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MINOR CHANGE APPLICATION FOR W284BI REQUESTING MOVE TO VANDALIA, IL AS A FILL IN TRANSLATOR FOR STATION WPMB(AM), AND REQUESTING A WAIVER OF SECTION 74.1233(a)(1)

Two Petaz, Inc., licensee of W284BI at Effingham, IL (Facility ID #139303) requests a minor modification for W284BI in Effingham, IL to move in one-step to Vandalia, IL as a fill in translator for co-owned WPBM(AM) (Facility ID #42091). In order to accomplish this move, a waiver of Section 74.1233(a)(1) of the Commission's rules is requested.

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

A waiver of Section 74.1233(a)(1) of the Commission's rules is requested to permit in a single move a move of the W284BI translator from its current transmitter site to a tower providing fill in service within WPMB's 2 mV/m contour. This waiver, when granted, will provide FM translator fill-in service for AM station WPMB in a reasonable time, avoid unnecessary and onerous translator move expenses, and preserve Commission staff resources that would otherwise be required to process several interim step applications if the strict procedural standards of Section 74.1233(a)(1) were followed.

Section 74.1233(a)(1) currently requires for a translator transmitter site move that the 60 dBu contours of the existing and proposed FM translator facilities overlap in order to be regarded as a minor change application. This distance, however, far understates the mutually-exclusive contour overlap relationship between an existing and a proposed translator transmitter site.

In fact, pursuant to Section 74.1204(a) of the Commission's rules, a co-channel translator cannot be located at a distance less than the distance in which the protected and interfering contours of the existing and proposed translator transmitter overlap. Thus, this waiver request proposes such a co-channel distance limitation for an FM translator transmitter site move application intended as fill-in service for an AM station. Provided that a translator is being moved no greater distance than the distance that is the greater sum of distance to each of the protected 60 dBu (50,50) and 40 dBu (50,10) interfering co-channel contours, it is submitted that a waiver of Section 74.1233(a)(1) of the Commission's rules is in the public interest provided the subject translator is intended to provide fill-in service for an AM station.

The use of the sum of the distances to the co-channel proposed and existing interfering and protected contours of an FM translator as a criteria for a waiver of Section 74.1233(a)(1) is based upon the same engineering criteria as the Commission's procedures for a transmitter site move for a full FM power station where the facility may be moved, along with a community of license change, as distant from the existing facility as there exists a mutually-exclusive short-spacing relationship to the existing facility. The use of the sum of the distances to the co-channel proposed and existing interfering

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and protected contours of an FM translator as a criteria for a waiver of Section 74.1233(a)(1) is also based upon the Commission's procedures for considering a transmitter site move for a reserved band NCE station which is allowable as a minor change application provided there is an overlap of the interfering and protected contours.

Accordingly, it is proposed that that the Commission grant a waiver of Section 74.1233 (a)(1) in this application, and in any similarly situated applications, of no greater than the larger of the sum of the distances to the co-channel proposed or existing interfering contour 40 dBu (50,10) contour and to the proposed or existing 60 dBu (50,50) contour.

A number of other considerations support this approach to a waiver of Section 74.1233(a)(1) of the Commission's rules. For instance, Section 74.1233(e)(2) already permits the Commission to select non-adjacent channels to resolve mutually-exclusive reserved band translator situations. Such an application channel change would otherwise be considered a major change but the Commission under the public interest standard has determined that what could otherwise be a strict application of the minor change rules should be inapplicable in such a situation.

Another example of an instance where minor change rules for FM stations are not strictly adhered to is that mutual-exclusivity between an existing and proposed FM facility is not required for the long-established policy of permitting full power stations to implement non-adjacent channel upgrades where there is a demonstration that another equivalent channel is available for other parties.

Accordingly, it is requested that the Commission grant this waiver permitting a one-step move for W284BI which proposes to serve as a fill-in translator for an AM station, and in which the distance being moved is no greater than the sum of the distances to each of the co-channel protected and interfering contours of the existing and proposed facilities analogous to current NCE application rules and practice.

Table of Exhibits

Exhibit E1A demonstrates that the proposed W284BI's 40 dBu (50,10) on co-channel 284 will overlap the existing W284BI licensed 60 dBu (see rationale for waiver request below). All exhibits were developed utilizing the USGS three second terrain database provided by V-Soft Communications. Allocation exhibits are provided as follows:

E1	Channel study
E1A	W284BI 40 dBu (50,10) proposed and existing 60 dBu (50,50) overlap
E2	60 dBu and WPMB(AM) 2 mV/m contours plot
E3	Contour tabulation
E4	ASR

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Allocation discussion:


A channel study is included as E1 and a plot of the proposed 60 dBu is provided as E2 showing that it is entirely contained with the WPMB(AM) 2 mV/m. It is also noted that W284BI is using the current flexibility provided in the rules to move to 2nd adjacent channel 282.

RF Exposure Calculation:

The RF contribution of the proposed translator was calculated to be 0.424 microWatts/cm² using the formula included below and a worst case vertical factor of 0.519 at a depression angle of 55 degrees from the attached vertical elevation pattern for a two bay full wavelength spaced SWR FM1/2 antenna at 103 meters height above ground. This is 0.21% of the maximum permissible 200 microwatts/cm² exposure for general population/uncontrolled exposure, and well below 5% of that limit which requires evaluation.

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

The proposed translator complies with Commission RF radiation limits.


Charles M. Anderson, February 15, 2011

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E1 CHANNEL STUDY

REFERENCE
38 56 35.0 N.
89 06 13.0 W.

CH# 282D - 104.3 MHz, Pwr= 0.25 kW, HAAT= 135.3 M, COR= 289 M
Average Protected F(50-50)= 14.96 km
Omni-directional

DISPLAY DATES
DATA 02-15-11
SEARCH 02-15-11

CH CITY	CALL	TYPE STATE	ANT ANT	AZI <--	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
282B1 Casey	WCBH	LIC _CN IL		69.7 250.5	108.1 BLH19880928KD	39 16 24.0 87 55 39.0	11.000 151	103.8 330	44.2 Two Petaz, Inc.	-10.6	6.7
282A Pinckneyville	DWCCZ	VAC _N IL		194.3 14.1	97.5	38 05 30.0 89 22 46.0	6.000 100	87.8 237	29.2	-6.3	16.5
282A Pinckneyville	1363867	APP ZCX IL		190.1 10.0	93.5 BNPED20100226AJF	38 06 49.0 89 17 32.0	6.000 66	77.5 204	21.4 Heterodyne Broadcasting Co	0.2	19.7
282A Pinckneyville	1403506	APP ZCX IL		189.5 9.4	93.1 BNPED20100226AIB	38 06 57.0 89 16 48.0	2.600 127	76.1 264	24.8 Pinckneyville Community Ra	1.2	16.9
283B Springfield	WFMB-FM	LIC _CN IL		332.8 152.4	102.3 BLH19830815AC	39 45 36.0 89 39 05.0	43.000 131	74.6 308	62.3 Neuhoff Family Limited Par	13.2	9.2
280D Greenville	W280DR	LIC _C_ IL		256.2 76.0	27.7 BLFT20060705AAN	38 53 00.0 89 24 50.0	0.250	1.1 192	7.4 Bond Broadcasting, Inc.	11.5	19.1
281C2 Hazelwood	WHHL	LIC ZCX MO		252.8 72.1	107.5 BLH20080110ABC	38 39 08.0 90 17 03.0	50.000 140	80.1 293	53.9 Radio One Licenses, Llc	12.2	30.7
283D Highland	639920	APP _C_ IL		246.7 66.3	52.1 BNPFT20030317KTL	38 45 23.0 89 39 18.0	0.038	9.3 219	6.6 New Life Evangelistic Cent	27.8	22.9
283D Highland	632032	APP _C_ IL		248.7 68.3	54.8 BNPFT20030314BUZ	38 45 45.0 89 41 31.0	0.150	11.5 208	8.1 Bond Broadcasting, Inc.	28.2	23.9
281D Shelbyville	647338	APP _C_ IL		26.7 206.8	57.7 BNPFT20030317BKN	39 24 22.0 88 48 09.0	0.120	9.1 208	6.4 Covenant Network	33.1	28.0
284A Nashville	WNSV	LIC _CN IL		198.0 17.9	59.4 BLH20000128AAL	38 26 02.0 89 18 55.0	3.400 134	2.7 278	29.3 Dana R. Withers	40.7	29.2
284D Effingham	W284BI	LIC _C_ IL		67.7 248.1	52.0 BLFT20060117AED	39 07 08.0 88 32 45.0	0.200	1.0 202	6.8 Two Petaz, Inc.	36.2	44.1
280A Flora	WNOI	LIC _CN IL		118.7 299.1	61.1 BMLH19891211KY	38 40 42.0 88 29 14.0	3.300 91	2.2 236	22.6 H & R Communications, Inc.	43.8	37.3
285D Highland	651057	APP _C_ IL		245.2 64.9	53.2 BNPFT20030317LTX	38 44 28.0 89 39 40.0	0.250	1.1 194	8.4 Countryside Broadcasting,	37.3	43.7
283D Lebanon	650220	APP _C_ IL		237.6 57.2	67.9 BNPFT20030317JAC	38 36 50.0 89 45 50.0	0.120	8.4 172	5.9 Covenant Network	44.7	39.6
279B Springfield	WDBR	LIC _CX IL		335.7 155.3	103.8 BMLH20061002BFX	39 47 37.0 89 36 18.0	50.000 91	5.1 268	57.7 Saga Communications Of Ill	84.4	44.5

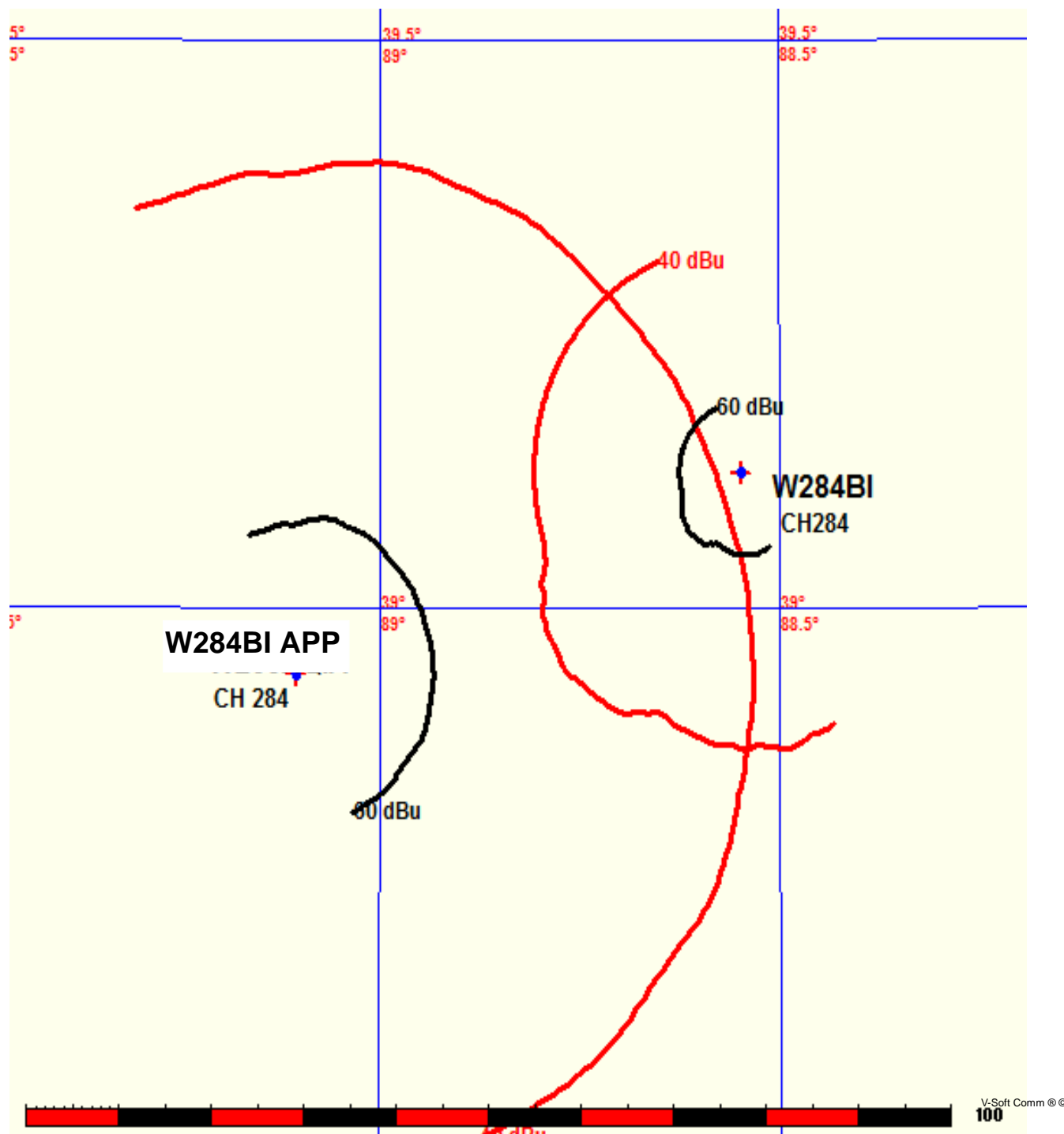
Terrain database is FCC NGDC 30 Sec , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference zone= East Zone, Co to 3rd adjacent.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization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

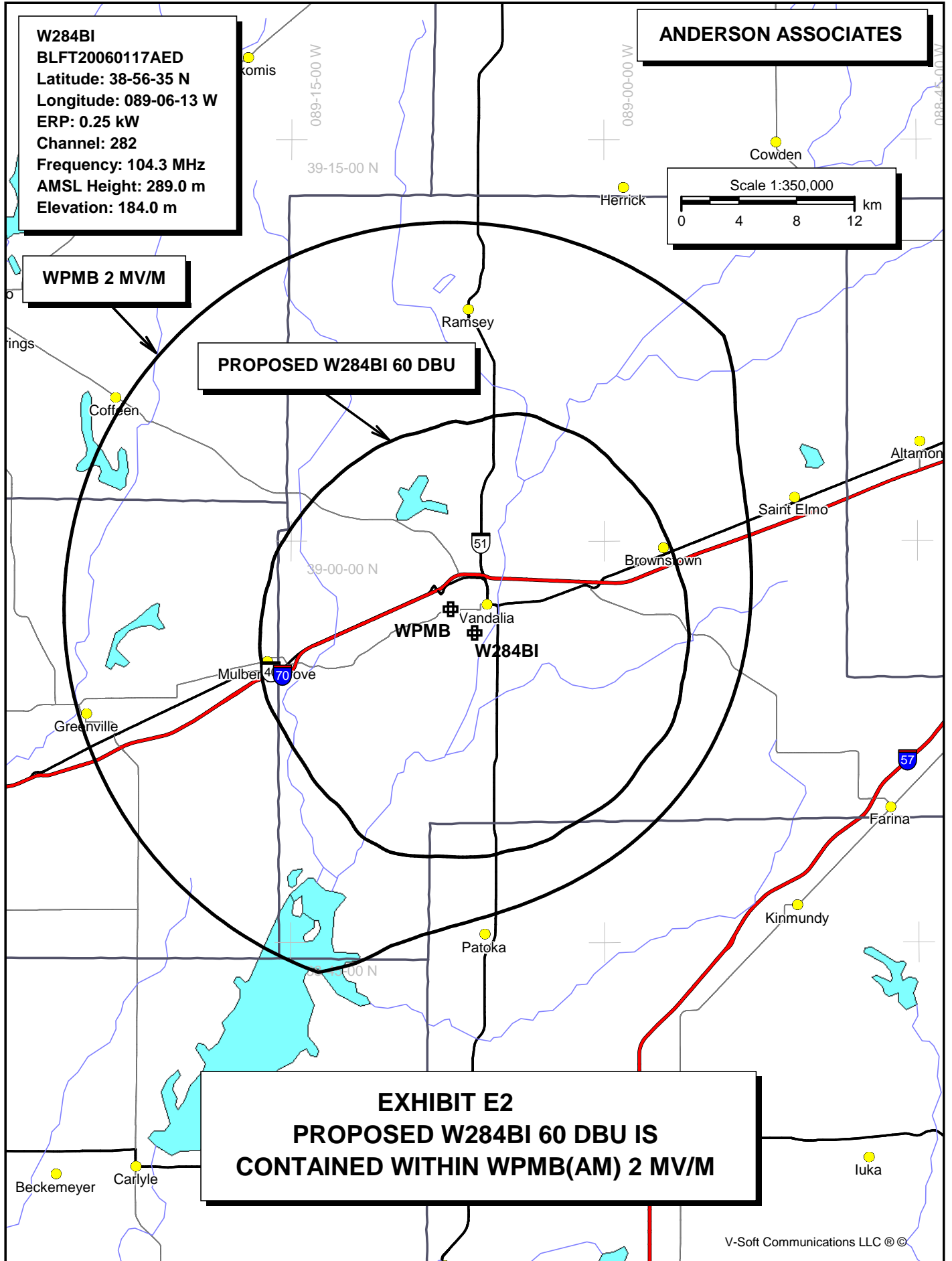
E1A W284BI CO-CHANNEL OVERLAP TO LICENSED FACILTY 60 DBU

FMCommander Single Allocation Study - 02-15-2011 - FCC NGDC 30 Sec
W284BI'S Overlaps (In= 13.46 km, Out= -4.76 km)

W284BI.A CH 284 D
Lat= 38 56 35.0, Lng= 89 06 13.0
0.25 kW 135.3 M HAAT, 289 M COR
Prot.= 60 dBu, Intef.= 40 dBu

W284BI CH 284 D BLFT20060117AED
Lat= 39 07 08.0, Lng= 88 32 45.0
0.2 kW 0 M HAAT, 202 M COR
Prot.= 60 dBu, Intef.= 40 dBu





E3 HAAT AND CONTOUR TABULATION

N. Lat. = 385635 W. Lng. = 890613
HAAT and Distance to Contour,
FCC, FM 2-10 Mi, 51 pts Method - FCC 30 SEC

Azi.	AV EL	HAAT	ERP kw	dBk	60-F5
000	160.0	129.0	0.2500	-6.02	14.58
030	146.0	143.0	0.2500	-6.02	15.44
060	155.4	133.6	0.2500	-6.02	14.86
090	156.1	132.9	0.2500	-6.02	14.82
120	154.8	134.2	0.2500	-6.02	14.90
150	155.3	133.7	0.2500	-6.02	14.86
180	145.4	143.6	0.2500	-6.02	15.48
210	136.9	152.1	0.2500	-6.02	16.03
240	155.8	133.2	0.2500	-6.02	14.84
270	156.2	132.8	0.2500	-6.02	14.81
300	160.0	129.0	0.2500	-6.02	14.58
330	162.8	126.2	0.2500	-6.02	14.42

Ave E1= 153.73 M HAAT= 135.27 M AMSL= 289 M

Registration 1209173**E4 ASR** [Map Registration](#)**Registration Detail**

Reg Number	1209173	Status	Constructed
File Number	A0641124	Constructed	03/29/2000
FAA Study	99-AGL-6244-OE	EMI	No
FAA Issue Date	12/29/1999	NEPA	No

Antenna Structure

Structure Type TOWER - Free standing or Guyed Structure used for Communications Purposes

Location (in NAD83 Coordinates)

Lat/Long 38-56-35.0 N 089-06-13.2 W 1118 Carlye Rd.

City, State Vandalia , IL

Center of
AM Array

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
184.4	126.5
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
310.9	121.9

Painting and Lighting Specifications

FCC Paragraphs 1, 3, 4, 13, 21

Owner & Contact Information

FRN	0006197941	Licensee ID	L00452735
Assignor FRN	0009232554	Assignor ID	L00710487

Owner

Barenfanger, Inc.
Attention To: Charles Barenfanger
129 N. Kennedy Blvd.
P.O. Box 190
Vandalia , IL 62471

P: (618)283-2268
E: cbarenfa@illwestern.com

Contact

Barenfanger , Charles
129. N. Kennedy Bld.
P.O. Box 190
Vandalia , IL 62471

P: (618)283-2268
E: cbarenfa@illwestern.com

Last Action Status

Status	Constructed	Received	06/15/2009
Purpose	Change Owner	Entered	06/15/2009
Mode	Interactive		

Related Applications

06/15/2009	A0641124 - Change Owner (OC)
07/14/2006	A0512424 - Change Owner (OC)
04/11/2006	A0498199 - Admin Update (AU)
	Related applications (10)

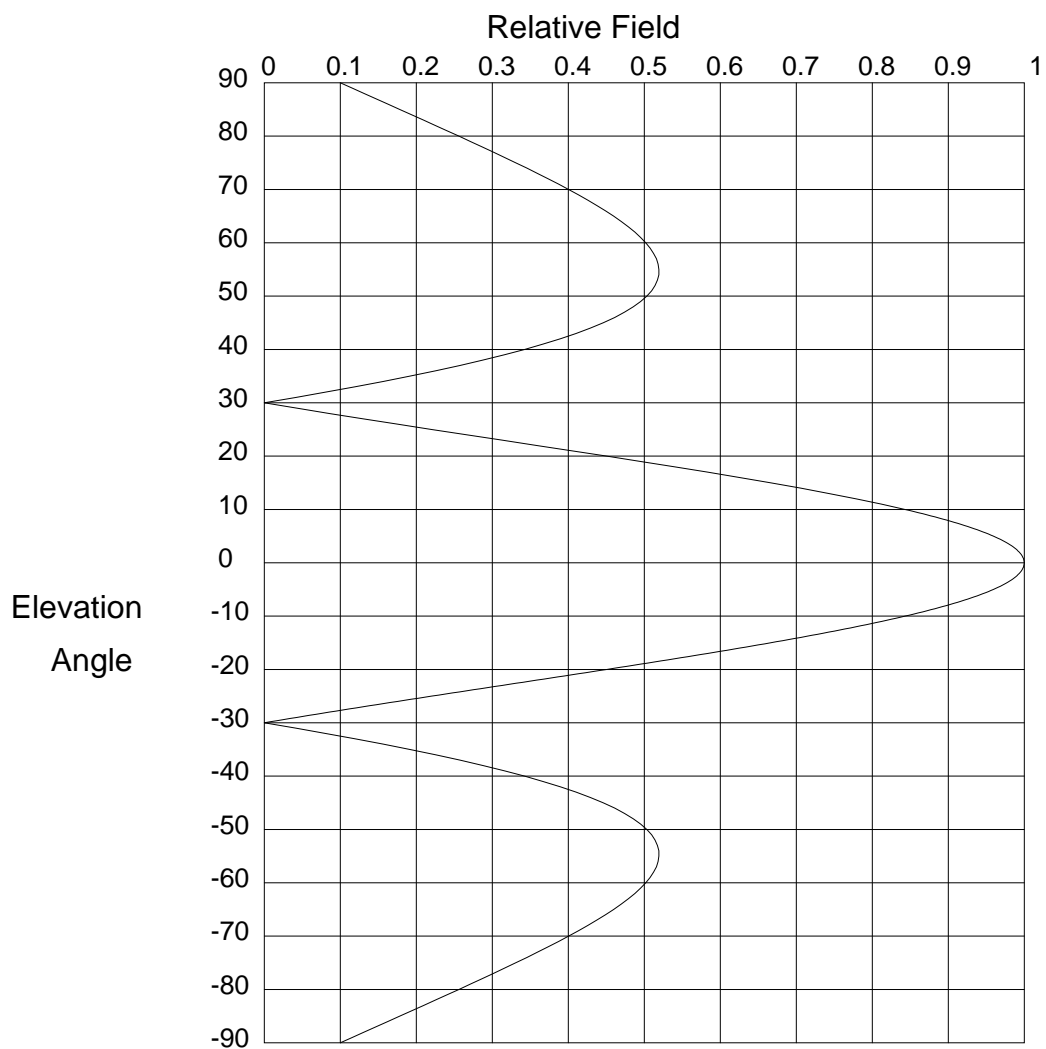
Comments**Comments**

None

Automated Letters

06/16/2009	Authorization, Reference
06/16/2009	Ownership Change, Reference 626686
07/17/2006	Ownership Change, Reference 514825
	All letters (12)

[CLOSE WINDOW](#)



Elevation Pattern

Scale: Linear

Units: Field, Relative

Systems With Reliability

CLIENT: *Anderson and Associates*

Date: 2/16/2011

ANTENNA TYPE: FM 1/2

FREQUENCY: 104.7 MHz

PATTERN POL.: Circular

DIRECTIVITY(Peak): 1.918/2.828 dBd

Beam Tilt (Deg.) : 0

DIRECTIVITY(Horiz): 1.918/2.828 dBd

Null Fill(s)(%) : 0, 0, 0

Relative Field Tabulation

Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)
90.0	.10 (-20)	52.0	.514 (-5.775)	14.0	.705 (-3.031)
89.0	.116 (-18.733)	51.0	.51 (-5.855)	13.0	.743 (-2.581)
88.0	.131 (-17.627)	50.0	.503 (-5.963)	12.0	.779 (-2.174)
87.0	.147 (-16.648)	49.0	.495 (-6.101)	11.0	.812 (-1.809)
86.0	.163 (-15.768)	48.0	.486 (-6.272)	10.0	.843 (-1.482)
85.0	.178 (-14.971)	47.0	.474 (-6.479)	9.8	.849 (-1.421)
84.0	.194 (-14.242)	46.0	.461 (-6.724)	9.6	.855 (-1.361)
83.0	.21 (-13.571)	45.0	.446 (-7.013)	9.4	.861 (-1.303)
82.0	.225 (-12.951)	44.0	.429 (-7.349)	9.2	.866 (-1.246)
81.0	.241 (-12.374)	43.0	.41 (-7.738)	9.0	.872 (-1.191)
80.0	.256 (-11.836)	42.0	.39 (-8.189)	8.8	.877 (-1.137)
79.0	.271 (-11.332)	41.0	.367 (-8.709)	8.6	.883 (-1.084)
78.0	.286 (-10.859)	40.0	.342 (-9.31)	8.4	.888 (-1.033)
77.0	.301 (-10.415)	39.0	.316 (-10.008)	8.2	.893 (-0.983)
76.0	.316 (-9.997)	38.0	.288 (-10.824)	8.0	.898 (-0.935)
75.0	.331 (-9.603)	37.0	.257 (-11.786)	7.8	.903 (-0.887)
74.0	.345 (-9.231)	36.0	.225 (-12.937)	7.6	.908 (-0.841)
73.0	.36 (-8.881)	35.0	.192 (-14.343)	7.4	.912 (-0.797)
72.0	.374 (-8.551)	34.0	.156 (-16.113)	7.2	.917 (-0.753)
71.0	.387 (-8.24)	33.0	.119 (-18.454)	7.0	.921 (-0.711)
70.0	.401 (-7.948)	32.0	.081 (-21.828)	6.8	.926 (-0.67)
69.0	.413 (-7.673)	31.0	.041 (-27.712)	6.6	.93 (-0.631)
68.0	.426 (-7.417)	30.0	.00 (-50)	6.4	.934 (-0.593)
67.0	.438 (-7.178)	29.0	.042 (-27.469)	6.2	.938 (-0.556)
66.0	.449 (-6.956)	28.0	.086 (-21.343)	6.0	.942 (-0.52)
65.0	.46 (-6.751)	27.0	.13 (-17.727)	5.8	.946 (-0.485)
64.0	.47 (-6.563)	26.0	.175 (-15.145)	5.6	.949 (-0.452)
63.0	.479 (-6.392)	25.0	.22 (-13.135)	5.4	.953 (-0.42)
62.0	.488 (-6.239)	24.0	.266 (-11.491)	5.2	.956 (-0.389)
61.0	.495 (-6.103)	23.0	.312 (-10.103)	5.0	.959 (-0.36)
60.0	.502 (-5.986)	22.0	.359 (-8.906)	4.8	.963 (-0.331)
59.0	.508 (-5.887)	21.0	.405 (-7.858)	4.6	.966 (-0.304)
58.0	.512 (-5.807)	20.0	.45 (-6.929)	4.4	.969 (-0.278)
57.0	.516 (-5.747)	19.0	.495 (-6.1)	4.2	.971 (-0.253)
56.0	.518 (-5.708)	18.0	.54 (-5.356)	4.0	.974 (-0.229)
55.0	.519 (-5.69)	17.0	.583 (-4.685)	3.8	.976 (-0.207)
54.0	.519 (-5.694)	16.0	.625 (-4.078)	3.6	.979 (-0.186)
53.0	.517 (-5.722)	15.0	.666 (-3.528)	3.4	.981 (-0.165)

Systems With Reliability

Page 1 of 3

CLIENT: *Anderson and Associates*

Date: 2/16/2011

ANTENNA TYPE: FM 1/2

FREQUENCY: 104.7 MHz

PATTERN POL.: Circular

DIRECTIVITY(Peak): 1.918/2.828 dBd

Beam Tilt (Deg.) : 0

DIRECTIVITY(Horiz): 1.918/2.828 dBd

Null Fill(s)(%) : 0, 0, 0

Relative Field Tabulation

Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)
3.2	.983 (-0.146)	-4.4	.969 (-0.278)	-12.0	.779 (-2.174)
3.0	.985 (-0.129)	-4.6	.966 (-0.304)	-12.2	.772 (-2.252)
2.8	.987 (-0.112)	-4.8	.963 (-0.331)	-12.4	.765 (-2.332)
2.6	.989 (-0.097)	-5.0	.959 (-0.36)	-12.6	.757 (-2.413)
2.4	.991 (-0.082)	-5.2	.956 (-0.389)	-12.8	.75 (-2.496)
2.2	.992 (-0.069)	-5.4	.953 (-0.42)	-13.0	.743 (-2.581)
2.0	.993 (-0.057)	-5.6	.949 (-0.452)	-13.2	.736 (-2.667)
1.8	.995 (-0.046)	-5.8	.946 (-0.485)	-13.4	.728 (-2.755)
1.6	.996 (-0.037)	-6.0	.942 (-0.52)	-13.6	.721 (-2.845)
1.4	.997 (-0.028)	-6.2	.938 (-0.556)	-13.8	.713 (-2.937)
1.2	.998 (-0.021)	-6.4	.934 (-0.593)	-14.0	.705 (-3.031)
1.0	.998 (-0.014)	-6.6	.93 (-0.631)	-14.2	.698 (-3.126)
.8	.999 (-0.009)	-6.8	.926 (-0.67)	-14.4	.69 (-3.224)
.6	.999 (-0.005)	-7.0	.921 (-0.711)	-14.6	.682 (-3.323)
.4	1.00 (-0.002)	-7.2	.917 (-0.753)	-14.8	.674 (-3.425)
.2	1.00 (-0.001)	-7.4	.912 (-0.797)	-15.0	.666 (-3.528)
.0	1.00 (0)	-7.6	.908 (-0.841)	-15.2	.658 (-3.634)
-.2	1.00 (-0.001)	-7.8	.903 (-0.887)	-15.4	.65 (-3.742)
-.4	1.00 (-0.002)	-8.0	.898 (-0.935)	-15.6	.642 (-3.851)
-.6	.999 (-0.005)	-8.2	.893 (-0.983)	-15.8	.634 (-3.963)
-.8	.999 (-0.009)	-8.4	.888 (-1.033)	-16.0	.625 (-4.078)
-1.0	.998 (-0.014)	-8.6	.883 (-1.084)	-16.2	.617 (-4.194)
-1.2	.998 (-0.021)	-8.8	.877 (-1.137)	-16.4	.609 (-4.313)
-1.4	.997 (-0.028)	-9.0	.872 (-1.191)	-16.6	.60 (-4.435)
-1.6	.996 (-0.037)	-9.2	.866 (-1.246)	-16.8	.592 (-4.558)
-1.8	.995 (-0.046)	-9.4	.861 (-1.303)	-17.0	.583 (-4.685)
-2.0	.993 (-0.057)	-9.6	.855 (-1.361)	-17.2	.575 (-4.814)
-2.2	.992 (-0.069)	-9.8	.849 (-1.421)	-17.4	.566 (-4.945)
-2.4	.991 (-0.082)	-10.0	.843 (-1.482)	-17.6	.557 (-5.079)
-2.6	.989 (-0.097)	-10.2	.837 (-1.544)	-17.8	.549 (-5.216)
-2.8	.987 (-0.112)	-10.4	.831 (-1.608)	-18.0	.54 (-5.356)
-3.0	.985 (-0.129)	-10.6	.825 (-1.674)	-18.2	.531 (-5.499)
-3.2	.983 (-0.146)	-10.8	.818 (-1.74)	-18.4	.522 (-5.644)
-3.4	.981 (-0.165)	-11.0	.812 (-1.809)	-18.6	.513 (-5.793)
-3.6	.979 (-0.186)	-11.2	.805 (-1.879)	-18.8	.504 (-5.945)
-3.8	.976 (-0.207)	-11.4	.799 (-1.95)	-19.0	.495 (-6.1)
-4.0	.974 (-0.229)	-11.6	.792 (-2.023)	-19.2	.486 (-6.259)
-4.2	.971 (-0.253)	-11.8	.785 (-2.098)	-19.4	.477 (-6.421)

Systems With Reliability

Page 2 of 3

CLIENT: *Anderson and Associates*

Date: 2/16/2011

ANTENNA TYPE: FM 1/2

FREQUENCY: 104.7 MHz

PATTERN POL.: Circular

DIRECTIVITY(Peak): 1.918/2.828 dBd

Beam Tilt (Deg.) : 0

DIRECTIVITY(Horiz): 1.918/2.828 dBd

Null Fill(s)(%) : 0, 0, 0

Relative Field Tabulation

Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)
-19.6	.468 (-6.587)	-27.2	.121 (-18.344)	-54.0	.519 (-5.694)
-19.8	.459 (-6.756)	-27.4	.112 (-19.006)	-55.0	.519 (-5.69)
-20.0	.45 (-6.929)	-27.6	.103 (-19.721)	-56.0	.518 (-5.708)
-20.2	.441 (-7.106)	-27.8	.094 (-20.496)	-57.0	.516 (-5.747)
-20.4	.432 (-7.288)	-28.0	.086 (-21.343)	-58.0	.512 (-5.807)
-20.6	.423 (-7.473)	-28.2	.077 (-22.278)	-59.0	.508 (-5.887)
-20.8	.414 (-7.663)	-28.4	.068 (-23.322)	-60.0	.502 (-5.986)
-21.0	.405 (-7.858)	-28.6	.06 (-24.503)	-61.0	.495 (-6.103)
-21.2	.396 (-8.057)	-28.8	.051 (-25.863)	-62.0	.488 (-6.239)
-21.4	.386 (-8.261)	-29.0	.042 (-27.469)	-63.0	.479 (-6.392)
-21.6	.377 (-8.471)	-29.2	.034 (-29.429)	-64.0	.47 (-6.563)
-21.8	.368 (-8.686)	-29.4	.025 (-31.951)	-65.0	.46 (-6.751)
-22.0	.359 (-8.906)	-29.6	.017 (-35.496)	-66.0	.449 (-6.956)
-22.2	.349 (-9.132)	-29.8	.008 (-41.54)	-67.0	.438 (-7.178)
-22.4	.34 (-9.365)	-30.0	.00 (-50)	-68.0	.426 (-7.417)
-22.6	.331 (-9.604)	-31.0	.041 (-27.712)	-69.0	.413 (-7.673)
-22.8	.322 (-9.85)	-32.0	.081 (-21.828)	-70.0	.401 (-7.948)
-23.0	.312 (-10.103)	-33.0	.119 (-18.454)	-71.0	.387 (-8.24)
-23.2	.303 (-10.364)	-34.0	.156 (-16.113)	-72.0	.374 (-8.551)
-23.4	.294 (-10.632)	-35.0	.192 (-14.343)	-73.0	.36 (-8.881)
-23.6	.285 (-10.909)	-36.0	.225 (-12.937)	-74.0	.345 (-9.231)
-23.8	.276 (-11.195)	-37.0	.257 (-11.786)	-75.0	.331 (-9.603)
-24.0	.266 (-11.491)	-38.0	.288 (-10.824)	-76.0	.316 (-9.997)
-24.2	.257 (-11.797)	-39.0	.316 (-10.008)	-77.0	.301 (-10.415)
-24.4	.248 (-12.113)	-40.0	.342 (-9.31)	-78.0	.286 (-10.859)
-24.6	.239 (-12.441)	-41.0	.367 (-8.709)	-79.0	.271 (-11.332)
-24.8	.23 (-12.781)	-42.0	.39 (-8.189)	-80.0	.256 (-11.836)
-25.0	.22 (-13.135)	-43.0	.41 (-7.738)	-81.0	.241 (-12.374)
-25.2	.211 (-13.503)	-44.0	.429 (-7.349)	-82.0	.225 (-12.951)
-25.4	.202 (-13.887)	-45.0	.446 (-7.013)	-83.0	.21 (-13.571)
-25.6	.193 (-14.287)	-46.0	.461 (-6.724)	-84.0	.194 (-14.242)
-25.8	.184 (-14.706)	-47.0	.474 (-6.479)	-85.0	.178 (-14.971)
-26.0	.175 (-15.145)	-48.0	.486 (-6.272)	-86.0	.163 (-15.768)
-26.2	.166 (-15.606)	-49.0	.495 (-6.101)	-87.0	.147 (-16.648)
-26.4	.157 (-16.092)	-50.0	.503 (-5.963)	-88.0	.131 (-17.627)
-26.6	.148 (-16.605)	-51.0	.51 (-5.855)	-89.0	.116 (-18.733)
-26.8	.139 (-17.149)	-52.0	.514 (-5.775)	-90.0	.10 (-20)
-27.0	.13 (-17.727)	-53.0	.517 (-5.722)	90.0	.00 (-50)

Systems With Reliability

Page 3 of 3

CLIENT: *Anderson and Associates*

Date: 2/16/2011

ANTENNA TYPE: FM 1/2

FREQUENCY: 104.7 MHz

PATTERN POL.: Circular

DIRECTIVITY(Peak): 1.918/2.828 dBd

Beam Tilt (Deg.) : 0

DIRECTIVITY(Horiz): 1.918/2.828 dBd

Null Fill(s)(%) : 0, 0, 0