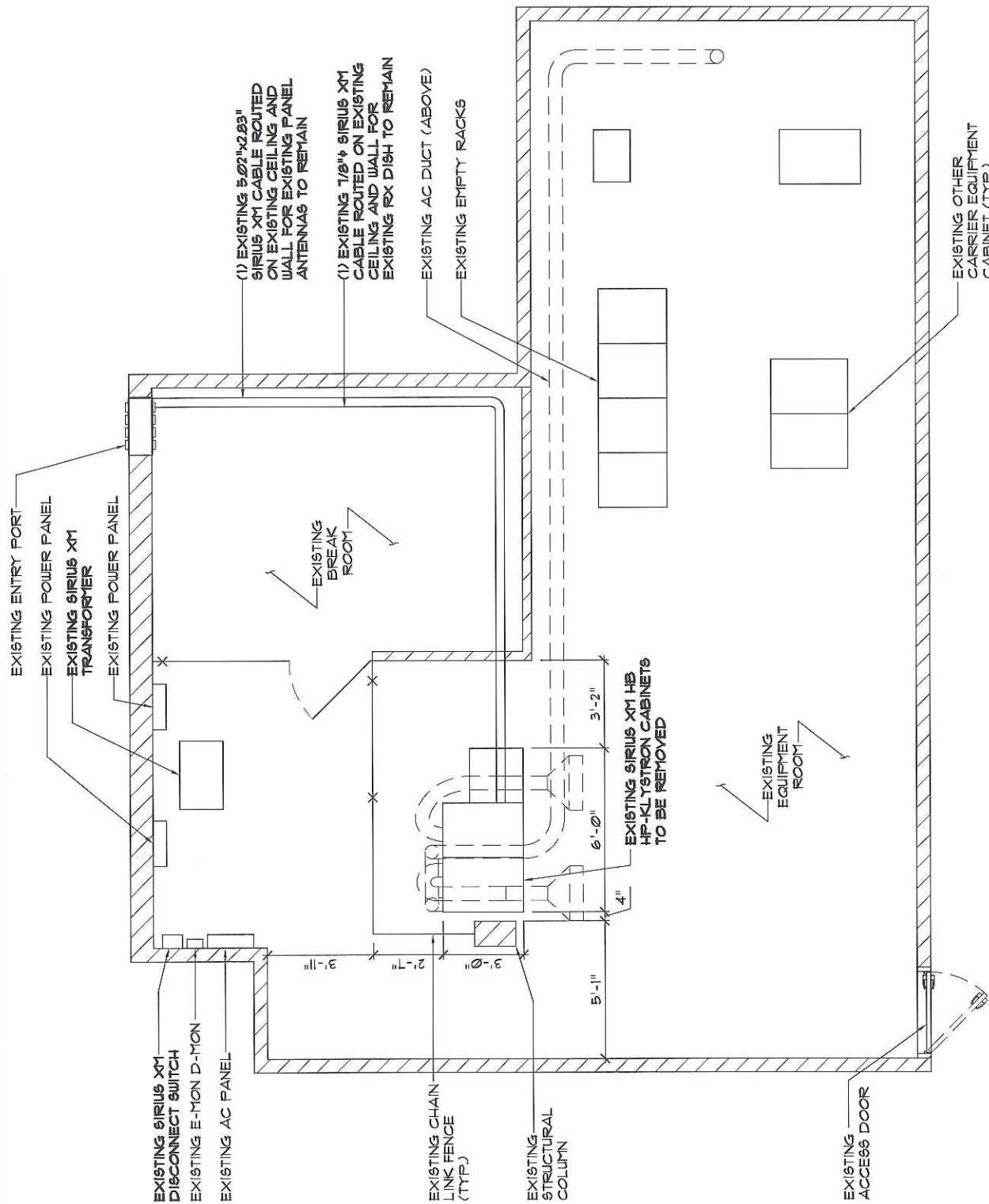
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SITE NAME	RATTLESNAKE		#	DATE	DESCRIPTION	INT.
				8/26/13	LEASE EXHIBIT	88
SITE NUMBER	HAR013A/ HAR_15-08			9/6/13	REV. 1	AB
SITE ADDRESS	190 COLT HIGHWAY (RT. 6) FARMINGTON, CT 06032		TITLE	PROPOSED ENLARGED SITE PLAN		LE-3

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SCALE:
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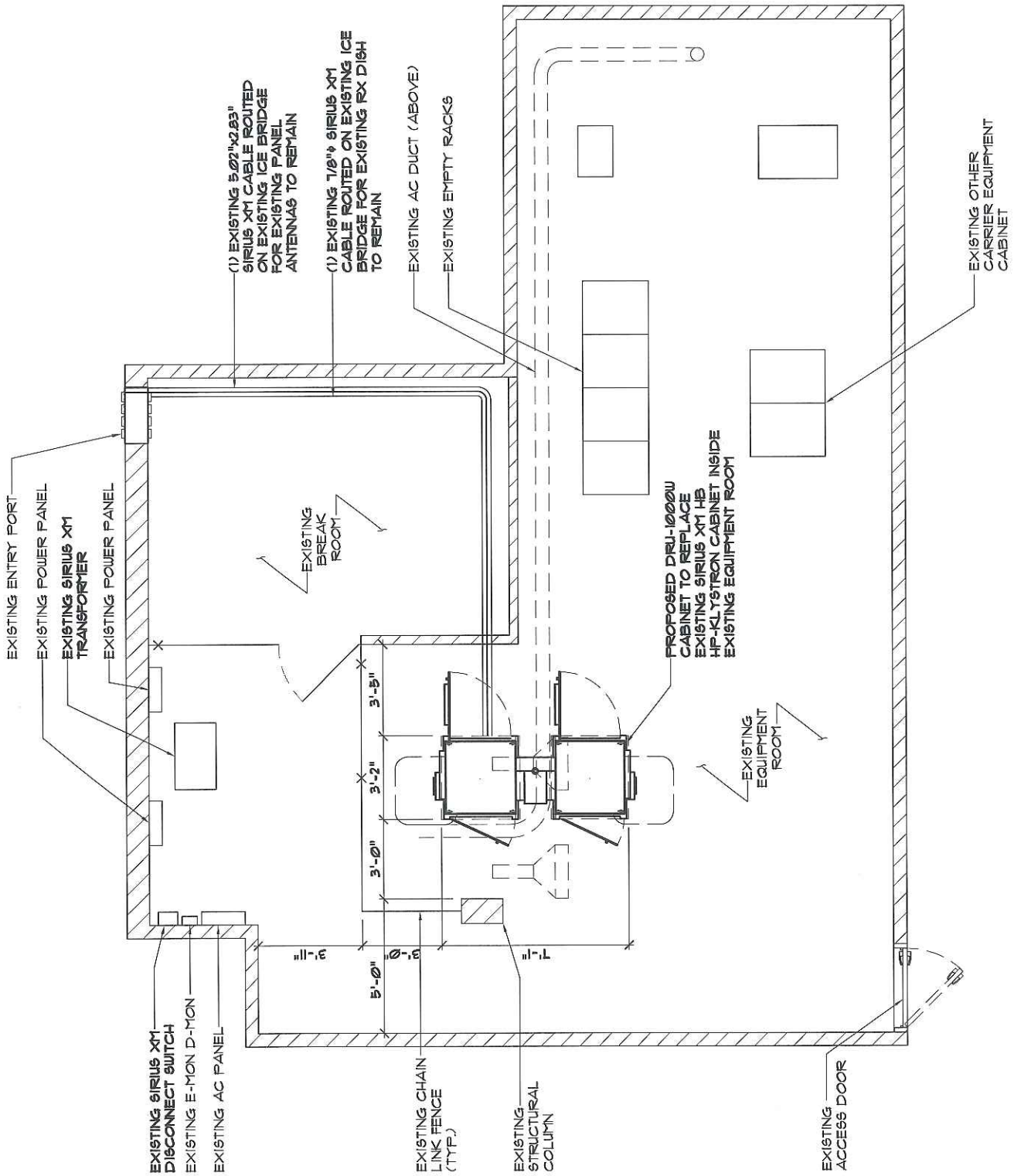
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SITE NAME	RATTLESNAKE		#	DATE	DESCRIPTION	INT.
				8/26/13	LEASE EXHIBIT	88
SITE NUMBER	HAR013A/ HAR_15-08			9/6/13	REV. 1	AB
SITE ADDRESS	190 COLT HIGHWAY (RT. 6) FARMINGTON, CT 06032		TITLE	EXISTING EQUIPMENT LAYOUT		LE-4

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SITE NAME	RATTLESNAKE		
	#	DATE	DESCRIPTION
SITE NUMBER		8/26/13	LEASE EXHIBIT
		9/6/13	REV. 1
SITE ADDRESS			INT.
			85
			AB
TITLE	PROPOSED EQUIPMENT LAYOUT		LE-5

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⊕ T/EXISTING MAST
ELEV. = 1339'-0" ± A.G.L.

⊕ T/EXISTING GATED TOWER
ELEV. = 1248'-0" ± A.G.L.

PROPOSED SIRIUS XM GPS ANTENNA
MOUNTED ON EXISTING STEEL POST

⊕ & OF PROPOSED SIRIUS
XM V8AT DISH
ELEV. = 35'-0" A.G.L.

⊕ T/PROPOSED SIRIUS
XM GPS ANTENNA
ELEV. = 34'-0" A.G.L.

⊕ & OF EXISTING SIRIUS XM
RX DISH
ELEV. = 32'-0" A.G.L.

⊕ T/EXISTING BUILDING AND
ICE BRIDGE
ELEV. = 30'-0" A.G.L.

⊕ T/GRADE
ELEV. = 0'-0" A.G.L.

PROPOSED SIRIUS XM V8AT
DISH MOUNTED ON EXISTING
STEEL POST

EXISTING SIRIUS XM RX DISH

⊕ & OF PROPOSED SIRIUS XM
OMNI ANTENNA
ELEV. = 460'-0" A.G.L.

PROPOSED SIRIUS XM OMNI ANTENNA
ON PROPOSED ANTENNA MOUNT

⊕ T/GRADE
ELEV. = 0'-0" A.G.L.

Sirius XM
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SITE NAME: RATTLESNAKE
SITE NUMBER: HAR013A/
HAR 15-08
SITE ADDRESS: 190 COLT HIGHWAY
(RT. 6)
FARMINGTON, CT 06032

#	DATE	DESCRIPTION	INT.
	8/26/13	LEASE EXHIBIT	SS
	9/6/13	REV. 1	AB
TITLE: ELEVATION			LE-6

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EXISTING ANTENNAS

ANTENNA							CABLE			
ANTENNA NUMBER	ANTENNA MANUFACTURER	ANTENNA TYPE	MODEL NUMBER	AZIMUTH (TN)	TILT (+ OR -)	% OF ANTENNA FROM GROUND LEVEL (FT)	NEW OR EXISTING	CABLE TYPE	CABLE SIZE (DIA. IN)	CABLE LENGTH (FT)
1	TIL-TEK	PANEL	TA-2335-DAB-H	60°	0°	460	EXISTING	EW-20	5.02"x2.83"	490
2	TIL-TEK	PANEL	TA-2335-DAB-H	180°	0°	460				
3	TIL-TEK	PANEL	TA-2335-DAB-H	300°	0°	460				
4	TIL-TEK	RX	TA-2324-LHCP	198°	+41°	33	EXISTING	LDF5-50A	1/8"	65

EXISTING EQUIPMENT SCHEDULE

CABINET NUMBER	CABINET MANUFACTURER	CABINET TYPE	MODEL NUMBER	NOTES
1	HUGHES	REPEATER	HB HP-KLYSTRON	TO BE REPLACED BY DRU-200W

EXISTING POWER SCHEDULE

PANEL AMPERE	PANEL VOLTAGE	PANEL PHASE	NOTES
225 AMPS	240/480V	3	EXISTING

SITE COORDINATES

LATITUDE	LONGITUDE
41° 42' 13.1"	-72° 49' 54.3"

PROPOSED ANTENNAS

ANTENNA							CABLE			
ANTENNA NUMBER	ANTENNA MANUFACTURER	ANTENNA TYPE	MODEL NUMBER	AZIMUTH (TN)	TILT (+ OR -)	% OF ANTENNA FROM GROUND LEVEL (FT)	NEW OR EXISTING	CABLE TYPE	CABLE SIZE (DIA. IN)	CABLE LENGTH (FT)
1	TIL-TEK	OMNI	TA-2355-DAB-M-T2	0°	0°	460	EXISTING	EW-20	5.02"x2.83"	640
2	TIL-TEK	RX	TA-2324-LHCP	198°	+41°	32	EXISTING	LDF5-50A	1/8"	65
3	PRODELIN	V8AT	1183 WITH DEICING	216°	+35°	35	NEW	RG6-Q8	298"	75
4	TRIMBLE	GPS	57860-30	N/A	0°	33	NEW	RG6-Q8	298"	75

PROPOSED EQUIPMENT SCHEDULE

CABINET NUMBER	CABINET MANUFACTURER	CABINET TYPE	MODEL NUMBER	NOTES
1	UBS	REPEATER	DRU-1000W	TO REPLACE HB HP-KLYSTRON

POWER REQUIREMENTS FOR NEW CONFIGURATION

AMPERE	VOLTAGE	PHASE	NOTES
225 AMPS	240V	3	EXISTING

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		RATTLESNAKE		8/26/13	LEASE EXHIBIT	88
				9/6/13	REV. 1	AB
		SITE NUMBER				
		HAR013A/ HAR15-08				
		SITE ADDRESS	190 COLT HIGHWAY (RT. 6) FARMINGTON, CT 06032		TITLE	
			ANTENNA SCHEDULE			LE-7

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PROJECT:
STRUCTURAL ANALYSIS
of
Existing 1339ft
LRM3700 Guyed Mast

CUSTOMER:
HPC Wireless Services

SITE:
Rattlesnake
(aka Farmington), CT

TURRIS FILE:
13-0552
December 6, 2013



**Turris Project: 13-0552
December 6, 2013**

**STRUCTURAL ANALYSIS OF
Existing 1339 Ft. LRM3700 Guyed Mast
at Rattlesnake (aka Farmington), CT**

FOR:

HPC Wireless Services

Attention: Brian Gaudet, Site Acquisition Agent
HPC Wireless Services
22 Shelter Rock Lane, Bld.C
Danbury, CT 06810

CC: Joe Legere
Communications Site Management LLC.
Goodwin Square
225 Asylum Street, 29th Floor
Hartford, CT 06103

Issued by: Simon Pong, P.Eng, P.E.
TURRIS CORP.
70 Todd Road, Georgetown, ON, Canada L7G 4R7
Phone: (905) 877-8885 Fax: (905) 877-8835

Reviewed By: Tony Fonseca, P.E.
Turris Engineering Inc.
540 Sail Point Way, Columbia, SC 29212
Phone: (803) 781-5437 Fax: (803) 749-3128.Mob: (803) 873-1562



Turriss Project: 13-0552
December 6, 2013

Introduction

We have completed the structural analysis of the existing 1339ft LRM3700 guyed mast at Rattlesnake (aka Farmington), CT, and are pleased to submit our report for your attention.

The purpose of this analysis is to evaluate the tower for compliance with ANSI/TIA-222-G-2005 with modifications to existing antenna and feedline loading on the tower based on information provided by HPC Wireless Services on September 9, 2013 and subsequent updates from Communications Site Management LLC on December 5, 2013. Table 1 tabulates the latest list of existing antennas and feedlines to be removed from the tower. Table 2 tabulates the latest list of proposed antennas and feedlines to be removed from the tower. Table 3 tabulates the new antennas and feedlines to be added onto the tower.

Table 1 – Existing Equipment Removal

ID	Pos	Description	Qty	Elev (ft)	Tx Line	Qty	AZ	Comments	Status
27	29	Til-Tek TA-2335-DAB-H	3	460				1 per leg	E

Table 2 – Proposed Equipment Removal

ID	Pos	Description	Qty	Elev (ft)	Tx Line	Qty	AZ	Comments	Status
93		Amphenol BCR-80013-EDIN-X25	1	425	1-5/8"	1	159	New Line	P
94		Bird TTA 428 83H-01	1	425	7/8"	1	159		P

Table 3 – New Equipment Addition

ID	Pos	Description	Qty	Elev (ft)	Tx Line	Qty	AZ	Comments	Status
93		TA-2355-DAB-M-T2	1	460	EW20	1	39	Reuse Existing EW20	P
94		Prodelin VSAT #1183 (1.8m dish)	1	35	RG6-QS	1		On Leg 8 of WG Bridge	P
95		Trimble GPS Unit #57860-30	1	34	RG6-QS	1		On Leg 7 of WG Bridge	P

We trust the analysis and recommendations presented in the report will meet your requirements. However, please do not hesitate to contact us if you have any questions, or require any further information regarding this study.

1.0 Terms of Reference

The following documents and drawings were examined:

Tower Profile: Radian dwg. No. 37-1030-E01-01 Rev. 2 dated Jan/10/2005.
Tower Foundations: LeBlanc dwg. No. 3.7A1001-FE10 Issue 2 dated Aug/31/84.
LeBlanc dwg. No. 3.7A1001-FE1 Issue 1 dated May/7/84.
LeBlanc dwg. No. 3.7A1001-FE2 Issue 1 dated May/1/84.
LeBlanc dwg. No. 3.7A1001-FE3 Issue 1 dated Apr/30/84.
LeBlanc dwg. No. 3.7A1001-FE4 Issue 1 dated Apr/30/84.
LeBlanc dwg. No. 3.7A1001-FE5 Issue 1 dated May/1/84.
LeBlanc dwg. No. 3.7A1001-FE6 Issue 1 dated Apr/30/84.
Radian dwg. No. 37-1030-F01-01 Rev. 0 dated Oct/4/2004.
Radian dwg. No. 37-1030-F02-01 Rev. 0 dated Oct/5/2004.
Radian dwg. No. 37-1030-F03-01 Rev. 0 dated Oct/5/2004.

1.0 Terms of Reference (cont'd)

Antenna Inventory: Refer to Appendix A.
Soil Report: Dr. Clarence Welti, Geotechnical Engineering
Report dated January 30, 2004

A tower inspection was not performed in conjunction with this analysis. The tower and loading data used in this analysis are based on and is as accurate as the data furnished/obtained.

2.0 Analysis Parameters

- Standard: ANSI/TIA-222-G-2005
- County: Hartford, CT
- Basic Wind Speed: 100.00(mph)
- Basic Wind Speed With Ice: 50.00(mph)
- Design Ice Thickness: 1.00(in)
- Structure Class: II
- Exposure Category: C
- Topographic Category: 1

3.0 Assumptions

1. The tower is in good, non-corroded conditions.
2. This analysis assumes that all previous reinforcing recommendations and antenna rearrangement have been implemented.
3. All existing/future tx lines less than 3" in diameter are considered grouped together in blocks based on an assumed arrangement for this analysis.
4. This analysis assumes that the back-to-back diagonals at sections 6, 7, 12, 13, 19, 20, 21, and 33 had been upgraded with (1) 5/8" stitch bolt on each side of the existing middle stitch bolt.
5. This analysis assumes that the antenna mount at elevation 120' has the structural capacities to support the equipment at elev. 120'.

4.0 Analysis Results

Appendix A shows the tower profile, along with the antennas, transmission lines and ancillary loading considered in this analysis. The existing structure was analysed using the comprehensive computer program "TSTower". Graphical and tabular results are presented in Appendix B.

5.0 Conclusions & Recommendations

The existing 1339 ft LRM3700 guyed tower at Rattlesnake (aka Farmington), CT, was examined for compliance with American standard ANSI/TIA-222-G-2005. A summary of member stresses are listed below:

Summary of member stress ratios

Member Type	Section	Panel	Member size	Ratio	Comment
Leg	15	4	SR 6	0.97	Acceptable
Diagonal	6	4	2L3x2x1/4	0.77	Acceptable

Summary of original base reactions as per Rev. F*

Axial (Kips)	Shear (Kips)
3087.9	10.4

* values increased by 1.35 for comparison

Summary of base reactions as per Rev. G**

Axial (Kips)	Shear (Kips)
3756.6	86.9

**foundation is acceptable after re-checking the original design.

Summary of original anchor design reactions as per Rev. F*

Anchor #	Azimuth (deg)	Radius (ft)	Elevation (ft)	Horizontal Load (Kips)	Vertical Load (Kips)	Axial Load (Kips)
1C	39.0	685.00	-25.0	579.29	378.41	692.01
2C	159.0	645.00	-30.0	582.39	409.32	711.86
3C	279.0	729.00	-120.0	575.51	422.15	713.61
1B	39.0	845.00	-140.0	143.51	166.46	219.78
2B	159.0	735.00	-38.0	151.47	184.95	239.09
3B	279.0	827.00	-130.0	149.45	175.91	230.85
1A	39.0	875.00	-150.0	284.31	386.24	479.12
2A	159.0	765.00	-33.0	295.79	423.77	515.97
3A	279.0	857.00	-129.0	289.04	395.82	489.78

* values increased by 1.35 for comparison

Summary of anchor reactions as per Rev. G

Anchor #	Azimuth (deg)	Radius (ft)	Elevation (ft)	Horizontal Load (Kips)	Vertical Load (Kips)	Axial Load (Kips)
1C	39.0	685.00	-25.0	508.43	357.74	621.67
2C	159.0	645.00	-30.0	512.61	380.59	638.45
3C	279.0	729.00	-120.0	503.04	393.49	638.66
1B	39.0	845.00	-140.0	124.75	157.74	201.10
2B	159.0	735.00	-38.0	130.38	171.52	215.45
3B	279.0	827.00	-130.0	128.26	164.17	208.33
1A	39.0	875.00	-150.0	240.28	363.63	435.85
2A	159.0	765.00	-33.0	247.48	390.65	462.44
3A	279.0	857.00	-129.0	242.45	368.67	441.24

5.0 Conclusions & Recommendations (cont'd)

A check to the base foundation shows that it is adequate for the base reactions as per Rev.G. A comparison of the reactions shows that the anchor reactions as per Rev.G are less than the original design allowable reactions increased by 1.35 for comparison.

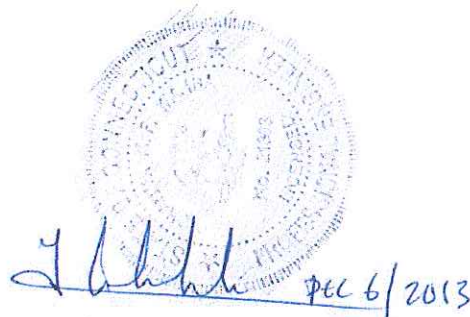
The tower and waveguide bridge remains in compliance with ANSI/TIA-222-G-2005 in consideration with the assumptions and documentations as stated in this report. However, we highly recommend that a survey of the antennas and lines to be conducted on the tower to document the exact elevation and plan positions of the antennas and lines since there have been numerous changes to the tower throughout the years.

Issued by:

Reviewed by:



Simon Pong, P.Eng., P.E.
Senior Project Engineer
Turriss Corp.



John Wahba, Ph. D, P. E., P. Eng.
Principal Engineer
Turriss Corp.



Turriss Project: 13-0552
December 6, 2013

SCOPE & LIMITATIONS FOR THE PROVISION OF PROFESSIONAL ENGINEERING SERVICES FOR STRUCTURES

All engineering services performed by Turriss Corp. (Turriss) in connection with the structural analysis of the tower is limited to the strength of the members and does not account for any variations due fabrication, including welding and connection capacities and installations, except as outlined in this Report.

This analysis report is based on assumptions that the information below, but is not necessarily limited to:

- information supplied by the client regarding the structure and its components, foundations, soil conditions, appurtenances loading on the structure, and other site-specific information.
- information from documents and/or drawings in the possession of Turriss Corporation, or acquired from field inspections.

It is the responsibility of the client to ensure that the information provided to Turriss, 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 provided, and are in non-corroded condition and have not deteriorated. Therefore, we assume that the member capacities have not changed from the "as new" condition.

All services will be performed to meet the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed to in writing. If wind and ice loads or other relevant parameters are to be different than the minimum values recommended by the standards, the client shall specify the requirement.

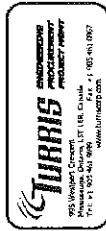
All services are performed in accordance with generally accepted engineering principles and practices. Turriss is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Furthermore, Turriss assumes no obligations to revise any of the information or conclusions contained in this Report in the event that such engineering and analysis procedures and formulas are hereafter modified or revised. In addition, under no circumstances will Turriss have any obligations or responsibility whatsoever for or on account of consequential or incidental damages sustained by any person, firm or organization as a result of any information or conclusions contained in the report and the maximum liability of Turriss Corp., if any, pursuant to this Report shall be limited to the total funds actually received by Turriss Corp. for preparation of this Report.



Turris Project: 13-0552
December 6, 2013

APPENDIX A
Tower Profile

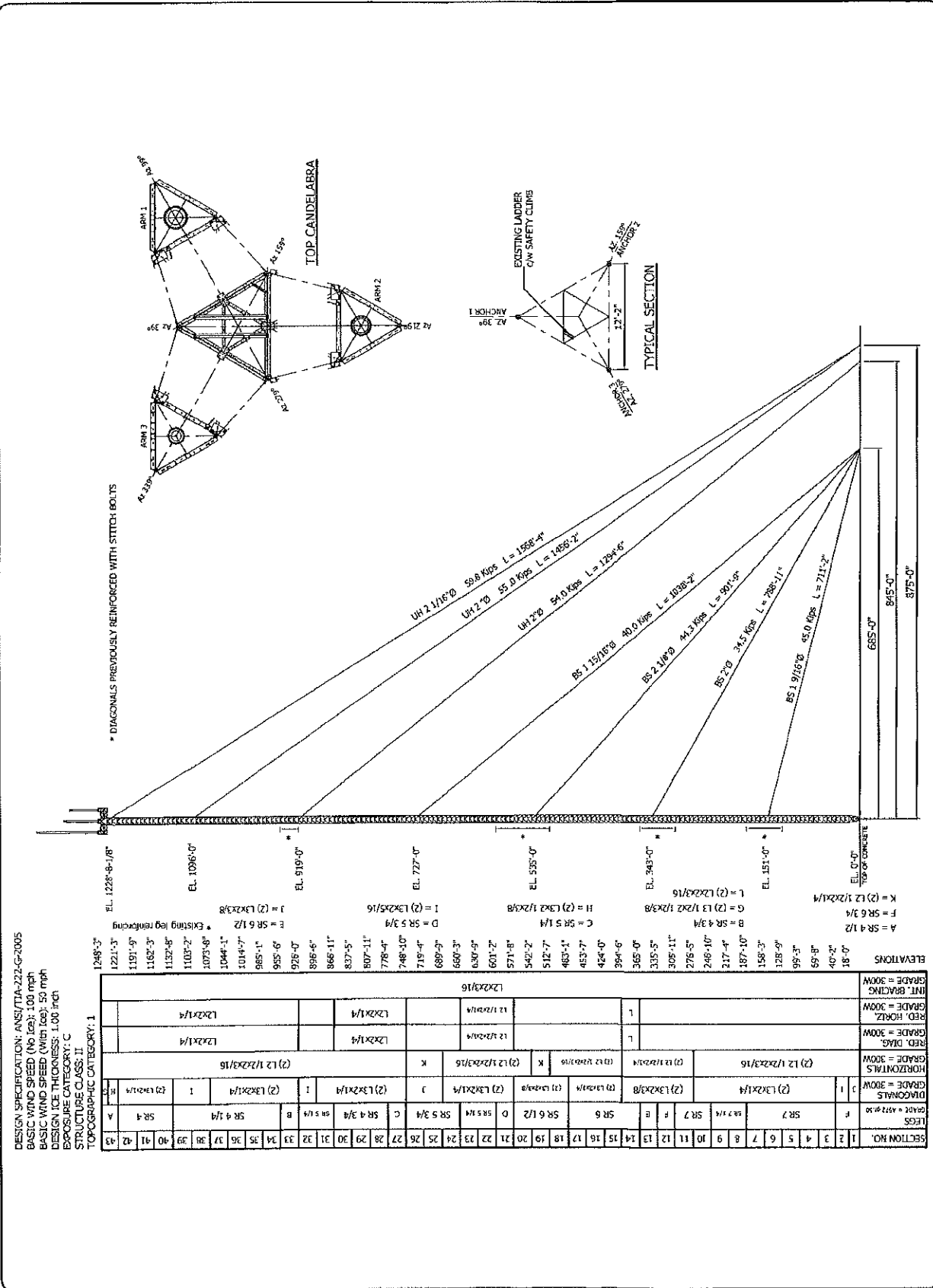


REV.	DESCRIPTION	DATE	BY

DWG. REFERENCE	

PROJECT	EXISTING 123FT LPM#700
ISSUE	VERIZON WIRELESS
LOCATION	BATTLEMEAD (HARTFORD CT), CT

TOWER PROFILE			
DATE	SCALE	PROJECT NO.	REV.
DEC 04 13	1:1	13-0552-700-01	0





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APPENDIX A Antenna Loading Chart

ID	Pos	Description	Qty	Elev (ft)	Tx Line	Qty	AZ	Comments	Status
Top Candelabra loading									
1	2b	TFU-16DSC-R C170	1	1273.00	7 3/16" **	** Shared		East Arm Bottom Up	E
1	3a	TFU-18JTH/VP-R-04	1	1315.55	7 3/16" *	* Shared		NW Arm Top Up	E
1	3b	TFU-18DSC/VP-R C170	1	1266.70	7 3/16" *	* Shared		NW Arm Bottom Up	E
				1248.25	6-1/8"	Spare			F
Miscellaneous loading on tower mast									
4	4	Radio Waves PR09-DRB-2C	1	1209	1 5/8" + 1"	1 Each	39	ProscanIII	E
6		TLP24A	1	1100	4 1/16"	1	39	Leg mounted	E
9	7	FM ERI-1183-1CP	1	845	3 5/8" + 1 5/8"	1	1 Bay Each Face		E
10		DB809-H	1	800	3 1/8"	1	39		E
11	9	DB413	2	778	1 5/8"	1	39, S Face		E
12	10	DB413	2	755	1 5/8"	1	39, S Face		E
13				750	1 1/4"	1			
14	13	ANT150D6-9	1	747	1 5/8"	1	159		E
15		DB809-H	1	726	1 5/8"	1	39		E
16	14	DB254C	2	715	None	None	S Face		E
17	15	DB8983P	1	715	None	None	159		E
18	16	DB420B	1	708	None	None	39		E
19		DB809K	1	688	1 5/8"	1	39		E
20		DB224	1	671	1 5/8"	1	39		E
25	25	Scala OGB9-900K	1	514	1 5/8"	1	39		E
26	26	Dish Mounts & I/G	3	512	None	None	39, 159, 279		E
28	30	BCD87010N25-6	1	440	1 5/8"	1	39		E
29	32	DB Dipole	1	416	7/8"	1	39		E
30	33	SHPX-2AE	1	405	3 1/8"	1	159	WRCH	P
35	51	Scala OGB9-900N	1	320	7/8"	1	279		E
36	52	I/G	3	310	None	None	1 Each Face		E
39	55	Scala 450	1	300	7/8"	1	279		E
42		PXL8	1	283	EW 63	2	279		E
43		MF900B	1	270	1 1/4"	1	279		E
52	64	BMR 10A	1	165	1 5/8"	1	39		E
53		DB950F65T4E-M	2	160	2 1/4"	2	279		E
54		DB950F65T4E-M	1	160	2 1/4"	1	39		F
64	66	PD400	1	121	7/8"	1	159		E
66		PD1110	1	110	1 1/4"	1	159		E
67	70	Ice Guards	1	96	None	None	39	RELOCATED	E
70		A-18A24	1	70	2 1/4"	1	39		E
71		Dish Mount	1	64	None	None	39		E
72		Dish Mount	1	57	None	None	39		E
73		Dish Mount	1	46	None	None	39		E
74	73	Ice Guards	1	35	None	None	39		E
75	74	PL6	1	30	EW63	1	39		E
76		Kathrein 742 213	3	140	1 5/8"	6	30, 150, 270	Leg flush mounted	E
77		Hyperlink 3ft dish w/ radome	1	210	Cat 5 cable^	1	39	Computer hospital	E
78		Proxim 5054R-LR Base panels	2	210	Cat 5 cable^	3	159	Computer hospital	E
79		Scala PR-950U	1	328	1 5/8"	1	159	WJMJ Radio and TV	E



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December 6, 2013**

80	Scala PR-950U	1	50	7/8"	1	279	WJMJ Radio and TV	E
81a	Swedcom SCE6016 Rev 2	2	120	1-5/8"	12	0		E
81b	Swedcom SP-E5017T4	2	120			0		E
81c	Swedcom SWCP 2x5514	1	120			0		P
82	Swedcom SACP 2x5516	1	106			120		P
83a	Swedcom SCE6016 Rev 2	2	120			270		E
83b	Swedcom SWCP 2x5514	1	120			270		P
83c	Swedcom SACP 2x5516	1	120			270		P
84	Andrew CBC721-DF	2						P
86	12' lightweight T-frame	1	120			0		E
87	12' lightweight T-frame	1	106			120		E
88	12' lightweight T-frame	1	120			270		E
90	Andrew VHLP 2.5 (30")	6	195	7/8"	9	39, 159, 279	Two Dishes on Each Leg	E
91	Ice Shield (2'6"x 2'6")	1	37	None	None	159		E
92	Camera Sony SNC-RZ50N	1	36	Cat 5 cable + RG 6	1+2	159		E
93	TA-2355-DAB-M-T2	1	460	EW20	1	39	REUSE EXISTING EW20	P
94	Prodelin VSAT #1183 (1.8m dish)	1	35	RG6-QS	1	Leg 8 of WG Bridge	.298" dia. coax cable	P
95	Trimble GPS Unit #57860-30	1	34	RG6-QS	1	Leg 7 of WG Bridge	.298" dia. coax cable	P

^Cat 5 cables are bundled together to 210'



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APPENDIX B
Results of Analysis

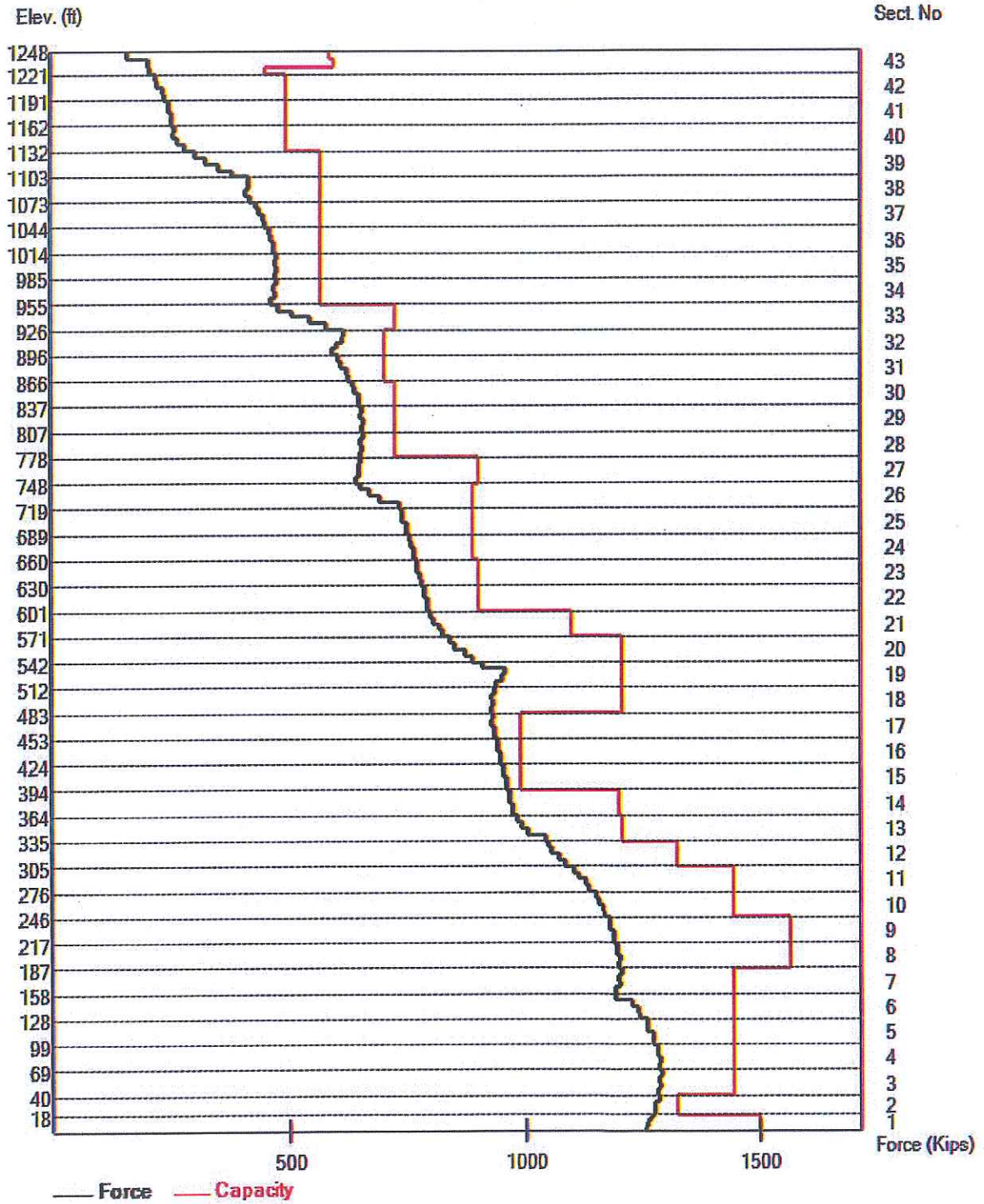
Guy Elevation (ft)	Guy Maximum Stress Levels (% of Rated Capacity)
1228.68	71
1096.00	69
919.00	66
727.00	68
535.00	62
343.00	56
151.00	67

Elevation (ft)	Maximum Beam Rotation (Degrees) for Serviceability Conditions
1209.00	0.95
800.00	0.76
747.00	0.77
726.00	0.77
688.00	0.79
671.00	0.79
440.00	0.77
328.00	0.71
283.00	0.68
210.00	0.58
195.00	0.55
140.00	0.44
120.00	0.40
110.00	0.38
106.00	0.36
50.00	0.25
30.00	0.24



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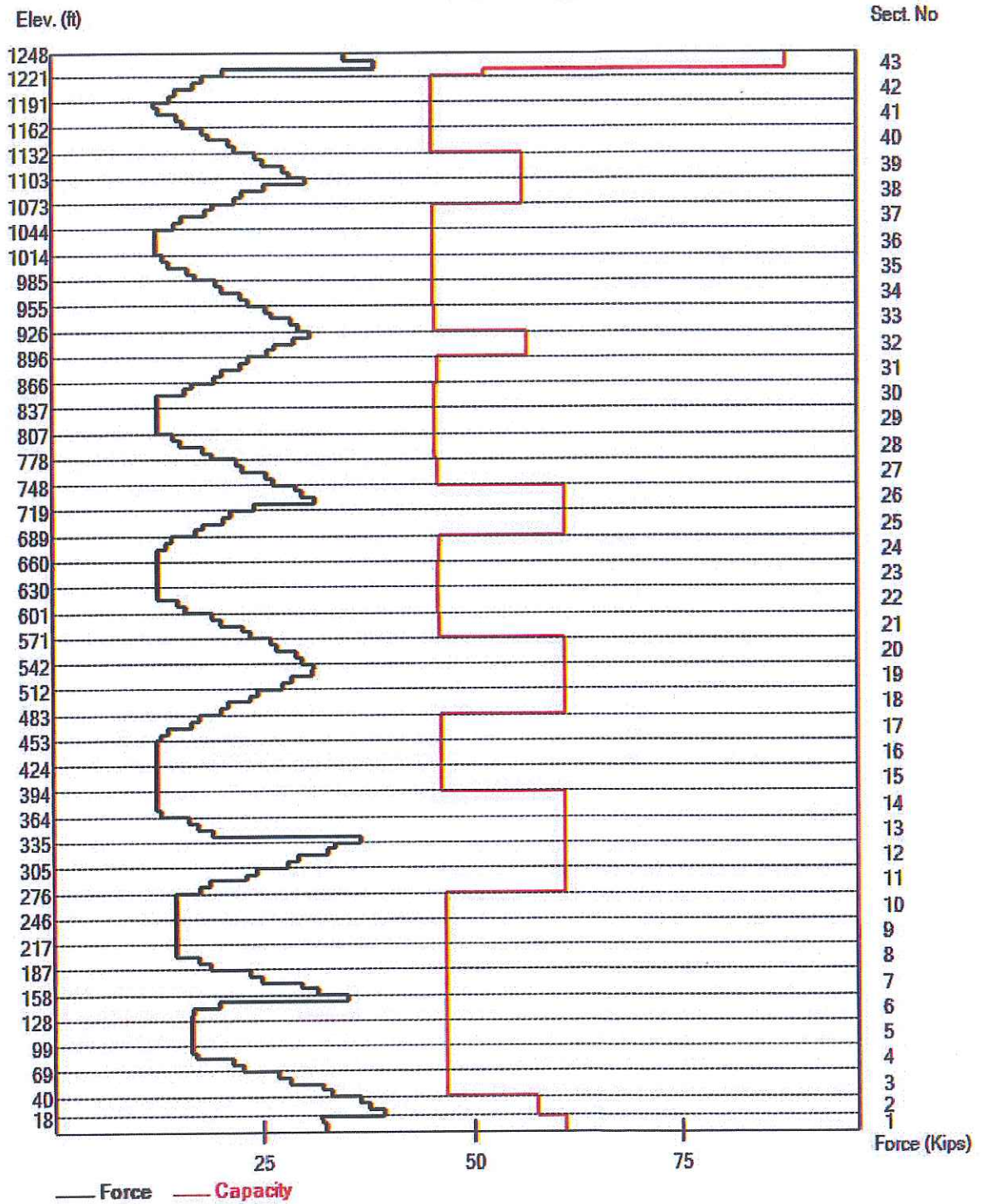
Leg Load Compression Diagram
Max. Envelope (All Loading Cases)





Turris Project: 13-0552
December 6, 2013

Diag. Load Compression Diagram
Max. Envelope (All Loading Cases)





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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

Sirius XM Radio Facility

Site ID: HAR013A / HAR 15 08

Rattlesnake
190 Colt Highway
Farmington, CT 06032

January 6, 2014

EBI Project Number: 69132804

January 6, 2014

HPC Wireless
Attn: Brian Gaudet
22 Shelter Rock Lane
Building C
Danbury, CT 06810

Re: Emissions Values for Sirius XM Radio Site: HAR013A / HAR 15 08 – Rattlesnake

EBI Consulting was directed to analyze the proposed upgrades to the existing Sirius XM Radio facility located at 190 Colt Highway, Farmington, CT, for the purpose of determining whether the emissions from the proposed Sirius XM Radio equipment upgrades on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the cellular band is approximately 567 $\mu\text{W}/\text{cm}^2$, and the general population exposure limit for the PCS band is 1000 $\mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed upgrades to the existing Sirius XM Radio Wireless antenna facility located at 190 Colt Highway, Farmington, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario. Actual values seen from this site will be dramatically less than those shown in this report. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all emissions were calculated using the following assumptions:

- 1) 1 transmit channel was considered for this proposed installation
- 2) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 3) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
- 4) The antenna used in this modeling is the Til-Tek TA-2335-DAB-M-T2. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 7.9 dBd gain value at its main lobe at 2300 MHz. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario.



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- 5) The antenna mounting height centerline of the proposed antennas is **460 feet** above ground level (AGL)
- 6) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculation were done with respect to uncontrolled / general public threshold limits

Site ID	HAR013A / HAR_15_08 - Rattlesnake	
Site Address	190 Colt Highway, Farmington, CT, 06032	
Site Type	Guyed Tower	

Sector 1 - OMNI																
Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	Antenna analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1	Ti-Tek	TA-2335-DAB-M-T2	Ground	2300 MHz	1000	1	1000	-7.9	460	454	5.02"	1	0	4897.7882	8.542683	0.85427%
Sector total Power Density Value:															0.854%	

Site Composite MPE %	
Carrier	MPE %
Sirius XM Radio	0.854%
MetroPCS	6.200%
CVG	3.810%
Media FLO	0.040%
All Other Sources	14.180%
Verizon Wireless	25.780%
Clearwire	0.510%
Sprint	6.690%
T-Mobile (Adjacent Twr)	0.210%
Total Site MPE %	58.274%



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Summary

All calculations performed for this analysis yielded results that were well within the allowable limits for general public exposure to RF Emissions.

The anticipated Maximum Composite contributions from the Sirius XM Radio facility are **0.854%** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **58.274%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

EBI Consulting

21 B Street
Burlington, MA 01803