

EXHIBIT A

ENGINEERING STATEMENT

The engineering data contained herein have been prepared on behalf of TCT OF MICHIGAN, INC., licensee of digital Low Power Television Station WJGP-LD (formerly known as W26BX-D), Channel 26 in Kalamazoo, Michigan, in support of its displacement Application for Construction Permit to specify operation on Channel 23. No change in site location, effective radiated power, antenna azimuth pattern or antenna height is proposed herein.

This station is being displaced as a result of the spectrum auction and the assignment of repack Channel 27 to WNDU-DT in South Bend, Indiana. WNDU-DT will be operating from a site that is just 92.8 kilometers from that of WJGP-LD and the latter's transmitter site is located within the service contour of the former. We have determined that operation of WNDU-DT on repack Channel 27 will receive 10.0% interference from licensed WJGP-LD, thereby placing this LPTV station in a displacement situation.

It is proposed to mount an 8-bay slotted-cylinder horizontally-polarized omnidirectional antenna at the 134-meter level of the existing 152-meter communications tower on which it the present WJGP-LD antenna is located. The proposed effective radiated power for the facility is 15.0 kW in the horizontal plane, which is the present power level of WJGP-LD. Exhibit B is a map upon which the predicted 51 dBu service contour is plotted. Elevation pattern data for the proposed antenna are provided in Exhibit C.

Included, as Exhibit D, is a summary report from a TVStudy interference analysis for the proposed facility. Our study employed a cell size of 1.0 kilometer and an increment spacing of 1.0 kilometer. Further the applicant proposes use of a full-service mask filter. The results

EXHIBIT A

indicate that the proposed WJGP-LD facility meets the Commission's interference requirements to all full-power and low-power co-channel and adjacent-channel television facilities.

A detailed power density calculation is attached hereto as Exhibit E.

Since no change in the overall height or location of the existing WJGP-LD tower is proposed herein, the Federal Aviation Administration has not been notified of this application. In addition, the FCC assigned Antenna Structure Registration Number 1002563 to this tower.

I declare under penalty of perjury that the foregoing statements and the attached exhibits, which were prepared by me or under my immediate supervision, are true and correct to the best of my knowledge and belief.

A handwritten signature in blue ink, appearing to read "K. T. Fisher", with a stylized flourish at the end.

KEVIN T. FISHER

May 25, 2018

**CONTOUR POPULATION**  
2015 U.S. CENSUS DATA  
534,799 (234,716 HH)

**Smith and Fisher, LLC**

**PROPOSED CH. 23**  
51 DBU CONTOUR

**WJGP-LD**

**EXHIBIT B**  
**PREDICTED SERVICE CONTOUR**  
**PROPOSED WJGP-LD**  
**CH. 23 - KALAMAZOO, MICHIGAN**

Scale 1:600,000  
0 5 10 15 mi

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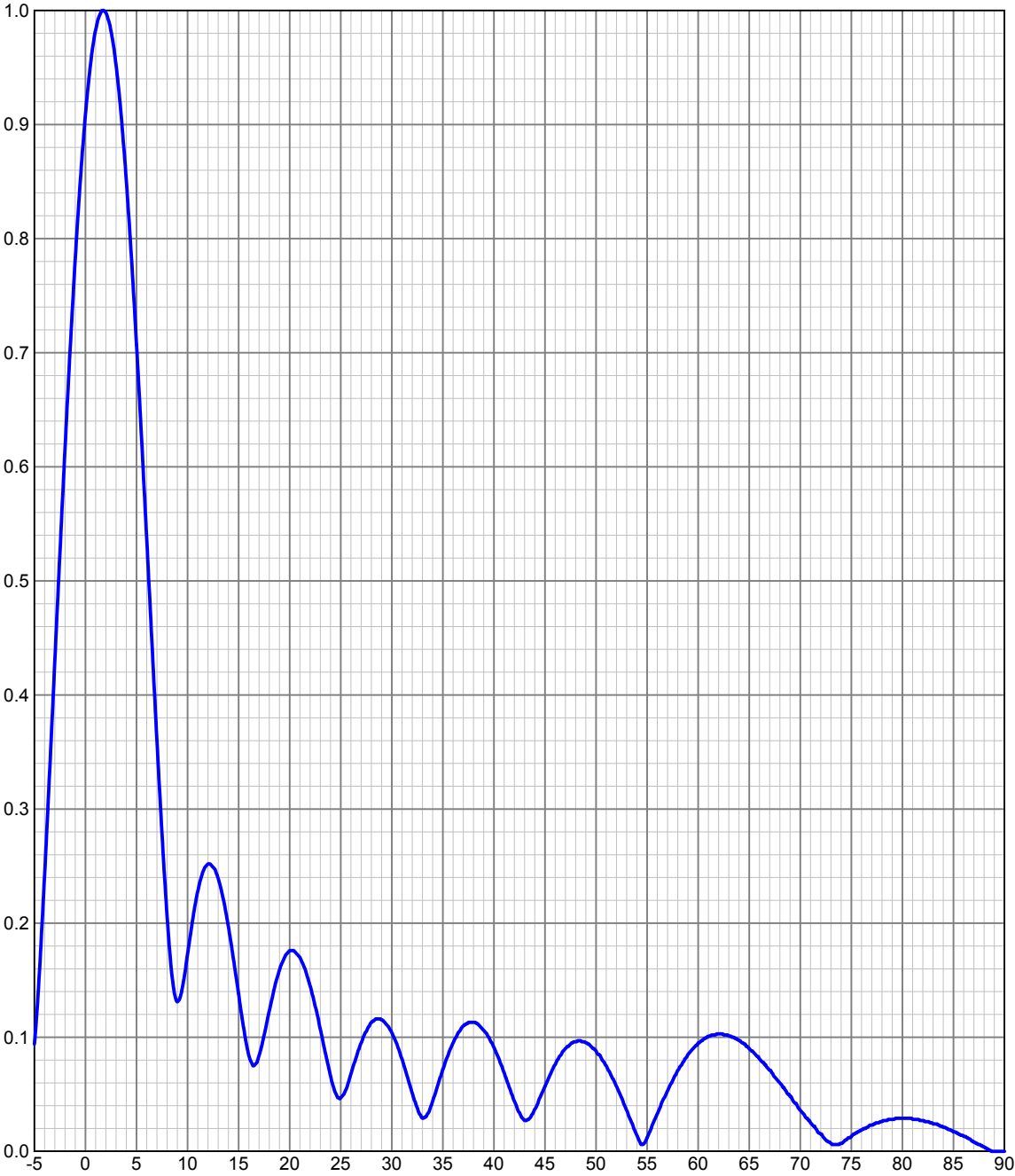
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**PREDICTED SERVICE CONTOUR**  
**PROPOSED WJGP-LD**  
**CH. 23 - KALAMAZOO, MICHIGAN**

Scale 1:600,000  
0 5 10 15 mi

ELEVATION PATTERN

Type:	AL8		Channel:	23
Directivity:	Numeric	dBd	Location:	
Main Lobe:	8.68	9.39	Beam Tilt:	1.75
Horizontal:	7.17	8.56	Polarization:	Horizontal

Relative Field



Preliminary, subject to final design and review.

## TABULATED DATA FOR ELEVATION PATTERN

Type: AL8

Polarization: Horizontal

ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB
-5.00	0.094	-20.54	6.75	0.403	-7.88	27.00	0.095	-20.45	50.50
-4.75	0.122	-18.24	7.00	0.360	-8.87	27.50	0.105	-19.58	51.00
-4.50	0.158	-16.03	7.25	0.318	-9.95	28.00	0.113	-18.94	51.50
-4.25	0.200	-14.00	7.50	0.278	-11.12	28.50	0.116	-18.71	52.00
-4.00	0.242	-12.32	7.75	0.240	-12.40	29.00	0.115	-18.79	52.50
-3.75	0.287	-10.83	8.00	0.205	-13.76	29.50	0.111	-19.09	53.00
-3.50	0.334	-9.53	8.25	0.175	-15.11	30.00	0.104	-19.66	53.50
-3.25	0.382	-8.37	8.50	0.152	-16.36	30.50	0.094	-20.54	54.00
-3.00	0.430	-7.33	8.75	0.137	-17.27	31.00	0.081	-21.83	54.50
-2.75	0.478	-6.42	9.00	0.131	-17.65	31.50	0.066	-23.61	55.00
-2.50	0.524	-5.61	9.25	0.135	-17.43	32.00	0.051	-25.85	55.50
-2.25	0.571	-4.87	9.50	0.144	-16.83	32.50	0.038	-28.40	56.00
-2.00	0.616	-4.21	9.75	0.157	-16.08	33.00	0.029	-30.75	56.50
-1.75	0.661	-3.60	10.00	0.173	-15.24	33.50	0.033	-29.63	57.00
-1.50	0.703	-3.06	10.50	0.203	-13.85	34.00	0.044	-27.13	57.50
-1.25	0.743	-2.58	11.00	0.228	-12.84	34.50	0.058	-24.73	58.00
-1.00	0.782	-2.14	11.50	0.245	-12.22	35.00	0.072	-22.85	58.50
-0.75	0.818	-1.74	12.00	0.252	-11.97	35.50	0.084	-21.51	59.00
-0.50	0.851	-1.40	12.50	0.249	-12.08	36.00	0.095	-20.45	59.50
-0.25	0.881	-1.10	13.00	0.239	-12.43	36.50	0.104	-19.66	60.00
0.00	0.909	-0.83	13.50	0.221	-13.11	37.00	0.110	-19.17	60.50
0.25	0.933	-0.61	14.00	0.197	-14.11	37.50	0.113	-18.94	61.00
0.50	0.953	-0.42	14.50	0.168	-15.49	38.00	0.113	-18.94	61.50
0.75	0.970	-0.26	15.00	0.138	-17.20	38.50	0.111	-19.09	62.00
1.00	0.983	-0.15	15.50	0.108	-19.33	39.00	0.106	-19.49	62.50
1.25	0.992	-0.07	16.00	0.084	-21.51	39.50	0.100	-20.00	63.00
1.50	0.998	-0.02	16.50	0.075	-22.50	40.00	0.091	-20.82	63.50
1.75	1.000	0.00	17.00	0.084	-21.51	40.50	0.081	-21.83	64.00
2.00	0.998	-0.02	17.50	0.102	-19.83	41.00	0.069	-23.22	64.50
2.25	0.992	-0.07	18.00	0.123	-18.20	41.50	0.056	-25.04	65.00
2.50	0.982	-0.16	18.50	0.143	-16.89	42.00	0.044	-27.13	65.50
2.75	0.969	-0.27	19.00	0.159	-15.97	42.50	0.034	-29.37	66.00
3.00	0.952	-0.43	19.50	0.170	-15.39	43.00	0.027	-31.37	66.50
3.25	0.931	-0.62	20.00	0.176	-15.09	43.50	0.029	-30.75	67.00
3.50	0.908	-0.84	20.50	0.175	-15.14	44.00	0.037	-28.64	67.50
3.75	0.881	-1.11	21.00	0.170	-15.39	44.50	0.047	-26.56	68.00
4.00	0.851	-1.40	21.50	0.160	-15.92	45.00	0.057	-24.88	68.50
4.25	0.819	-1.74	22.00	0.145	-16.77	45.50	0.067	-23.48	69.00
4.50	0.784	-2.11	22.50	0.127	-17.92	46.00	0.076	-22.38	69.50
4.75	0.746	-2.54	23.00	0.107	-19.41	46.50	0.084	-21.51	70.00
5.00	0.707	-3.01	23.50	0.086	-21.31	47.00	0.090	-20.92	70.50
5.25	0.667	-3.52	24.00	0.066	-23.61	47.50	0.094	-20.54	71.00
5.50	0.624	-4.10	24.50	0.051	-25.85	48.00	0.096	-20.35	71.50
5.75	0.581	-4.72	25.00	0.047	-26.56	48.50	0.097	-20.26	72.00
6.00	0.537	-5.40	25.50	0.054	-25.35	49.00	0.095	-20.45	72.50
6.25	0.492	-6.15	26.00	0.068	-23.35	49.50	0.092	-20.72	73.00
6.50	0.448	-6.97	26.50	0.082	-21.72	50.00	0.088	-21.11	73.50

*Preliminary, subject to final design and review.*

TVSTUDY INTERFERENCE ANALYSIS RESULTS  
 PROPOSED WJGP-LD  
 CHANNEL 23 – KALAMAZOO, MICHIGAN

Study created: 2018.05.24 16:24:15

Study build station data: LMS TV 2018-04-07

Proposal: WJGP-LD D23 LD LIC KALAMAZOO, MI  
 File number: BLDTL20091210ADC  
 Facility ID: 67780  
 Station data: User record  
 Record ID: 288  
 Country: U.S.

Build options:

Protect pre-transition records not on baseline channel

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	W25DW-D	D22	LD	CP	ARBURY HILLS, IL	BDISDTL20120106ABK	190.4 km
No	WLS-TV	D22	DT	CP	CHICAGO, IL	BLANK0000034300	191.7
No	WXIN	D22	DT	CP	INDIANAPOLIS, IN	BLANK0000034056	259.3
No	W22DV-D	D22	LD	CP	MARION, IN	BLANK0000036661	154.3
Yes	WSBT-TV	D22	DT	LIC	SOUTH BEND, IN	BLCDT20090224ABF	92.3
No	WNEM-TV	D22	DT	LIC	BAY CITY, MI	BLCDT20050615ACI	192.7
No	WDWO-CD	D22	DC	CP	DETROIT, MI	BLANK0000028102	171.2
Yes	WLLA	D22	DT	CP	KALAMAZOO, MI	BLANK0000034932	49.4
No	WBGU-TV	D22	DT	CP	BOWLING GREEN, OH	BLANK0000027978	162.3
No	WFND-LD	D22	LD	LIC	FINDLAY, OH	BLDTL20130114ACF	180.4
No	WVCY-TV	D22	DT	LIC	MILWAUKEE, WI	BMLED20091116ABD	235.7
Yes	WCIU-TV	D23	DT	CP	CHICAGO, IL	BLANK0000034608	191.7
No	WQPT-TV	D23	DT	APP	MOLINE, IL	BLANK0000035678	427.8
No	WQPT-TV	D23	DT	LIC	MOLINE, IL	BLED20030702AAR	427.8
No	WUSI-TV	D23	DT	CP	OLNEY, IL	BLANK0000034827	435.1
No	WDTI	D23	DT	CP	INDIANAPOLIS, IN	BLANK0000034481	258.8
No	WIPB	D23	DT	LIC	MUNCIE, IN	BLED20090717ABL	226.3
No	WUEA-LD	D23	LD	LIC	South Bend, IN	BLANK0000004243	120.9
Yes	WUEA-LD	D23	LD	CP	South Bend, IN	BLANK0000036429	98.2
No	WBSF	D23	DT	CP	BAY CITY, MI	BLANK0000027775	192.9
Yes	WBSF	D23	DT	APP	BAY CITY, MI	BLANK0000034870	179.2

No	W23EB-D	D23	LD LIC	CADILLAC, MI	BLDTL20140317ABS	222.7
No	WUDD-LD	D23	LD LIC	Detroit, MI	BLANK0000007868	181.6
No	WIEK-LD	D23	LD LIC	MIDLAND, MI	BLANK0000014091	149.0
No	W23EJ-D	D23	LD CP	VANDERBILT, MI	BNPDTL20100223ADK	347.3
No	WVPX-TV	D23	DT LIC	AKRON, OH	BLANK0000050597	333.9
No	WVPX-TV	D23	DT LIC	AKRON, OH	BLCDT20110630AGP	333.9
No	WWHO	D23	DT CP	CHILLICOTHE, OH	BLANK0000027709	338.7
No	WWHO	D23	DT APP	CHILLICOTHE, OH	BLANK0000034759	311.6
No	W23BZ-D	D23	LD LIC	COLUMBUS, OH	BLDTL20110318AAC	314.4
No	W23DE-D	D23	LD LIC	LIMA, OH	BLDTL20090406AHU	191.1
Yes	WNWO-TV	D23	DT CP	TOLEDO, OH	BLANK0000024772	171.9
Yes	WNWO-TV	D23	DT APP	TOLEDO, OH	BLANK0000033631	171.9
No	WDMY-LP	D23	LD CP	TOLEDO, OH	BDISDTL20100303AAB	153.2
No	WBAY-TV	D23	DT LIC	GREEN BAY, WI	BMLCDT20040723ADS	332.7
No	W23BW-D	D23	DC APP	MADISON, WI	BLANK0000035876	353.9
No	W23BW-D	D23	DC LIC	MADISON, WI	BLDTA20140827AAD	353.9
No	WRJK-LP	D24	LD CP	ARLINGTON HEIGHTS, IL	BMPDTL20140211ACV	191.7
No	WFLD	D24	DT CP	CHICAGO, IL	BLANK0000034486	191.7
No	WPTA	D24	DT APP	FORT WAYNE, IN	BLANK0000035732	114.8
No	WPTA	D24	DT LIC	FORT WAYNE, IN	BLCDT20031031AGU	114.8
No	WPXD-TV	D24	DT CP	ANN ARBOR, MI	BLANK0000027025	171.2
No	WPXD-TV	D24	DT APP	ANN ARBOR, MI	BLANK0000034355	171.2
Yes	WTLJ	D24	DT LIC	MUSKEGON, MI	BLANK0000001674	102.9
No	WDFM-LP	N26-	TX LIC	DEFIANCE, OH	BLTTL20031007AAN	114.4

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D23  
 Mask: Full Service  
 Latitude: 42 7 43.80 N (NAD83)  
 Longitude: 85 20 22.10 W  
 Height AMSL: 412.0 m  
 HAAT: 0.0 m  
 Peak ERP: 15.0 kW  
 Antenna: Omnidirectional  
 Elev Pattn: Generic  
 Elec Tilt: 1.75

49.7 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	15.0 kW	122.3 m	46.4 km
45.0	15.0	125.5	46.6

90.0	15.0	139.2	47.5
135.0	15.0	143.1	47.8
180.0	15.0	144.2	47.9
225.0	15.0	145.1	47.9
270.0	15.0	144.8	47.9
315.0	15.0	137.0	47.4

Database HAAT does not agree with computed HAAT

Database HAAT: 0 m    Computed HAAT: 138 m

Proposal 24.66 dBu contour does not cross Canadian border

Distance to Canadian border: 180.9 km

Distance to Mexican border: 1987.4 km

Conditions at FCC monitoring station: Allegan MI

Bearing: 316.5 degrees    Distance: 73.3 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:

Bearing: 269.1 degrees    Distance: 1675.1 km

Study cell size: 1.00 km

Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%

Maximum new IX to LPTV: 2.00%

No IX check failures found.



POWER DENSITY CALCULATION

PROPOSED WJGP-LD  
CHANNEL 23 – KALAMAZOO, MICHIGAN

Since the FCC considers the possible biological effects of RF transmissions in its environmental determinations, we have studied the matter with respect to this Kalamazoo facility. Employing the methods set forth in *OET Bulletin No. 65* and considering a main-lobe effective radiated power of 15.0 kW, an antenna radiation center 134 meters above ground, and the specific elevation pattern for the proposed ERI 8-bay antenna, a maximum power density value two meters above ground of  $0.00024 \text{ mW/cm}^2$  is calculated to occur 67 meters from the base of the tower. Since this is significantly less than 0.1 percent of the  $0.35 \text{ mW/cm}^2$  reference for uncontrolled environments (areas with public access) surrounding a facility operating on Channel 23 (524-530 MHz), a grant of this proposal may be considered a minor environmental action with respect to public exposure to non-ionizing electromagnetic radiation.

Further, the station owner will take whatever precautionary steps are necessary, such as reducing power or leaving the air temporarily, to ensure that workers operating in the vicinity of the antenna are not exposed to excessive non-ionizing radiation.