AUCTION 83
LONG FORM APPLICATION
NOBLESVILLE, IN
FACILITY ID #155792 - BNPFT-20030317GWL

This long form application is submitted for BNPFT-20030317GWL in response to the singleton window announced in DA 13-1675. No technical changes are made to the short form which was amended prior to June 16, 2013, and is, therefore, entitled to full protection by any LPFM applications filed in the October 15th window.

The translator will rebroadcast station WSHW (facility ID#33466) at Frankfort, IN.

An LPFM preclusion showing is resubmitted as exhibit 1 demonstrating that the proposal will not impact any protected LPFM channel points in the Indianapolis "spectrum limited" market and that it does not preclude the only LPFM availability at its site.

Allocation discussion:

All exhibits were developed utilizing the FCC 30 second terrain database.

Allocation exhibits are provided as follows:

E1	Channel study
E1A	Interference plot to WJJK and WYXB 3rd adjacent channel stations
E1B	Aerial view of interference area
E1C	DA pattern
E2	54 and 60 dBu contours
E3	ASR-NADCON

A channel study is included as E1 and interference plots as E1A demonstrating compliance with 74.1204. A plot of the proposed and short form 60 dBu contours is provided as E2 showing that they overlap and that the proposed 54 dBu is contained within the WSHW 54 dBu.

The proposed channel 286 facility will be located inside the protected contour of third adjacent channel stations WJJK on 283B and WYXB on 289B. Therefore, an interference analysis has been conducted based on the D/U ratio of +40 dB at the proposed site. The WJJK contour at that site is 69.85 dBu and the proposed interference contour of 109.85dBu (50:10). The WYXB contour is 68 dBu and the proposed interference contour is 108 dBu (50:10) or

176.6 meters. When the depression angle of 18.8 degrees based on the mounting height of 60 meters AGL is considered the ERP reduces to 0.019 kW yielding an interfering 108 dBu (50:10) contour of 121.7 meters (see E1B for an aerial view). Furthermore, this interference contour has been evaluated at the initial depression angle and every five degrees through 90 degrees to establish the vertical clearance from the interfering contour to ground level. An aerial photograph is included as E1A demonstrating that the tallest buildings in the area are two stores while the minimum clearance demonstrated below is 20.6 meters. Based on this showing that the interfering contour will not reach a populated area, a waiver of Section 74.1204 is requested.

Vertical clearance is demonstrated in the following table.

Angle (depression)	F	ERP X F^2 kW	108 dBu meters	Vertical Clearance to ground meters
18.8	**0.686**	**0.019**	**121.7**	**20.8**
20	**0.650**	**0.017**	**115.1**	**20.6**
25	**0.493**	**0.0044**	**87.0**	**23.2**
30	**0.331**	**0.0044**	**58.6**	**30.7**
35	**0.178**	**0.0013**	**31.8**	**41.8**
40	**0.043**	**0.0001**	**8.8**	**54.3**
45	**0.068**	**0.0002**	**12.5**	**51.2**
50	**0.149**	**0.0009**	**26.5**	**39.7**
55	**0.202**	**0.0016**	**35.3**	**31.1**
60	**0.227**	**0.0021**	**40.5**	**24.9**
65	**0.226**	**0.0020**	**39.5**	**24.2**
70	**0.205**	**0.0017**	**36.4**	**25.8**
75	**0.0168**	**0.0011**	**29.3**	**31.7**
80	**0.118**	**0.0006**	**21.6**	**38.7**
85	**0.061**	**0.00015**	**10.8**	**49.2**
90	**0.001**	**0.000**	**00.0**	**60.0**

RF Exposure Calculation:

The RF contribution of the proposed translator was calculated using FMMODEL for the PSI FML-2 0.75 wavelength antenna mounted at 60 meters AG to be 0.04 *u*Watts/cm^{2}or 0.02% of the maximum permissible 200 *u*Watts/cm^2 exposure for general population/uncontrolled exposure, and less than the 5% requiring consideration.

60 dBu contour and HAAT:

```
N. Lat. = 40-05-44   W. Lng. = 85-57-16
HAAT and Distance to Contour,
FCC  FM 2-10 Miles, 51 points Method - FCC 30 SEC terrain


Azi.  AV EL   HAAT      dBk       60-F5
----------------------------------------
000   252.0    55.0  -13.98    6.08
030   241.5    65.5  -13.98    6.59
060   247.3    59.7  -21.94    4.03
090   254.1    52.9  -33.98    1.95
120   254.5    52.5  -35.92    1.73
150   248.6    58.4  -34.89    1.93
180   242.2    64.8  -33.98    2.11
210   232.9    74.1  -27.54    3.19
240   245.5    61.5  -13.98    6.41
270   254.6    52.4  -13.98    5.93
300   257.2    49.8  -13.98    5.79
330   251.5    55.5  -13.98    6.10

Ave El= 248.49 M  HAAT= 58.51 M  AMSL= 307 M

Reference 60 dBu = 6.7 km
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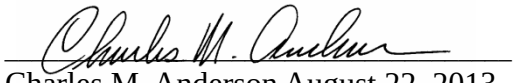


Charles M. Anderson August 22, 2013

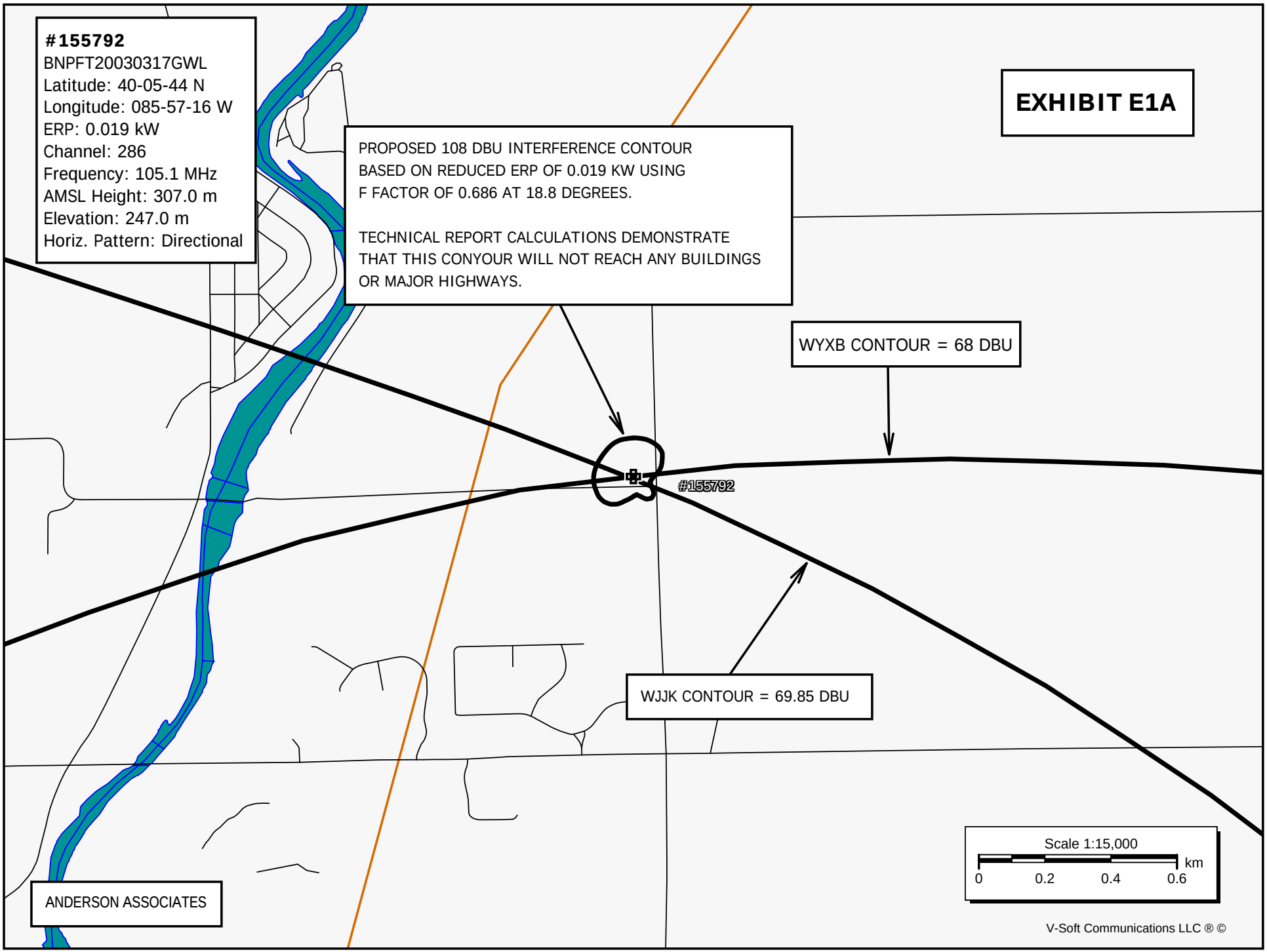
E1 CHANNEL STUDY

REFERENCE CH# 286D - 105.1 MHz, Pwr= 0.04 kW DA, HAAT= 58.5 M, COR= 307 M DISPLAY DATES
40 05 44.0 N. Average Protected F(50-50)= 4.44 km DATA 08-22-13
85 57 16.0 W. Standard Directional SEARCH 08-22-13

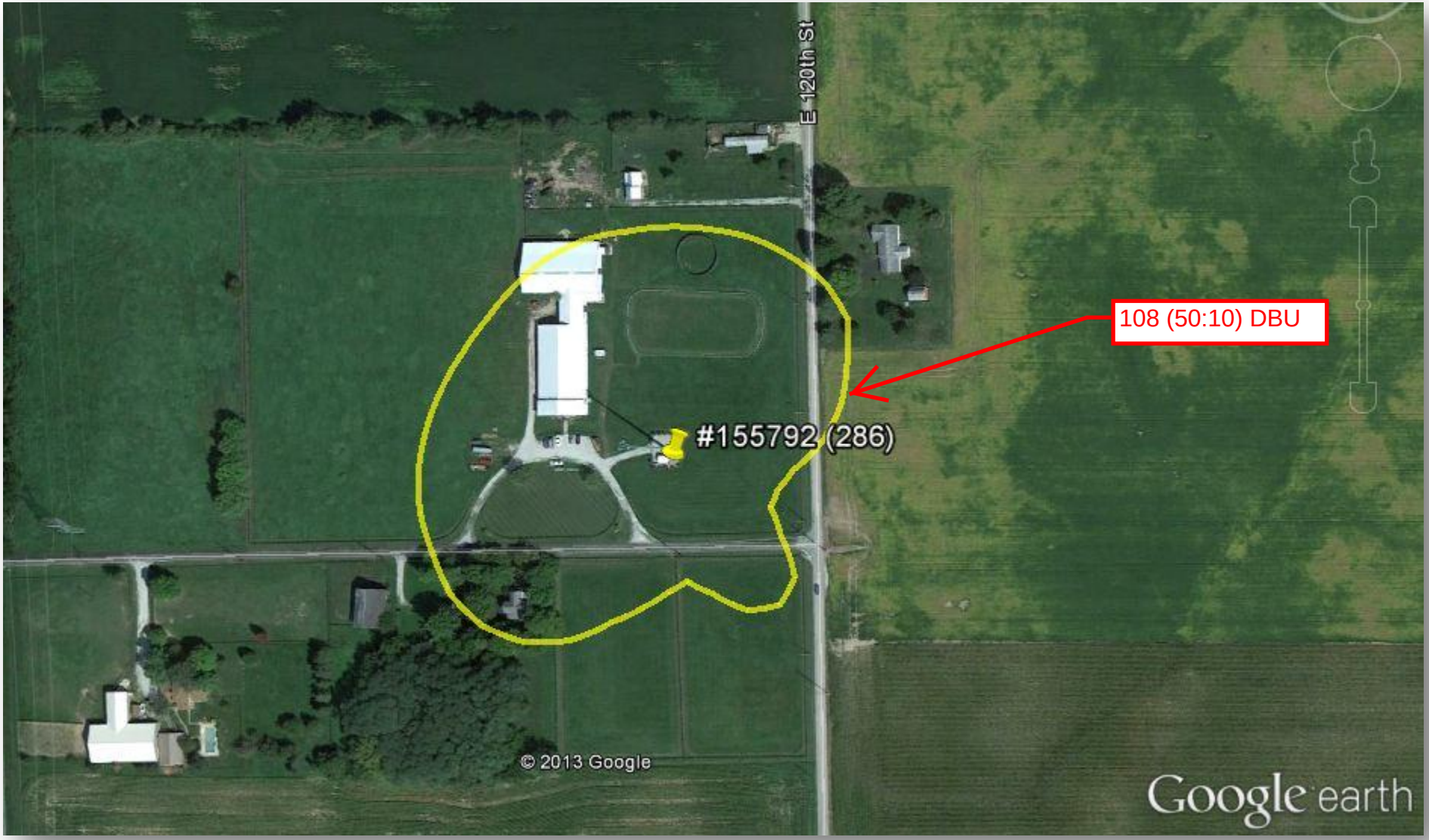
CH CALL / CITY	TYPE ANT / STATE	AZI / <--	DIST / FILE #	LAT / LNG	PWR(kW) / HAAT(M)	INT(km) / COR(M)	PRO(km) / LICENSEE	*IN* / (Overlap in km)	*OUT*	
283B AL9217	RSV-A ___	213.7	34.09	39 50 25.0	50.000	6.2	66.8	21.4	-33.4*	
Noblesville	IN	33.6	RM10153	86 10 34.0	150	393				
283B WJJK	LIC _CX	213.7	34.09	39 50 25.0	50.000	6.2	66.4	21.5	-33.1*	(1)
Noblesville	IN	33.6	BMLH20030828AYT	86 10 34.0	150	390	Susquehanna Radio Corp.			
289B WYXB	LIC ZCX	186.5	36.71	39 46 03.0	50.000	6.0	65.4	25.3	-29.2*	(1)
Indianapolis	IN	6.5	BLH20030403AAC	86 00 12.0	150	398	Emmis Radio License, Llc			
286D 1548803	APP DC_	0.0	0.00	40 05 44.0	0.040	19.9	6.0	-25.8*	-25.8*	
Noblesville	IN	0.0	BNPFT20030317GWL	85 57 16.0		307	Kaspar Broadcasting Co, In			
285A WERK	LIC _CX	81.4	45.07	40 09 19.0	6.000	46.7	30.0	-6.9*	7.6	
Muncie	IN	261.7	BMLH20050322ADL	85 25 48.0	100	392	Backyard Broadcasting Indi			
287D W287BC	LIC _C_	121.1	24.17	39 58 59.0	0.038	9.3	6.5	10.0	11.4	
Anderson	IN	301.2	BLFT20061002AED	85 42 41.0	59	330	Indiana Community Radio Co			
287B WKOA	LIC _CN	294.5	83.27	40 24 08.0	50.000	65.3	52.6	12.4	19.6	
Lafayette	IN	113.9	BLH6529	86 50 59.0	94	291	Wask, Inc.			
286B1 WQHK-FM	LIC _CX	29.3	129.78	41 06 39.0	5.700	102.3	45.7	20.9	58.3	
Huntertown	IN	209.8	BLH20120307AAG	85 11 44.0	210	457	Jam Communications, Inc.			

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), Beamtilt(Y,N,X)
"*"affixed to 'IN' or 'OUT' values = site inside protected contour.

(1) See technical report for disproval of interference.


#155792
BNPFT20030317GWL
Latitude: 40-05-44 N
Longitude: 085-57-16 W
ERP: 0.019 kW
Channel: 286
Frequency: 105.1 MHz
AMSL Height: 307.0 m
Elevation: 247.0 m
Horiz. Pattern: Directional
EXHIBIT E1A
PROPOSED 108 DBU INTERFERENCE CONTOUR
BASED ON REDUCED ERP OF 0.019 KW USING
F FACTOR OF 0.686 AT 18.8 DEGREES.
TECHNICAL REPORT CALCULATIONS DEMONSTRATE
THAT THIS CONYOUR WILL NOT REACH ANY BUILDINGS
OR MAJOR HIGHWAYS.
WYXB CONTOUR = 68 DBU
#155792
WJJK CONTOUR = 69.85 DBU
Scale 1:15,000
km
0
0.2
0.4
0.6
ANDERSON ASSOCIATES
V-Soft Communications LLC ® ©

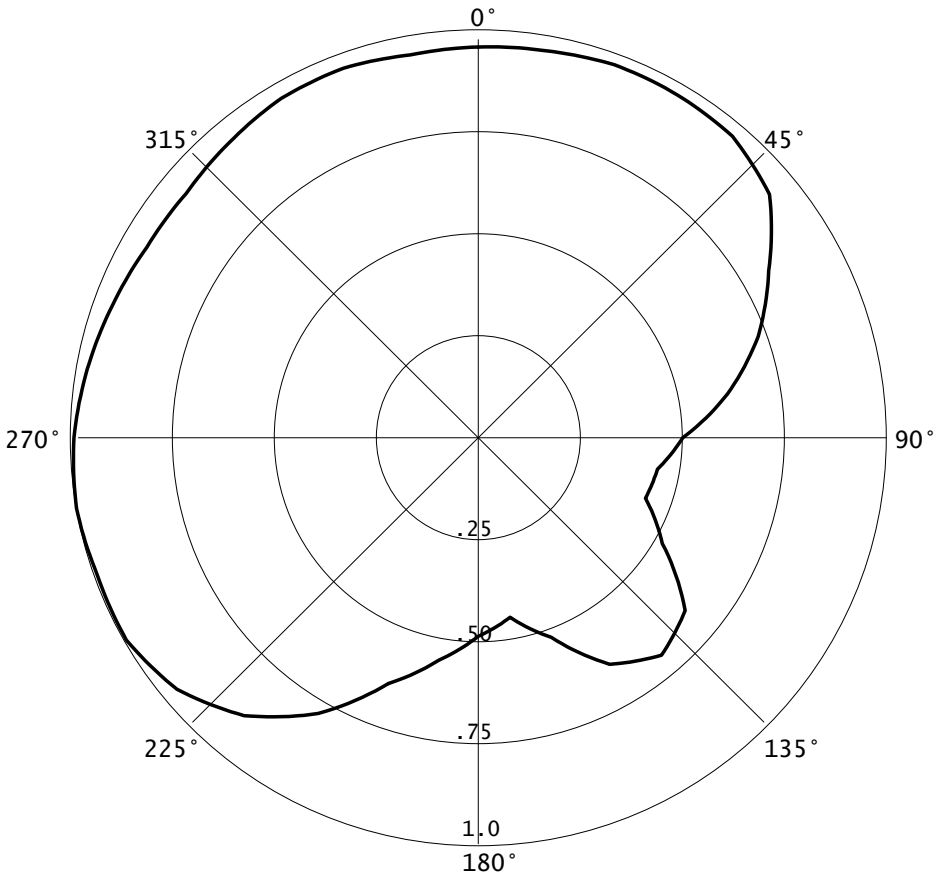
E1B AERIAL PHOTOGRAPH OF PROPOSED WYXB-WJJK INTERFERENCE

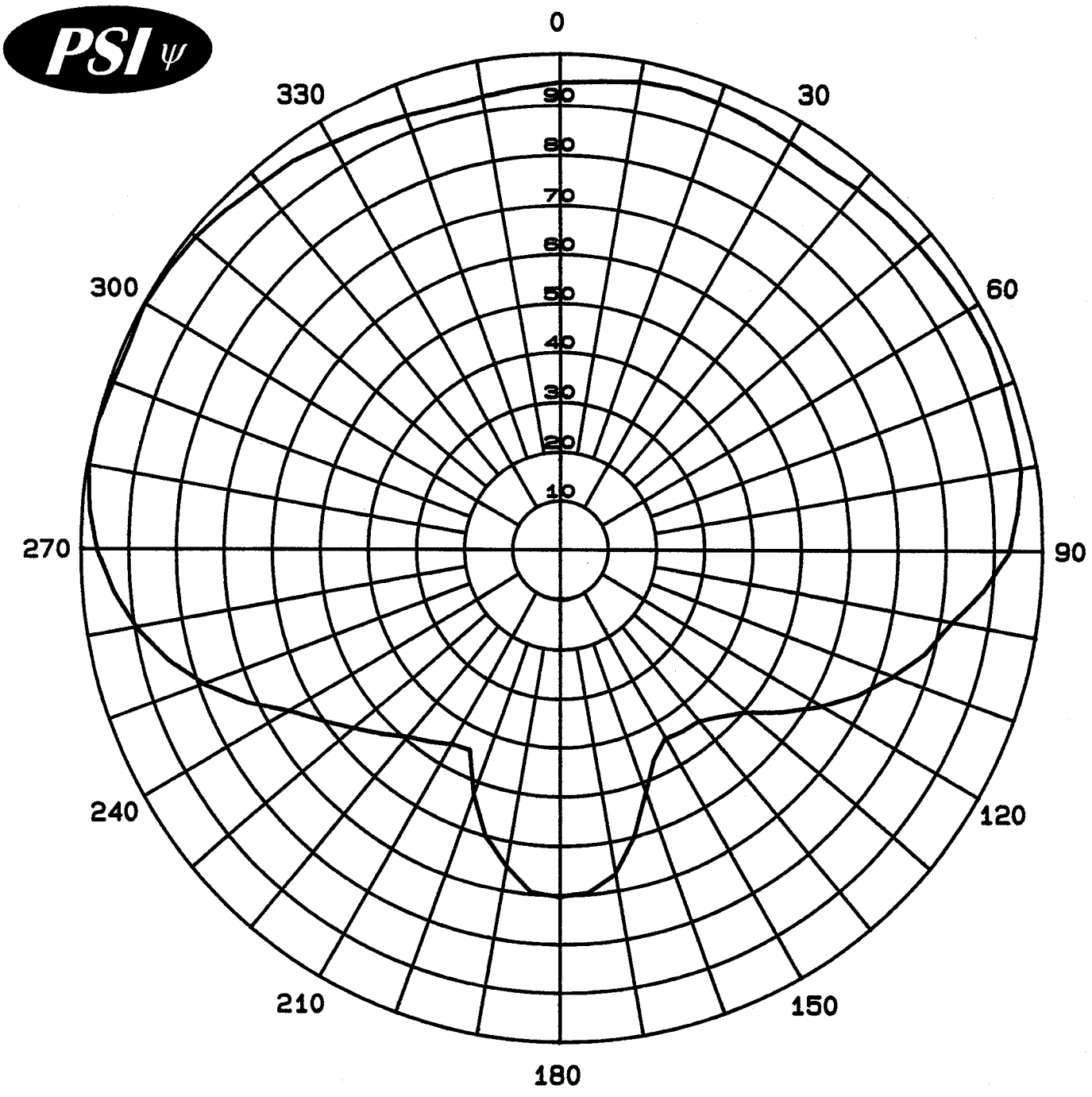


E1C 03-29-2013 RMS(V)= .824

Graph is Relative Field

Azi	Field	dBk	kW
000	0.962	-14.316	0.037
010	0.967	-14.271	0.037
020	0.977	-14.182	0.038
030	0.975	-14.199	0.038
040	0.969	-14.253	0.038
050	0.932	-14.591	0.035
060	0.822	-15.682	0.027
070	0.730	-16.713	0.021
080	0.620	-18.132	0.015
090	0.501	-19.983	0.010
100	0.446	-20.993	0.008
110	0.436	-21.190	0.008
120	0.521	-19.643	0.011
130	0.662	-17.562	0.018
140	0.699	-17.090	0.020
150	0.644	-17.802	0.017
160	0.523	-19.609	0.011
170	0.449	-20.934	0.008
180	0.489	-20.193	0.010
190	0.556	-19.078	0.012
200	0.644	-17.802	0.017
210	0.784	-16.093	0.025
220	0.893	-14.962	0.032
230	0.964	-14.298	0.037
240	0.996	-14.014	0.040
250	0.993	-14.040	0.039
260	1.000	-13.979	0.040
270	0.991	-14.058	0.039
280	0.973	-14.217	0.038
290	0.954	-14.388	0.036
300	0.938	-14.535	0.035
310	0.935	-14.563	0.035
320	0.949	-14.434	0.036
330	0.965	-14.289	0.037
340	0.968	-14.262	0.037
350	0.957	-14.361	0.037





Azimuth Plane Pattern
Composite Relative Field
Antenna Model: PSIFMT-2A-3DB
Type: Directional Translator
Polarization: Circular
Number of Bays: Two
Gain: 1.55 (1.90 dB)
Date: 11-1-2011

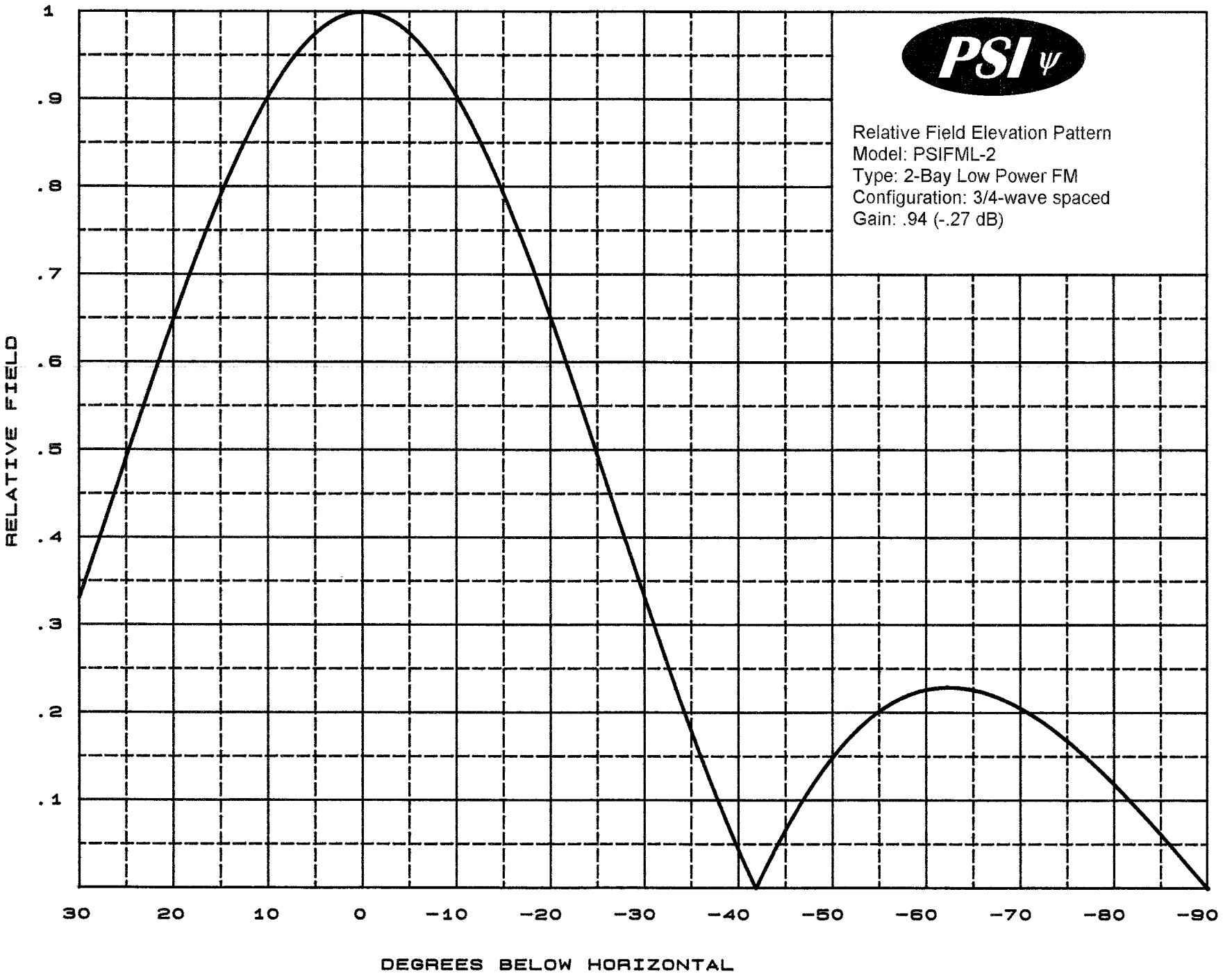
Propagation Systems Inc.
PO Box 113
Ebensburg, PA 15931

Composite Azimuth Pattern Tabulation

Antenna Model: PSIFMT-2A-3DB

Gain: 1.55 (1.90 dB)

Angle	Relative Field	Power Gain	Gain (dBd)
0	0.949	1.40	1.45
10	0.965	1.44	1.59
20	0.968	1.45	1.62
30	0.957	1.42	1.52
40	0.962	1.43	1.57
50	0.967	1.45	1.61
60	0.977	1.48	1.70
70	0.975	1.47	1.68
80	0.969	1.46	1.63
90	0.932	1.35	1.29
100	0.822	1.05	0.20
110	0.730	0.83	-0.83
120	0.620	0.60	-2.25
130	0.501	0.39	-4.10
140	0.446	0.31	-5.11
150	0.436	0.29	-5.31
160	0.521	0.42	-3.76
170	0.662	0.68	-1.68
180	0.699	0.76	-1.21
190	0.644	0.64	-1.92
200	0.523	0.42	-3.73
210	0.449	0.31	-5.05
220	0.489	0.37	-4.31
230	0.556	0.48	-3.20
240	0.644	0.64	-1.92
250	0.784	0.95	-0.21
260	0.893	1.24	0.92
270	0.964	1.44	1.58
280	0.996	1.54	1.87
290	0.993	1.53	1.84
300	1.000	1.55	1.90
310	0.991	1.52	1.82
320	0.973	1.47	1.67
330	0.954	1.41	1.49
340	0.938	1.36	1.35
350	0.935	1.36	1.32

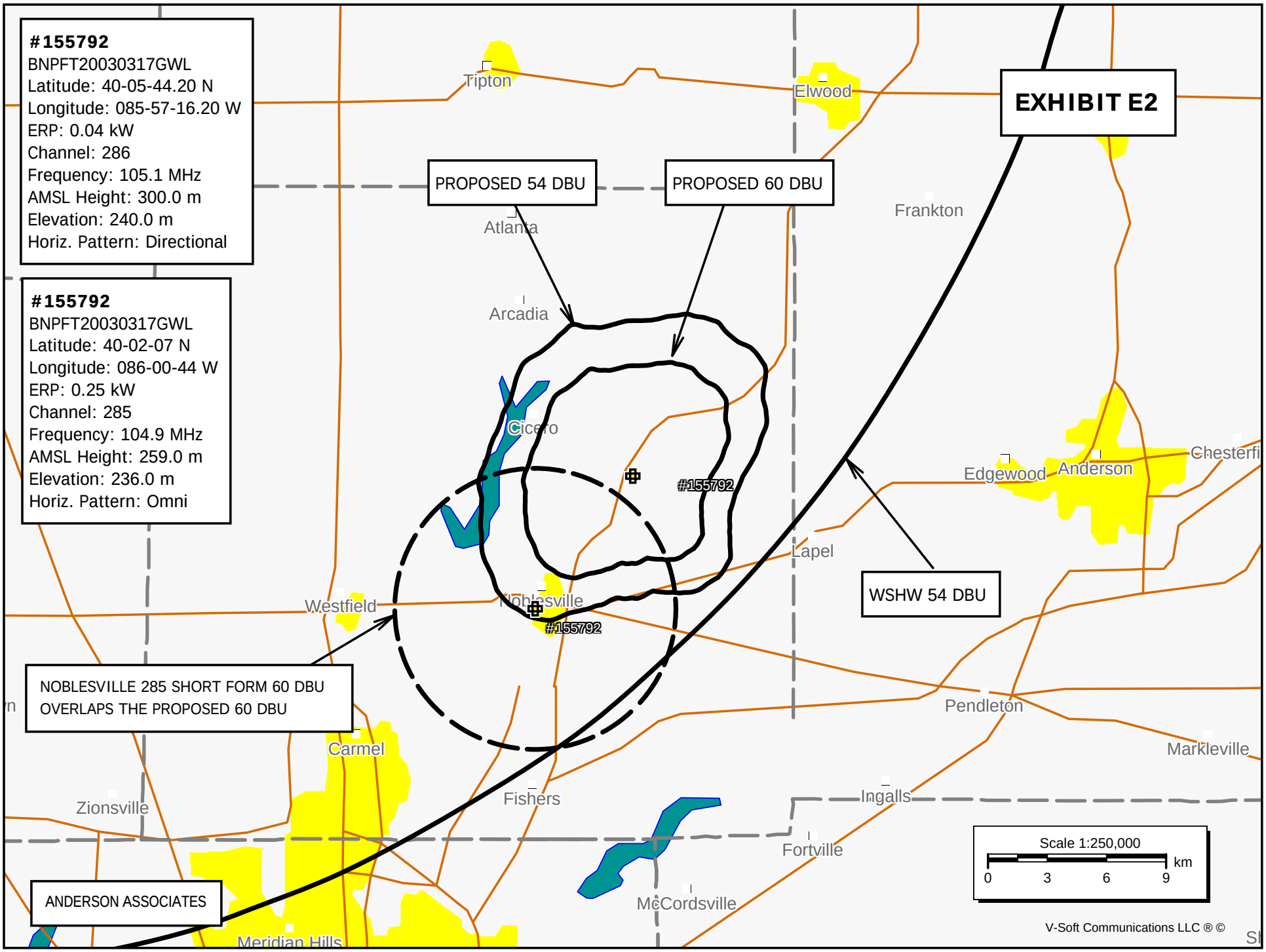

PSI ψ
Relative Field Elevation Pattern
Model: PSIFML-2
Type: 2-Bay Low Power FM
Configuration: 3/4-wave spaced
Gain: .94 (-.27 dB)
RELATIVE FIELD
1
.9
.8
.7
.6
.5
.4
.3
.2
.1
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
DEGREES BELOW HORIZONTAL

Propagation Systems Inc.

Elevation Pattern Tabulation
Antenna: PSIFML-2 Special
Bay spacing: 3/4 wave

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-90.0	0.001	-60.000	-50.0	0.149	-16.513	-10.0	0.903	-0.883
-89.0	0.012	-38.221	-49.0	0.135	-17.364	-9.0	0.921	-0.713
-88.0	0.025	-32.201	-48.0	0.120	-18.405	-8.0	0.937	-0.561
-87.0	0.037	-28.679	-47.0	0.104	-19.677	-7.0	0.952	-0.429
-86.0	0.049	-26.207	-46.0	0.086	-21.289	-6.0	0.964	-0.315
-85.0	0.061	-24.285	-45.0	0.068	-23.404	-5.0	0.975	-0.219
-84.0	0.073	-22.748	-44.0	0.048	-26.425	-4.0	0.984	-0.139
-83.0	0.085	-21.443	-43.0	0.027	-31.481	-3.0	0.991	-0.079
-82.0	0.096	-20.349	-42.0	0.005	-46.848	-2.0	0.996	-0.036
-81.0	0.107	-19.378	-41.0	0.018	-34.664	-1.0	0.999	-0.009
-80.0	0.118	-18.538	-40.0	0.043	-27.417	0.0	1.000	0.000
-79.0	0.129	-17.792	-39.0	0.068	-23.365	1.0	0.999	-0.009
-78.0	0.139	-17.125	-38.0	0.094	-20.529	2.0	0.996	-0.036
-77.0	0.149	-16.522	-37.0	0.121	-18.329	3.0	0.991	-0.079
-76.0	0.159	-15.984	-36.0	0.149	-16.531	4.0	0.984	-0.139
-75.0	0.168	-15.508	-35.0	0.178	-14.998	5.0	0.975	-0.219
-74.0	0.176	-15.072	-34.0	0.207	-13.669	6.0	0.964	-0.315
-73.0	0.184	-14.685	-33.0	0.237	-12.489	7.0	0.952	-0.429
-72.0	0.192	-14.335	-32.0	0.268	-11.431	8.0	0.937	-0.561
-71.0	0.199	-14.026	-31.0	0.299	-10.475	9.0	0.921	-0.713
-70.0	0.205	-13.752	-30.0	0.331	-9.602	10.0	0.903	-0.882
-69.0	0.211	-13.518	-29.0	0.363	-8.801	11.0	0.884	-1.072
-68.0	0.216	-13.315	-28.0	0.395	-8.061	12.0	0.863	-1.279
-67.0	0.220	-13.146	-27.0	0.428	-7.377	13.0	0.841	-1.508
-66.0	0.224	-13.009	-26.0	0.460	-6.742	14.0	0.817	-1.757
-65.0	0.226	-12.904	-25.0	0.493	-6.151	15.0	0.792	-2.029
-64.0	0.228	-12.834	-24.0	0.525	-5.599	16.0	0.765	-2.322
-63.0	0.229	-12.800	-23.0	0.557	-5.083	17.0	0.738	-2.639
-62.0	0.229	-12.794	-22.0	0.589	-4.603	18.0	0.710	-2.979
-61.0	0.228	-12.829	-21.0	0.620	-4.154	19.0	0.680	-3.344
-60.0	0.227	-12.898	-20.0	0.650	-3.736	20.0	0.650	-3.736
-59.0	0.224	-13.009	-19.0	0.680	-3.344	21.0	0.620	-4.154
-58.0	0.220	-13.158	-18.0	0.710	-2.979	22.0	0.589	-4.603
-57.0	0.215	-13.351	-17.0	0.738	-2.639	23.0	0.557	-5.083
-56.0	0.209	-13.600	-16.0	0.765	-2.323	24.0	0.525	-5.599
-55.0	0.202	-13.894	-15.0	0.792	-2.029	25.0	0.493	-6.151
-54.0	0.194	-14.260	-14.0	0.817	-1.759	26.0	0.460	-6.742
-53.0	0.184	-14.685	-13.0	0.840	-1.510	27.0	0.428	-7.377
-52.0	0.174	-15.192	-12.0	0.863	-1.281	28.0	0.395	-8.061
-51.0	0.162	-15.795	-11.0	0.884	-1.072	29.0	0.363	-8.801
						30.0	0.331	-9.602

file: FML 2-bay elevation tabulation
revision: A
Date: 1/28/08


#155792
BNPFT20030317GWL
Latitude: 40-05-44.20 N
Longitude: 085-57-16.20 W
ERP: 0.04 kW
Channel: 286
Frequency: 105.1 MHz
AMSL Height: 300.0 m
Elevation: 240.0 m
Horiz. Pattern: Directional
#155792
BNPFT20030317GWL
Latitude: 40-02-07 N
Longitude: 086-00-44 W
ERP: 0.25 kW
Channel: 285
Frequency: 104.9 MHz
AMSL Height: 259.0 m
Elevation: 236.0 m
Horiz. Pattern: Omni
EXHIBIT E2
PROPOSED 54 DBU
PROPOSED 60 DBU
WSHW 54 DBU
NOBLESVILLE 285 SHORT FORM 60 DBU
OVERLAPS THE PROPOSED 60 DBU
ANDERSON ASSOCIATES
Tipton
Elwood
Frankton
Atlanta
Arcadia
Cicero
Edgewood
Anderson
Chesterfi
Lapel
Westfield
Noblesville
Pendleton
Markleville
Carmel
Zionsville
Fishers
Ingalls
Fortville
McCordsville
Meridian Hills
#155792
#155792
Scale 1:250,000
0 3 6 9 km
V-Soft Communications LLC ® ©

Antenna Structure Registration

ASR Registration Search

Registration 1280796

Registration Detail

Reg Number	1280796	Status	Constructed
File Number	A0819849	Constructed	12/19/2007
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

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

Location (in NAD83 Coordinates - Convert to NAD27)

Lat/Long	40-05-44.4 N 085-57-16.2 W	Address	Noblesville, IN (272463)
City, State	Noblesville , IN		
Zip	46060	County	HAMILTON
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
247.2	79.2
Overall Height Above Mean Sea Level	**Overall Height Above Ground w/o Appurtenances**
326.4	79.2

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-AGL-5484-OE	FAA Issue Date	10/05/2011

Output from NADCON for station NOBLESVILLE

North American Datum Conversion

NAD 83 to NAD 27

NADCON Program Version 2.11

==========

Transformation #: 1 Region: Conus

	Latitude	Longitude	
NAD 27 datum values:	40 05 44.26573	85 57 16.26141	
NAD 83 datum values:	40 05 44.40000	85 57 16.20000	
NAD 27 - NAD 83 shift values:	-0.13427	0.06141	(secs.)
	-4.141	1.455	(meters)

Magnitude of total shift: 4.389(meters)