

**LOUISVILLE, KY – BNPFT-20030317MMS
AUCTION 83 SHORT FORM AMENDMENTS
INCLUDING LPFM NON-PRECLUSION SHOWING AND
REQUEST FOR WAIVER OF 74.1233(a)(1)**

These amendments seek a move of the short form application on channel 222 at Louisville, KY to serve as a fill-in translator for station WIEL(AM) (facility #19355) at Elizabethtown, KY. It specifies the recent WIEL CP since the original licensed site has been lost.

Request for Waiver of Section 74.1233(a)(1):

This application requests a waiver to permit a one-step move to a new site to serve as a fill in translator for WIEL(AM) in accordance with the waiver granted for W263AQ's move to Effingham, IL (DA-11-1495) and subsequent grants commonly referred to as the *Mattoon Waiver*.

A waiver of Section 74.1233(a)(1) of the Commission's rules is requested to permit this single move of the new translator from its current site to the ASR#1043144. This waiver, when granted, will provide FM translator fill-in service for an AM station on a timely and economical basis, and will accomplish a Commission objective of providing new program services and assisting AM radio stations.

In accordance with the waiver granted for the move of W263AQ (DA-11-1495), the proposed W288BI facility is mutually exclusive with the short form facility because the proposed 40 dBu (50:10) interfering contour overlaps the short form 60 dBu (50:50) contour (see exhibit E1A).

It is also noted that the short form application as situated cannot avoid LPFM preclusion in the Louisville, KY "spectrum limited" market. Only by grant of this waiver is the 2003 application preserved to function as an AM fill-in translator. The proposal as amended has no prohibited LPFM preclusion impact (see exhibit 1).

Allocation discussion:

All exhibits utilize the FCC 30 second terrain database.

- E1 Channel study
- E1A Proposed vs. original short form overlap
- E1B Proposed vs. Tunnel Hill application interference plot
- E1C DA tabulation
- E2 60 dBu and 2 mV/m contours plot
- E3 ASR

A channel study is included as E1 and an interference plots as E1B demonstrate compliance with §74.1204. A plot of the proposed 60 dBu is provided as E2 showing that it is entirely contained within the WIEL(AM) 2 mV/m and 40 km circle. The 60 dBu contour is tabulated below.

N. Lat. = 37-40-21 W. Lng. = 85-44-34
HAAT and Distance to Contour,
FCC, FM 2-10 Miles, 51 points Method - FCC 30
SEC

Azi.	AV EL	HAAT	dBk	60-F5
000	177.7	153.3	-6.02	16.11
030	165.2	165.8	-7.54	15.33
060	182.6	148.4	-13.76	10.14
090	207.2	123.8	-40.00	1.70
120	221.0	110.0	-40.00	1.66
150	255.5	75.5	-20.22	4.99
180	232.0	99.0	-17.72	6.61
210	221.2	109.8	-20.22	6.06
240	235.4	95.6	-40.00	1.59
270	231.9	99.1	-40.00	1.61
300	246.0	85.0	-13.76	7.60
330	216.0	115.0	-7.54	12.64

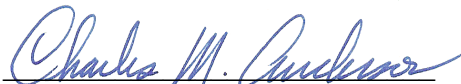
Ave El= 215.98 M HAAT= 115.02 M AMSL= 331 M

RF Exposure Calculation:

The proposed facility will be located at an existing tower (ASR#1043144) using a single bay Scala CA-2 vertical dipole directional antenna. The RF contribution of the proposed translator was calculated to be 2.5 $\mu\text{Watts/cm}^2$ using the formula included below and a worst case vertical factor of 1.0. This is 1.3% of the maximum permissible 200 microwatts/cm² exposure for general population/uncontrolled exposure, and well below 5% of that limit which requires consideration.

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

The proposed translator facility complies with Commission RF radiation limits.



Charles M. Anderson 4-16-2013
1519 Euclid Avenue
Bowling Green, KY 42103
270-782-0246

E1 CHANNEL STUDY

REFERENCE
37 40 21.0 N.
85 44 34.0 W.

CH# 222D - 92.3 MHz, Pwr= 0.25 kW DA, HAAT= 114.4 M, COR= 331 M
Average Protected F(50-50)= 13.75 km
73.215 Directional

DISPLAY DATES
DATA 04-15-13
SEARCH 04-15-13

CH CITY	CALL	TYPE ANT STATE	AZI <--	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
222D Louisville	651947	APP _C_ KY	356.7 176.6	51.23 BNPFT20030317MMS	38 08 00.0 85 46 37.0	0.099 85	25.1 243	6.5 Charles M. Anderson	9.9	-9.5
221D Tunnel Hills	1547488	APP _C_ KY	282.0 101.8	24.65 BNPFT20030313AKZ	37 43 05.0 86 00 59.0	0.250	15.8 311	11.8 Way Media , Inc.	1.5	5.4
223C Owensboro	WBKR	LIC _CY KY	266.8 86.0	115.96 BLH19870121KD	37 36 29.0 87 03 15.0	100.000 320	106.5 453	73.2 Townsquare Media Of	2.9	39.9 Evansv
225D Elizabethtown	651090	APP _C_ KY	284.4 104.3	10.84 BNPFT20030317LLX	37 41 48.0 85 51 43.0	0.080 27	0.6 256	5.3 Good Shepherd Radio, Inc	3.5	4.8
224D Tunnel Hills	637171	APP _C_ KY	302.6 122.5	15.21 BNPFT20030313AKZ	37 44 46.0 85 53 18.0	0.010 143	0.2 367	6.3 Way Media , Inc.	5.9	8.0
220B Louisville	WFPK	LIC _CN KY	353.7 173.7	77.36 BLED19981005KC	38 21 55.0 85 50 24.0	6.800 236	4.3 426	46.2 Kentucky Public Radio, Inc	56.9	30.0
222B Bloomington	WTTS	LIC _CN IN	349.8 169.5	195.80 BMLH19880426KB	39 24 27.0 86 08 52.0	37.000 332	148.1 574	76.7 Sarkes Tarzian, Inc.	31.7	52.7
219A Campbellsville	WAPD	LIC _VX KY	136.0 316.3	52.36 BLED20040728AKI	37 19 59.0 85 19 53.0	2.323 66	1.8 309	18.1 American Family Associatio	45.3	32.9
222C2 London	WYGE	LIC ZCX KY	110.1 291.1	165.46 BLH20060202ADE	37 09 01.0 83 59 32.0	23.500 223	124.9 582	50.1 Ethel Huff Broadcasting, L	34.3	107.8
221C2 Carlisle	WBVX	LIC NC_ KY	64.1 244.9	133.57 BLH20011015AEZ	38 11 19.0 84 22 13.0	32.000 186	77.4 460	52.3 L.m. Communications Of Ken	43.6	67.2
221A Tompkinsville	WTKY-FM	LIC NCX KY	175.5 355.6	95.05 BLH20030318ADL	36 49 07.0 85 39 32.0	5.300 107	39.5 372	25.5 Whittimore Enterprises, In	49.3	59.5

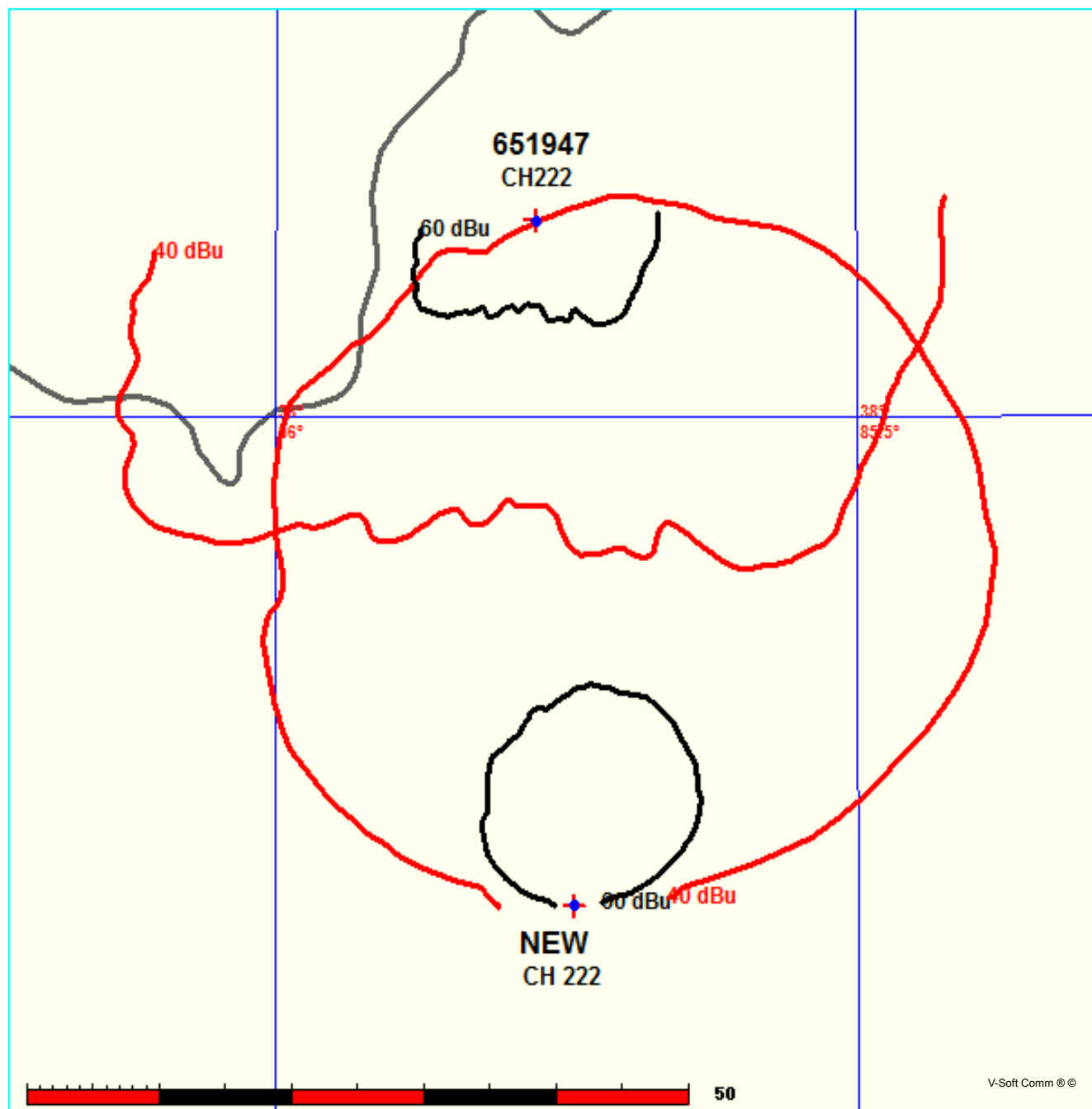
Terrain database is FCC NGDC 30 Sec , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference zone= East Zone, Co to 3rd adjacent.
All separation margins (if shown) include rounding
Ant Column: (D= DA Standard,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

E1A 60 DBU - 40 DBU OVERLAP

FMCommander Single Allocation Study - 04-16-2013 - FCC NGDC 30 Sec
NEW's Overlaps (In= 9.88 km, Out= -9.46 km)

NEW CH 222 D 73.215 Z
Lat= 37 40 21.0, Lng= 85 44 34.0
0.25 kW 114.4 M HAAT, 331 M COR
Prot.= 60 dBu, Intef.= 40 dBu

651947 CH 222 D BNPFT20030317MMS
Lat= 38 08 00.0, Lng= 85 46 37.0
0.099 kW 84.5 M HAAT, 243 M COR
Prot.= 60 dBu, Intef.= 40 dBu

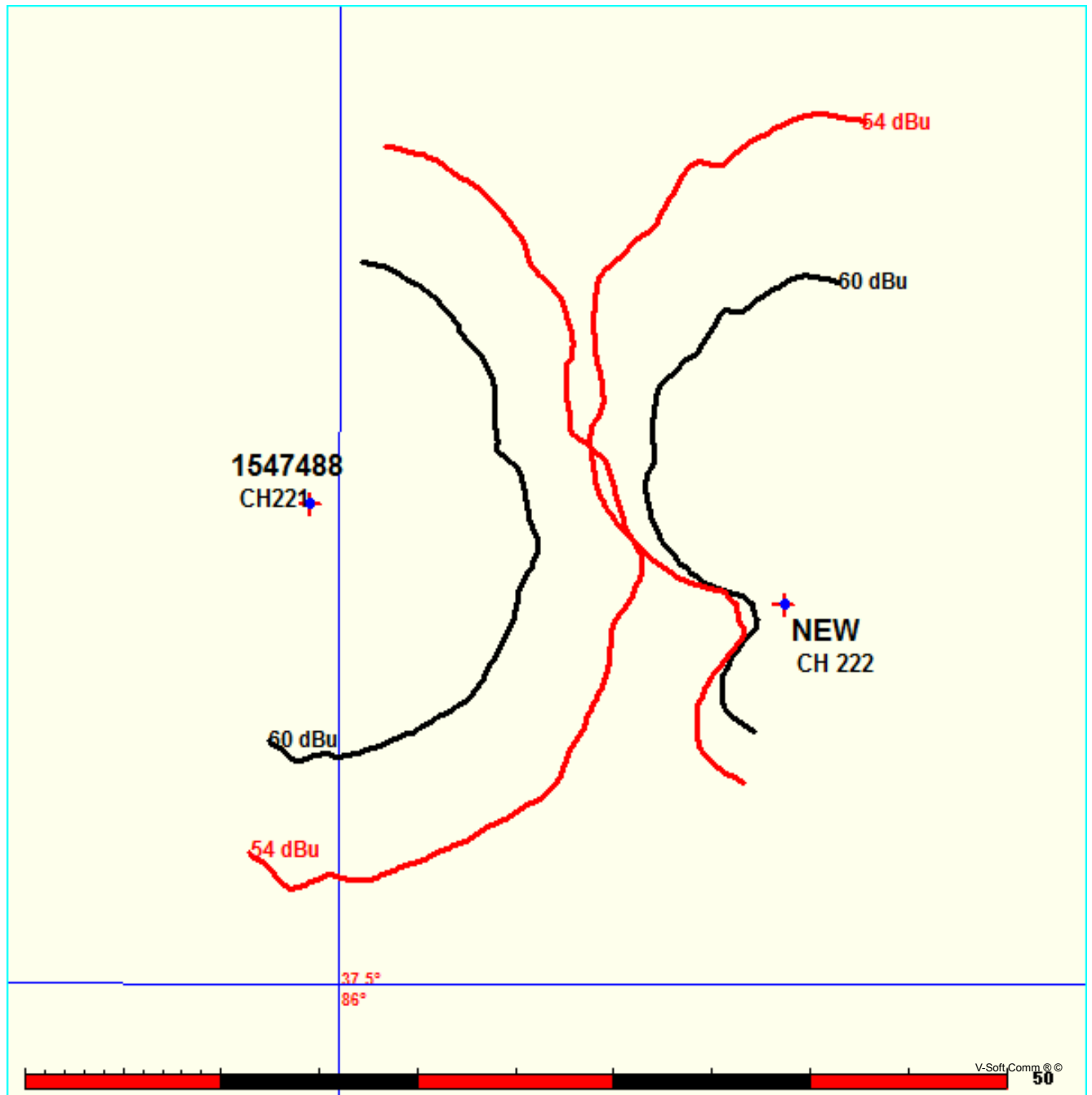


E1BNEW - TUNNEL HILLS INTERFERENCE PLOT

FMCommander Single Allocation Study - 04-16-2013 - FCC NGDC 30 Sec
NEW's Overlaps (In= 1.51 km, Out= 5.39 km)

NEW CH 222 D 73.215 Z
Lat= 37 40 21.0, Lng= 85 44 34.0
0.25 kW 114.4 M HAAT, 331 M COR
Prot.= 60 dBu, Intef.= 54 dBu

1547488 CH 221 D BNPFT20030313AKZ
Lat= 37 43 05.0, Lng= 86 00 59.0
0.25 kW 0 M HAAT, 311 M COR
Prot.= 60 dBu, Intef.= 54 dBu



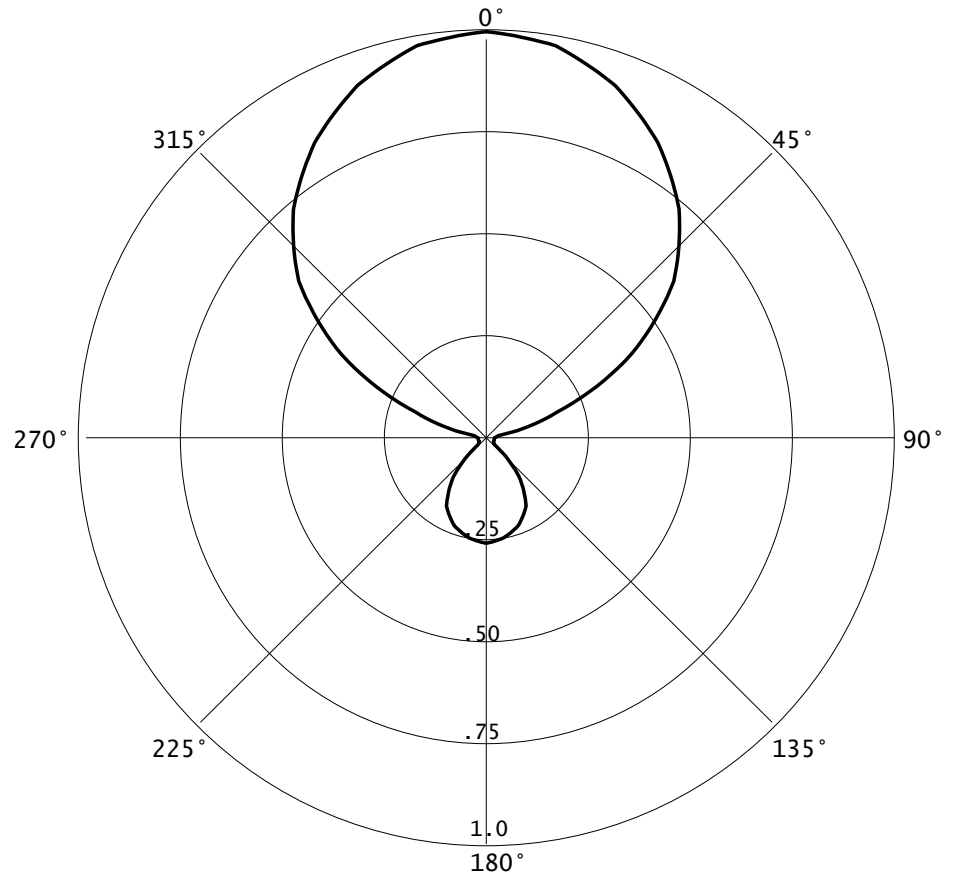
E1C DA

04-16-2013

RMS(V)= .489

Graph is Relative Field

Azi	Field	dBk	kw
000	1.000	-06.021	0.250
010	0.980	-06.196	0.240
020	0.923	-06.717	0.213
030	0.840	-07.535	0.176
040	0.735	-08.695	0.135
050	0.600	-10.458	0.090
060	0.410	-13.765	0.042
070	0.185	-20.677	0.009
080	0.030	-36.478	0.000
090	0.020	-40.000	0.000
100	0.020	-40.000	0.000
110	0.020	-40.000	0.000
120	0.020	-40.000	0.000
130	0.025	-38.062	0.000
140	0.125	-24.082	0.004
150	0.195	-20.220	0.010
160	0.230	-18.786	0.013
170	0.250	-18.062	0.016
180	0.260	-17.721	0.017
190	0.250	-18.062	0.016
200	0.230	-18.786	0.013
210	0.195	-20.220	0.010
220	0.125	-24.082	0.004
230	0.025	-38.062	0.000
240	0.020	-40.000	0.000
250	0.020	-40.000	0.000
260	0.020	-40.000	0.000
270	0.020	-40.000	0.000
280	0.030	-36.478	0.000
290	0.185	-20.677	0.009
300	0.410	-13.765	0.042
310	0.600	-10.458	0.090
320	0.735	-08.695	0.135
330	0.840	-07.535	0.176
340	0.923	-06.717	0.213
350	0.980	-06.196	0.240



Manufacturer's tabulation at end of report as a reference.

NEW

Latitude: 37-40-21 N
Longitude: 085-44-34 W
ERP: 0.25 kW
Channel: 222
Frequency: 92.3 MHz
AMSL Height: 331.0 m
Elevation: 271.0 m
Horiz. Pattern: Directional

PROPOSED 60 DBU

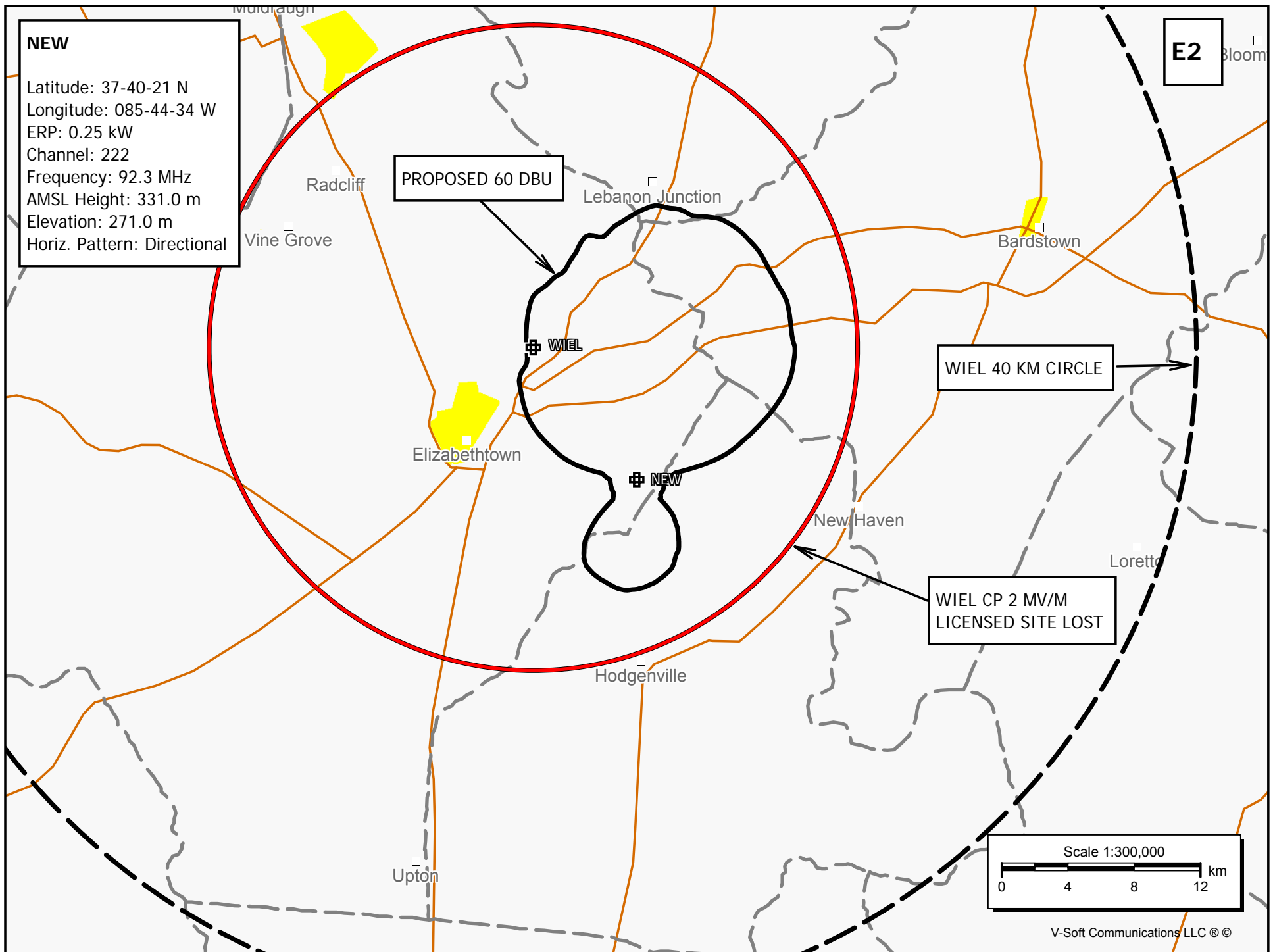
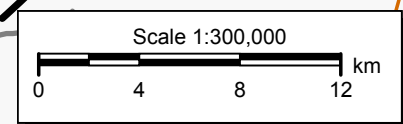
WIEL

NEW

WIEL 40 KM CIRCLE

WIEL CP 2 MV/M
LICENSED SITE LOST

E2



Registration 1043144

 [Map Registration](#)

Registration Detail

Reg Number	1043144	Status	Constructed
File Number	A0050818	Constructed	01/01/1988
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

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

Location (in NAD83 Coordinates)

Lat/Long	37-40-21.0 N 085-44-34.0 W	Address	9.6 KM N OF HODGENVILLE ON HODGENVILLE SHEPHERDSVILLE RD
City, State	HODGENVILLE , KY		
Zip	42701	County	HARDIN
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
271.0	80.0
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
351.0	79.0

Painting and Lighting Specifications

FCC Paragraphs 1, 3, 11, 21

FAA Notification

FAA Study	78-ASO-1905-OE	FAA Issue Date	09/28/1978
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Owner & Contact Information

FRN	Owner Entity Type
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Owner

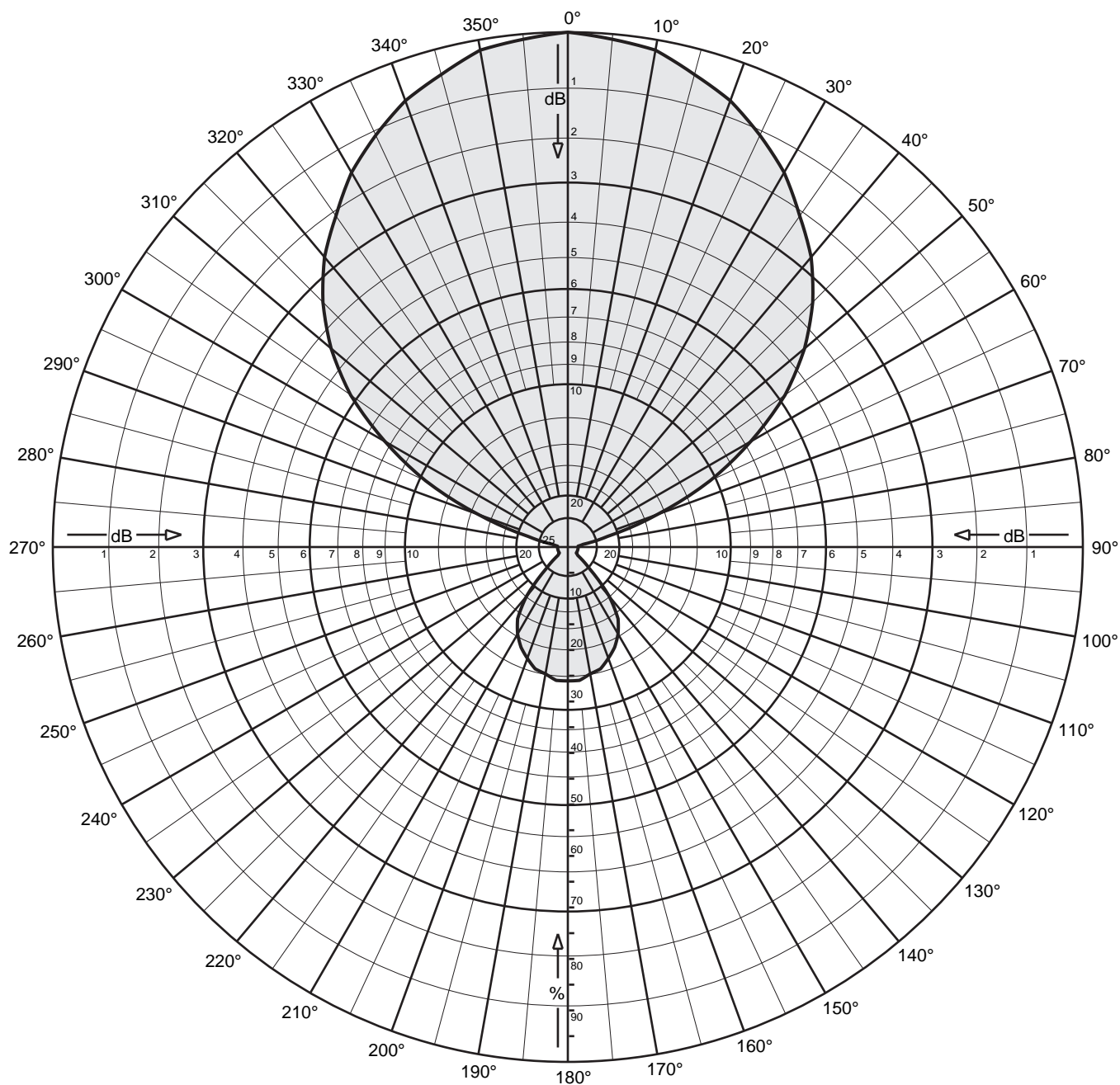
BASIX COMMUNICATIONS LLC DBA = WKMO	P: (502)763-0800
Attention To: ROSS BECKER	F:
406 S MULBERRY	E:
ELIZABETHTOWN , KY 42701	

Contact

P:
F:
E:

Last Action Status

Status	Constructed	Received	03/24/1998
Purpose	New	Entered	03/25/1998
Mode	Mail In (Manual)		



CA2-FM Dipole/Reflector

FM

Maximum gain: 4.0 dBd

Vertical polarization

Horizontal radiation pattern

0 degree electrical downtilt



CA2-FM Dipole/Reflector
FM

Maximum gain: 4.0 dBd
Vertical polarization

Horizontal radiation pattern
0 degree electrical downtilt

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	1.000	0.00	4.00	2.51	45	0.673	-3.45	0.55	1.14
1	0.998	-0.02	3.98	2.50	46	0.658	-3.64	0.36	1.09
2	0.996	-0.03	3.97	2.49	47	0.643	-3.83	0.17	1.04
3	0.994	-0.05	3.95	2.48	48	0.629	-4.03	-0.03	0.99
4	0.992	-0.07	3.93	2.47	49	0.615	-4.23	-0.23	0.95
5	0.990	-0.09	3.91	2.46	50	0.600	-4.44	-0.44	0.90
6	0.988	-0.10	3.90	2.45	51	0.583	-4.69	-0.69	0.85
7	0.986	-0.12	3.88	2.44	52	0.566	-4.94	-0.94	0.80
8	0.984	-0.14	3.86	2.43	53	0.549	-5.21	-1.21	0.76
9	0.982	-0.16	3.84	2.42	54	0.532	-5.48	-1.48	0.71
10	0.980	-0.18	3.82	2.41	55	0.515	-5.76	-1.76	0.67
11	0.974	-0.23	3.77	2.38	56	0.494	-6.13	-2.13	0.61
12	0.968	-0.28	3.72	2.35	57	0.473	-6.50	-2.50	0.56
13	0.962	-0.34	3.66	2.32	58	0.452	-6.90	-2.90	0.51
14	0.956	-0.39	3.61	2.30	59	0.431	-7.31	-3.31	0.47
15	0.950	-0.45	3.55	2.27	60	0.410	-7.74	-3.74	0.42
16	0.944	-0.50	3.50	2.24	61	0.389	-8.20	-4.20	0.38
17	0.939	-0.55	3.45	2.21	62	0.368	-8.68	-4.68	0.34
18	0.933	-0.60	3.40	2.19	63	0.347	-9.19	-5.19	0.30
19	0.928	-0.65	3.35	2.16	64	0.326	-9.74	-5.74	0.27
20	0.923	-0.70	3.30	2.14	65	0.305	-10.31	-6.31	0.23
21	0.914	-0.78	3.22	2.10	66	0.281	-11.03	-7.03	0.20
22	0.906	-0.85	3.15	2.06	67	0.257	-11.80	-7.80	0.17
23	0.898	-0.93	3.07	2.03	68	0.233	-12.65	-8.65	0.14
24	0.891	-1.01	2.99	1.99	69	0.209	-13.60	-9.60	0.11
25	0.883	-1.09	2.91	1.96	70	0.185	-14.66	-10.66	0.09
26	0.874	-1.17	2.83	1.92	71	0.164	-15.70	-11.70	0.07
27	0.865	-1.25	2.75	1.88	72	0.143	-16.89	-12.89	0.05
28	0.857	-1.34	2.66	1.84	73	0.122	-18.27	-14.27	0.04
29	0.849	-1.43	2.57	1.81	74	0.101	-19.91	-15.91	0.03
30	0.840	-1.51	2.49	1.77	75	0.080	-21.94	-17.94	0.02
31	0.829	-1.63	2.37	1.73	76	0.070	-23.10	-19.10	0.01
32	0.818	-1.74	2.26	1.68	77	0.060	-24.44	-20.44	0.01
33	0.807	-1.86	2.14	1.64	78	0.050	-26.02	-22.02	0.01
34	0.796	-1.98	2.02	1.59	79	0.040	-27.96	-23.96	0.00
35	0.785	-2.10	1.90	1.55	80	0.030	-30.46	-26.46	0.00
36	0.775	-2.21	1.79	1.51	81	0.028	-31.06	-27.06	0.00
37	0.765	-2.33	1.67	1.47	82	0.026	-31.70	-27.70	0.00
38	0.755	-2.44	1.56	1.43	83	0.024	-32.40	-28.40	0.00
39	0.745	-2.56	1.44	1.39	84	0.022	-33.15	-29.15	0.00
40	0.735	-2.67	1.33	1.36	85	0.020	-33.98	-29.98	0.00
41	0.722	-2.82	1.18	1.31	86	0.020	-33.98	-29.98	0.00
42	0.710	-2.97	1.03	1.27	87	0.020	-33.98	-29.98	0.00
43	0.697	-3.13	0.87	1.22	88	0.020	-33.98	-29.98	0.00
44	0.685	-3.29	0.71	1.18	89	0.020	-33.98	-29.98	0.00



CA2-FM Dipole/Reflector
FM

Maximum gain: 4.0 dBd
Vertical polarization

Horizontal radiation pattern
0 degree electrical downtilt

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
90	0.020	-33.98	-29.98	0.00	135	0.060	-24.44	-20.44	0.01
91	0.020	-33.98	-29.98	0.00	136	0.073	-22.73	-18.73	0.01
92	0.020	-33.98	-29.98	0.00	137	0.086	-21.31	-17.31	0.02
93	0.020	-33.98	-29.98	0.00	138	0.099	-20.09	-16.09	0.02
94	0.020	-33.98	-29.98	0.00	139	0.112	-19.02	-15.02	0.03
95	0.020	-33.98	-29.98	0.00	140	0.125	-18.06	-14.06	0.04
96	0.020	-33.98	-29.98	0.00	141	0.134	-17.46	-13.46	0.05
97	0.020	-33.98	-29.98	0.00	142	0.143	-16.89	-12.89	0.05
98	0.020	-33.98	-29.98	0.00	143	0.152	-16.36	-12.36	0.06
99	0.020	-33.98	-29.98	0.00	144	0.161	-15.86	-11.86	0.07
100	0.020	-33.98	-29.98	0.00	145	0.170	-15.39	-11.39	0.07
101	0.020	-33.98	-29.98	0.00	146	0.175	-15.14	-11.14	0.08
102	0.020	-33.98	-29.98	0.00	147	0.180	-14.89	-10.89	0.08
103	0.020	-33.98	-29.98	0.00	148	0.185	-14.66	-10.66	0.09
104	0.020	-33.98	-29.98	0.00	149	0.190	-14.42	-10.42	0.09
105	0.020	-33.98	-29.98	0.00	150	0.195	-14.20	-10.20	0.10
106	0.020	-33.98	-29.98	0.00	151	0.199	-14.02	-10.02	0.10
107	0.020	-33.98	-29.98	0.00	152	0.203	-13.85	-9.85	0.10
108	0.020	-33.98	-29.98	0.00	153	0.207	-13.68	-9.68	0.11
109	0.020	-33.98	-29.98	0.00	154	0.211	-13.51	-9.51	0.11
110	0.020	-33.98	-29.98	0.00	155	0.215	-13.35	-9.35	0.12
111	0.020	-33.98	-29.98	0.00	156	0.218	-13.23	-9.23	0.12
112	0.020	-33.98	-29.98	0.00	157	0.221	-13.11	-9.11	0.12
113	0.020	-33.98	-29.98	0.00	158	0.224	-13.00	-9.00	0.13
114	0.020	-33.98	-29.98	0.00	159	0.227	-12.88	-8.88	0.13
115	0.020	-33.98	-29.98	0.00	160	0.230	-12.77	-8.77	0.13
116	0.020	-33.98	-29.98	0.00	161	0.233	-12.65	-8.65	0.14
117	0.020	-33.98	-29.98	0.00	162	0.236	-12.54	-8.54	0.14
118	0.020	-33.98	-29.98	0.00	163	0.239	-12.43	-8.43	0.14
119	0.020	-33.98	-29.98	0.00	164	0.242	-12.32	-8.32	0.15
120	0.020	-33.98	-29.98	0.00	165	0.245	-12.22	-8.22	0.15
121	0.020	-33.98	-29.98	0.00	166	0.246	-12.18	-8.18	0.15
122	0.020	-33.98	-29.98	0.00	167	0.247	-12.15	-8.15	0.15
123	0.020	-33.98	-29.98	0.00	168	0.248	-12.11	-8.11	0.15
124	0.020	-33.98	-29.98	0.00	169	0.249	-12.08	-8.08	0.16
125	0.020	-33.98	-29.98	0.00	170	0.250	-12.04	-8.04	0.16
126	0.021	-33.56	-29.56	0.00	171	0.252	-11.97	-7.97	0.16
127	0.022	-33.15	-29.15	0.00	172	0.254	-11.90	-7.90	0.16
128	0.023	-32.77	-28.77	0.00	173	0.256	-11.84	-7.84	0.16
129	0.024	-32.40	-28.40	0.00	174	0.258	-11.77	-7.77	0.17
130	0.025	-32.04	-28.04	0.00	175	0.260	-11.70	-7.70	0.17
131	0.032	-29.90	-25.90	0.00	176	0.260	-11.70	-7.70	0.17
132	0.039	-28.18	-24.18	0.00	177	0.260	-11.70	-7.70	0.17
133	0.046	-26.74	-22.74	0.01	178	0.260	-11.70	-7.70	0.17
134	0.053	-25.51	-21.51	0.01	179	0.260	-11.70	-7.70	0.17



CA2-FM Dipole/Reflector
FM

Maximum gain: 4.0 dBd
Vertical polarization

Horizontal radiation pattern
0 degree electrical downtilt

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
180	0.260	-11.70	-7.70	0.17	225	0.060	-24.44	-20.44	0.01
181	0.260	-11.70	-7.70	0.17	226	0.053	-25.51	-21.51	0.01
182	0.260	-11.70	-7.70	0.17	227	0.046	-26.74	-22.74	0.01
183	0.260	-11.70	-7.70	0.17	228	0.039	-28.18	-24.18	0.00
184	0.260	-11.70	-7.70	0.17	229	0.032	-29.90	-25.90	0.00
185	0.260	-11.70	-7.70	0.17	230	0.025	-32.04	-28.04	0.00
186	0.258	-11.77	-7.77	0.17	231	0.024	-32.40	-28.40	0.00
187	0.256	-11.84	-7.84	0.16	232	0.023	-32.77	-28.77	0.00
188	0.254	-11.90	-7.90	0.16	233	0.022	-33.15	-29.15	0.00
189	0.252	-11.97	-7.97	0.16	234	0.021	-33.56	-29.56	0.00
190	0.250	-12.04	-8.04	0.16	235	0.020	-33.98	-29.98	0.00
191	0.249	-12.08	-8.08	0.16	236	0.020	-33.98	-29.98	0.00
192	0.248	-12.11	-8.11	0.15	237	0.020	-33.98	-29.98	0.00
193	0.247	-12.15	-8.15	0.15	238	0.020	-33.98	-29.98	0.00
194	0.246	-12.18	-8.18	0.15	239	0.020	-33.98	-29.98	0.00
195	0.245	-12.22	-8.22	0.15	240	0.020	-33.98	-29.98	0.00
196	0.242	-12.32	-8.32	0.15	241	0.020	-33.98	-29.98	0.00
197	0.239	-12.43	-8.43	0.14	242	0.020	-33.98	-29.98	0.00
198	0.236	-12.54	-8.54	0.14	243	0.020	-33.98	-29.98	0.00
199	0.233	-12.65	-8.65	0.14	244	0.020	-33.98	-29.98	0.00
200	0.230	-12.77	-8.77	0.13	245	0.020	-33.98	-29.98	0.00
201	0.227	-12.88	-8.88	0.13	246	0.020	-33.98	-29.98	0.00
202	0.224	-13.00	-9.00	0.13	247	0.020	-33.98	-29.98	0.00
203	0.221	-13.11	-9.11	0.12	248	0.020	-33.98	-29.98	0.00
204	0.218	-13.23	-9.23	0.12	249	0.020	-33.98	-29.98	0.00
205	0.215	-13.35	-9.35	0.12	250	0.020	-33.98	-29.98	0.00
206	0.211	-13.51	-9.51	0.11	251	0.020	-33.98	-29.98	0.00
207	0.207	-13.68	-9.68	0.11	252	0.020	-33.98	-29.98	0.00
208	0.203	-13.85	-9.85	0.10	253	0.020	-33.98	-29.98	0.00
209	0.199	-14.02	-10.02	0.10	254	0.020	-33.98	-29.98	0.00
210	0.195	-14.20	-10.20	0.10	255	0.020	-33.98	-29.98	0.00
211	0.190	-14.42	-10.42	0.09	256	0.020	-33.98	-29.98	0.00
212	0.185	-14.66	-10.66	0.09	257	0.020	-33.98	-29.98	0.00
213	0.180	-14.89	-10.89	0.08	258	0.020	-33.98	-29.98	0.00
214	0.175	-15.14	-11.14	0.08	259	0.020	-33.98	-29.98	0.00
215	0.170	-15.39	-11.39	0.07	260	0.020	-33.98	-29.98	0.00
216	0.161	-15.86	-11.86	0.07	261	0.020	-33.98	-29.98	0.00
217	0.152	-16.36	-12.36	0.06	262	0.020	-33.98	-29.98	0.00
218	0.143	-16.89	-12.89	0.05	263	0.020	-33.98	-29.98	0.00
219	0.134	-17.46	-13.46	0.05	264	0.020	-33.98	-29.98	0.00
220	0.125	-18.06	-14.06	0.04	265	0.020	-33.98	-29.98	0.00
221	0.112	-19.02	-15.02	0.03	266	0.020	-33.98	-29.98	0.00
222	0.099	-20.09	-16.09	0.02	267	0.020	-33.98	-29.98	0.00
223	0.086	-21.31	-17.31	0.02	268	0.020	-33.98	-29.98	0.00
224	0.073	-22.73	-18.73	0.01	269	0.020	-33.98	-29.98	0.00



CA2-FM Dipole/Reflector
FM

Maximum gain: 4.0 dBd
Vertical polarization

Horizontal radiation pattern
0 degree electrical downtilt

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
270	0.020	-33.98	-29.98	0.00	315	0.673	-3.45	0.55	1.14
271	0.020	-33.98	-29.98	0.00	316	0.685	-3.29	0.71	1.18
272	0.020	-33.98	-29.98	0.00	317	0.697	-3.13	0.87	1.22
273	0.020	-33.98	-29.98	0.00	318	0.710	-2.97	1.03	1.27
274	0.020	-33.98	-29.98	0.00	319	0.722	-2.82	1.18	1.31
275	0.020	-33.98	-29.98	0.00	320	0.735	-2.67	1.33	1.36
276	0.022	-33.15	-29.15	0.00	321	0.745	-2.56	1.44	1.39
277	0.024	-32.40	-28.40	0.00	322	0.755	-2.44	1.56	1.43
278	0.026	-31.70	-27.70	0.00	323	0.765	-2.33	1.67	1.47
279	0.028	-31.06	-27.06	0.00	324	0.775	-2.21	1.79	1.51
280	0.030	-30.46	-26.46	0.00	325	0.785	-2.10	1.90	1.55
281	0.040	-27.96	-23.96	0.00	326	0.796	-1.98	2.02	1.59
282	0.050	-26.02	-22.02	0.01	327	0.807	-1.86	2.14	1.64
283	0.060	-24.44	-20.44	0.01	328	0.818	-1.74	2.26	1.68
284	0.070	-23.10	-19.10	0.01	329	0.829	-1.63	2.37	1.73
285	0.080	-21.94	-17.94	0.02	330	0.840	-1.51	2.49	1.77
286	0.101	-19.91	-15.91	0.03	331	0.849	-1.43	2.57	1.81
287	0.122	-18.27	-14.27	0.04	332	0.857	-1.34	2.66	1.84
288	0.143	-16.89	-12.89	0.05	333	0.865	-1.25	2.75	1.88
289	0.164	-15.70	-11.70	0.07	334	0.874	-1.17	2.83	1.92
290	0.185	-14.66	-10.66	0.09	335	0.883	-1.09	2.91	1.96
291	0.209	-13.60	-9.60	0.11	336	0.891	-1.01	2.99	1.99
292	0.233	-12.65	-8.65	0.14	337	0.898	-0.93	3.07	2.03
293	0.257	-11.80	-7.80	0.17	338	0.906	-0.85	3.15	2.06
294	0.281	-11.03	-7.03	0.20	339	0.914	-0.78	3.22	2.10
295	0.305	-10.31	-6.31	0.23	340	0.923	-0.70	3.30	2.14
296	0.326	-9.74	-5.74	0.27	341	0.928	-0.65	3.35	2.16
297	0.347	-9.19	-5.19	0.30	342	0.933	-0.60	3.40	2.19
298	0.368	-8.68	-4.68	0.34	343	0.939	-0.55	3.45	2.21
299	0.389	-8.20	-4.20	0.38	344	0.944	-0.50	3.50	2.24
300	0.410	-7.74	-3.74	0.42	345	0.950	-0.45	3.55	2.27
301	0.431	-7.31	-3.31	0.47	346	0.956	-0.39	3.61	2.30
302	0.452	-6.90	-2.90	0.51	347	0.962	-0.34	3.66	2.32
303	0.473	-6.50	-2.50	0.56	348	0.968	-0.28	3.72	2.35
304	0.494	-6.13	-2.13	0.61	349	0.974	-0.23	3.77	2.38
305	0.515	-5.76	-1.76	0.67	350	0.980	-0.18	3.82	2.41
306	0.532	-5.48	-1.48	0.71	351	0.982	-0.16	3.84	2.42
307	0.549	-5.21	-1.21	0.76	352	0.984	-0.14	3.86	2.43
308	0.566	-4.94	-0.94	0.80	353	0.986	-0.12	3.88	2.44
309	0.583	-4.69	-0.69	0.85	354	0.988	-0.10	3.90	2.45
310	0.600	-4.44	-0.44	0.90	355	0.990	-0.09	3.91	2.46
311	0.615	-4.23	-0.23	0.95	356	0.992	-0.07	3.93	2.47
312	0.629	-4.03	-0.03	0.99	357	0.994	-0.05	3.95	2.48
313	0.643	-3.83	0.17	1.04	358	0.996	-0.03	3.97	2.49
314	0.658	-3.64	0.36	1.09	359	0.998	-0.02	3.98	2.50