

Technical Report and Exhibits W286CN Minor Modification

This technical report is submitted for a minor modification to translator CP W286CN at Bellevue, TN, FCC file no. BNPFT-20130829AHS. The translator is to serve as a fill-in facility rebroadcasting WMOT-FM HD2 at Murfreesboro, TN, FCC facility I.D. 41997.

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W248BM Modification

An overlap study in exhibit E-2 shows the W286CN modification is within the second adjacent WGFX-FM protected contour at Gallatin, TN, FCC facility I.D. 16893. As a result, the interference ratio is utilized to determine the +40 F(50-10) interfering contour. The F(50-50) contour from WGFX-FM to the W248BM tower site was calculated to be 83.4 dBu and the +40 second adjacent F(50-10) interfering contour is 123.4 dBu, shown in exhibits E-2 and E-3. As shown on Exhibit E-6, this contour will clearly not reach any populated areas or major highways. Therefore, a waiver of section 74.1204 for this facility is requested, in accordance with *Living Way Ministries, Inc.* (FCC 08-242). It is noted that the location is an established communications site with strict access and roads for service personnel only.

RF Exposure

The directional antenna is mounted at a COR AGL of 46 meters, 381 meters AMSL, (181.5 meters HAAT from 30 second FCC terrain data), rotated at a 310 degree azimuth and will operate at 0.250 kW ERP.

The RF contribution was calculated using the formula from the OET Bulletin 65:

$$S(RF \text{ in microwatts/cm}^2) = 33.4 \times (F \times F) \times (H \text{ ERP} + V \text{ ERP in watts}) / R_{xR}^2 \text{ (the distance to radiation center in meters}^2\text{)}$$

Using the worst case vertical factor (F) of 1, the result is less than 1/4th of the 200 $\mu\text{W/cm}^2$ maximum permissible for general public exposure requiring consideration. Signs are posted in the vicinity of the tower, warning of potential radio frequency hazards at the site. The applicant will cooperate with other users of the tower to reduce power of the facility, or discontinue operation, as necessary, to limit human exposure to levels less than specified by the Federal Communications Commission. As mentioned above, access to the site area is strictly limited.

Conclusion

The W286CN modification complies with all Commission rules and policies.

/s/ Gary M Brown

Date: 10-27-14

GARY M. BROWN

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EXHIBIT E-1

FCC REG 1218005

36-02-46.8 N
86-49-46.7 W

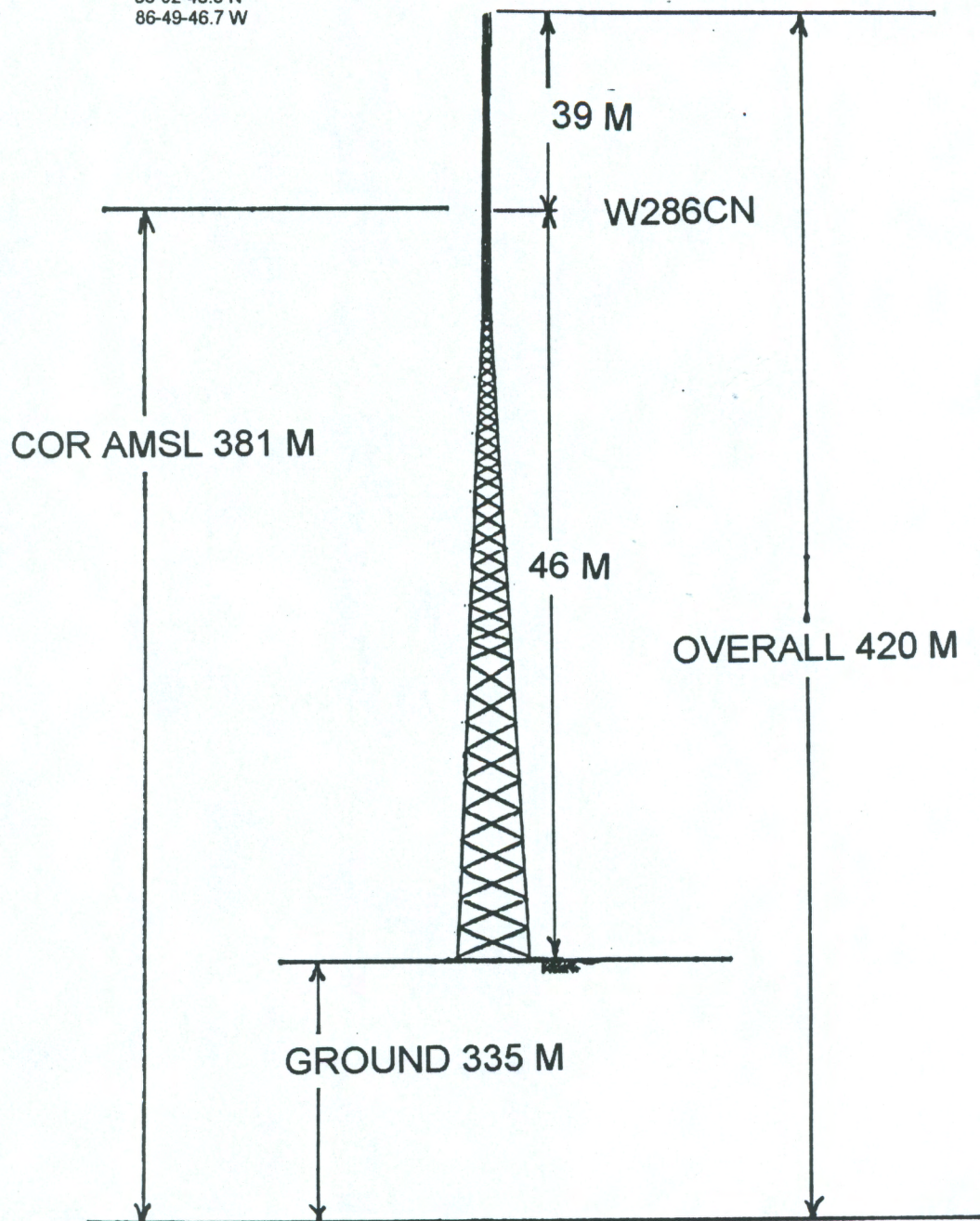


EXHIBIT E-2

CP MOD

Middle Tennessee State University

REFERENCE
36 02 46.6 N.
86 49 46.7 W.

CH# 285D - 104.9 MHz, Pwr= 0.23 kW DA, HAAT= 181.5 M, COR= 381 M
Average Protected F(50-50)= 17.31 km
Standard Directional

DISPLAY DATES
DATA 10-16-14
SEARCH 10-29-14

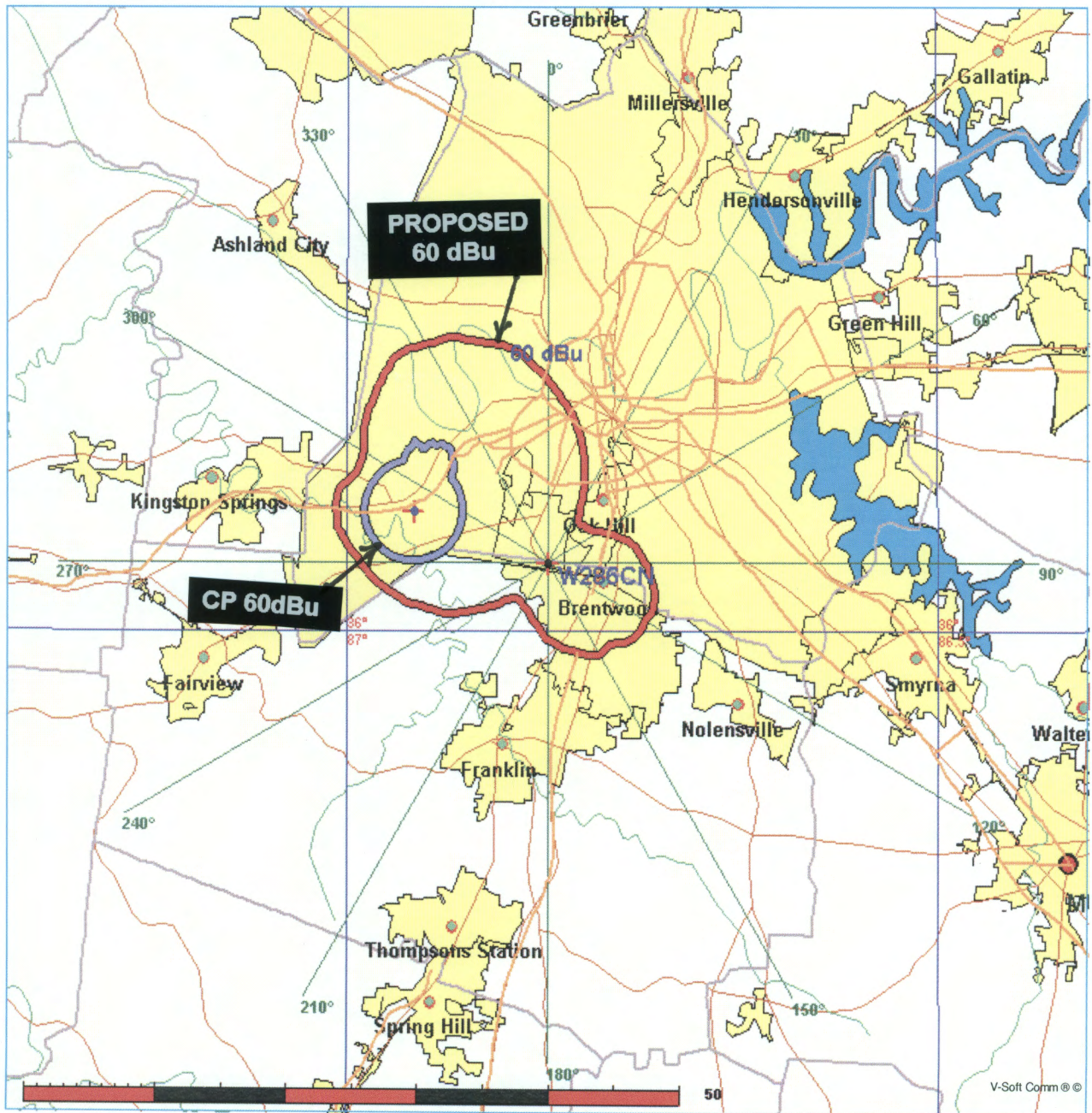
CH CITY	CALL	TYPE STATE	ANT STATE	AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
283C1 Gallatin	WGFX	LIC	ZCX TN	7.0 187.0	24.84 BLH20020909ABA	36 16 05.0 86 47 45.0	58.000 368	9.3 552	71.7 Radio License Holding Cbc,	0.1	-47.3*
285A Woodbury	WBOZ	LIC	NCN TN	111.9 292.3	65.25 BLH19970214KB	35 49 33.0 86 09 28.0	6.000 100	94.5 352	34.3 Reach Satellite Network	-37.7*	3.0
286D Bellevue	W286CN	CP	_C_ TN	290.6 110.5	10.94 BNPFT20130829AHS	36 04 51.0 86 56 37.0	0.020 7	5.3 197	3.7 Middle Tennessee State Uni	-10.7*	-17.6
286C2 Waverly	WVRY	LIC	_CN TN	274.1 93.6	72.51 BLH19890619KB	36 05 25.0 87 38 05.0	50.000 150	73.3 355	48.2 Jwl Communications Llc	-16.9*	0.5
288D Nashville	W288CI	LIC	_C_ TN	17.7 197.7	15.24 BLFT20130612AAL	36 10 37.0 86 46 41.0	0.055 44	0.5 206	4.8 Calvary Chapel of Twin Fal	3.3	9.8
231A Smyrna	WFFH	LIC	_CX TN	99.4 279.5	17.43 BLH20060608ACY	36 01 14.0 86 38 18.0	3.200 138	12.8 328	58.8 Caron Broadcasting, Inc.	9.5R	7.9M
287D Mount Juliet	W288BG	CP	_C_ TN	68.3 248.5	30.62 BPFT20130417ABQ	36 08 52.0 86 30 46.0	0.080 44	0.6 212	7.6 Calvary Chapel of Twin Fal	23.9	23.0
288D Lebanon	W288BG	LIC	_C_ TN	73.3 253.5	42.53 BLFT20061101ADK	36 09 20.0 86 22 33.0	0.010 151	0.2 337	7.2 Calvary Chapel of Twin Fal	35.8	35.3
288D Columbia	W288DC	CP	_V_ TN	202.2 22.0	51.52 BNPFT20130830AAC	35 37 01.0 87 02 41.0	0.038 55	0.4 271	6.9 Rural Life Foundation, Inc	44.6	44.5

Terrain database is NGDC 30 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference zone= East Zone, Co to 3rd adjacent.
All separation margins (if shown) include rounding
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
"*"affixed to 'IN' or 'OUT' values = site inside protected contour.

EXHIBIT E-3 FIGURE 1

CP MOD

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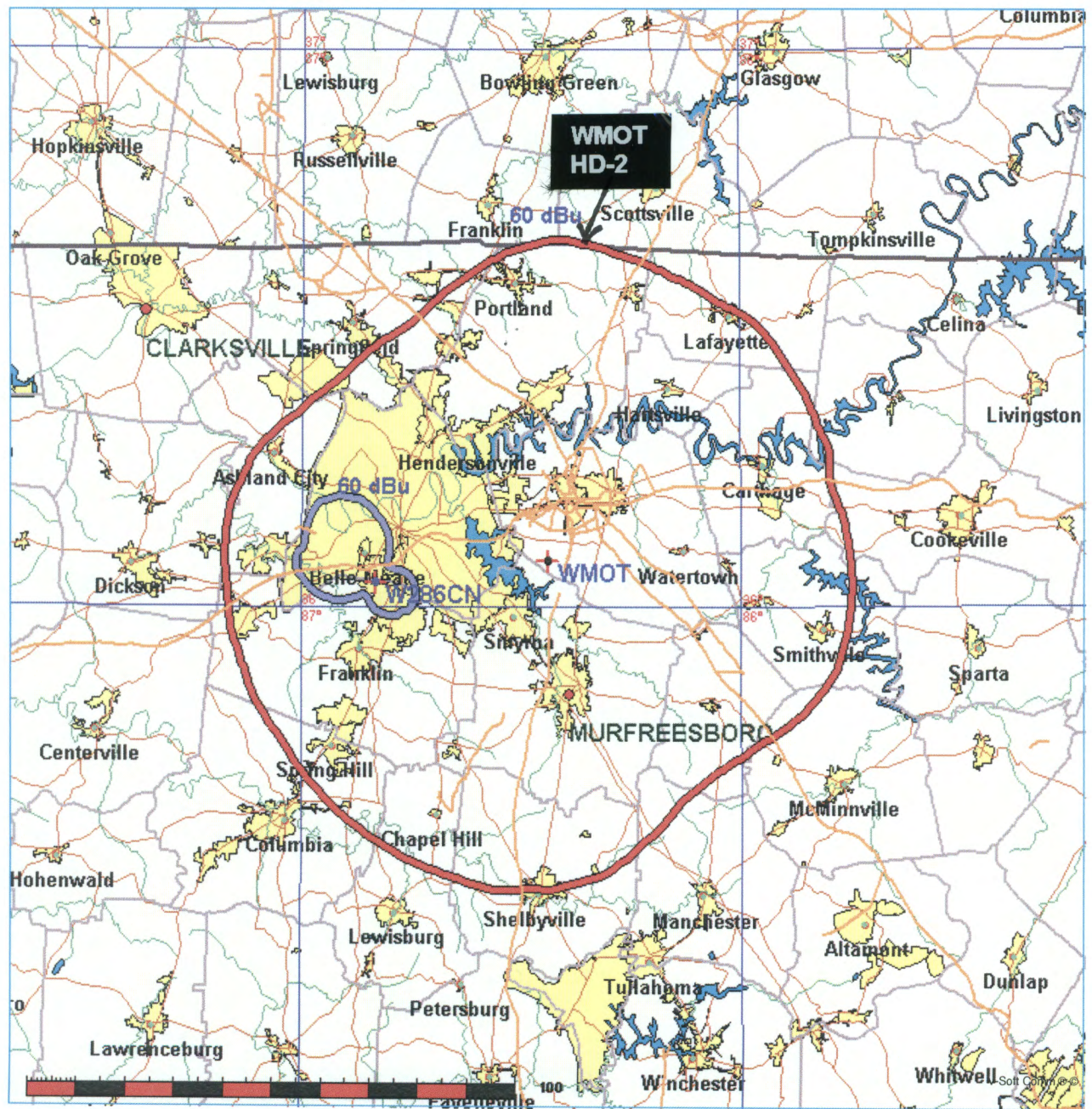
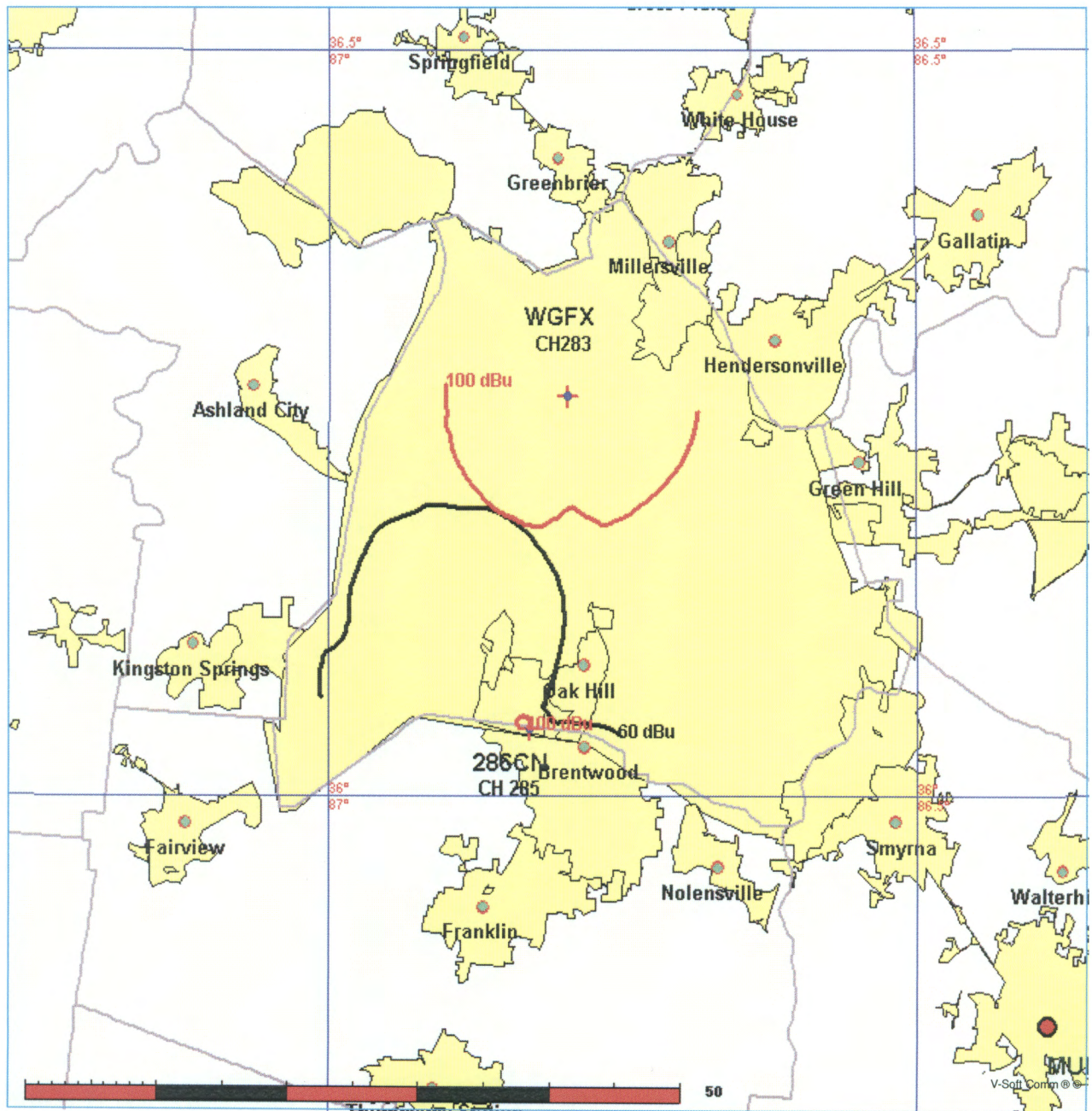


EXHIBIT E-4 FIGURE 1

CP MOD
Middle Tennessee State University



CP MOD
Middle Tennessee State University

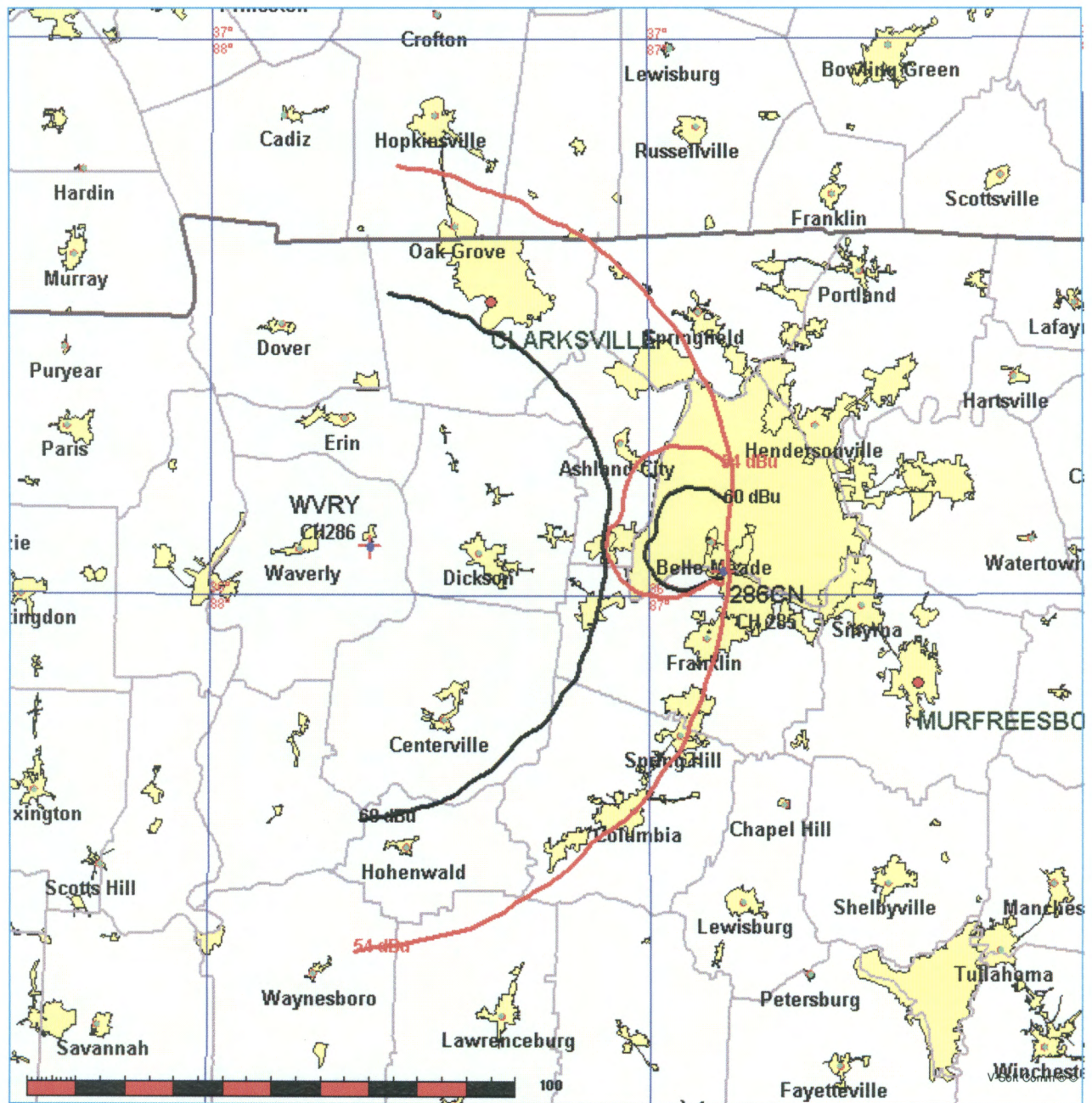


EXHIBIT E-4 FIGURE 3

CP MOD
Middle Tennessee State University

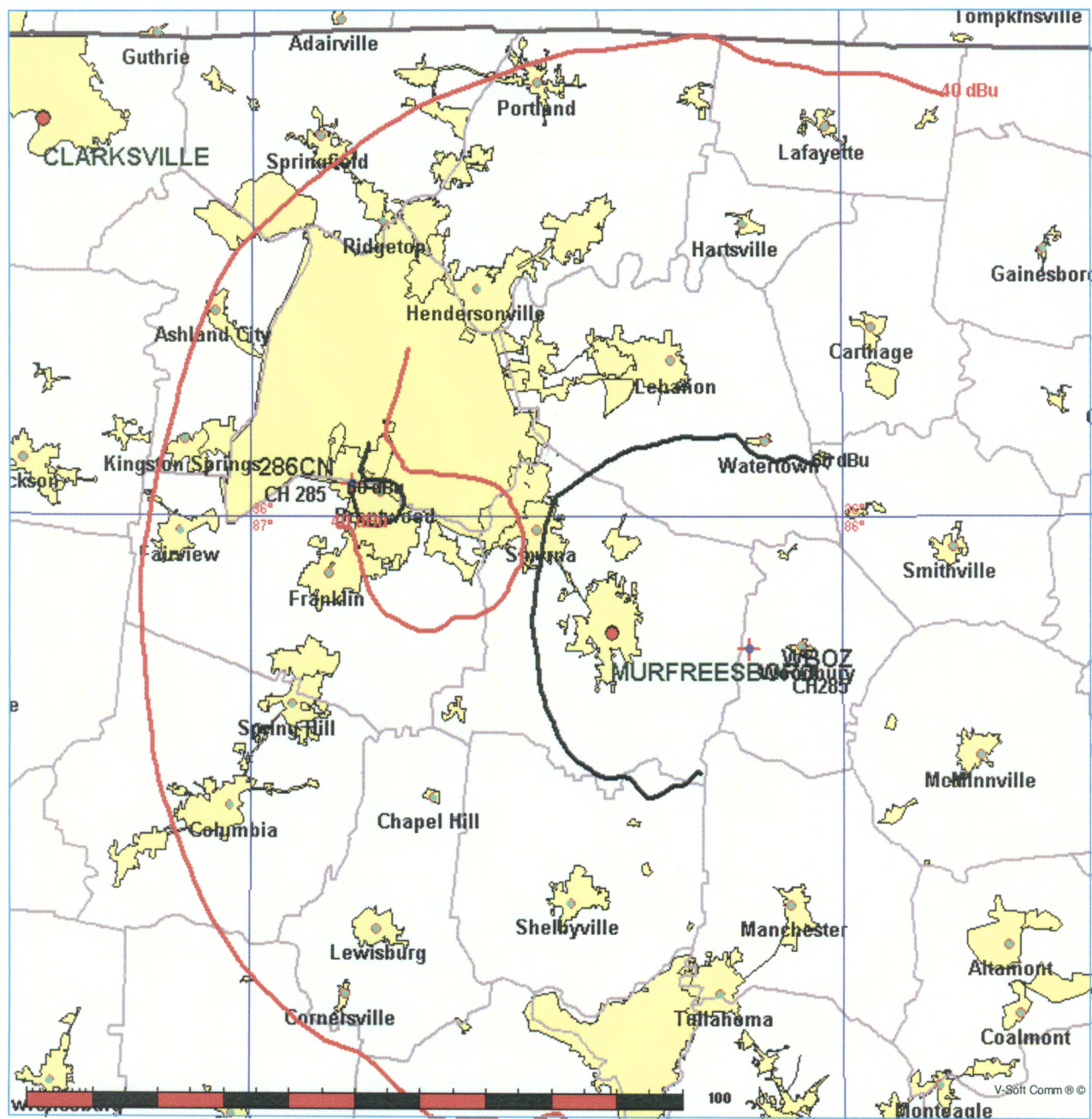


EXHIBIT E-5 FIGURE 1

KATHREIN
SCALA DIVISION

CA2-FM FM Dipole Reflector Antenna 88 to 108 MHz

The Scala CA2-FM is a ruggedly built dipole reflector antenna, designed for professional FM transmit and receive applications.

Like all Scala antennas, the CA2-FM is made of the finest materials resulting in superior performance and long service life.

The CA2-FM may be used stand-alone or in stacked arrays for higher gain, increased side-lobe suppression, or custom azimuth patterns.



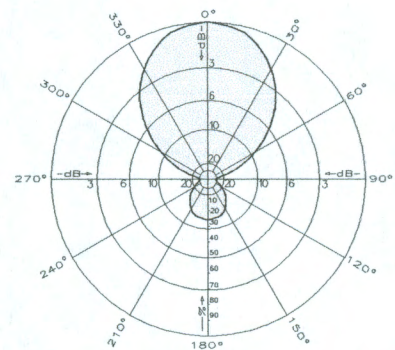
Specifications:

Frequency range	Any specified FM channel 88 to 108 MHz
Gain	4 dBd
Power gain	2.51
Impedance	50 or 75 ohms
VSWR	< 1.5:1
Polarization	Horizontal
Front-to-back ratio	>11 dB
Maximum input power	250 watts
Azimuth pattern	72 degrees (half-power)
Elevation pattern	80 degrees (half-power)
Connector	50Ω or 75Ω N female
Weight	5.7 lb (2.6 kg)
Dimensions	35.3 x 68.9 inches maximum (897 x 1750 mm)
Wind load Front	at 100 mph (160 kph) 67 lbf (257 N)
Wind survival rating*	120 mph (194 kph)
Shipping dimensions	70 x 6 x 5 inches maximum (1778 x 152 x 127mm)
Shipping weight	10 lb (4.5 kg) maximum
Mounting	For masts of 2.375 inches (60 mm) OD.

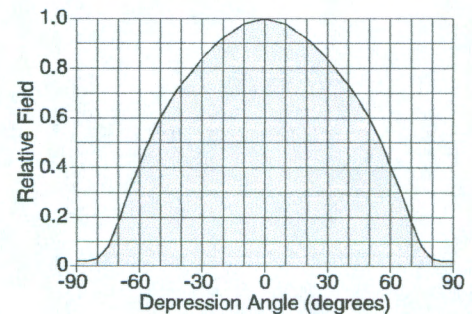
* Mechanical design is based on environmental conditions as stipulated in TIA-222-G-2 (December 2009) and/or ETS 300 019-1-4 which include the static mechanical load imposed on an antenna by wind at maximum velocity. See the Engineering Section of the catalog for further details.

Order Information:

Contact Scala Customer Service for detailed order information.



Azimuth pattern (E-plane - typical)



Elevation pattern (H-plane)



286CN

EXHIBIT E-5 FIGURE 2

RMS(V)= .489

Azi	Field	dBk	kw
000	0.600	-10.820	0.083
010	0.410	-14.127	0.039
020	0.185	-21.039	0.008
030	0.030	-36.840	0.000
040	0.020	-40.362	0.000
050	0.020	-40.362	0.000
060	0.020	-40.362	0.000
070	0.020	-40.362	0.000
080	0.025	-38.424	0.000
090	0.125	-24.445	0.004
100	0.195	-20.582	0.009
110	0.230	-19.148	0.012
120	0.250	-18.424	0.014
130	0.260	-18.083	0.016
140	0.250	-18.424	0.014
150	0.230	-19.148	0.012
160	0.195	-20.582	0.009
170	0.125	-24.445	0.004
180	0.025	-38.424	0.000
190	0.020	-40.362	0.000
200	0.020	-40.362	0.000
210	0.020	-40.362	0.000
220	0.020	-40.362	0.000
230	0.030	-36.840	0.000
240	0.185	-21.039	0.008
250	0.410	-14.127	0.039
260	0.600	-10.820	0.083
270	0.735	-09.057	0.124
280	0.840	-07.897	0.162
290	0.923	-07.083	0.196
300	0.980	-06.558	0.221
310	1.000	-06.383	0.230
320	0.980	-06.558	0.221
330	0.923	-07.083	0.196
340	0.840	-07.897	0.162
350	0.735	-09.057	0.124

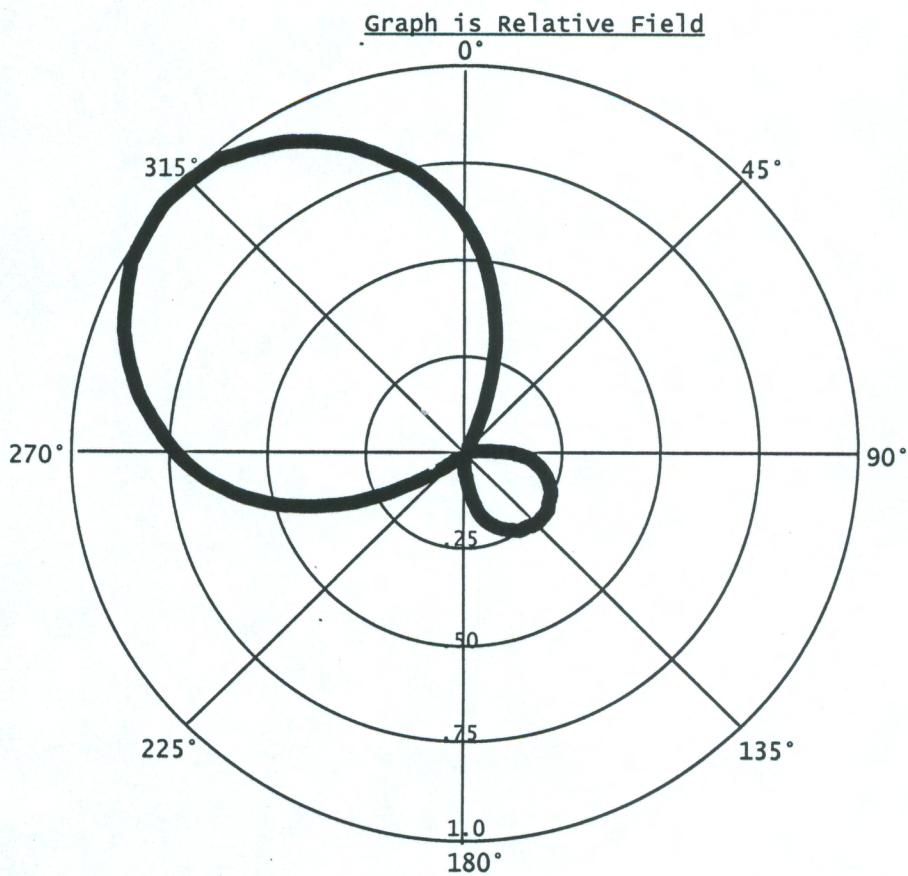


EXHIBIT E-5 FIGURE 3

N. Lat. = 360246.6 W. Lng. = 0864946.7
HAAT and Distance to Contour - FCC Method - NGDC 30 SEC

Azi.	AV EL	HAAT	ERP kw	dBk	Field	123.4-F1
000	168.4	212.6	0.0900	-10.46	0.600	0.04
010	179.1	201.9	0.0420	-13.76	0.410	0.03
020	179.6	201.4	0.0086	-20.68	0.185	0.01
030	163.6	217.4	0.0002	-36.48	0.030	0.00
040	180.2	200.8	0.0001	-40.00	0.020	0.00
050	185.2	195.8	0.0001	-40.00	0.020	0.00
060	191.7	189.3	0.0001	-40.00	0.020	0.00
070	182.0	199.0	0.0001	-40.00	0.020	0.00
080	190.0	191.0	0.0002	-38.06	0.025	0.00
090	194.6	186.4	0.0039	-24.08	0.125	0.01
100	205.3	175.7	0.0095	-20.22	0.195	0.01
110	201.2	179.8	0.0132	-18.79	0.230	0.02
120	208.1	172.9	0.0156	-18.06	0.250	0.02
130	211.0	170.0	0.0169	-17.72	0.260	0.02
140	232.7	148.3	0.0156	-18.06	0.250	0.02
150	227.9	153.1	0.0132	-18.79	0.230	0.02
160	241.9	139.1	0.0095	-20.22	0.195	0.01
170	240.7	140.3	0.0039	-24.08	0.125	0.01
180	247.1	133.9	0.0002	-38.06	0.025	0.00
190	241.8	139.2	0.0001	-40.00	0.020	0.00
200	229.6	151.4	0.0001	-40.00	0.020	0.00
210	208.6	172.4	0.0001	-40.00	0.020	0.00
220	204.1	176.9	0.0001	-40.00	0.020	0.00
230	209.5	171.5	0.0002	-36.48	0.030	0.00
240	207.5	173.5	0.0086	-20.68	0.185	0.01
250	216.2	164.8	0.0420	-13.76	0.410	0.03
260	206.0	175.0	0.0900	-10.46	0.600	0.04
270	199.6	181.4	0.1351	-8.69	0.735	0.06
280	186.6	194.4	0.1764	-7.53	0.840	0.06
290	202.2	178.8	0.2128	-6.72	0.923	0.07
300	221.7	159.3	0.2401	-6.20	0.980	0.07
310	198.2	182.8	0.2500	-6.02	1.000	0.07
320	169.0	212.0	0.2401	-6.20	0.980	0.07
330	159.7	221.3	0.2128	-6.72	0.923	0.07
340	159.2	221.8	0.1764	-7.53	0.840	0.06
350	154.8	226.2	0.1351	-8.69	0.735	0.06

SERVICE CONTOUR 1 MV/M & HAAT TABULATION

NAD 27

N. Lat. = 360246.6 W. Lng. = 0864946.7
HAAT and Distance to Contour - FCC Method - NGDC 30 SEC

Azi.	AV EL	HAAT	ERP kw	dBk	Field	60-F5
000	168.4	212.6	0.0900	-10.46	0.600	14.58
030	163.6	217.4	0.0002	-36.48	0.030	2.68
060	191.7	189.3	0.0001	-40.00	0.020	1.89
090	194.6	186.4	0.0039	-24.08	0.125	6.19
120	208.1	172.9	0.0156	-18.06	0.250	8.59
150	227.9	153.1	0.0132	-18.79	0.230	7.69
180	247.1	133.9	0.0002	-38.06	0.025	2.03
210	208.6	172.4	0.0001	-40.00	0.020	1.85
240	207.5	173.5	0.0086	-20.68	0.185	7.35
270	199.6	181.4	0.1351	-8.69	0.735	14.98
300	221.7	159.3	0.2401	-6.20	0.980	16.30
330	159.7	221.3	0.2128	-6.72	0.923	18.70

Ave EL= 199.88 M HAAT= 181.12 M AMSL= 381 M



EXHIBIT E-6 VICINITY OF SITE

Registration 1218005 [Map Registration](#)**Registration Detail**

Reg Number	1218005	Status	Constructed
File Number	A0920651	Constructed	06/02/2009
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

Structure Type TOWER - Free standing or Guyed Structure used for Commu

Location (in NAD83 Coordinates)

Lat/Long	36-02-46.8 N 086-49-46.7 W	Address	1406 Old Hickory Blvd.
City, State	Brentwood , TN		
Zip	37215	County	DAVIDSON
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
335.0	85.3
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
420.3	76.2

Painting and Lighting Specifications

FAA Chapters 4, 8, 12

Paint and Light in Accordance with FAA Circular Number 70/7460-1K

FAA Notification

FAA Study	2011-ASO-3695-OE	FAA Issue Date	06/07/2011
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Owner & Contact Information

FRN	0011498342	Owner Entity Type	Limited Liability Company
Assignor FRN	0009764150	Assignor ID	L00759842

Owner

Global Tower, LLC. through American Towers, LLC
 Attention To: FAA/FCC Regulatory
 10 Presidential Way
 Woburn , MA 01801

P: (678)265-6770
 F:
 E: faa-fcc@americantower.com

Contact

Attention To: FAA/FCC Regulatory
 10 Presidential Way
 Woburn , MA 01801

P: (678)265-6770
 F:
 E: faa-fcc@americantower.com

Last Action Status

Status	Constructed	Received	09/02/2014
Purpose	Change Owner	Entered	09/02/2014