

***APPLICATION FOR CONSTRUCTION PERMIT***  
***DIGITAL COMPANION CHANNEL***

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W18BT – FLINT, MICHIGAN  
CHANNEL 30

DIGITAL NETWORKS—MIDWEST, LLC

MARCH 2020

## **APPLICATION FOR CONSTRUCTION PERMIT**

The following engineering statement and attached exhibits have been prepared for **Digital Networks-Midwest, LLC** ("Midwest"), licensee of analog low power television station W18BT at Alpena, Michigan, and are in support of their application for construction permit for a new digital companion channel low power television facility at Flint, Michigan. The Facility ID for W18BT at Alpena, Michigan is 67049. The current license for the facility is under FCC File No. BLTT-19981113JB.

W18BT operates as an analog low-power television station on channel 18 with a maximum effective radiated power of 17.4 kW at a center of radiation of 329 meters above mean sea level, utilizing a directional antenna. The proposed digital companion channel would operate on channel 30 with a maximum effective radiated power of 2.0 kW at a center of radiation of 326.5 meters above mean sea level, 30 meters above ground level, utilizing a composite directional antenna system. The proposed antenna system consists of two Kathrein-Scala PR-TV antennas with equal power division. One of the antennas is oriented at 70 degrees true, while the other is oriented at 180 degrees true.

The proposed 51 dBu F(50,90) service contour from the proposed digital companion channel technical parameters would overlap the licensed W18BT 74 dBu F(50,50) service contour. Additionally, the proposed transmitter site for the digital companion channel is located within 30 miles of the licensed analog site. The map in Exhibit E-1 illustrates these constructs.

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The proposed technical parameters would not result in interference to other proposed, authorized, or licensed facilities in excess of that permitted under the Commission's Rules. Exhibit E-2 provides tabular output from *TVStudy*. This study demonstrates no interference check failures.

It should be noted that Exhibit E-2 indicates that the predicted 24.15 dBu interference contour from the proposed facility crosses the Canadian border, and that coordination with Industry Canada is required. A graphical check of this situation that the contour lies over the waters of Lake Huron, and does not encompass any Canadian land area. It is therefore respectfully submitted that Canadian coordination should not be necessary in this instance. Exhibit E-3 illustrates the predicted 24.15 dBu F(50,10) contour resulting from the proposed technical parameters.

The proposed facility is located within the State of Michigan. Per the *TVStudy* output, the distance to the Allegan monitoring station is 308.7 kilometers, or 191.8 miles. At this distance the predicted field strength from the proposed facility is less than 10 mV/m.

The proposed facility would not constitute a significant environmental impact, and is exempt from environmental processing. The proposed antenna would be mounted to an existing tower that is registered with the Commission. The addition of the antenna to this tower would not increase the existing environmental impact already present from the tower.

Using the equations in Supplement A of *OET Bulletin 65*, the calculated worst-case power density at ground level assuming a downward radiation relative field of 0.2 is  $4.16 \mu\text{W}/\text{cm}^2$ . This

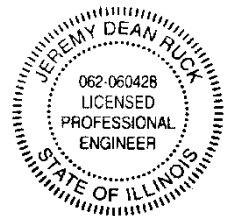
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value is less than the upper limit of the uncontrolled environment condition upper limit. Midwest certifies that it will coordinate with all other users of the site to ensure that workers and other personnel are not exposed to levels of radiofrequency radiation in excess of the applicable safety standards. Coordination activities will include, but are not necessarily limited to, a reduction in transmitter power or cessation of operation.

The preceding statement and attached exhibits have been prepared by me, or under my direction, and are true and accurate to the best of my belief and knowledge.



Above signature is digitized copy of actual signature  
License Expires November 30, 2021

Jeremy D. Ruck, PE  
March 24, 2020

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3.24.2020

**W18BT.X**

PROPOSED

Latitude: 45-00-52.70 N

Longitude: 084-02-24.40 W

ERP: 2.00 kW

Channel: 30

AMSL Height: 326.5 m

Horiz. Pattern: Directional

Prop Model: FCC Contour

**W18BT**

BLTTL-19981113JB

Latitude: 45-09-22.60 N

Longitude: 083-28-03.70 W

ERP: 17.40 kW

Channel: 18-

AMSL Height: 329.0 m

Horiz. Pattern: Directional

Prop Model: FCC Contour

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- Proposed 51 dBu F(50,90) Service Contour
- Licensed 74 dBu F(50,50) Service Contour
- Proposed Site 30-mile Radius

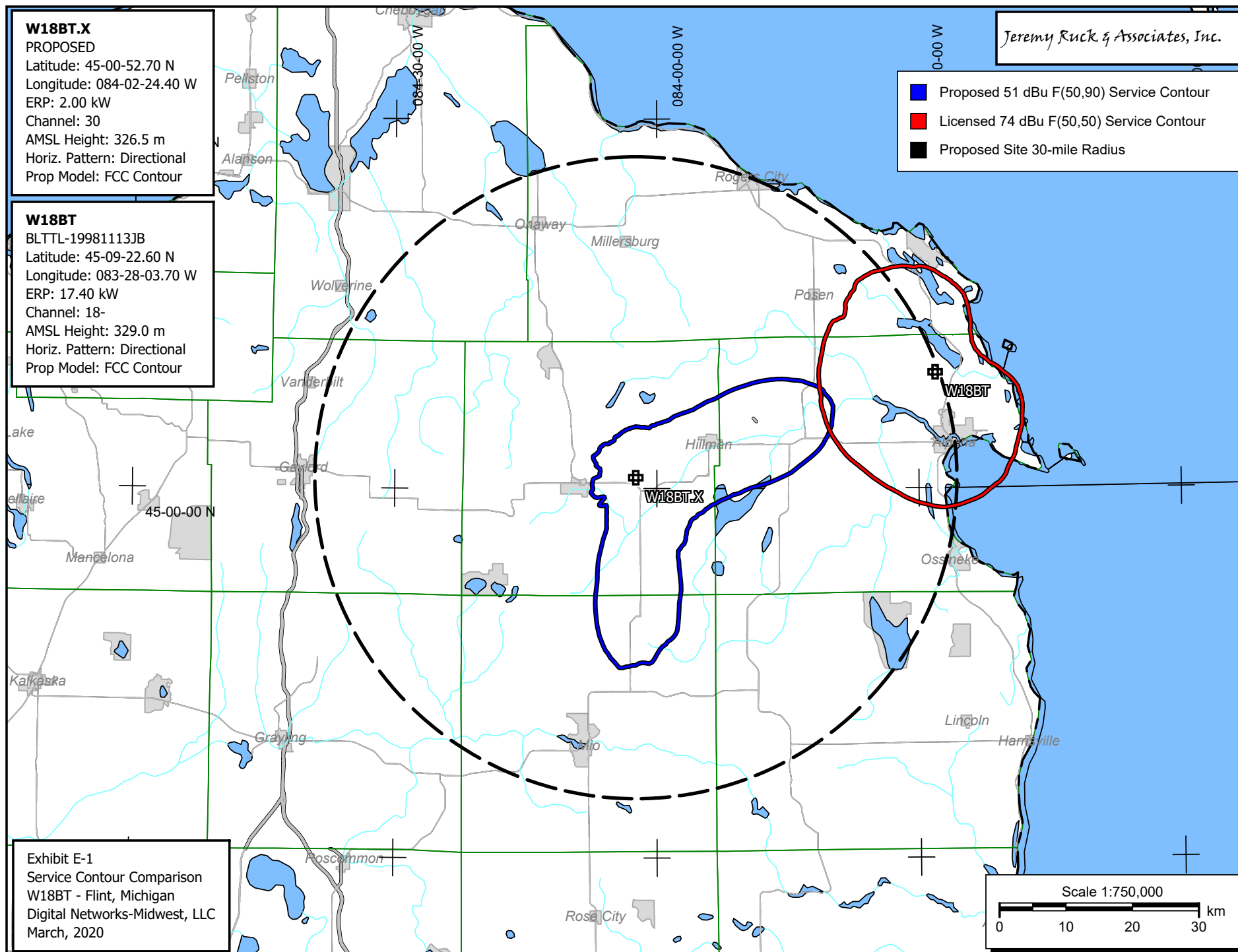


Exhibit E-1

Service Contour Comparison

W18BT - Flint, Michigan

Digital Networks-Midwest, LLC

March, 2020

## Exhibit E-2 - TVStudy Interference Study

tvstudy v2.2.5 (4uoc83)

Database: 127.0.0.1, Study: W18BT DCC Ch 30 ASRN 1244688 2 kW ERP 326.5 m AMSL PR-TV x2 1@70 1@180, Model: Longley-Rice  
Start: 2020.03.24 14:07:05

Study created: 2020.03.24 14:07:05

Study build station data: LMS TV 2020-03-21

Proposal: W18BT D18 LD APP ALPENA, MI  
File number: BLTTL19981113JB  
Facility ID: 67049  
Station data: User record  
Record ID: 125  
Country: U.S.  
Zone: II

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	WMNN-LD	D17	LD	CP	LAKE CITY, MI	BLANK0000054262	132.6 km
No	WFFC-LD	D17	LD	LIC	MIDLAND, MI	BLANK0000087273	180.5
No	WFWA	D18	DT	LIC	FORT WAYNE, IN	BLANK0000063130	444.6
No	WUHO-LP	D18+	LD	CP	KALAMAZOO, MI	BLANK0000071807	325.7
No	W18ER-D	D18	LD	LIC	MUSKEGON, MI	BLANK0000068548	253.3
Yes	WURO-LD	D18	LD	LIC	ROSCOMMON, MI	BLDTL20141113AFT	65.5
No	WEYI-TV	D18	DT	LIC	SAGINAW, MI	BLANK0000075003	201.4
No	WPBN-TV	D18	LD	CP	TRAVERSE CITY, MI	BLANK0000094903	132.1
No	WDTJ-LD	D18	LD	LIC	TOLEDO, OH	BLDTL20121219ABP	375.7
No	WVTW	D18	DT	LIC	MILWAUKEE, WI	BLCDT20101012ADH	375.1
No	WFKB-LD	D19	LD	LIC	MIDLAND, MI	BLANK0000080439	180.5
No	W19EA-D	D19	LD	CP	ROSCOMMON, MI	BNPDTL20100223ACZ	76.1

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D18  
Mask: Full Service  
Latitude: 45 0 52.70 N (NAD83)  
Longitude: 84 2 24.40 W  
Height AMSL: 326.5 m  
HAAT: 57.6 m  
Peak ERP: 2.00 kW  
Antenna: SCA PR-TV x2 Array 1@70 1@180 0.0 deg  
Elev Pattern: Generic

49.1 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	0.010 kW	61.9 m	8.6 km
45.0	0.175	73.8	19.0
90.0	0.416	79.0	24.1
135.0	0.027	78.6	12.1
180.0	2.00	67.8	30.5
225.0	0.018	17.0	6.9
270.0	0.010	37.9	6.7
315.0	0.013	44.8	7.8

\*\*Proposal 24.15 dBu contour crosses Canadian border, coordination required

Distance to Canadian border: 96.1 km

Distance to Mexican border: 2275.1 km

Conditions at FCC monitoring station: Allegan MI  
Bearing: 210.5 degrees Distance: 308.7 km

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## Exhibit E-2 - TVStudy Interference Study

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 260.1 degrees Distance: 1809.9 km

No land mobile station failures found

Proposal is not within the Offshore Radio Service protected area

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%

### ----- Interference to BLDL20141113AFT LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WURO-LD	D18	LD	LIC	ROSCOMMON, MI	BLDTL20141113AFT	
Undesireds:	W18BT	N18-	TX	LIC	ALPENA, MI	BLTTL19981113JB	105.4 km
	W18BT	D18	LD	APP	ALPENA, MI	BLTTL19981113JB	65.5
	WMNN-LD	D17	LD	CP	LAKE CITY, MI	BLANK0000054262	76.6
	WEYI-TV	D18	DT	LIC	SAGINAW, MI	BLANK0000075003	152.1
	WPBN-TV	D18	LD	CP	TRAVERSE CITY, MI	BLANK0000094903	105.1
	W19EA-D	D19	LD	CP	ROSCOMMON, MI	BNPDTL20100223ACZ	25.6
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	Service area		Terrain-limited		IX-free, before	IX-free, after	Percent New IX
	4864.9	60,130	4613.6	55,949	3686.6	43,197	0.19 0.62

Undesired	Total IX	Unique IX, before	Unique IX, after
W18BT N18- TX LIC	4.0	0	0
W18BT D18 LD APP	15.0	266	10.0 266
WMNN-LD D17 LD CP	13.0	406	0.0 0 0.0 0
WEYI-TV D18 DT LIC	820.0	12,276	770.8 11,521 768.8 11,521
WPBN-TV D18 LD CP	77.1	409	28.0 41 26.0 41
W19EA-D D19 LD CP	76.0	435	68.0 435 68.0 435

### ----- Interference to proposal scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	W18BT	D18	LD	APP	ALPENA, MI	BLTTL19981113JB	
Undesireds:	WURO-LD	D18	LD	LIC	ROSCOMMON, MI	BLDTL20141113AFT	65.5 km
	WEYI-TV	D18	DT	LIC	SAGINAW, MI	BLANK0000075003	201.4
	WPBN-TV	D18	LD	CP	TRAVERSE CITY, MI	BLANK0000094903	132.1

	Service area	Terrain-limited	IX-free	Percent IX
	888.1	5,873	865.8	5,873
			841.5	5,810
				2.80 1.07
-----				
Undesired	Total IX	Unique IX	Prct Unique IX	
WURO-LD D18 LD LIC	19.2	58	15.2	52 1.75 0.89
WEYI-TV D18 DT LIC	8.1	11	5.1	5 0.59 0.09
WPBN-TV D18 LD CP	1.0	0	0.0	0 0.00 0.00

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