

**BNPFT-20030317FKZ**

**Oshkosh, Wisconsin  
Long Form Application  
For New FM Translator  
On Channel 239  
by  
Sister Grace, Inc.**

**Exhibit 13  
Interference Analysis**

**August 2018**

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Declaration

I declare, under penalty of perjury, that I am a technical consultant to broadcasting and other communications systems, that I have over twenty-five years of experience in the engineering of broadcast and other communications systems, that I am familiar with the Federal Communications Commission's Rules found in the Code of Federal Regulations Title 47, that I am a Professional Engineer registered in North Carolina, that I have prepared or supervised the preparation of the attached Exhibit 13, Interference Analysis, for Sister Grace, Inc., and that all of the facts therein, except for facts of which the Federal Communications Commission may take official notice, are true to the best of my knowledge and belief.



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8 August 2018

### Narrative

This Exhibit supports a long form application which is a minor modification application for FM translator BNPFT-20030317FKZ, on Channel 239 in Oshkosh, Wisconsin. Allocation details are provided in this exhibit. This proposal complies fully with the requirements of 47 C.F.R. §74.1204(a). The proposed modified facilities create no mutual exclusivities with any licensed facilities, construction permits, or applications as shown in the allocation table in this exhibit.

Figure 1 shows the original and proposed 60 dBu F(50,50) coverage areas. Figure 1 shows fill-in status confirmation.

This is a long form application in response to a Media Bureau Public Notice announcing an FM Translator filing window for long-form applications<sup>1</sup>. The short form application, File Number BNPFT-20030317FKZ, application reference number 649312, is listed in Attachment A of that Notice.

This application changes the primary station, the site, the height, and proposes a change of channel to a first adjacent channel. As Figure 1 shows, this is a minor modification of the Tech Box facilities.

### Allocations

This application proposes service to Oshkosh, Wisconsin, on channel 239. An updated Table 1: Allocations is included in this exhibit with a list of the stations, construction permits, allocations, and applications studied. All are protected under §74.1204(a) contour protection

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<sup>1</sup> See *Public Notice: Auction of FM Translator Construction Permits Closes, Winning Bidders Announced for Auction 83, DA 18-269*, released June 29, 2018.

by this application. The allocations table was prepared using the GLOBE 30 terrain database which is described below. Where the outgoing protection is provided by interference contours with a separation of less than 3.2 kilometers (2 miles), the lack of overlap is plotted in figures in this exhibit, and the output of the FM Over program is provided. For this application, there are two (2) facilities for which additional detail is provided.

Table and Figure	Call Sign	Location	Channel, class and relationship
2	WRIT-FM	Milwaukee, Wisconsin	239B, co-channel
3	WTCX	Ripon, Wisconsin	241A, second adjacent

Table 1: Allocations

Allocation Study Sister Grace, Inc.											
REFERENCE		CH# 239D - 95.7 MHz, Pwr= 0.25 kw, HAAT= 40.7 M, COR= 268 M						DISPLAY DATES			
44 02 10.0 N.		Average Protected F(50-50)= 8.2 km						DATA 08-06-18			
88 31 59.0 W.		Omni-directional						SEARCH 08-07-18			
CH CITY	CALL	TYPE	ANT STATE	AZI. <--	DIST FILE #	LAT. LNG.	Pwr(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
239D Oshkosh	@1564629	APP	C WI	0.0 0.0	0.00 BNPFT20030317KVO	44 02 10.0 88 31 59.0	0.170 28	21.5 265	6.4 Evangel Ministries, Inc.	-28.6*	-30.2*
Dismissed at end of Auction 83.											
239B Milwaukee	WRIT-FM	LIC	C WI	154.5 334.9	116.36 BLH20000606ACL	43 05 24.0 87 54 55.0	34.000 186	134.2 399	65.7 Clear Chan.	-27.7*	1.4 B/casting Lice
238D Oshkosh	649312!	APP	C WI	201.1 21.1	0.86 BNPFT20030317FKZ	44 01 44.0 88 32 13.0	0.250 21	258	---Reference--- Sister Grace, Inc.		
Short form application for which this is the long form application.											
240C3 De Pere	WKSZ	LIC	NCN WI	50.4 230.8	56.51 BLH19960529KC	44 21 32.0 87 59 07.0	4.500 236	58.2 479	39.1 Woodward Communications	-11.5*	3.6 In
241A Ripon	WTCX	LIC	ZCN WI	212.2 32.1	28.45 BLH19950420KB	43 49 10.0 88 43 20.0	4.000 123	2.2 400	25.2 Radio Plus, Inc.	19.2	2.1
237D Appleton	W237AA	LIC	C WI	28.0 208.1	28.24 BMLFT20161027ACH	44 15 37.0 88 21 59.6	0.250 117	1.1 348	14.3 Woodward Communications, I	17.5	12.6
238C Wausau	WIFC	LIC	C WI	317.4 136.5	134.56 BLH20031021AEZ	44 55 14.0 89 41 28.0	100.000 329	110.4 715	75.6 wrig, Inc.	15.2	48.7
236D Fond Du Lac	W236AG	LIC	C WI	166.3 346.4	29.39 BLFT20060412AAW	43 46 45.0 88 26 47.0	0.080 8	0.6 277	6.7 Radio Plus, Inc.	19.3	20.7
238D Green Bay	W238DA	CP	C WI	40.4 220.7	66.89 BNPFT20171219ADC	44 29 36.0 87 59 12.6	0.250	17.6 274	12.0 Cumulus Licensing Llc	39.5	41.2
237A Beaver Dam	WXRO	LIC	ZCN WI	200.5 20.3	67.26 BLH19911024KA	43 28 09.0 88 49 32.0	6.000 100	2.5 373	24.4 Good Karma Broadcasting, L	57.5	40.2
240A Portage	WBKY	LIC	CN WI	242.4 61.6	94.27 BLH19990804KF	43 38 17.0 89 34 16.0	5.400 98	44.6 356	28.9 Magnum Communications, Inc	42.4	55.2
237D Howards Grove	W237CE	LIC	V WI	116.8 297.2	59.82 BLFT20160928ACE	43 47 30.1 87 52 03.4	0.080	0.6 247	5.3 wrvn, Inc.	49.4	53.4
238D Manitowoc	W238BC	LIC	C WI	80.9 261.6	76.04 BLFT20150403AAN	44 08 25.0 87 35 31.0	0.080	8.0 237	5.5 The Family Radio Network,	58.3	56.6
241D Sheboygan	W241AG	LIC	C WI	118.4 299.0	73.04 BLFT20060328ABE	43 43 14.0 87 44 01.0	0.250 81	1.1 277	9.6 Midwest Communications, In	62.1	62.1
293A Sheboygan Falls	WHBZ	LIC	NCN WI	118.4 299.0	73.12 BLH19970418KB	43 43 16.0 87 44 03.0	6.000 73	0.0 279	0.0 Midwest Communications, In	9.5R	63.6M
241D Shawano	W241CJ	LIC	C WI	354.7 174.6	83.10 BLFT20161021ABM	44 46 49.0 88 37 52.0	0.250	1.1 320	10.4 Results Broadcasting Of Ir	74.6	71.6
239C2 La Crosse	WRQT	LIC	CX WI	259.5 77.6	225.20 BMLH20080111ADD	43 37 57.0 91 17 06.0	50.000 150	144.2 417	56.9 Family Radio, Inc.	72.4	142.8

Terrain database is GLOBE 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 adj.  
 All separation margins (if shown) include rounding. Call signs with exclamation marks need not be protected.  
 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.

### Source of Data

Transmitter location, effective radiated power, directional antenna pattern, and elevation data are extracted from the Commission's CDBS. All contours for existing and proposed facilities are calculated using height above average terrain calculated at one degree horizontal increments.

The contours were evaluated using terrain extracted from the GLOBE 30 arcsecond terrain database, formatted by V-Soft Communications to work with its allocation and mapping programs.

Table 2: FM Over Output for Protection of WRIT-FM

08-08-2018 Terrain Data: GLOBE 30 Sec FMOver Analysis

WRIT-FM BLH20000606ACL

649312

Channel = 239B  
 Max ERP = 34 kW  
 RCAMSL = 399 m  
 N. Lat. 43 05 24.0  
 W. Lng. 87 54 55.0  
 Protected  
 54 dBu

Channel = 239D  
 Max ERP = 0.25 kW  
 RCAMSL = 268 m  
 N. Lat. 44 02 10.0  
 W. Lng. 88 31 59.0  
 Interfering  
 34 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
275.0	034.0000	0181.1	064.9	188.3	000.2500	0026.9	100.9	19.79	
276.0	034.0000	0181.2	064.9	188.3	000.2500	0026.9	099.7	20.02	
277.0	034.0000	0181.4	064.9	188.4	000.2500	0026.9	098.6	20.25	
278.0	034.0000	0181.5	064.9	188.4	000.2500	0026.9	097.5	20.47	
279.0	034.0000	0181.2	064.9	188.4	000.2500	0026.9	096.3	20.70	
280.0	034.0000	0180.9	064.9	188.3	000.2500	0026.9	095.2	20.93	
281.0	034.0000	0180.4	064.8	188.3	000.2500	0026.9	094.1	21.16	
282.0	034.0000	0179.9	064.8	188.2	000.2500	0027.0	093.0	21.39	
283.0	034.0000	0179.1	064.7	188.1	000.2500	0027.1	091.8	21.62	
284.0	034.0000	0178.2	064.6	188.0	000.2500	0027.2	090.7	21.85	
285.0	034.0000	0177.1	064.5	187.9	000.2500	0027.3	089.6	22.08	
286.0	034.0000	0176.0	064.4	187.7	000.2500	0027.5	088.5	22.30	
287.0	034.0000	0175.4	064.3	187.6	000.2500	0027.6	087.4	22.53	
288.0	034.0000	0175.2	064.3	187.4	000.2500	0027.7	086.3	22.76	
289.0	034.0000	0175.2	064.3	187.3	000.2500	0027.9	085.2	22.98	
290.0	034.0000	0175.3	064.3	187.1	000.2500	0028.0	084.1	23.21	
291.0	034.0000	0175.5	064.3	187.0	000.2500	0028.1	083.0	23.43	
292.0	034.0000	0175.6	064.3	186.8	000.2500	0028.3	081.9	23.66	
293.0	034.0000	0175.7	064.4	186.6	000.2500	0028.5	080.8	23.87	
294.0	034.0000	0175.8	064.4	186.4	000.2500	0028.7	079.7	24.09	
295.0	034.0000	0176.0	064.4	186.1	000.2500	0028.9	078.7	24.30	
296.0	034.0000	0176.2	064.4	185.9	000.2500	0029.1	077.6	24.50	
297.0	034.0000	0176.6	064.4	185.6	000.2500	0029.3	076.5	24.71	
298.0	034.0000	0177.3	064.5	185.3	000.2500	0029.5	075.5	24.90	
299.0	034.0000	0178.1	064.6	185.1	000.2500	0029.8	074.4	25.10	
300.0	034.0000	0178.5	064.6	184.7	000.2500	0030.0	073.3	25.29	
301.0	034.0000	0178.3	064.6	184.3	000.2500	0030.3	072.3	25.50	
302.0	034.0000	0177.6	064.5	183.9	000.2500	0030.6	071.4	25.70	
303.0	034.0000	0176.8	064.5	183.4	000.2500	0030.9	070.4	25.91	
304.0	034.0000	0176.3	064.4	182.9	000.2500	0031.3	069.5	26.12	
305.0	034.0000	0176.2	064.4	182.4	000.2500	0031.7	068.5	26.33	
306.0	034.0000	0176.4	064.4	181.9	000.2500	0032.0	067.6	26.55	
307.0	034.0000	0176.6	064.4	181.4	000.2500	0032.3	066.6	26.76	
308.0	034.0000	0176.5	064.4	180.8	000.2500	0032.6	065.7	26.96	
309.0	034.0000	0176.3	064.4	180.2	000.2500	0033.0	064.8	27.17	
310.0	034.0000	0176.5	064.4	179.6	000.2500	0033.3	063.9	27.39	
311.0	034.0000	0177.1	064.5	178.9	000.2500	0033.6	063.1	27.61	
312.0	034.0000	0177.9	064.6	178.3	000.2500	0034.0	062.2	27.84	
313.0	034.0000	0178.6	064.7	177.6	000.2500	0034.6	061.3	28.09	
314.0	034.0000	0179.0	064.7	176.9	000.2500	0035.4	060.5	28.37	
315.0	034.0000	0179.0	064.7	176.1	000.2500	0036.3	059.7	28.65	
316.0	034.0000	0178.9	064.7	175.3	000.2500	0037.2	059.0	28.94	
317.0	034.0000	0179.1	064.7	174.4	000.2500	0038.2	058.3	29.24	
318.0	034.0000	0179.5	064.7	173.5	000.2500	0039.3	057.6	29.55	
319.0	034.0000	0179.8	064.8	172.6	000.2500	0040.5	056.9	29.88	
320.0	034.0000	0180.0	064.8	171.7	000.2500	0041.7	056.3	30.20	
321.0	034.0000	0180.2	064.8	170.7	000.2500	0042.6	055.7	30.48	
322.0	034.0000	0180.7	064.9	169.7	000.2500	0043.9	055.1	30.80	
323.0	034.0000	0181.5	064.9	168.7	000.2500	0045.3	054.5	31.14	
324.0	034.0000	0182.4	065.0	167.6	000.2500	0046.7	053.9	31.49	
325.0	034.0000	0183.3	065.1	166.6	000.2500	0047.9	053.4	31.78	
326.0	034.0000	0183.8	065.2	165.4	000.2500	0048.5	053.0	32.00	
327.0	034.0000	0184.2	065.2	164.3	000.2500	0048.9	052.6	32.17	
328.0	034.0000	0184.6	065.2	163.1	000.2500	0049.4	052.2	32.33	
329.0	034.0000	0185.2	065.3	161.9	000.2500	0049.8	051.8	32.48	
330.0	034.0000	0185.7	065.4	160.7	000.2500	0050.3	051.6	32.63	
331.0	034.0000	0186.1	065.4	159.4	000.2500	0051.4	051.3	32.84	
332.0	034.0000	0186.5	065.4	158.2	000.2500	0052.7	051.1	33.06	



333.0	034.0000	0187.2	065.5	156.9	000.2500	0054.0	051.0	33.27
334.0	034.0000	0188.2	065.6	155.6	000.2500	0055.1	050.8	33.45
335.0	034.0000	0189.2	065.7	154.3	000.2500	0055.7	050.7	33.55
336.0	034.0000	0190.1	065.8	153.0	000.2500	0055.8	050.6	33.58
337.0	034.0000	0190.9	065.8	151.7	000.2500	0055.8	050.6	33.58
338.0	034.0000	0191.9	066.0	150.4	000.2500	0055.8	050.6	33.58
339.0	034.0000	0193.4	066.1	149.1	000.2500	0055.8	050.7	33.57
340.0	034.0000	0194.9	066.2	147.8	000.2500	0055.8	050.7	33.55
341.0	034.0000	0195.8	066.3	146.5	000.2500	0055.8	050.9	33.50
342.0	034.0000	0195.8	066.3	145.2	000.2500	0055.8	051.2	33.41
343.0	034.0000	0195.1	066.3	144.0	000.2500	0055.9	051.6	33.28
344.0	034.0000	0194.3	066.2	142.9	000.2500	0055.9	052.1	33.14
345.0	034.0000	0193.4	066.1	141.7	000.2500	0055.9	052.6	32.99
346.0	034.0000	0192.5	066.0	140.6	000.2500	0055.9	053.1	32.82
347.0	034.0000	0191.7	065.9	139.5	000.2500	0056.0	053.7	32.65
348.0	034.0000	0191.3	065.9	138.5	000.2500	0056.0	054.3	32.47
349.0	034.0000	0191.0	065.9	137.5	000.2500	0056.0	054.9	32.29
350.0	034.0000	0190.9	065.9	136.5	000.2500	0056.0	055.5	32.10
351.0	034.0000	0191.1	065.9	135.5	000.2500	0056.0	056.1	31.91
352.0	034.0000	0191.9	065.9	134.5	000.2500	0056.0	056.8	31.73
353.0	034.0000	0192.8	066.0	133.5	000.2500	0056.0	057.4	31.53
354.0	034.0000	0192.9	066.0	132.6	000.2500	0056.0	058.1	31.32
355.0	034.0000	0192.8	066.0	131.8	000.2500	0056.0	058.9	31.09
356.0	034.0000	0192.6	066.0	131.0	000.2500	0056.0	059.7	30.86
357.0	034.0000	0193.1	066.1	130.2	000.2500	0056.0	060.5	30.63
358.0	034.0000	0193.6	066.1	129.4	000.2500	0056.0	061.3	30.40
359.0	034.0000	0193.8	066.1	128.7	000.2500	0056.0	062.2	30.17
000.0	034.0000	0193.9	066.1	128.0	000.2500	0056.0	063.1	29.93
001.0	034.0000	0194.1	066.2	127.4	000.2500	0056.0	064.0	29.69
002.0	034.0000	0194.9	066.2	126.7	000.2500	0056.0	064.9	29.47
003.0	034.0000	0195.6	066.3	126.1	000.2500	0056.0	065.8	29.23
004.0	034.0000	0195.7	066.3	125.6	000.2500	0056.0	066.7	28.99
005.0	034.0000	0196.1	066.4	125.0	000.2500	0056.0	067.7	28.75
006.0	034.0000	0196.6	066.4	124.5	000.2500	0056.0	068.7	28.50
007.0	034.0000	0196.9	066.4	124.0	000.2500	0056.0	069.7	28.25
008.0	034.0000	0198.8	066.6	123.5	000.2500	0056.0	070.7	28.01
009.0	034.0000	0201.4	066.9	122.9	000.2500	0056.0	071.6	27.77
010.0	034.0000	0203.4	067.1	122.4	000.2500	0056.0	072.6	27.53
011.0	034.0000	0204.1	067.1	122.0	000.2500	0056.0	073.7	27.26
012.0	034.0000	0204.2	067.1	121.7	000.2500	0056.0	074.8	26.99
013.0	034.0000	0204.3	067.1	121.4	000.2500	0056.0	075.9	26.72
014.0	034.0000	0205.1	067.2	121.0	000.2500	0056.0	076.9	26.46
015.0	034.0000	0206.6	067.4	120.7	000.2500	0056.0	078.0	26.19
016.0	034.0000	0208.6	067.5	120.3	000.2500	0056.0	079.1	25.93
017.0	034.0000	0210.8	067.8	120.0	000.2500	0056.0	080.2	25.66
018.0	034.0000	0213.0	068.0	119.6	000.2500	0056.0	081.3	25.39
019.0	034.0000	0215.2	068.2	119.3	000.2500	0056.0	082.4	25.12
020.0	034.0000	0217.3	068.4	119.1	000.2500	0056.0	083.6	24.84
021.0	034.0000	0219.0	068.5	118.8	000.2500	0056.0	084.7	24.55
022.0	034.0000	0220.5	068.7	118.6	000.2500	0056.0	085.9	24.27
023.0	034.0000	0221.5	068.7	118.5	000.2500	0056.0	087.1	23.98
024.0	034.0000	0222.0	068.8	118.4	000.2500	0056.0	088.3	23.69
025.0	034.0000	0222.3	068.8	118.3	000.2500	0056.0	089.5	23.40
026.0	034.0000	0222.4	068.8	118.2	000.2500	0056.0	090.7	23.11
027.0	034.0000	0222.5	068.8	118.2	000.2500	0056.0	091.9	22.83
028.0	034.0000	0222.5	068.8	118.2	000.2500	0056.0	093.1	22.55
029.0	034.0000	0222.5	068.8	118.2	000.2500	0056.0	094.3	22.27
030.0	034.0000	0222.5	068.8	118.2	000.2500	0056.0	095.5	22.01
031.0	034.0000	0222.5	068.8	118.2	000.2500	0056.0	096.7	21.75
032.0	034.0000	0222.5	068.8	118.3	000.2500	0056.0	097.9	21.49
033.0	034.0000	0222.5	068.8	118.3	000.2500	0056.0	099.1	21.25
034.0	034.0000	0222.6	068.8	118.4	000.2500	0056.0	100.3	21.00

Table 3: FM Over Output for Protection of WTCX

08-08-2018 Terrain Data: GLOBE 30 Sec FMOver Analysis

WTCX BLH19950420KB

649312

Channel = 241A  
 Max ERP = 4 kW  
 RCAMSL = 400 m  
 N. Lat. 43 49 10.0  
 W. Lng. 88 43 20.0  
 Protected  
 60 dBu

Channel = 239D  
 Max ERP = 0.25 kW  
 RCAMSL = 268 m  
 N. Lat. 44 02 10.0  
 W. Lng. 88 31 59.0  
 Interfering  
 100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
332.0	004.0000	0140.8	030.0	274.7	000.2500	0043.0	029.3	39.45	
333.0	004.0000	0141.1	030.0	275.3	000.2500	0043.8	028.9	39.83	
334.0	004.0000	0141.4	030.0	275.9	000.2500	0044.6	028.4	40.24	
335.0	004.0000	0141.6	030.0	276.5	000.2500	0045.4	028.0	40.65	
336.0	004.0000	0141.4	030.0	277.1	000.2500	0046.1	027.5	41.07	
337.0	004.0000	0140.9	030.0	277.5	000.2500	0046.7	027.1	41.48	
338.0	004.0000	0140.4	029.9	278.0	000.2500	0047.3	026.6	41.89	
339.0	004.0000	0140.1	029.9	278.5	000.2500	0047.9	026.1	42.32	
340.0	004.0000	0139.9	029.9	279.0	000.2500	0048.7	025.6	42.77	
341.0	004.0000	0139.7	029.9	279.6	000.2500	0049.3	025.2	43.22	
342.0	004.0000	0139.5	029.8	280.1	000.2500	0049.8	024.7	43.64	
343.0	004.0000	0139.1	029.8	280.6	000.2500	0050.2	024.2	44.06	
344.0	004.0000	0138.4	029.7	281.0	000.2500	0050.6	023.7	44.49	
345.0	004.0000	0137.9	029.7	281.5	000.2500	0051.0	023.3	44.93	
346.0	004.0000	0137.8	029.7	282.0	000.2500	0051.3	022.8	45.34	
347.0	004.0000	0138.2	029.7	282.7	000.2500	0051.5	022.3	45.73	
348.0	004.0000	0138.6	029.8	283.3	000.2500	0051.6	021.9	46.09	
349.0	004.0000	0139.0	029.8	284.0	000.2500	0051.6	021.4	46.46	
350.0	004.0000	0139.3	029.8	284.7	000.2500	0051.8	021.0	46.86	
351.0	003.8369	0139.6	029.6	284.6	000.2500	0051.8	020.4	47.32	
352.0	003.6772	0139.7	029.3	284.4	000.2500	0051.7	019.8	47.79	
353.0	003.5209	0139.6	029.0	284.2	000.2500	0051.7	019.2	48.26	
354.0	003.3680	0139.4	028.7	283.8	000.2500	0051.6	018.6	48.74	
355.0	003.2184	0138.9	028.3	283.4	000.2500	0051.6	018.1	49.23	
356.0	003.0723	0138.4	028.0	282.8	000.2500	0051.5	017.5	49.71	
357.0	002.9296	0138.1	027.7	282.2	000.2500	0051.4	016.9	50.16	
358.0	002.7902	0137.8	027.4	281.6	000.2500	0051.1	016.4	50.58	
359.0	002.6543	0137.3	027.0	280.7	000.2500	0050.3	015.9	50.91	
000.0	002.5217	0136.8	026.7	279.8	000.2500	0049.5	015.3	51.22	
001.0	002.4668	0136.3	026.5	279.4	000.2500	0049.1	014.9	51.39	
002.0	002.4124	0135.8	026.3	279.0	000.2500	0048.6	014.4	51.85	
003.0	002.3587	0135.2	026.2	278.5	000.2500	0047.9	013.9	52.31	
004.0	002.3055	0135.0	026.0	278.0	000.2500	0047.2	013.4	52.81	
005.0	002.2530	0135.0	025.9	277.5	000.2500	0046.7	013.0	53.33	
006.0	002.2011	0135.1	025.7	277.0	000.2500	0046.0	012.5	53.86	
007.0	002.1497	0134.9	025.6	276.3	000.2500	0045.1	012.1	54.34	
008.0	002.0990	0134.7	025.4	275.5	000.2500	0044.0	011.6	54.80	
009.0	002.0489	0134.2	025.3	274.5	000.2500	0042.7	011.2	55.21	
010.0	001.9994	0133.8	025.1	273.4	000.2500	0041.3	010.8	55.59	
011.0	001.9994	0133.7	025.1	273.1	000.2500	0040.8	010.3	56.22	
012.0	001.9994	0133.6	025.1	272.6	000.2500	0040.2	009.9	56.84	
013.0	001.9994	0133.5	025.1	272.1	000.2500	0039.6	009.5	57.45	
014.0	001.9994	0133.5	025.1	271.6	000.2500	0038.9	009.1	58.07	
015.0	001.9994	0133.8	025.1	271.0	000.2500	0038.2	008.6	58.72	
016.0	001.9994	0134.0	025.1	270.4	000.2500	0037.6	008.2	59.39	
017.0	001.9994	0134.4	025.1	269.7	000.2500	0036.9	007.8	60.08	
018.0	001.9994	0134.8	025.2	268.9	000.2500	0036.1	007.3	60.85	
019.0	001.9994	0135.1	025.2	267.9	000.2500	0035.1	006.9	61.64	
020.0	001.9994	0135.0	025.2	266.4	000.2500	0034.1	006.5	62.44	
021.0	001.9994	0135.0	025.2	264.7	000.2500	0033.6	006.1	63.41	
022.0	001.9994	0135.2	025.2	262.8	000.2500	0033.7	005.7	64.63	
023.0	001.9994	0135.5	025.2	260.7	000.2500	0033.8	005.3	65.89	
024.0	001.9994	0135.4	025.2	257.9	000.2500	0034.2	005.0	67.17	
025.0	001.9994	0135.2	025.2	254.4	000.2500	0034.0	004.6	68.23	
026.0	001.9994	0135.2	025.2	250.6	000.2500	0032.5	004.3	69.08	
027.0	001.9994	0135.6	025.2	246.3	000.2500	0028.6	004.0	69.76	
028.0	001.9994	0136.1	025.3	241.4	000.2500	0025.1	003.7	71.10	
029.0	001.9994	0136.3	025.3	235.4	000.2500	0024.1	003.5	72.24	

030.0	001.9994	0136.1	025.3	228.4	000.2500	0021.0	003.3	73.05
031.0	001.9994	0135.8	025.3	220.8	000.2500	0018.3	003.2	73.47
032.0	001.9994	0135.6	025.2	213.0	000.2500	0017.6	003.2	73.58
033.0	001.9994	0135.5	025.2	205.2	000.2500	0015.9	003.2	73.42
034.0	001.9994	0135.6	025.2	197.6	000.2500	0017.6	003.3	72.98
035.0	001.9994	0135.7	025.3	190.6	000.2500	0024.9	003.5	72.22
036.0	001.9994	0135.8	025.3	184.4	000.2500	0030.3	003.7	71.29
037.0	001.9994	0135.7	025.3	179.0	000.2500	0033.6	003.9	70.98
038.0	001.9994	0135.6	025.2	174.4	000.2500	0038.2	004.2	70.86
039.0	001.9994	0135.3	025.2	170.7	000.2500	0042.7	004.6	70.59
040.0	001.9994	0134.7	025.2	167.7	000.2500	0046.6	004.9	70.15
041.0	001.9994	0134.0	025.1	165.3	000.2500	0048.6	005.3	69.23
042.0	001.9994	0133.6	025.1	163.2	000.2500	0049.3	005.7	68.08
043.0	001.9994	0133.4	025.1	161.2	000.2500	0050.0	006.1	67.00
044.0	001.9994	0133.3	025.1	159.5	000.2500	0051.3	006.5	66.11
045.0	001.9994	0133.3	025.1	157.9	000.2500	0052.9	006.9	65.35
046.0	001.9994	0133.4	025.1	156.6	000.2500	0054.3	007.3	64.60
047.0	001.9994	0133.6	025.1	155.3	000.2500	0055.3	007.7	63.85
048.0	001.9994	0133.8	025.1	154.3	000.2500	0055.7	008.1	63.09
049.0	001.9994	0133.9	025.1	153.5	000.2500	0055.8	008.5	62.32
050.0	001.9994	0133.9	025.1	152.8	000.2500	0055.8	009.0	61.54
051.0	001.9994	0133.9	025.1	152.3	000.2500	0055.8	009.4	60.76
052.0	001.9994	0133.9	025.1	151.8	000.2500	0055.8	009.8	60.00
053.0	001.9994	0133.9	025.1	151.4	000.2500	0055.8	010.3	59.25
054.0	001.9994	0133.8	025.1	151.1	000.2500	0055.8	010.7	58.51
055.0	001.9994	0133.7	025.1	150.9	000.2500	0055.8	011.1	57.78
056.0	001.9994	0133.9	025.1	150.6	000.2500	0055.8	011.6	57.08
057.0	001.9994	0134.3	025.1	150.3	000.2500	0055.8	012.0	56.40
058.0	001.9994	0134.8	025.2	150.0	000.2500	0055.8	012.4	55.74
059.0	001.9994	0135.2	025.2	149.9	000.2500	0055.8	012.9	55.10
060.0	001.9994	0135.3	025.2	149.8	000.2500	0055.8	013.3	54.48
061.0	002.0489	0135.2	025.4	149.3	000.2500	0055.8	013.8	53.89
062.0	002.0990	0135.0	025.5	148.9	000.2500	0055.8	014.2	53.31
063.0	002.1497	0134.8	025.6	148.6	000.2500	0055.8	014.7	52.77
064.0	002.2011	0134.6	025.7	148.2	000.2500	0055.8	015.1	52.52
065.0	002.2530	0134.6	025.8	147.9	000.2500	0055.8	015.6	52.11
066.0	002.3055	0134.6	026.0	147.7	000.2500	0055.8	016.0	51.70
067.0	002.3587	0134.7	026.1	147.5	000.2500	0055.8	016.5	51.29
068.0	002.4124	0134.8	026.2	147.3	000.2500	0055.8	017.0	50.87
069.0	002.4668	0134.9	026.4	147.1	000.2500	0055.8	017.5	50.46
070.0	002.5217	0135.1	026.5	147.0	000.2500	0055.8	018.0	50.05
071.0	002.6543	0135.4	026.9	146.3	000.2500	0055.8	018.5	49.60
072.0	002.7902	0135.7	027.2	145.8	000.2500	0055.8	019.0	49.14
073.0	002.9296	0136.0	027.5	145.3	000.2500	0055.8	019.6	48.68
074.0	003.0723	0136.3	027.8	144.8	000.2500	0055.9	020.1	48.22
075.0	003.2184	0136.6	028.1	144.5	000.2500	0055.9	020.7	47.75
076.0	003.3680	0136.8	028.5	144.2	000.2500	0055.9	021.3	47.29
077.0	003.5209	0137.1	028.8	143.9	000.2500	0055.9	021.9	46.83
078.0	003.6772	0137.4	029.1	143.7	000.2500	0055.9	022.4	46.37
079.0	003.8369	0137.4	029.4	143.6	000.2500	0055.9	023.0	45.92
080.0	004.0000	0137.5	029.6	143.5	000.2500	0055.9	023.6	45.48
081.0	004.0000	0137.5	029.7	144.1	000.2500	0055.9	024.1	45.13
082.0	004.0000	0137.6	029.7	144.6	000.2500	0055.9	024.5	44.79
083.0	004.0000	0137.8	029.7	145.1	000.2500	0055.9	025.0	44.46
084.0	004.0000	0138.2	029.7	145.6	000.2500	0055.8	025.5	44.12
085.0	004.0000	0138.7	029.8	146.1	000.2500	0055.8	026.0	43.79
086.0	004.0000	0139.0	029.8	146.6	000.2500	0055.8	026.4	43.48
087.0	004.0000	0139.0	029.8	147.1	000.2500	0055.8	026.9	43.18
088.0	004.0000	0139.1	029.8	147.7	000.2500	0055.8	027.3	42.89
089.0	004.0000	0139.1	029.8	148.2	000.2500	0055.8	027.8	42.61
090.0	004.0000	0138.9	029.8	148.8	000.2500	0055.8	028.2	42.34
091.0	004.0000	0138.7	029.8	149.4	000.2500	0055.8	028.6	42.08

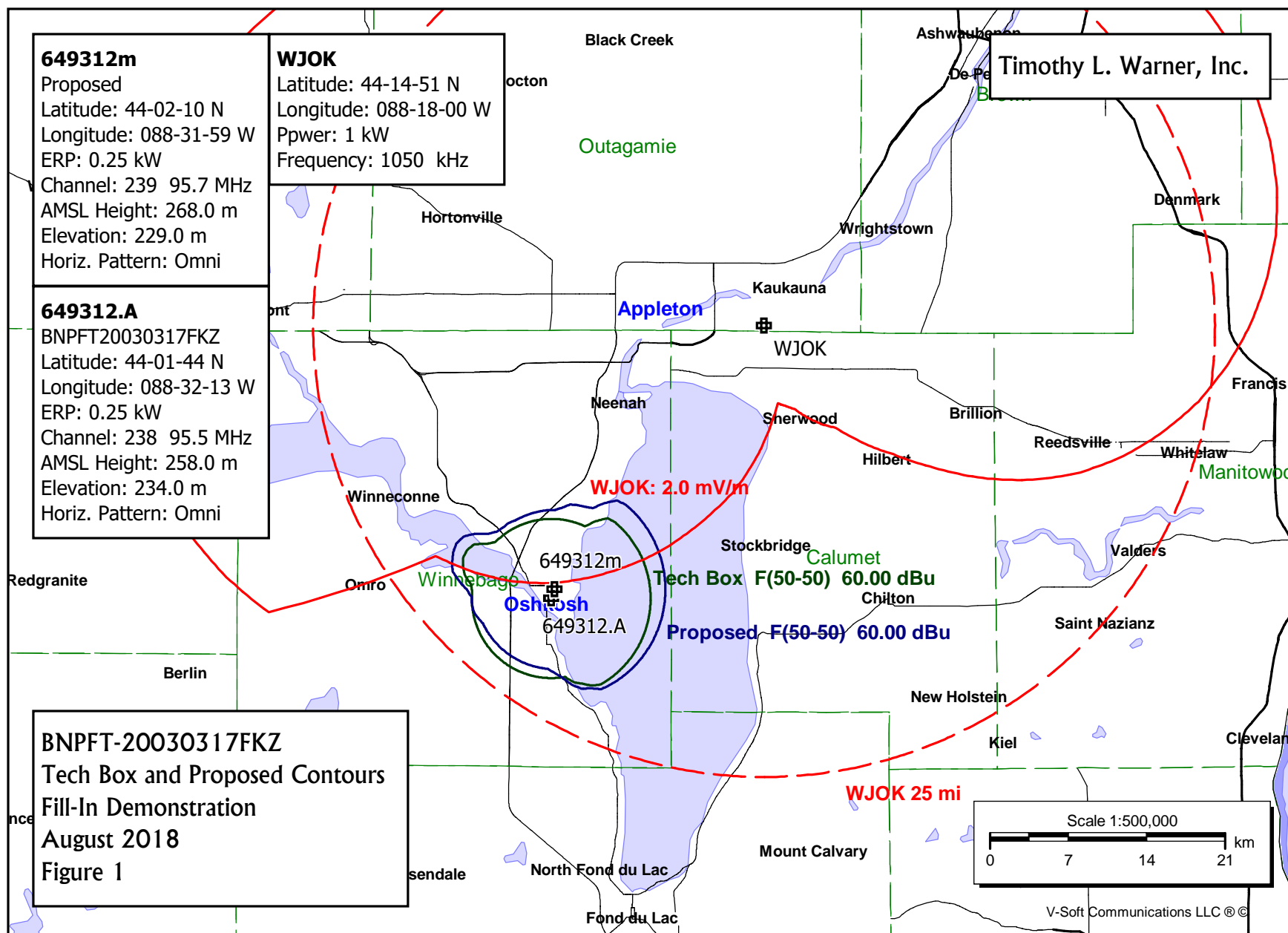




Figure 3: Allocation Study: WTCX  
Sister Grace, Inc.

FMCommander Single Allocation Study - 08-08-2018 - GLOBE 30 Sec  
649312's Overlaps (In= 19.15 km, Out= 2.1 km)

649312 CH 239 D  
Lat= 44 02 10.0, Lng= 88 31 59.0  
0.25 kW 40.7 m HAAT, 268 m COR  
Prot.= 60 dBu, Intef.= 100 dBu

WTCX CH 241 A 73.215 Z BLH19950420KB  
Lat= 43 49 10.0, Lng= 88 43 20.0  
4.0 kW 123 m HAAT, 400 m COR  
Prot.= 60 dBu, Intef.= 100 dBu

