T.Z. SAWYER TECHNICAL CONSULTANTS
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BROADCAST COMMUNICATIONS, INC.
ENGINEERING AMENDMENT TO
BMPFT-20180928ACZ

FM TRANSLATOR STATION W237CX/W286CZ
GREENSBURG, PA
FACILITY ID: 141826

MINOR AMENDMENT TO PENDING APPLICATION
CHANGE SITE LOCATION
ANTENNA SYSTEM AND RADIATED POWER (ERP)

OCTOBER 2018

ENGINEERING EXHIBIT
IN SUPPORT OF

APPLICATION FOR AUTHORITY TO
CONSTRUCT OR MAKE CHANGES IN AN
FM TRANSLATOR OR FM BOOSTER STATION

ENGINEERING EXHIBIT

BROADCAST COMMUNICATIONS, INC.
ENGINEERING AMENDMENT TO
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OCTOBER 2018

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GREENSBURG, PA
FACILITY ID: 141826
OCTOBER 2018

NARRATIVE STATEMENT

The engineering exhibit, of which this narrative is part, was prepared on behalf of BROADCAST COMMUNICATIONS, INC., in support of an amendment to its pending application for modification of its underlying construction permit. The station will provide "fill-in" service for co-owned and licensed AM Broadcast Station WKFB, Jeannette, Pennsylvania, FCC Facility ID: 10026. No change in the designation of the primary station is sought.

Amendment Details:

This engineering amendment seeks a change in the antenna/transmission site, the antenna type to be utilized, and the effective radiated power of the facility. The changes sought are classified as “minor” by the Commission’s application processing rules.

The proposal remains within the 250-mile radius of its licensed facility as required in the first FM filing window for minor changes to existing facilities (in which the original construction permit was obtained) and 60 dBu (f(50,50) contour overlap occurs between this proposal and the original construction permit. Thus, this proposal is rule compliant with regards to permitted minor changes to AM/FM translator 1st or 2nd filing window applications. No change in the primary AM station to be rebroadcast will occur.

In support of the requested changes the following figures, exhibits or tables are provided:

Figure 1 – Supporting Structure Tower Registration: FCC ASR number 1010463 has been issued for this 123.1 meter (AGL) supporting structure. No changes are proposed in the structures overall height. Applicant proposes to side-mount its antenna at 109 meters (AGL).

Figure 2 – Vertical Sketch of Tower and Antenna: A vertical sketch of antenna supporting structure with the antenna mounting elevation and other antenna details is provided.

Figure 3 – Directional Antennas Details: Tabulation and relative field polar plot of the proposed directional antenna. The antenna is a NICOM BKG-77, a single bay/element antenna.

Figure 4 – Predicted Service Contour & Primary Station Service Area: The predicted service contour for the FM translator facility was calculated in accordance with the provisions of 47 CFR 73.313. The average terrain elevations from 3 to 16 kilometers from the proposed translator site were obtained from the NGDC 30-second computer database. The standard twelve radials evenly spaced at 30-degree intervals were used for determining the distance to the 60 dBu translator service contour. The 2 mV/m daytime groundwave contour from the primary AM station was computed using the soil conductivity values from the FCC M3 soil conductivity map. The predicted coverage contours for both stations have been drawn. As the map shows, the predicted service contour (60 dBu) from the translator lies COMPLETELY inside the WKFB 2.0 mV/m daytime groundwave contour. This proposal complies with the FCC's requirements for AM cross-service fill-in translators.

Figure 5 – FM Channel Study with Wavier Request to 2nd Adjacent Station: The proposed operation fully protects all other stations of concern as detailed in the contour

overlap study in Figure 5. Applicant requests processing of this application with a waiver request regarding the contour overlap with second adjacent channel station WPGB, Pittsburgh, PA FCC Facility ID: 18511. Details of the waiver request are included in Figure 5. Interference from this proposal to WPGB does not occur as the interference contour does not touch or reach the surface of the earth. Therefore, no population within the interference contour exists and a grant of the waiver request concerning WPGB is permissible and in the public interest as no interference is caused to any populated area.

Environmental Considerations: The applicant believes its proposal will not significantly affect the environment for the following reasons:

The proposal does not meet any of the criteria specified in Section 1.1307 of the FCC Rules. More specifically, the proposed facilities are not known to fall within any of the categories enumerated in Sections 1.1307(a)(1)-(7) and will not involve the use of high intensity white lights. Furthermore, operation of the proposed facility will not involve the exposure of workers or the general public to levels of radio frequency electromagnetic fields exceeding guidelines adopted by the Federal Communications Commission. (The current FCC guidelines are based upon criteria contained in the National Council of Radiation Protection and Measurements (NCRP) Report No.86 (1986) and ANSI/IEEE C95.1-1992.)

The results of the FCC FM Model computer program output indicate that the power density from this proposal using a "Type 1 or Other" EPA model antenna is predicted to be 0.3688 $\mu W/cm^2$ or less. The computed power density is 0.0037% of the Commission's guidelines for a controlled area and 0.18% for an uncontrolled area. This level is well below the Commission's guidelines for maximum exposure levels to electromagnetic fields and no further study is required.

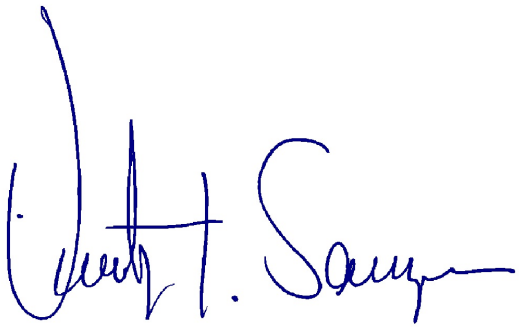
Broadcast Communications, Inc.
FM Translator, W237CX/W286CZ
Greensburg, PA

The applicant will fully-cooperate and coordinate with all site users as required by the Commission's rules.

Summary: The proposed FM translator will operate as a fill-in translator for AM Broadcast Station WKFB, Jeannette, Pennsylvania, with a maximum ERP 0.105-kilowatts (H & V Polarization), utilizing a simple one-bay (element) DIRECTIONAL antenna system operating on FM Channel 286D (105.1 MHZ).

The proposed operation is fully in compliance with all areas of the Commission's rules and applicable international agreements. A WAIVER request to the extent necessary is included in the exhibits (see Figure 5) with regards to protection to 2nd-Adjacent Channel WPGB, Pittsburgh, Pennsylvania. The request is based upon no population within the predicted interference area from this proposal.

October 6, 2018



Timothy Z. Sawyer, Consulting Engineer

T Z Sawyer Technical Consultants
2130 Hutchison Grove Court, Suite 100
Falls Church, Virginia 22043
Tel.: 703-848-2130 / 202-642-2130
web site: www.tzsawyer.com
e-mail: tzsawyer@tzsawyer.com

FCC Registration Number (FRN): 0005851688

ATTN: ROBERT M. STEVENS **BROADCAST COMMUNICATIONS, INC.** **245 BROWN ST** **GREENSBURG, PA 15601**	**Antenna Structure Registration Number** **1010463** **Issue Date** **09/18/2003**
Location of Antenna Structure **OFF FARM SPUR RD 3.2 KM NNE** **HERMINIE, PA 15678** **WESTMORELAND**	**Ground Elevation (AMSL)** **350.5 meters** **Overall Height Above Ground (AGL)** **123.1 meters**
Latitude 40- 17- 20.0 N **Longitude** 079- 42- 03.0 W **NAD83**	**Overall Height Above Mean Sea Level (AMSL)** **473.6 meters**

Painting and Lighting Requirements:

FAA Chapters 3, 4, 5, 13

Paint and Light in Accordance with FAA Circular Number 70/7460-1J

NO CHANGE IN THIS STRUCTURE'S OVERALL HEIGHT - NO FAA NOTICE REQUIRED

T Z SAWYER TECHNICAL CONSULTANTS
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FALL CHURCH, VIRGINIA 22043-2555

FCC ASR REGISTRATION NUMBER
1010463

EXISTING TOWER
FM TRANSLATOR APPLCATION
MODIFICATION OF CONSTRUCTION PERMIT

FIGURE 1

SIZE	CAGE NO	DWG NO	REV
A	N/A	20181006GREENSBERGPA	NONE

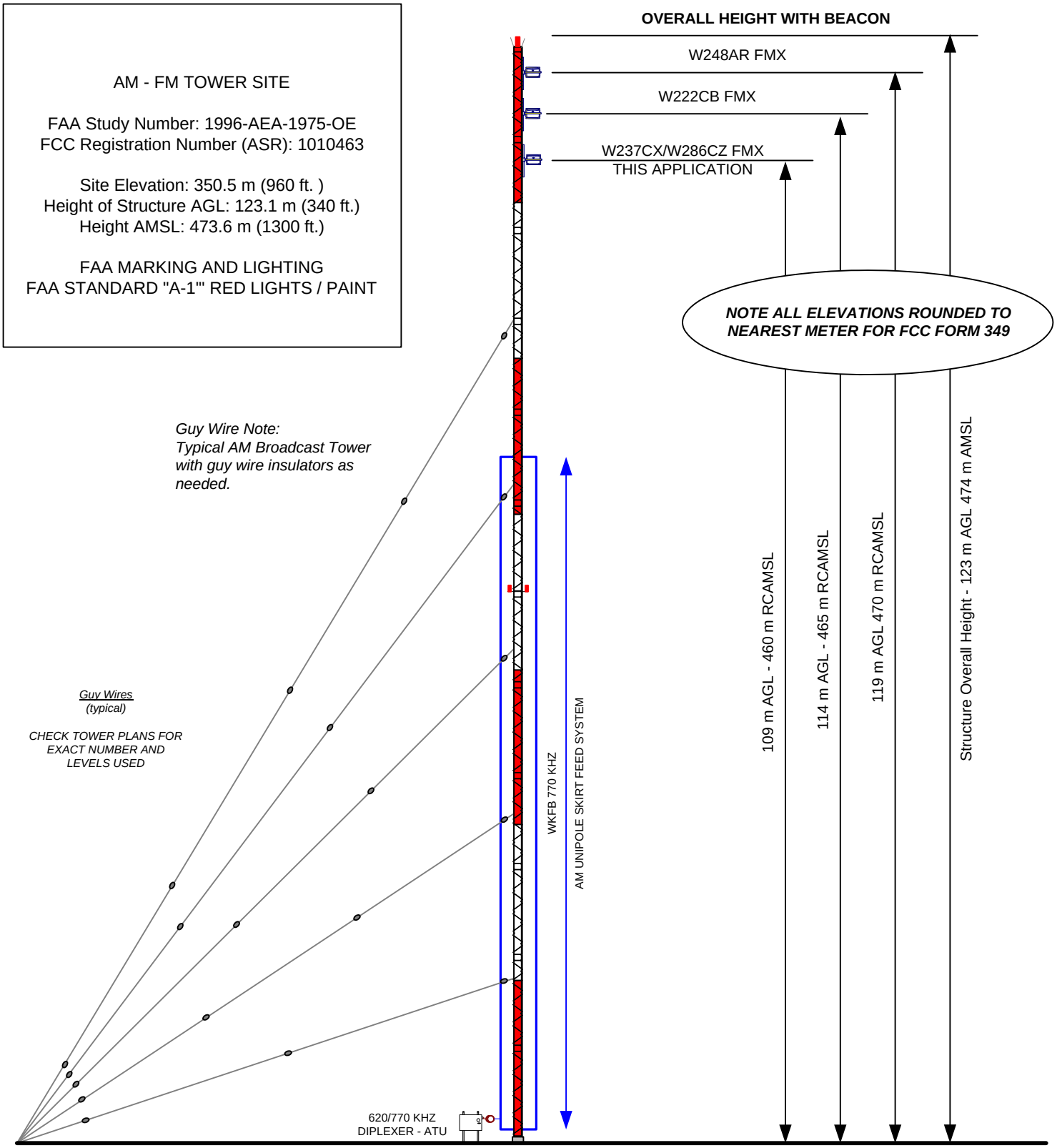
SCALE		SHEET
N/A	OCTOBER 2018	

AM - FM TOWER SITE

FAA Study Number: 1996-AEA-1975-OE
FCC Registration Number (ASR): 1010463

Site Elevation: 350.5 m (960 ft.)
Height of Structure AGL: 123.1 m (340 ft.)
Height AMSL: 473.6 m (1300 ft.)

FAA MARKING AND LIGHTING
FAA STANDARD "A-1'" RED LIGHTS / PAINT



Site Elevation: 351 meters Above Mean Sea Level

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FALL CHURCH, VIRGINIA 22043

VERTICAL SKETCH OF RADIO TOWER

FM TRANSLATOR APPLICATION
W237CX/W286CZ

FIGURE 2

SIZE	FSCM NO	DWG NO	REV
A	N/A	20181006GREENSBURGPA	NONE

SCALE		SHEET
VERTICAL ONLY 1"= 50'	OCTOBER 2018	

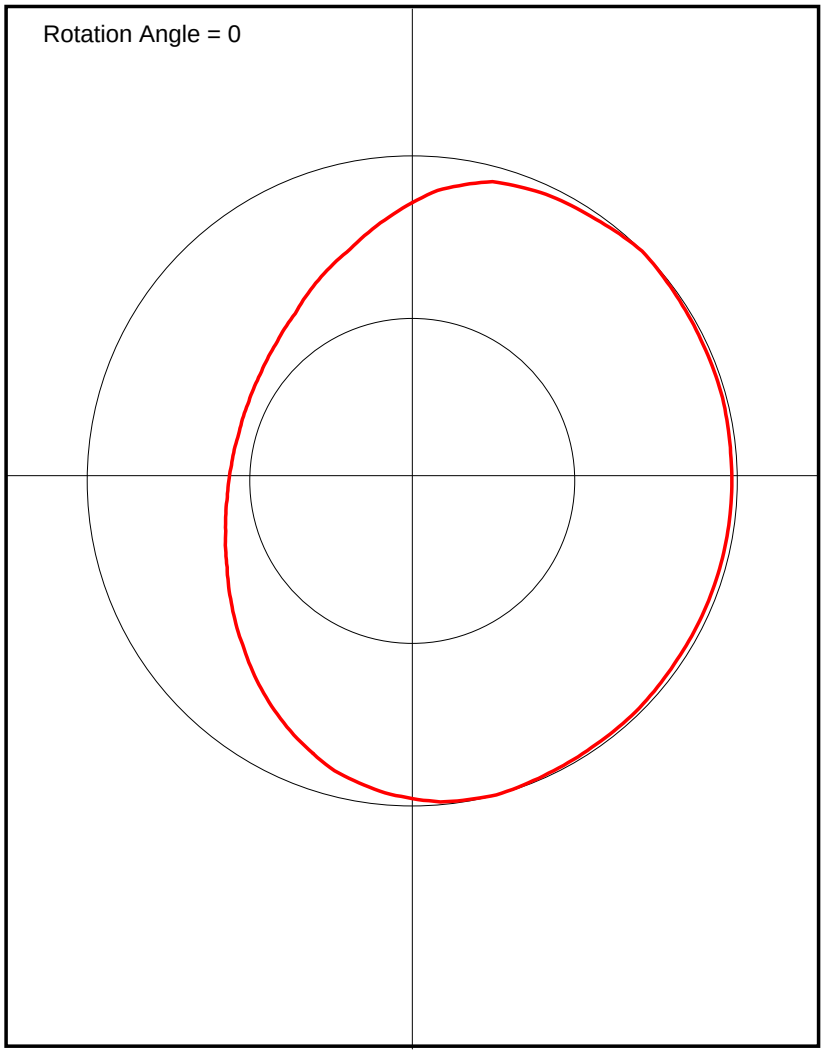
NIC BKG-77 DA ANTENNA PATTERN TABULATION AND PLOT FIGURE 3

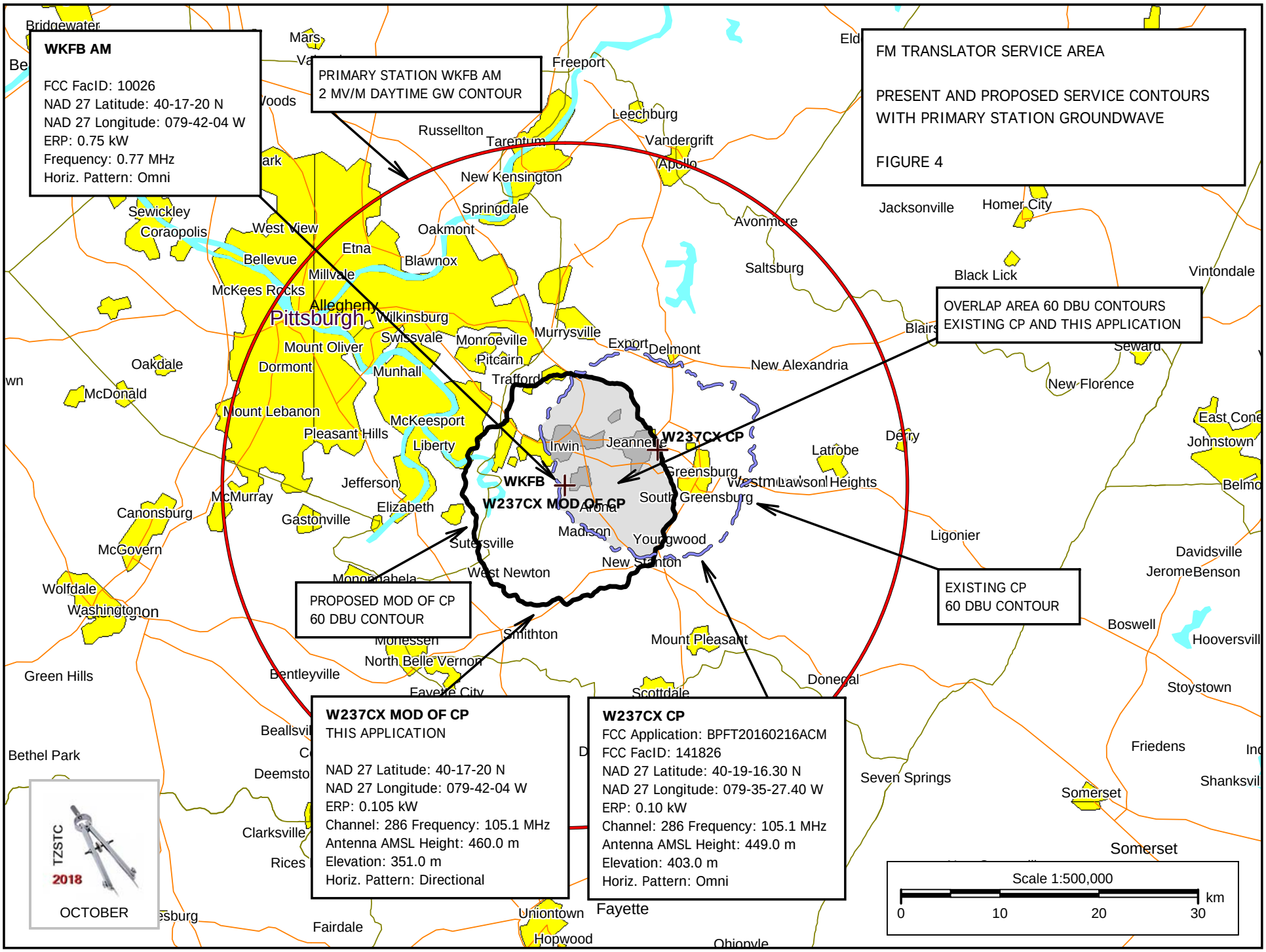
No - Rotation Antenna Pattern

Azimuth (deg)	Relative Field
0.0	0.856
10.0	0.925
20.0	0.963
30.0	0.978
40.0	0.992
50.0	0.996
60.0	0.99
70.0	0.988
80.0	0.985
90.0	0.983
100.0	0.983
110.0	0.983
120.0	0.983
130.0	0.985
140.0	0.988
150.0	0.99
160.0	0.996
170.0	0.995
180.0	0.977
190.0	0.943
200.0	0.892
210.0	0.829
220.0	0.764
230.0	0.704
240.0	0.652
250.0	0.611
260.0	0.582
270.0	0.564
280.0	0.556 MIN
290.0	0.556 MIN
300.0	0.564
310.0	0.582
320.0	0.611
330.0	0.655
340.0	0.71
350.0	0.776

EXTRA AZIMUTH (DEG)

45.0	1.000 MAX
165.0	1.000 MAX




WKFB AM
FCC FacID: 10026
NAD 27 Latitude: 40-17-20 N
NAD 27 Longitude: 079-42-04 W
ERP: 0.75 kW
Frequency: 0.77 MHz
Horiz. Pattern: Omni
PRIMARY STATION WKFB AM
2 MV/M DAYTIME GW CONTOUR
FM TRANSLATOR SERVICE AREA
PRESENT AND PROPOSED SERVICE CONTOURS
WITH PRIMARY STATION GROUNDWAVE
FIGURE 4
OVERLAP AREA 60 DBU CONTOURS
EXISTING CP AND THIS APPLICATION
PROPOSED MOD OF CP
60 DBU CONTOUR
EXISTING CP
60 DBU CONTOUR
W237CX MOD OF CP
THIS APPLICATION
NAD 27 Latitude: 40-17-20 N
NAD 27 Longitude: 079-42-04 W
ERP: 0.105 kW
Channel: 286 Frequency: 105.1 MHz
Antenna AMSL Height: 460.0 m
Elevation: 351.0 m
Horiz. Pattern: Directional
W237CX CP
FCC Application: BPFT20160216ACM
FCC FacID: 141826
NAD 27 Latitude: 40-19-16.30 N
NAD 27 Longitude: 079-35-27.40 W
ERP: 0.10 kW
Channel: 286 Frequency: 105.1 MHz
Antenna AMSL Height: 449.0 m
Elevation: 403.0 m
Horiz. Pattern: Omni
WKFB
W237CX MOD OF CP
W237CX CP
TZSTC
2018
OCTOBER
Scale 1:500,000
0
10
20
30
km
Pittsburgh
Allegheny
Fayette
Somerset
Bridgewater
Mars
Freeport
Leechburg
Russellton
Tarentum
Vandergrift
Apollo
New Kensington
Springdale
Oakmont
Avonmore
Jacksonville
Homer City
Sewickley
Coraopolis
West View
Etna
Bellevue
Blawnox
Millvale
McKees Rocks
Saltsburg
Black Lick
Vintondale
Wilkinsburg
Swissvale
Monroeville
Murrysville
Export
Delmont
Blairsville
Seward
Mount Oliver
Dormont
Munhall
Pitcairn
Trafford
New Alexandria
New Florence
Oakdale
McDonald
Mount Lebanon
McKeesport
Pleasant Hills
Liberty
Irwin
Jeannette
Latrobe
Derry
East Conemaugh
Johnstown
Jefferson
Greensburg
Westmoreland
Lawson Heights
South Greensburg
Belmont
McMurray
Elizabeth
Aroma
Canonsburg
Gastonville
Madison
Youngwood
Ligonier
McGovern
Suterville
New Stanton
Davidsville
Jerome
Benson
Monongahela
West Newton
Wolfdale
Washington
Smithton
Mount Pleasant
Boswell
Hooversville
Monessen
North Belle Vernon
Green Hills
Bentleyville
Fayette City
Scottdale
Donegal
Stoystown
Bethel Park
Beallsville
Deemston
Friedens
Seven Springs
Shanksville
Somerset
Clarksville
Rices
Fairdale
Uniontown
Hopwood

REFERENCE CH# 286D - 105.1 MHz, Pwr= 0.105 kW DA, HAAT= 138.4 M, COR= 460 M
40 17 20.0 N. Average Protected F(50-50)= 12.2 km
79 42 04.0 W. Standard Directional

CH CALL	TYPE	ANT	AZI.	DIST	LAT.	Pwr(kW)	INT(km)	PRO(km)	*IN*	*OUT*	
CITY	STATE		<--	FILE #	LNG.	HAAT(M)	COR(M)	LICENSEE	(Overlap in km)		NOTES
286B WQXK	LIC	C	305.2	116.42	40 53 08.0	88.000	148.2	68.0	-41.6*	2.9	CLEAR
Salem	OH		124.4	BLH20000410ACM	80 49 55.0	136	494	Cumulus Licensing Llc			
286D W237CX	CP	C	68.9	10.02	40 19 16.3	0.100	36.3	10.7	-36.5*	-35.2	#1
Greensburg	PA		249.0	BPFT20160216ACM	79 35 27.4		449	Broadcast Communications,			
284B WPGB	LIC	NCN	309.4	32.18	40 28 20.0	13.000	5.4	65.0	17.1	-33.7	#2
Pittsburgh	PA		129.2	BLH20010723AAM	79 59 41.0	252	567	Capstar Tx, Llc, As Debtor			
284B WPGB	CP	NCX	307.1	32.22	40 27 47.5	14.500	5.3	63.6	17.2	-32.2	#3
Pittsburgh	PA		126.9	BPH20180823AAP	80 00 16.3	232	542	Capstar Tx, Llc, As Debtor			
286D W286AL	LIC	DC	218.4	59.36	39 52 12.0	0.130	53.8	16.7	-6.6	2.6	CLEAR
Waynesburg	PA		38.2	BLFT20100803ACY	80 08 01.0	191	546	Broadcast Communications,			
287B WFRB-FM	LIC	CX	136.8	92.02	39 41 00.4	13.500	72.9	62.0	7.5	5.1	CLEAR
Frostburg	MD		317.3	BMLH20160201ANF	78 57 55.0	292	966	Fm Radio Licenses, Llc			
233B WWSW-FM	LIC	CN	307.1	32.26	40 27 48.0	50.000	0.0	0.0	15.0R	17.3M	CLEAR
Pittsburgh	PA		126.9	BMLH19821004BH	80 00 18.0	247	558	Amfm Radio Licenses, L.l.c			
288D W288BO	LIC	DC	309.4	32.15	40 28 19.0	0.040	0.4	14.4	22.0	17.3	CLEAR
Pittsburgh	PA		129.2	BLFT20180501AAK	79 59 40.0		586	Fm Radio Licenses, Llc			

Terrain database is 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.

STUDY NOTES:

Reference station has protected zone issue: AM tower - CO LOCATED WITH CO-OWNED AM STATION WKFB (PRIMARY STATIION)
#1 EXISTING FACILITY CP - CONTOUR OVERLAP MINOR CHANGE (FIGURE 4)
#2 WPGB 2ND ADJACENT CHANNEL - LICENSED FACILITY - WAIVER REQUEST ATTACHED TO THIS EXHIBIT (FIGURES 5-2 & 5-3)
#3 WPGB 2ND ADJACENT CHANNEL - CONSTRUCTION PERMIT - WAIVER REQUEST ATTACHED TO THIS EXHIBIT (FIGURES 5-4 & 5-5)
NO INTERFERENCE OCCURS - NO POPULATION WITHIN INTERFERENCE CONTOUR FROM THIS PROPOSAL

Figure 5-2

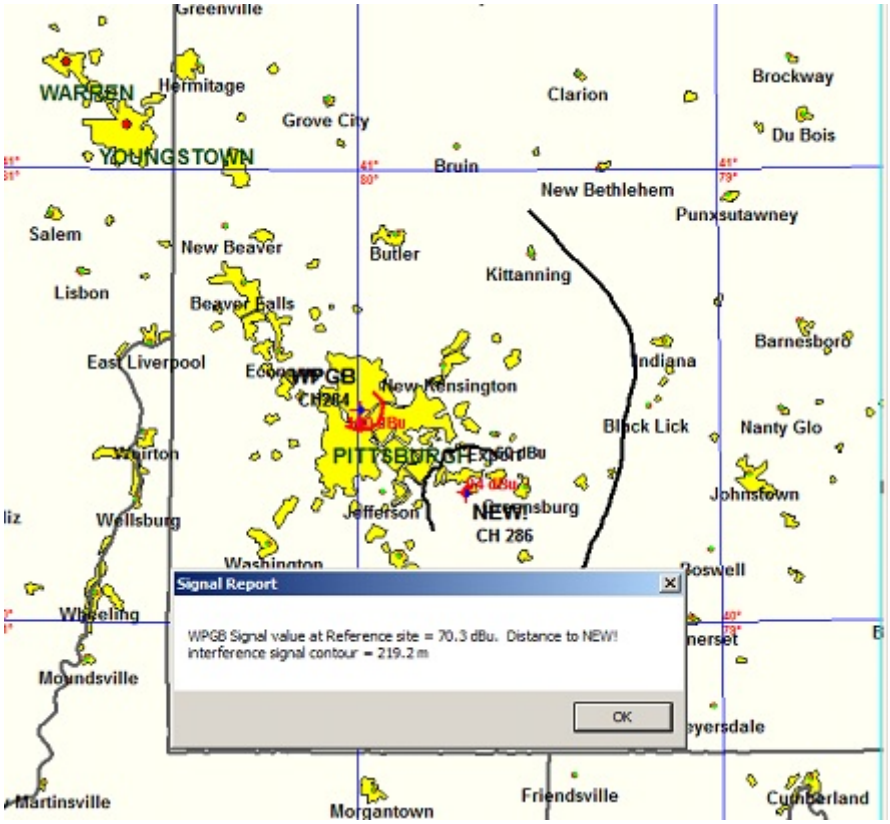
SECOND-ADJACENT CHANNEL WAIVER REQUEST

Station WPGB (Ch. 284B) - Licensed Facility

Basis for Waiver Request: No population within predicted interference contour area.

Second-Adjacent Channel Station WPGB (Ch.284B), the licensed facility, is predicted to have a signal level of 70.3 dBu at the proposed site (the reference site). The D/U (desired to undesired) signal ratio is 40 dBu. Thus, the interfering signal level from this proposal is 70.3 + 40 = 110.3 dBu to WPGB

The map below shows the calculated predicted signal level from WPGB at the proposed translator site, and the predicted interfering contour distance (maximum horizontal distance).



As detailed on the following pages, the interference signal from this proposal does not reach the ground, or any populated or traveled areas and cannot cause interference to any populated areas when the downward radiation characteristics of the specified antenna system are used.

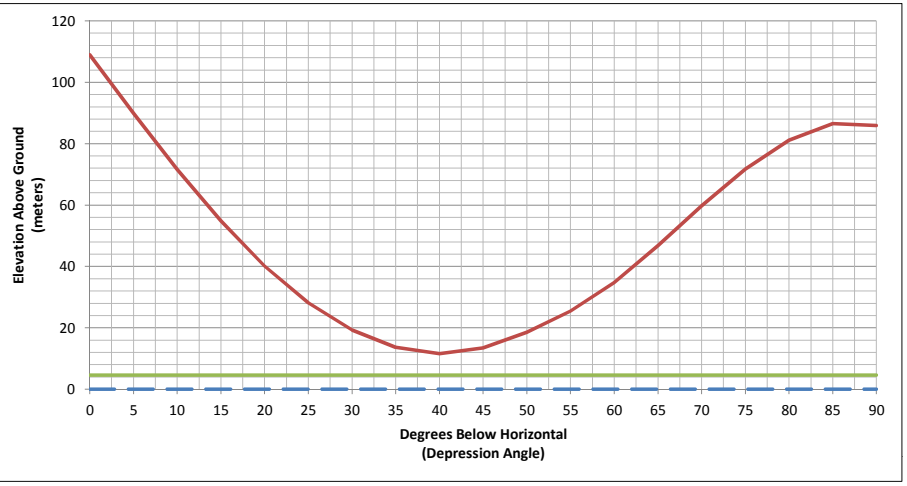
There are no tall building, roof tops, or other occupied spaces within the interference contour from this proposal. Thus no interference is predicted to occur to a populated area, and a grant of this wavier request is in the public interest as no harm would be caused by a grant of the proposal.

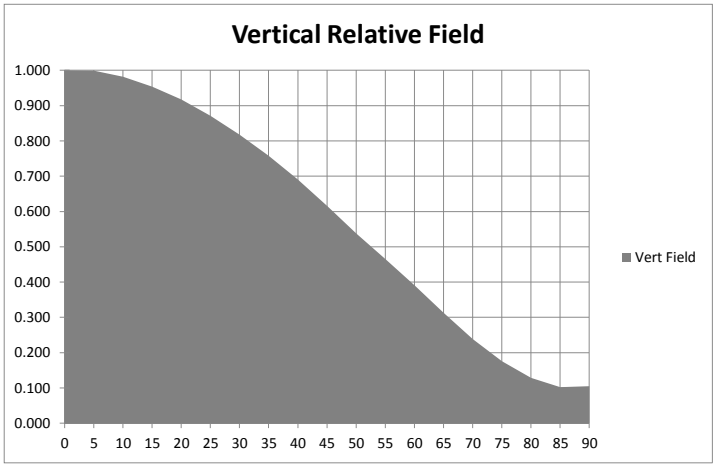
Applicant believes that it has demonstrate that due to lack of population within the interference contour that it is in compliance with the Commission's rules - however, should a waiver of the rules with regards to the second-adjacent station contour overlap be necessary it respectfully requests that said waiver be granted. A grant is in the public interest in that it has been demonstrated that no harm will occur to WPGB and that no population is present within the elevated contour.

Antenna	
Manufacturer	NIC
Model	BKG-77
Number of Bays	1
Inter-Bay Spacing	FULLWAVE

Center of Radiation:	109	m AGL
Effective Radiated Power (ERP):	105	Watts
Interference Contour FS:	110.3	dBu
E Field Strength:	0.25586	V/m
Free Space Impedance:	377	Ohms
Power Density:	0.00017364	W/m^2
Maximum Free Space Distance:	219.36	meters

DEPRESSION ANGLE	RELATIVE		ERP	IN METERS			
	FIELD	POWER	WATTS	VECTOR LENGTH	HORIZONTAL	VERTICAL	AGL
0	1.0000	1.0000	105.00	219.36	219.36	0.00	109.00
5	0.9990	0.9980	104.79	219.14	218.31	19.10	89.90
10	0.9820	0.9643	101.25	215.41	212.14	37.41	71.59
15	0.9540	0.9101	95.56	209.27	202.14	54.16	54.84
20	0.9180	0.8427	88.49	201.37	189.23	68.87	40.13
25	0.8720	0.7604	79.84	191.28	173.36	80.84	28.16
30	0.8180	0.6691	70.26	179.44	155.40	89.72	19.28
35	0.7580	0.5746	60.33	166.28	136.21	95.37	13.63
40	0.6910	0.4775	50.14	151.58	116.12	97.43	11.57
45	0.6160	0.3795	39.84	135.13	95.55	95.55	13.45
50	0.5380	0.2894	30.39	118.02	75.86	90.41	18.59
55	0.4650	0.2162	22.70	102.00	58.51	83.56	25.44
60	0.3910	0.1529	16.05	85.77	42.89	74.28	34.72
65	0.3130	0.0980	10.29	68.66	29.02	62.23	46.77
70	0.2390	0.0571	6.00	52.43	17.93	49.27	59.73
75	0.1760	0.0310	3.25	38.61	9.99	37.29	71.71
80	0.1290	0.0166	1.75	28.30	4.91	27.87	81.13
85	0.1030	0.0106	1.11	22.59	1.97	22.51	86.49
90	0.1050	0.0110	1.16	23.03	0.00	23.03	85.97





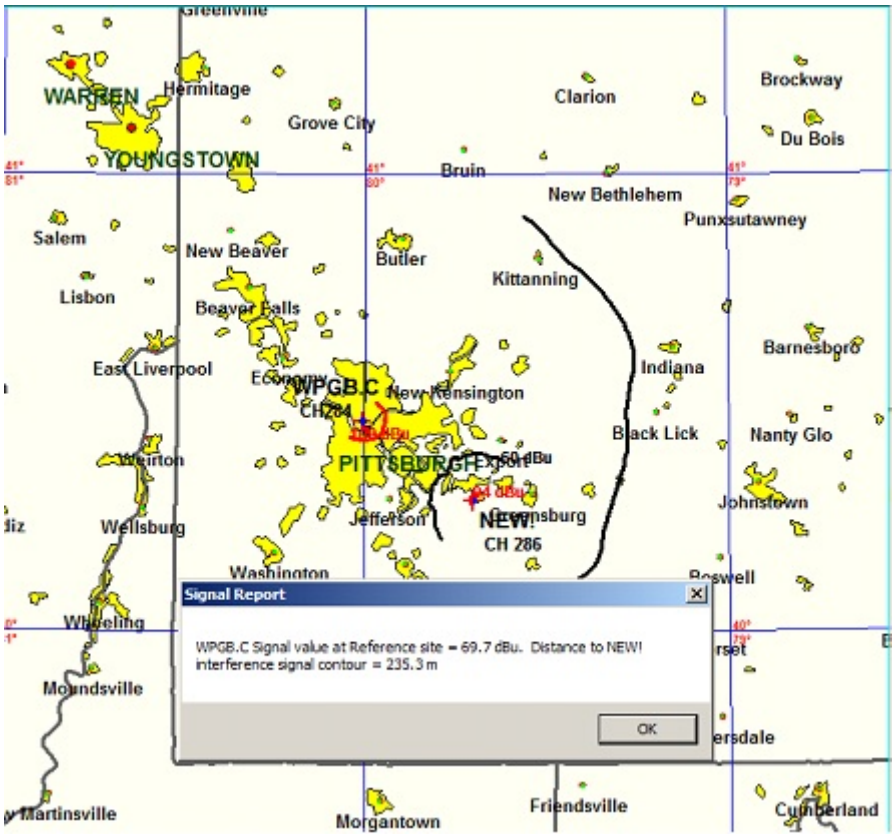
SECOND-ADJACENT CHANNEL WAIVER REQUEST

Station WPGB (Ch. 284B) - Construction Permit Facility

Basis for Waiver Request: No population within predicted interference contour area.

Second-Adjacent Channel Station WPGB (Ch.284B), the CP facility, is predicted to have a signal level of 69.7 dBu at the proposed site (the reference site). The D/U (desired to undesired) signal ratio is 40 dBu. Thus, the interfering signal level from this proposal is 69.7 + 40 = 109.7 dBu to WPGB

The map below shows the calculated predicted signal level from WPGB at the proposed translator site, and the predicted interfering contour distance (maximum horizontal distance).



As detailed on the following pages, the interference signal from this proposal does not reach the ground, or any populated or traveled areas and cannot cause interference to any populated areas when the downward radiation characteristics of the specified antenna system are used.

There are no tall building, roof tops, or other occupied spaces within the interference contour from this proposal. Thus no interference is predicted to occur to a populated area, and a grant of this wavier request is in the public interest as no harm would be caused by a grant of the proposal.

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Antenna	
Manufacturer	NIC
Model	BKG-77
Number of Bays	1
Inter-Bay Spacing	FULLWAVE

Center of Radiation:	109	m AGL
Effective Radiated Power (ERP):	105	Watts
Interference Contour FS:	109.7	dBu
E Field Strength:	0.23878	V/m
Free Space Impedance:	377	Ohms
Power Density:	0.00015124	W/m^2
Maximum Free Space Distance:	235.05	meters

DEPRESSION ANGLE	RELATIVE		ERP	IN METERS			
	FIELD	POWER	WATTS	VECTOR LENGTH	HORIZONTAL	VERTICAL	AGL
0	1.0000	1.0000	105.00	235.05	235.05	0.00	109.00
5	0.9990	0.9980	104.79	234.82	233.92	20.47	88.53
10	0.9820	0.9643	101.25	230.82	227.31	40.08	68.92
15	0.9540	0.9101	95.56	224.24	216.60	58.04	50.96
20	0.9180	0.8427	88.49	215.78	202.76	73.80	35.20
25	0.8720	0.7604	79.84	204.96	185.76	86.62	22.38
30	0.8180	0.6691	70.26	192.27	166.51	96.14	12.86
35	0.7580	0.5746	60.33	178.17	145.95	102.19	6.81
40	0.6910	0.4775	50.14	162.42	124.42	104.40	4.60
45	0.6160	0.3795	39.84	144.79	102.38	102.38	6.62
50	0.5380	0.2894	30.39	126.46	81.28	96.87	12.13
55	0.4650	0.2162	22.70	109.30	62.69	89.53	19.47
60	0.3910	0.1529	16.05	91.90	45.95	79.59	29.41
65	0.3130	0.0980	10.29	73.57	31.09	66.68	42.32
70	0.2390	0.0571	6.00	56.18	19.21	52.79	56.21
75	0.1760	0.0310	3.25	41.37	10.71	39.96	69.04
80	0.1290	0.0166	1.75	30.32	5.27	29.86	79.14
85	0.1030	0.0106	1.11	24.21	2.11	24.12	84.88
90	0.1050	0.0110	1.16	24.68	0.00	24.68	84.32