

MINOR CHANGE APPLICATION
FAMILY WORSHIP CENTER CHURCH, INC.
NEW FM TRANSLATOR STATION
CH 295D - 106.9 MHZ - 0.17 KW
BOWLING GREEN, OHIO
December 2017

EXHIBIT B

Interference Study for New FM Translator
Using Proposed Site as Reference

The proposed new FM translator on Channel 295D, operating with an effective radiated power of 0.17 kilowatt, will not cause interference to any existing, applied for, or proposed facility. As noted on Exhibit B1, the proposed new translator on Channel 295 is within the predicted 60 dBu contour of second adjacent station WTOD, Channel 293A, Delta, Ohio. Due to the relationship between the proposed new translator and WTOD, a 40 db ratio of the protected and interfering contours applies.

The WTOD contour at the new translator's antenna site is in excess of 63.9 dBu (50/50). The corresponding interfering contour for the new translator is 103.9 dBu (50/10). The proposed translator facility will utilize an SWR FM1R/5-HWS, five bay, half wavelength antenna. As shown in the tabulation of desired to undesired contours (Exhibit B2), the new translator's interfering contour (103.9 dBu, FCC 50/10) will not reach ground level. Since the new translator's antenna will be mounted 79.2 meters (259.8 feet) above ground and there are no structures of comparable height in the vicinity of the proposed new translator antenna, this contour never reaches any potentially occupied space. As such, WTOD will not receive interference from the proposed translator.

Based on the foregoing, it is believed that the proposed new FM translator on Channel 295 is in compliance with §74.1204(d) of the Commission's rules. If a waiver of the rule is needed to address WTOD, one is respectfully requested.

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EXHIBIT B1

Clearance Study for New Translator
Using Proposed Site as Reference

REFERENCE		CH# 295D - 106.9 MHz, Pwr= 0.17 kW, HAAT= 0.0 M, COR= 269 M								DISPLAY DATES	
41 31 56.0 N.		Average Protected F(50-50)= 6.4 km								DATA 12-01-17	
83 33 49.5 W.		Omni-directional								SEARCH 12-01-17	
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*
295D Bowling Green	1762958!	APP	C OH	0.0 0.0	0.00 BNPFT20170727ADP	41 31 56.0 83 33 49.5	0.170	37.8 269	11.1 Family Worship Center Chur	-48.9	-48.9
293A Delta	WTOD	LIC	ZCX OH	265.1 84.9	23.91 BLH20030325ADT	41 30 49.0 83 51 00.0	4.800 112	2.8 309	29.2 Cumulus Licensing Llc	10.3	-6.2*
297A Swanton	WJUC	LIC	CN OH	293.6 113.4	30.55 BLH19970314KA	41 38 30.0 83 54 03.0	3.000 100	2.4 309	25.5 Fleming Street Communicati	17.2	4.2
294B Detroit	WDTW-FM	LIC	CN MI	25.6 205.9	98.72 BMLH19890804KA	42 19 55.0 83 02 42.0	61.000 155	83.0 338	68.9 Amfm Radio Licenses, L.L.c	4.6	6.5
295A Spring Arbor	WSAE	LIC	NC MI	310.6 129.9	106.94 BMLH20141105ACS	42 09 13.0 84 32 58.0	3.900 102	79.6 417	25.4 Spring Arbor University	16.3	43.8
298B Detroit	WGPR	LIC	CX MI	24.0 204.4	100.61 BLH20040422ABP	42 21 28.0 83 03 55.0	50.000 124	5.8 316	64.2 Wgpr, Inc.	83.7	34.8
296A Ann Arbor	WQKL	LIC	CN MI	350.0 169.8	84.22 BLH19911119KA	42 16 41.0 83 44 32.0	3.000 88	37.4 350	24.7 Cumulus Licensing Llc	35.7	43.5
241A Archbold	WMTR-FM	LIC	NCN OH	273.4 93.0	51.96 BLH19910308KA	41 33 29.0 84 11 08.0	3.800 122	111.8 348	37.3 Nobco, Inc.	9.5R	42.5M
292A Ottawa	WBUK	LIC	CN OH	204.5 24.3	70.37 BLH19890223KE	40 57 21.0 83 54 42.0	1.400 149	2.0 383	24.4 The Blanchard River Broadc	58.5	45.0

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)
"*affixed to 'IN' or 'OUT' values = site inside restricted contour.
« = Station meets FCC minimum distance spacing for its class.
Reference station has protected zone issue: AM tower

New TX, Bowling Green, OH - Proposed
Latitude: 41-31-56 N / Longitude: 083-33-49.50 W
ERP: 0.17 kW / Channel: 295 / Freq: 106.9 MHz
AMSL Height: 268.8 m / Horiz. Pattern: Omni

WLQR-FM, Delta, OH
BLH20030325ADT
Latitude: 41-30-49 N / Longitude: 083-51-00 W
ERP: 4.80 kW / Channel: 293 / Freq: 106.5 MHz
AMSL Height: 308.8 m / Horiz. Pattern: Directional]

GRAHAM BROCK, INC.
BROADCAST TECHNICAL CONSULTANTS



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EXHIBIT B3

New Translator Interference Contour Tabulation

1762958 Bowling Green, OH
 74.1204(d) Showing
 Translator or LPFM Maximum Licensed ERP = 0.17
 Translator or LPFM Antenna Height AG = 79.2 Meters
 1762958 Antenna Model = SWR FM1R/5-HWS

Protected Station's Contour = 63.91504 dBu
 Translator's or LPFM's full Interference contour 103.91504

Review Azimuth = 0 Degrees True
 Relative Field on the horizon at Review Azimuth = 1.000
 Translator/LPFM ERP on the horizon at Review Azimuth = 0.17 kW
 Distance between stations = 23.9 km
 Protected Station= WTOD, 4.8 kW, 308.8 M Meters COR AMSL

Depression Angle From Horizon(Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle(m)	Dist to IX Contour From Tower Base(m)	Height IX Above Ground (m)
00.00	1.0	1.0	0.1700	582.7368	582.7368	079.200
05.00	0.921	1.0	0.1442	536.7006	534.6583	032.423
10.00	0.76	1.0	0.0982	442.8800	436.1516	002.295
15.00	0.424	1.0	0.0306	247.0804	238.6613	015.251
20.00	0.141	1.0	0.0034	082.1659	077.2107	051.098
25.00	0.077	1.0	0.0010	044.8707	040.6667	060.237
30.00	0.199	1.0	0.0067	115.9646	100.4283	021.218
35.00	0.225	1.0	0.0086	131.1158	107.4038	003.995
40.00	0.181	1.0	0.0056	105.4754	080.7988	011.402
45.00	0.102	1.0	0.0018	059.4392	042.0298	037.170
50.00	0.02	1.0	0.0001	011.6547	007.4915	070.272
55.00	0.044	1.0	0.0003	025.6404	014.7067	058.197
60.00	0.082	1.0	0.0011	047.7844	023.8922	037.817
65.00	0.095	1.0	0.0015	055.3600	023.3961	029.027
70.00	0.09	1.0	0.0014	052.4463	017.9377	029.917
75.00	0.073	1.0	0.0009	042.5398	011.0101	038.110
80.00	0.051	1.0	0.0004	029.7196	005.1608	049.932
85.00	0.026	1.0	0.0001	015.1512	001.3205	064.106
90.00	0.0	1.0	0.0000	000.0583	000.0000	079.142

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EXHIBIT B4

N. Lat. = 41° 31' 56.0" - Protected and Interfering Contour Data
W. Lng. = 83° 33' 49.5" - New FM Translator, Bowling Green, Ohio

HAAT and Distance to Contour - FCC 30 second terrain database

Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5	40-F1	54-F1	100-F1	103.9-F1
000	179.9	88.9	0.1700	-7.70	1.000	11.09	37.79	15.91	0.91	0.58
010	179.6	89.2	0.1700	-7.70	1.000	11.11	37.86	15.95	0.91	0.58
020	179.5	89.3	0.1700	-7.70	1.000	11.11	37.88	15.96	0.91	0.58
030	180.0	88.8	0.1700	-7.70	1.000	11.08	37.76	15.90	0.91	0.58
040	180.0	88.8	0.1700	-7.70	1.000	11.08	37.76	15.90	0.91	0.58
050	180.0	88.8	0.1700	-7.70	1.000	11.08	37.76	15.90	0.91	0.58
060	180.0	88.8	0.1700	-7.70	1.000	11.08	37.76	15.90	0.91	0.58
070	180.0	88.8	0.1700	-7.70	1.000	11.08	37.76	15.90	0.91	0.58
080	180.5	88.3	0.1700	-7.70	1.000	11.05	37.64	15.83	0.91	0.58
090	180.7	88.1	0.1700	-7.70	1.000	11.04	37.59	15.81	0.91	0.58
100	184.0	84.8	0.1700	-7.70	1.000	10.84	36.83	15.42	0.91	0.58
110	187.7	81.1	0.1700	-7.70	1.000	10.62	35.94	14.82	0.91	0.58
120	191.7	77.1	0.1700	-7.70	1.000	10.37	34.97	14.45	0.91	0.58
130	197.1	71.7	0.1700	-7.70	1.000	10.02	33.57	13.95	0.91	0.58
140	196.2	72.6	0.1700	-7.70	1.000	10.08	33.80	14.03	0.91	0.58
150	196.2	72.6	0.1700	-7.70	1.000	10.08	33.81	14.03	0.91	0.58
160	198.3	70.5	0.1700	-7.70	1.000	9.94	33.25	13.84	0.91	0.58
170	199.2	69.6	0.1700	-7.70	1.000	9.89	33.01	13.76	0.91	0.58
180	199.7	69.1	0.1700	-7.70	1.000	9.85	32.88	13.72	0.91	0.58
190	199.9	68.9	0.1700	-7.70	1.000	9.84	32.83	13.70	0.91	0.58
200	199.9	68.9	0.1700	-7.70	1.000	9.84	32.81	13.70	0.91	0.58
210	200.0	68.8	0.1700	-7.70	1.000	9.83	32.80	13.69	0.91	0.58
220	200.0	68.8	0.1700	-7.70	1.000	9.84	32.80	13.69	0.91	0.58
230	199.7	69.1	0.1700	-7.70	1.000	9.85	32.87	13.71	0.91	0.58
240	199.1	69.7	0.1700	-7.70	1.000	9.89	33.04	13.77	0.91	0.58
250	198.3	70.5	0.1700	-7.70	1.000	9.95	33.26	13.84	0.91	0.58
260	191.5	77.3	0.1700	-7.70	1.000	10.38	35.00	14.46	0.91	0.58
270	183.3	85.5	0.1700	-7.70	1.000	10.89	37.01	15.51	0.91	0.58
280	182.2	86.6	0.1700	-7.70	1.000	10.95	37.25	15.63	0.91	0.58
290	182.1	86.7	0.1700	-7.70	1.000	10.95	37.27	15.65	0.91	0.58
300	180.5	88.2	0.1700	-7.70	1.000	11.05	37.62	15.83	0.91	0.58
310	180.4	88.4	0.1700	-7.70	1.000	11.05	37.66	15.84	0.91	0.58
320	180.5	88.3	0.1700	-7.70	1.000	11.05	37.65	15.84	0.91	0.58
330	179.5	89.3	0.1700	-7.70	1.000	11.11	37.87	15.95	0.91	0.58
340	179.4	89.4	0.1700	-7.70	1.000	11.12	37.90	15.97	0.91	0.58
350	179.0	89.8	0.1700	-7.70	1.000	11.14	37.98	16.01	0.91	0.58

AMSL= 268.8 M