

**BELLEVUE, TN
BNPFT-20030317FAL
SHORT FORM AMENDMNET**

This is a unilateral technical short form amendment by Middle Tennessee State University for its application BNPFT-20030317FAL eliminating the conflict with WYCQ, Inc. application BNPFT-20030312BCH at Nashville, TN on channel 235. The MTSU application is amended to its IF channel 286 (+53) which is a minor change.

There is no settlement agreement.

An LPFM preclusion study is included as E1 demonstrating that the amended application will not conflict with any LPFM channel point in the Nashville, TN 30X30 grid.

Allocation discussion:

All exhibits utilize the FCC 30 second second terrain database.

- E1 Channel study
- E1A Interference plot to WGFX
- E1B Aerial photograph of interference area
- E2 60 dBu contours

A channel study is included as E1 demonstrating compliance with §74.1204 with the exception of 3rd adjacent channel station WGFX on channel 283. A plot of the proposed 60 dBu is provided as E2 showing that it is entirely contained within the WMOT 60 dBu and overlaps the short form 60 dBu.

The proposed facility will be located inside the protected contour of third adjacent channel station WGFX. Therefore, an interference analysis has been conducted based on the U/D ratio of +40 dB at the proposed site. The WGFX (50:50) contour at the proposed site is 84.87 dBu and the (50:10) interference contour is 124.87 dBu at a distance of 17.9 meters. At the depression angle of 33.8 degrees, this reduces to an ERP of .003 kW or 6.9 meters. This contour has been further evaluated at every ten degrees of depression angle from 33.8 through 90 degrees using the vertical elevation pattern to determine the vertical clearance from the contour to ground.

Depression Angle (Deg.)	F	ERP X F ² kW	Int. = 124.87 dBu meters	Vertical Clearance AGL (m) (Int X sin Ang - 12m)
33.8	0.533	0.003	6.9	8.2
40	0.407	0.003	6.9	7.6
50	0.230	0.001	4.0	8.9
60	0.104	0.0002	1.8	10.4
70	0.032	0.0000	0.0	12.0
80	0.004	0.0000	0.0	12.0
90	0.001	0.0000	0.0	12.0

Clearly, these 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).

HAAT and 60 dBu tabulation:

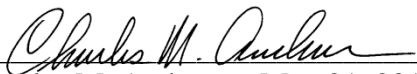
N. Lat. = 36-04-51 W. Lng. = 86-56-37
 HAAT and Distance to Contour,
 FCC, FM 2-10 Mi, 51 pts Method - FCC 30 SEC

Azi.	AV EL	HAAT	dBk	60-F5
000	144.4	52.6	-16.99	5.04
030	135.8	61.2	-16.99	5.42
060	169.5	27.5	-16.99	3.74
090	213.8	-16.8	-16.99	3.74
120	208.9	-11.9	-16.99	3.74
150	203.6	-6.6	-16.99	3.74
180	202.5	-5.5	-16.99	3.74
210	216.6	-19.6	-16.99	3.74
240	209.6	-12.6	-16.99	3.74
270	184.7	12.3	-16.99	3.74
300	206.8	-9.8	-16.99	3.74
330	184.2	12.8	-16.99	3.74

Ave El= 190.03 M HAAT= 6.97 M AMSL= 197.0

RF Exposure Calculation:

The proposed facility will utilize a PSI two bay 0.5 wavelength spaced circularly polarized antenna with a center of radiation at 12 meters AGL. The RF contribution of the proposed translator was calculated using FMModel to be 1.2 $\mu\text{Watts}/\text{cm}^2$ or 0.6% of the maximum permissible 200 microwatts/cm² exposure for general population/uncontrolled exposure, and well below 5% of that limit which requires consideration. The proposed translator clearly complies with Commission RF radiation limits.


Charles M. Anderson, May 21, 2013

E1 CHANNEL STUDY

REFERENCE
36 04 51.0 N.
86 56 37.0 W.

CH# 286D - 105.1 MHz, Pwr= 0.02 kW, HAAT= 7.0 M, COR= 197 M
Average Protected F(50-50)= 3.74 km
Omni-directional

DISPLAY DATES
DATA 05-21-13
SEARCH 05-21-13

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*
286C2 Waverly	WVRY	LIC	_CN TN	271.2 90.8	62.25 BLH19890619KB	36 05 25.0 87 38 05.0	50.000 150	133.3 355	47.4 Jwl Communications Llc	-74.6*	2.3
283C1 Gallatin	WGFY	LIC	ZCX TN	32.5 212.5	24.66 BLH20020909ABA	36 16 05.0 86 47 45.0	58.000 368	10.1 552	75.1 Radio License Holding Cbc,	9.2	-50.8*(1)
288D Goodlettsville	W288CI	CP	_C_ TN	54.2 234.3	18.32 BNPFT20130311AAX	36 10 37.0 86 46 41.0	0.055	0.5 206	4.8 Calvary Chapel of Twin Fal	13.0	11.4
285A Woodbury	WBOZ	LIC	NCN TN	111.6 292.1	76.33 BLH19970214KB	35 49 33.0 86 09 28.0	6.000 100	51.4 352	33.9 Reach Satellite Network	21.4	35.9
287D Mount Juliet	W288BG	APP	_C_ TN	78.9 259.2	39.50 BPFT20130417ABQ	36 08 53.0 86 30 46.0	0.080	10.5 212	7.2 Calvary Chapel of Twin Fal	25.3	26.8
288D Lebanon	W288BG	LIC	_C_ TN	80.6 260.9	51.78 BLFT20061101ADK	36 09 20.0 86 22 33.0	0.010 151	0.2 337	7.1 Calvary Chapel of Twin Fal	47.8	44.3

Terrain database is USGS 03 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.

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

156000

BNPFT20030317FAL

Latitude: 36-04-51 N

Longitude: 086-56-37 W

ERP: 0.02 kW

Channel: 286

Frequency: 105.1 MHz

AMSL Height: 197.0 m

Elevation: 185.0 m

Horiz. Pattern: Omni

Vert. Pattern: No

Prop Model: None

WGFX 84.87 DBU

INTERFERENCE CONTOUR = 124.87 = 17.9 M

AT THE 33.8 DEGREE DEPRESSION ANGLE

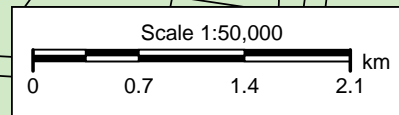
AND $F = 0.533$ THE REDUCED ERP 0.003 KW

124.87 DBU IS 6.9 METERS WHICH CLEARLY DOES NOT
REACH ANY POPULATED AREA OR MAJOR HIGHWAY.

E1A

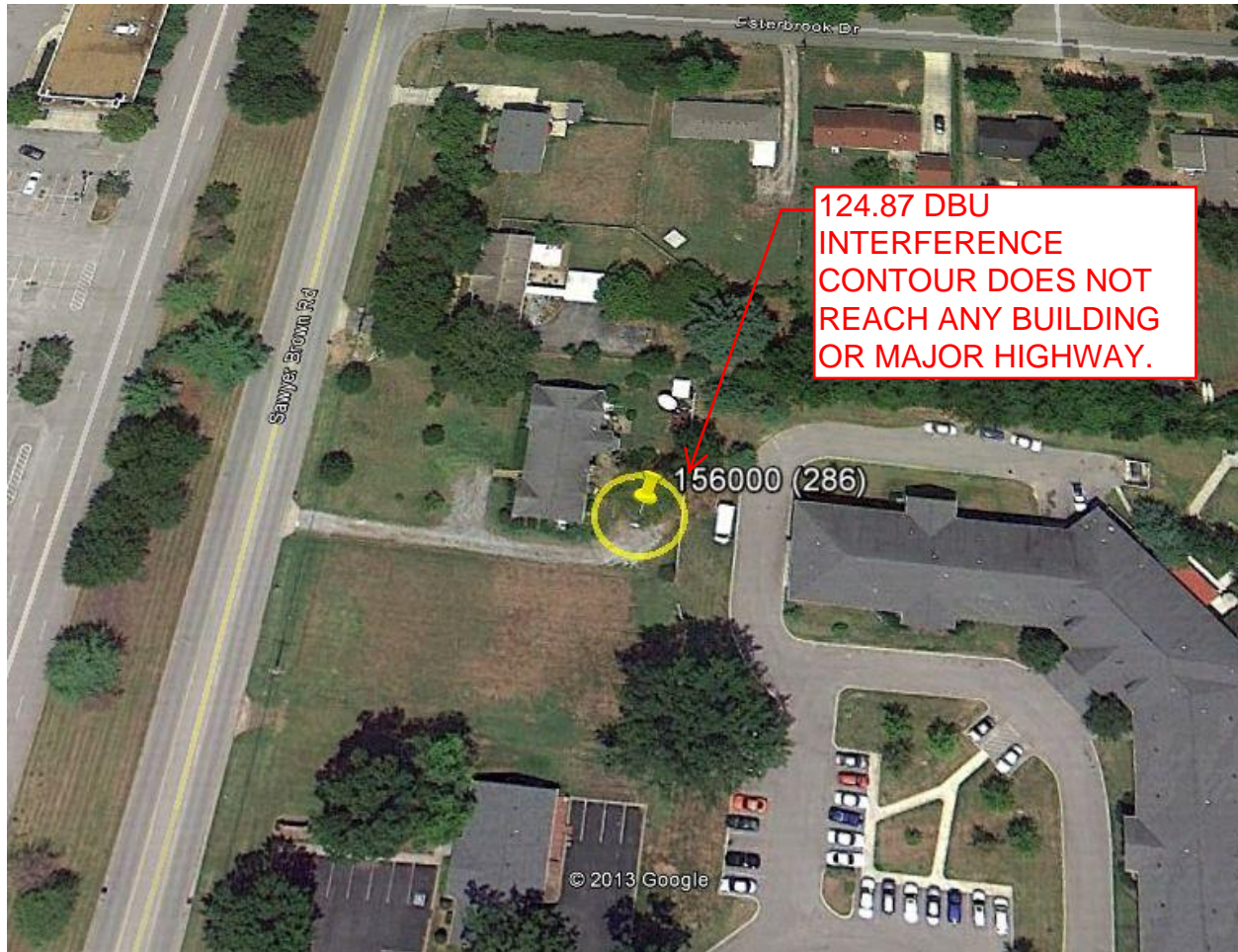
156000

ANDERSON ASSOCIATES



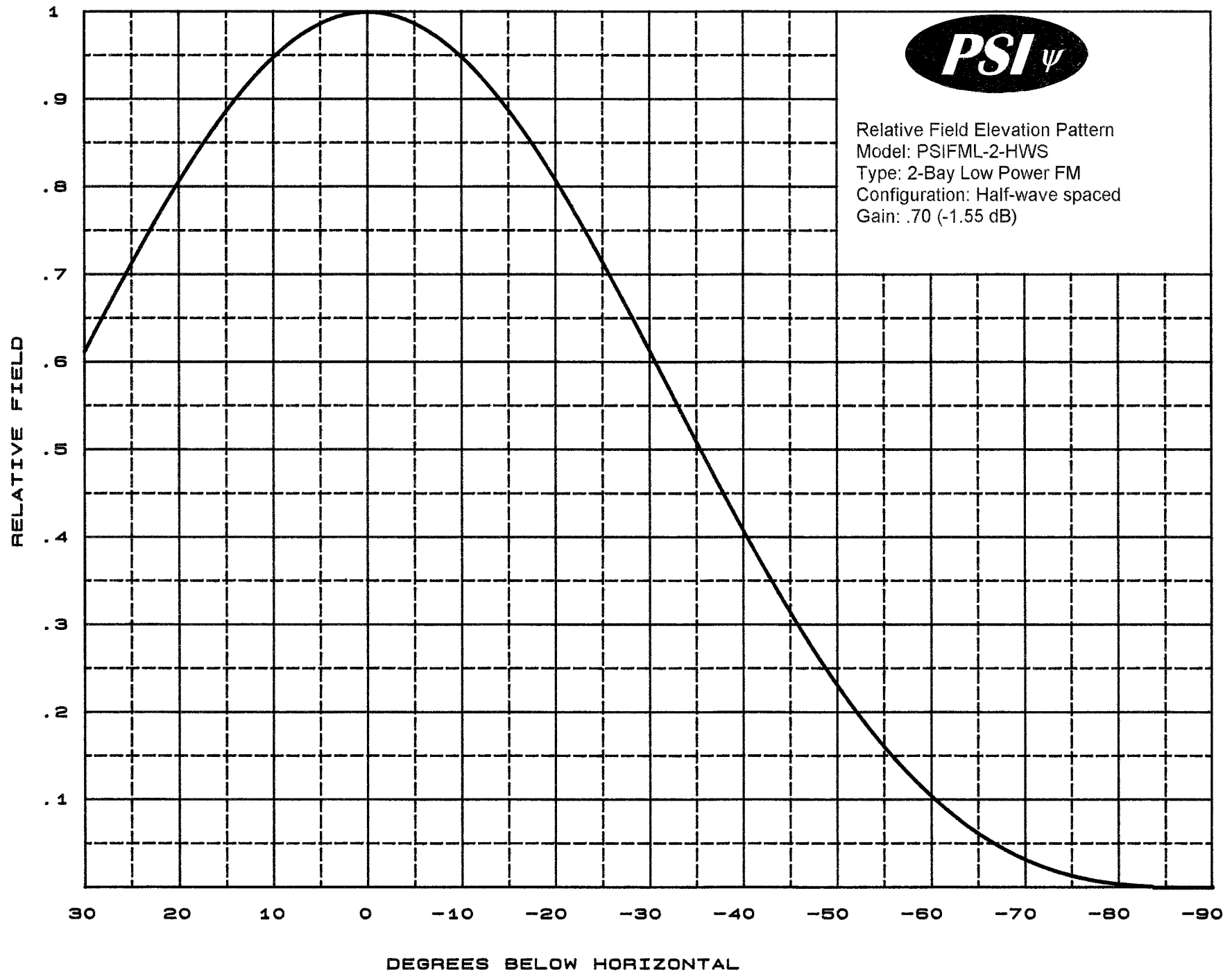
V-Soft Communications LLC ©

E1B AERIAL VIEW OF INTERFERENCE AREA





Relative Field Elevation Pattern
Model: PSIFML-2-HWS
Type: 2-Bay Low Power FM
Configuration: Half-wave spaced
Gain: .70 (-1.55 dB)





Propagation Systems Inc.

Elevation Pattern Tabulation

Antenna: PSIFML-2-HWS

Bay spacing: 1/2 wave

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-90.0	0.001	-58.329	-50.0	0.230	-12.748	-10.0	0.948	-0.461
-89.0	0.001	-58.329	-49.0	0.246	-12.179	-9.0	0.958	-0.374
-88.0	0.001	-58.329	-48.0	0.262	-11.625	-8.0	0.967	-0.296
-87.0	0.001	-58.329	-47.0	0.279	-11.095	-7.0	0.974	-0.227
-86.0	0.001	-58.329	-46.0	0.296	-10.577	-6.0	0.981	-0.166
-85.0	0.001	-58.329	-45.0	0.313	-10.076	-5.0	0.987	-0.115
-84.0	0.001	-58.329	-44.0	0.332	-9.590	-4.0	0.992	-0.074
-83.0	0.001	-58.329	-43.0	0.350	-9.122	-3.0	0.995	-0.042
-82.0	0.002	-54.112	-42.0	0.369	-8.668	-2.0	0.998	-0.018
-81.0	0.003	-50.816	-41.0	0.388	-8.229	-1.0	0.999	-0.005
-80.0	0.004	-48.091	-40.0	0.407	-7.806	0.0	1.000	0.000
-79.0	0.005	-45.510	-39.0	0.427	-7.392	1.0	0.999	-0.005
-78.0	0.007	-43.327	-38.0	0.447	-6.994	2.0	0.998	-0.018
-77.0	0.009	-41.122	-37.0	0.467	-6.611	3.0	0.995	-0.042
-76.0	0.011	-39.124	-36.0	0.488	-6.239	4.0	0.992	-0.074
-75.0	0.013	-37.403	-35.0	0.508	-5.880	5.0	0.987	-0.115
-74.0	0.017	-35.642	-34.0	0.529	-5.534	6.0	0.981	-0.166
-73.0	0.020	-34.112	-33.0	0.550	-5.198	7.0	0.974	-0.225
-72.0	0.023	-32.640	-32.0	0.570	-4.876	8.0	0.967	-0.294
-71.0	0.027	-31.237	-31.0	0.591	-4.565	9.0	0.958	-0.374
-70.0	0.032	-29.905	-30.0	0.612	-4.265	10.0	0.948	-0.461
-69.0	0.037	-28.643	-29.0	0.633	-3.976	11.0	0.938	-0.558
-68.0	0.042	-27.448	-28.0	0.653	-3.699	12.0	0.926	-0.664
-67.0	0.048	-26.315	-27.0	0.674	-3.431	13.0	0.914	-0.780
-66.0	0.055	-25.241	-26.0	0.694	-3.177	14.0	0.901	-0.906
-65.0	0.062	-24.220	-25.0	0.713	-2.932	15.0	0.887	-1.042
-64.0	0.069	-23.231	-24.0	0.733	-2.698	16.0	0.872	-1.185
-63.0	0.077	-22.274	-23.0	0.752	-2.472	17.0	0.857	-1.341
-62.0	0.085	-21.365	-22.0	0.771	-2.260	18.0	0.841	-1.503
-61.0	0.094	-20.501	-21.0	0.789	-2.056	19.0	0.824	-1.677
-60.0	0.104	-19.664	-20.0	0.807	-1.861	20.0	0.807	-1.861
-59.0	0.114	-18.855	-19.0	0.824	-1.677	21.0	0.789	-2.056
-58.0	0.125	-18.072	-18.0	0.841	-1.503	22.0	0.771	-2.258
-57.0	0.136	-17.325	-17.0	0.857	-1.341	23.0	0.752	-2.472
-56.0	0.148	-16.602	-16.0	0.872	-1.185	24.0	0.733	-2.698
-55.0	0.160	-15.901	-15.0	0.887	-1.042	25.0	0.714	-2.930
-54.0	0.173	-15.230	-14.0	0.901	-0.906	26.0	0.694	-3.175
-53.0	0.187	-14.579	-13.0	0.914	-0.780	27.0	0.674	-3.431
-52.0	0.201	-13.947	-12.0	0.926	-0.664	28.0	0.653	-3.699
-51.0	0.215	-13.339	-11.0	0.938	-0.558	29.0	0.633	-3.976
						30.0	0.612	-4.263

file: FML 2-bay elevation tabulation

revision: A

Date: 1/28/08

156000

BNPFT20030317FAL

Latitude: 36-04-51 N

Longitude: 086-56-37 W

ERP: 0.02 kW

Channel: 286

Frequency: 105.1 MHz

AMSL Height: 197.0 m

Elevation: 185.0 m

Horiz. Pattern: Omni

Vert. Pattern: No

Prop Model: None

E2

PROPOSED 60 DBU

156000

WMOT 60 DBU

SHORT FORM 60 DBU

ANDERSON ASSOCIATES

Scale 1:250,000

0 3 6 9 km

V-Soft Communications LLC ©

