

**W238AX (#152488)
MINOR MODIFICATION PER DA-1491
"250 MILE AM WAIVER" TO
TERRE HAUTE, IN ON
CHANNEL 250**

The proposed translator will rebroadcast WIBQ(AM) at Terre Haute, IN (facility ID # 136105). A change in channel to 250 (97.9) is proposed in accordance with the waiver provisions. The proposed facility is located 228.97 miles from the existing, licensed W238AX facility.

Distance between

N Latitude 42 5 48.00, W Longitude 90 7 37.00 (Point 1)

and N Latitude 39 27 28.00, W Longitude 87 28 50.00 (Point 2)

368.491 kilometers; 228.969 miles

Allocation discussion:

All exhibits utilize the FCC 30 second terrain database.

- E1 Channel study
- E1A Interference analysis to WBOW - 253B
- E1B Aerial photograph of interference area
- E2 60 dBu and 2 mV/m contours
- E3 ASR

A channel study is included as E1 demonstrating compliance with §74.1204 with the exception of 3rd adjacent station WBOW. A plot of the proposed 60 dBu contour is provided as E2 showing that it is entirely contained within primary station WIBQ(AM)'s 2 mV/m and 40 km radius.

WBOW analysis:

The proposed facility will be located inside the protected contour of WBOW on 253B. An interference analysis has been conducted based on the U/D ratio of +40 dB at the proposed site. WBOW places a 74.49 dBu (50:50) contour at the site (E1A). The corresponding interference contour is 114.49 which clears the ground by at least 48.7 meters (see E1A).

There are no buildings within the interfering contour (see E1B). Therefore, it is clear from E1A and E1B that the interference contours will not reach any populated area or major highways. Based on this showing, a waiver of Section 74.1204 is requested in accordance with *Living Way Ministries, Inc.* (FCC 08-242).

RF Exposure Calculation:

The proposed facility will utilize a Bext TFC-2K two bay full-wavelength spaced, circularly polarized antenna. The RF contribution of the proposed translator was calculated using a worst case F factor of 1.0 and the formula included below to be 1.16 μ Watts/cm² or 0.58% of the maximum permissible 200 microwatts/cm² exposure for general population/uncontrolled exposure, and well below the 5% of that limit which requires consideration. The proposed translator clearly complies with Commission RF radiation limits.

$$S \text{ (RF in } \mu\text{Watts/cm}^2\text{)} = \frac{33.4 (F^2 \text{ Vertical Factor}) \times (H \text{ ERP} + V \text{ ERP in Watts})}{R^2 \text{ (distance to radiation center in meters} - 2 \text{ m)}}$$



Charles M. Anderson 1-05-2016

E1 CHANNEL STUDY Edgewater Broadcasting, Inc.											
REFERENCE		CH# 250D - 97.9 MHz, Pwr= 0.25 kw, HAAT= 130.0 M, COR= 289 M								DISPLAY DATES	
39 27 28.0 N.		Average Protected F(50-50)= 14.41 km								DATA 01-05-16	
87 28 50.0 W.		Omni-directional								SEARCH 01-05-16	
CH CITY	CALL	TYPE STATE	ANT AZI <--	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*	
253B Paris	WBOW	LIC _C_ IL	308.1 127.9	26.67 BMLH20110215AEO	39 36 20.0 87 43 32.0	50.000 152	6.2 360	66.7 Midwest Communications, In	6.4	-41.7*	(1)
250A Effingham	WXEF	LIC _CN IL	250.0 69.2	106.54 BLH19940908KB	39 07 25.0 88 38 28.0	6.000 95	85.8 272	27.6 Premier Broadcasting, Inc.	6.1	29.9	
250B Anderson	WGNR-FM	LIC _C_ IN	65.5 246.6	165.60 BMLED20030908ADX	40 03 43.0 85 42 34.0	50.000 149	136.4 405	63.7 The Moody Bible Institute	13.9	35.1	
249A Spencer	WCLS	LIC _CX IN	109.7 290.2	76.49 BLH20051110ADE	39 13 22.0 86 38 40.0	6.000 100	46.6 321	29.9 Mid-america Radio Of India	14.9	23.4	
251B Princeton	WRAY-FM	LIC _C_ IN	184.5 4.4	122.75 BLH19990528KC	38 21 25.0 87 35 25.0	50.000 133	76.1 268	63.0 Princeton Broadcasting Co.	30.9	26.1	
248B Champaign	WHMS-FM	LIC _CN IL	317.0 136.5	95.68 BLH19911022KB	40 05 04.0 88 14 53.0	50.000 109	5.2 328	59.3 D.w.s., Inc.	76.6	34.7	
250D Champaign	w250BL	LIC DC_ IL	317.3 136.8	101.54 BLFT20090317AAH	40 07 35.0 88 17 25.0	0.250 118	46.5 337	13.6 Saga Communications Of Ill	41.2	41.7	
251B1 Earl Park	WIBN	LIC _CX IN	1.1 181.1	123.98 BMLH20100810ABA	40 34 22.0 87 27 12.0	25.000 100	59.8 329	44.6 Brothers Broadcasting Corp	50.4	55.3	
250A Salem	WSLM-FM	LIC _CN IN	128.7 309.5	145.02 BLH19920528KA	38 38 07.0 86 10 37.0	3.000 100	76.8 330	24.8 Rebecca L. White	52.9	67.8	
251D Bloomington	w251AG	LIC DCN IN	111.5 292.1	87.67 BLFT19960205TA	39 09 56.0 86 32 02.0	0.250 27	8.5 255	5.9 Bloomington Community Radi	64.1	58.5	

Terrain database is FCC 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 restricted contour.

(1) See E1A and E1B for disproval of interference.

E1A WBOW INTERFERENCE ANALYSIS

W238AX TERRE HAUTE, IN

74.1204(d) Showing

Translator or LPFM Maximum Licensed ERP = 0.25

Translator or LPFM Antenna Height AG = 122 Meters

W238AX Antenna Model = BEXT TFC-2K-2 FULL WAVE

Protected Station's Contour = 74.49475 dBu

Translator's or LPFM's full Interference contour 114.49475

Review Azimuth = 0 Degrees True

Relative Field on the horizon at Review Azimuth = 1.000

Translator/LPFM ERP on the horizon at Review Azimuth = 0.25 kW

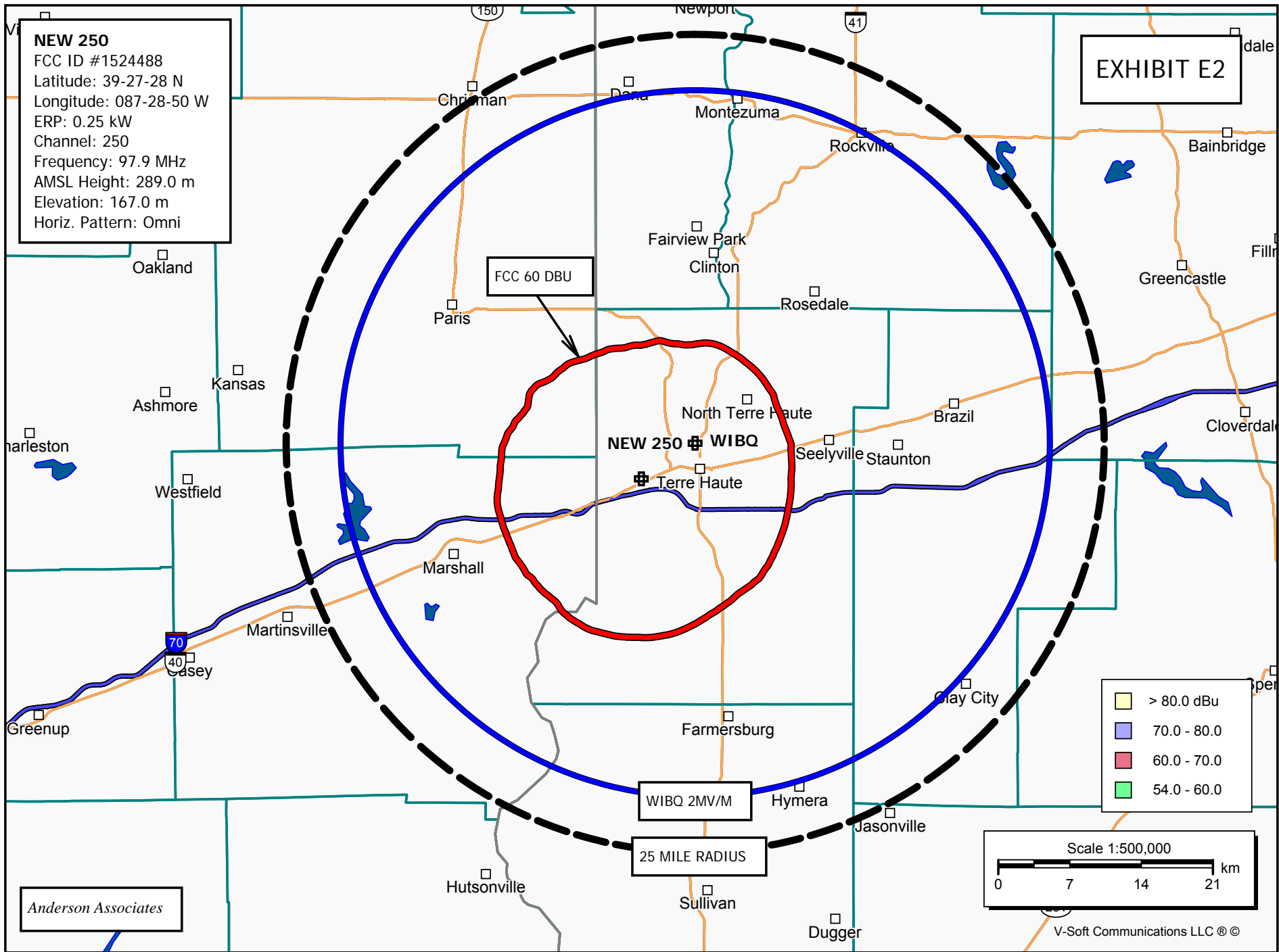
Distance between stations = 26.7 km

Protected Station= WBOW, 50 kW, 360 M Meters COR AMSL

Depression Angle From Horizon(Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle(m)	Dist to IX Contour From Tower Base(m)	Height IX Above Ground (m)
00.00	1.0	1.0	0.2500	209.0415	209.0415	122.000
05.00	0.94	1.0	0.2207	196.3945	195.6471	104.883
10.00	0.803	1.0	0.1612	167.8603	165.3101	092.851
15.00	0.628	1.0	0.0984	131.1735	126.7039	088.050
20.00	0.44	1.0	0.0484	091.9783	086.4313	090.542
25.00	0.24	1.0	0.0143	050.0654	045.3747	100.841
30.00	0.029	1.0	0.0002	006.0622	005.2500	118.969
35.00	0.174	1.0	0.0075	036.2687	029.7096	101.197
40.00	0.335	1.0	0.0281	070.0289	053.6453	076.986
45.00	0.428	1.0	0.0457	089.3652	063.1908	058.809
50.00	0.454	1.0	0.0515	094.9048	061.0037	049.299
55.00	0.428	1.0	0.0458	089.4698	051.3177	048.711
60.00	0.375	1.0	0.0352	078.3906	039.1953	054.112
65.00	0.314	1.0	0.0246	065.5345	027.6961	062.606
70.00	0.252	1.0	0.0159	052.6785	018.0171	072.498
75.00	0.192	1.0	0.0092	040.1360	010.3880	083.232
80.00	0.133	1.0	0.0044	027.8025	004.8279	094.620
85.00	0.073	1.0	0.0013	015.2600	001.3300	106.798
90.00	0.036	1.0	0.0003	007.5255	000.0000	114.475

E1B AERIAL VIEW OF INTEFERENCE CONTOUR





Registration Detail

Reg Number	1029666	Status	Constructed
File Number	A0909291	Constructed	01/01/1969
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

Structure Type GTOWER - Guyed Structure Used for Communication Purposes

Location (in NAD83 Coordinates)

Lat/Long	39-27-28.0 N 087-28-50.0 W	Address	4115 West US HWY 40
City, State	WEST TERRE HAUTE , IN		
Zip	47885	County	VIGO
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
166.7	152.1
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
318.8	151.2

Painting and Lighting Specifications

FCC Paragraphs 1, 3, 4, 13, 21

FAA Notification

FAA Study	2014-AGL-3873-OE	FAA Issue Date	06/26/2014
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Owner & Contact Information

FRN	0002711737	Owner Entity Type	Corporation
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Owner

Midwest Communications, Inc.	P: (715)842-1437
Attention To: Mr. Paul Rahmlow	F:
904 Grand Avenue	E: paul.rahmlow@mwcradio.com
Wausau , WI 54403	

Contact

Rahmlow , Paul	P: (715)842-1437
Attention To: Paul Rahmlow	F:
904 Grand Avenue	E: paul.rahmlow@mwcradio.com
Wausau , WI 54403	

Last Action Status

Status	Constructed	Received	07/14/2014
Purpose	Notification	Entered	07/14/2014
Mode	Interactive		

Related Applications

07/14/2014	A0909291	- Notification (NT)
07/14/2014	A0909241	- Admin Update (AU)
07/10/2014	A0909083	- Modification (MD)

Output from NADCON for station

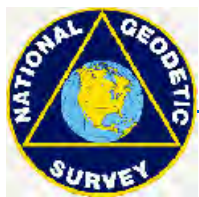
North American Datum Conversion

NAD 83 to NAD 27

NADCON Program Version 2.11

Transformation #: 1 Region: Conus

	Latitude	Longitude
NAD 27 datum values:	39 27 27.87032	87 28 49.92222
NAD 83 datum values:	39 27 28.00000	87 28 50.00000
NAD 27 - NAD 83 shift values:	-0.12969	-0.07777(secs.)
	-4.000	-1.859 (meters)
Magnitude of total shift:		4.411(meters)



[NGS HOME PAGE](#)

BEXT, Inc.

TFC2K 2 Bay Fullwave

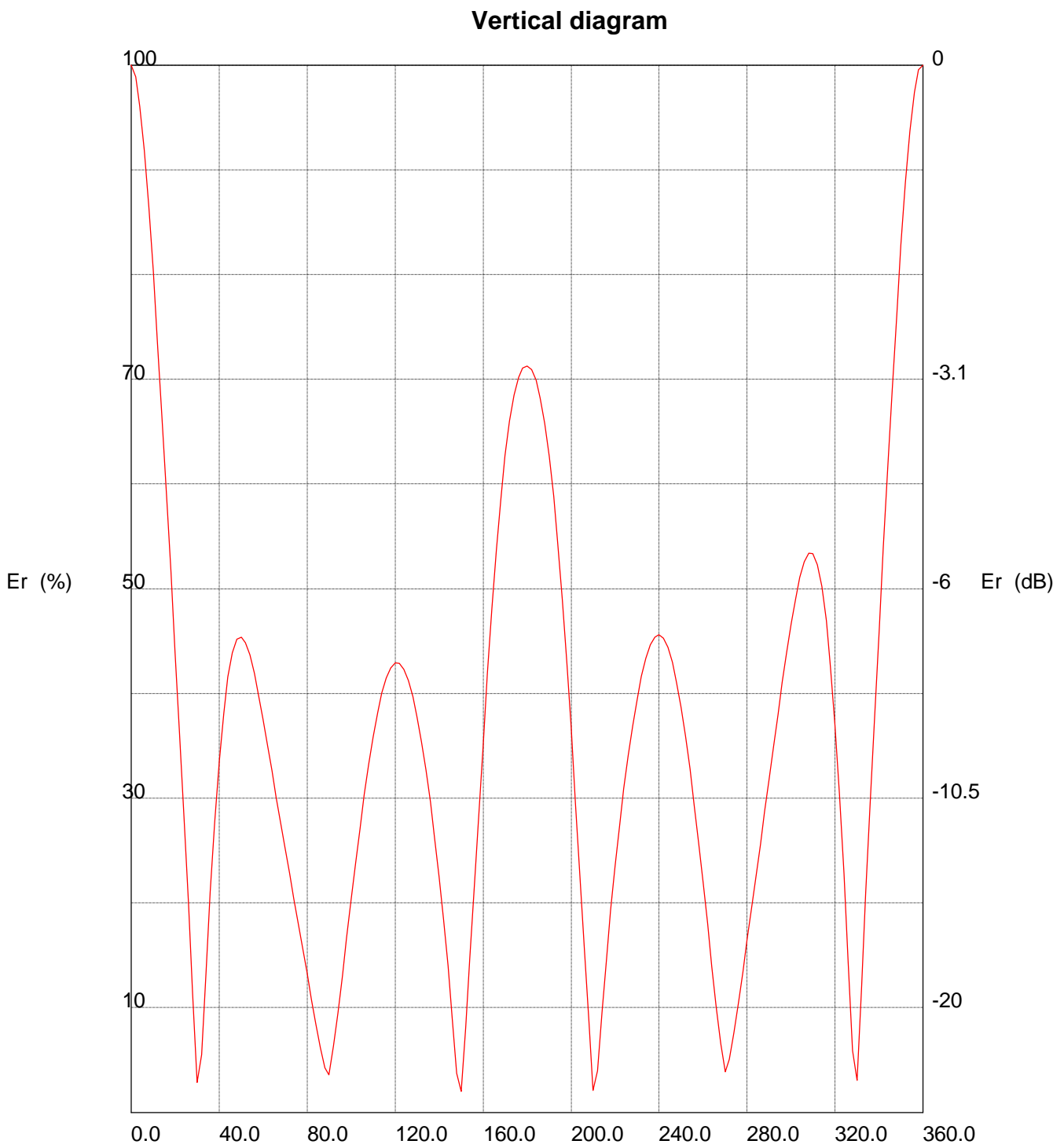
TX station:

Site name:

Frequency: 98.00 MHz

Date: 08/08/2007

Frequency: 98.00 MHz



Frequency: 98.00 MHz

Vertical diagram at an azimuth of 0°

Dep (°)	Er (%)	ERP (W)	Dep (°)	Er (%)	ERP (W)	Dep (°)	Er (%)	ERP (W)
0.0	100.0	0.9	120.0	42.9	0.2	240.0	45.6	0.2
2.0	98.9	0.9	122.0	42.9	0.2	242.0	45.3	0.2
4.0	96.0	0.8	124.0	42.3	0.2	244.0	44.4	0.2
6.0	91.9	0.8	126.0	41.2	0.2	246.0	43.0	0.2
8.0	86.5	0.7	128.0	39.7	0.1	248.0	41.0	0.2
10.0	80.3	0.6	130.0	37.8	0.1	250.0	38.7	0.1
12.0	73.6	0.5	132.0	35.4	0.1	252.0	35.9	0.1
14.0	66.4	0.4	134.0	32.7	0.1	254.0	32.8	0.1
16.0	59.1	0.3	136.0	29.6	0.1	256.0	29.4	0.1
18.0	51.7	0.2	138.0	26.2	0.1	258.0	25.7	0.1
20.0	44.0	0.2	140.0	22.5	0.0	260.0	21.9	0.0
22.0	36.2	0.1	142.0	18.4	0.0	262.0	18.0	0.0
24.0	28.1	0.1	144.0	13.9	0.0	264.0	14.0	0.0
26.0	19.8	0.0	146.0	9.1	0.0	266.0	10.0	0.0
28.0	11.4	0.0	148.0	3.8	0.0	268.0	6.6	0.0
30.0	2.9	0.0	150.0	2.0	0.0	270.0	3.9	0.0
32.0	5.5	0.0	152.0	8.2	0.0	272.0	5.1	0.0
34.0	13.6	0.0	154.0	14.7	0.0	274.0	7.6	0.0
36.0	21.1	0.0	156.0	21.5	0.0	276.0	10.4	0.0
38.0	27.8	0.1	158.0	28.4	0.1	278.0	13.4	0.0
40.0	33.5	0.1	160.0	35.3	0.1	280.0	16.4	0.0
42.0	38.1	0.1	162.0	41.9	0.2	282.0	19.4	0.0
44.0	41.6	0.2	164.0	48.1	0.2	284.0	22.5	0.0
46.0	43.9	0.2	166.0	53.7	0.3	286.0	25.6	0.1
48.0	45.2	0.2	168.0	58.6	0.3	288.0	28.7	0.1
50.0	45.4	0.2	170.0	62.7	0.4	290.0	31.8	0.1
52.0	44.9	0.2	172.0	66.0	0.4	292.0	34.9	0.1
54.0	43.7	0.2	174.0	68.5	0.4	294.0	38.0	0.1
56.0	41.9	0.2	176.0	70.1	0.4	296.0	41.1	0.2
58.0	39.8	0.1	178.0	71.0	0.5	298.0	43.9	0.2
60.0	37.5	0.1	180.0	71.2	0.5	300.0	46.7	0.2
62.0	35.1	0.1	182.0	70.9	0.5	302.0	49.1	0.2
64.0	32.6	0.1	184.0	69.9	0.4	304.0	51.1	0.2
66.0	30.1	0.1	186.0	68.2	0.4	306.0	52.6	0.2
68.0	27.6	0.1	188.0	65.8	0.4	308.0	53.4	0.3
70.0	25.2	0.1	190.0	62.7	0.4	310.0	53.3	0.3
72.0	22.8	0.0	192.0	58.8	0.3	312.0	52.3	0.2
74.0	20.4	0.0	194.0	54.2	0.3	314.0	50.2	0.2
76.0	18.0	0.0	196.0	49.0	0.2	316.0	47.0	0.2
78.0	15.7	0.0	198.0	43.0	0.2	318.0	42.5	0.2
80.0	13.3	0.0	200.0	36.5	0.1	320.0	37.0	0.1
82.0	10.8	0.0	202.0	29.6	0.1	322.0	30.3	0.1
84.0	8.4	0.0	204.0	22.5	0.0	324.0	22.8	0.0
86.0	6.2	0.0	206.0	15.5	0.0	326.0	14.6	0.0
88.0	4.3	0.0	208.0	8.6	0.0	328.0	5.9	0.0
90.0	3.6	0.0	210.0	2.1	0.0	330.0	3.0	0.0
92.0	6.3	0.0	212.0	4.0	0.0	332.0	12.0	0.0
94.0	9.5	0.0	214.0	9.6	0.0	334.0	20.9	0.0
96.0	13.0	0.0	216.0	14.7	0.0	336.0	29.5	0.1
98.0	16.6	0.0	218.0	19.4	0.0	338.0	37.9	0.1
100.0	20.2	0.0	220.0	23.6	0.0	340.0	46.0	0.2
102.0	23.7	0.1	222.0	27.4	0.1	342.0	53.9	0.3
104.0	27.1	0.1	224.0	30.9	0.1	344.0	61.6	0.3
106.0	30.3	0.1	226.0	34.1	0.1	346.0	69.1	0.4
108.0	33.2	0.1	228.0	36.9	0.1	348.0	76.2	0.5
110.0	35.8	0.1	230.0	39.5	0.1	350.0	82.8	0.6
112.0	38.2	0.1	232.0	41.6	0.2	352.0	88.8	0.7
114.0	40.0	0.1	234.0	43.4	0.2	354.0	93.7	0.8
116.0	41.5	0.2	236.0	44.6	0.2	356.0	97.4	0.9
118.0	42.4	0.2	238.0	45.4	0.2	358.0	99.5	0.9