

***APPLICATION FOR CONSTRUCTION PERMIT  
DISPLACEMENT***

**K40DE – WILLISTON, NORTH DAKOTA  
FACILITY ID: 68087**

**DIGITAL NETWORKS—MIDWEST, LLC**

**AUGUST 2020**

## **APPLICATION FOR CONSTRUCTION PERMIT - DISPLACEMENT**

The following engineering statement and attached exhibits have been prepared for **Digital Networks-Midwest, LLC** ("Midwest"), licensee of analog low power television station K40DE at Williston, North Dakota, and re in support of their application for construction permit for displacement.<sup>1</sup> The current license for the facility is under FCC File No. BLTT-19901119IC. This application seeks displacement relief, and also to make a small relocation of the site to another tower.

The analog facility is licensed to operate on channel 40 with a maximum effective radiated power of 851 Watts at a center of radiation of 591 meters above mean sea level, 20 meters above ground level, utilizing a non-directional antenna. The proposed facility would operate on channel 28 with a maximum effective radiated power of 1.0 kW at a center of radiation of 661.5 meters above mean sea level, 30 meters above ground level, utilizing single directional Kathrein-Scala PR-TV antenna oriented at 225 degrees true.

The map in Exhibit E-1 provides a contour comparison map between the licensed and proposed technical parameters. This map demonstrates that the proposed 51 dBu F(50,90) service contour overlaps the licensed 74 dBu F(50,50) contour. Additionally, this map also demonstrates that the proposed transmitter site is located within 30 miles of the licensed transmitter site.

Exhibit E-2 is the output from *TVStudy* for the proposed facility. This study demonstrates that there are no outgoing interference check failures to any proposed or authorized facility. This

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<sup>1</sup> The Facility ID for K40DE at Williston, North Dakota is 68087.

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415  
221 S. 1st Avenue  
Canton, IL 61520

Tel: 309.647.1200  
Fax: 855.332.9537  
jeremyruck.com

study was performed at a cell size resolution of 1.0 kilometers, and a profile spacing increment of 1.0 kilometer.

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 does not require registration with the Commission. The addition of the antenna to this tower would not increase the already existing environmental impact present from the tower.

In addition, the proposed facility would not result in human exposure at ground level to radiofrequency radiation in excess of the Commission's safety standards. 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 0.3 is  $3.83 \mu\text{W}/\text{cm}^2$ . This value is substantially below the upper limit of the uncontrolled environment condition. Midwest certifies 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.

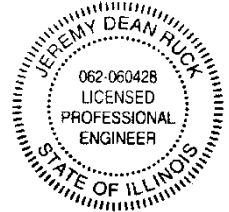
The proposed facility complies with the provisions of Section 74.709 of the Commission's Rules. No land mobile protection issues have been identified based on the tables in that section of the rules, or on the output of *TVStudy*. The proposed facility also complies with Sections 74.793(e)-(h) and 74.793(h) of the Commission's Rules. The proposed facility is not located within the vicinity of the Table Mountain receiving zone, nor is it located within the West Virginia quiet zone area.

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Canton, IL 61520

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Fax: 855.332.9537  
jeremyruck.com

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  
August 26, 2020

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P.O. Box 415  
221 S. 1st Avenue  
Canton, IL 61520

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jeremyruck.com

8.26.2020

**K40DE**

BLTT-19901119IC  
Latitude: 48-08-43 N  
Longitude: 103-37-17.70 W  
ERP: 0.851 kW  
Channel: 40N  
Frequency: 629.0 MHz  
AMSL Height: 591.0 m  
Horiz. Pattern: Omni  
Prop Model: FCC Contour

**K40DE.X**

BLTT-19901119IC  
Latitude: 48-10-45.30 N  
Longitude: 103-33-43.90 W  
ERP: 1.00 kW  
Channel: 28  
Frequency: 557.0 MHz  
AMSL Height: 661.5 m  
Horiz. Pattern: Directional  
Prop Model: FCC Contour

*Jeremy Ruck & Associates, Inc.*

- K40DE Licensed 74 dBu F(50,50) Contour
- K40DE Proposed 51 dBu F(50,90) Contour
- K40DE Proposed Site 30-mile Radius

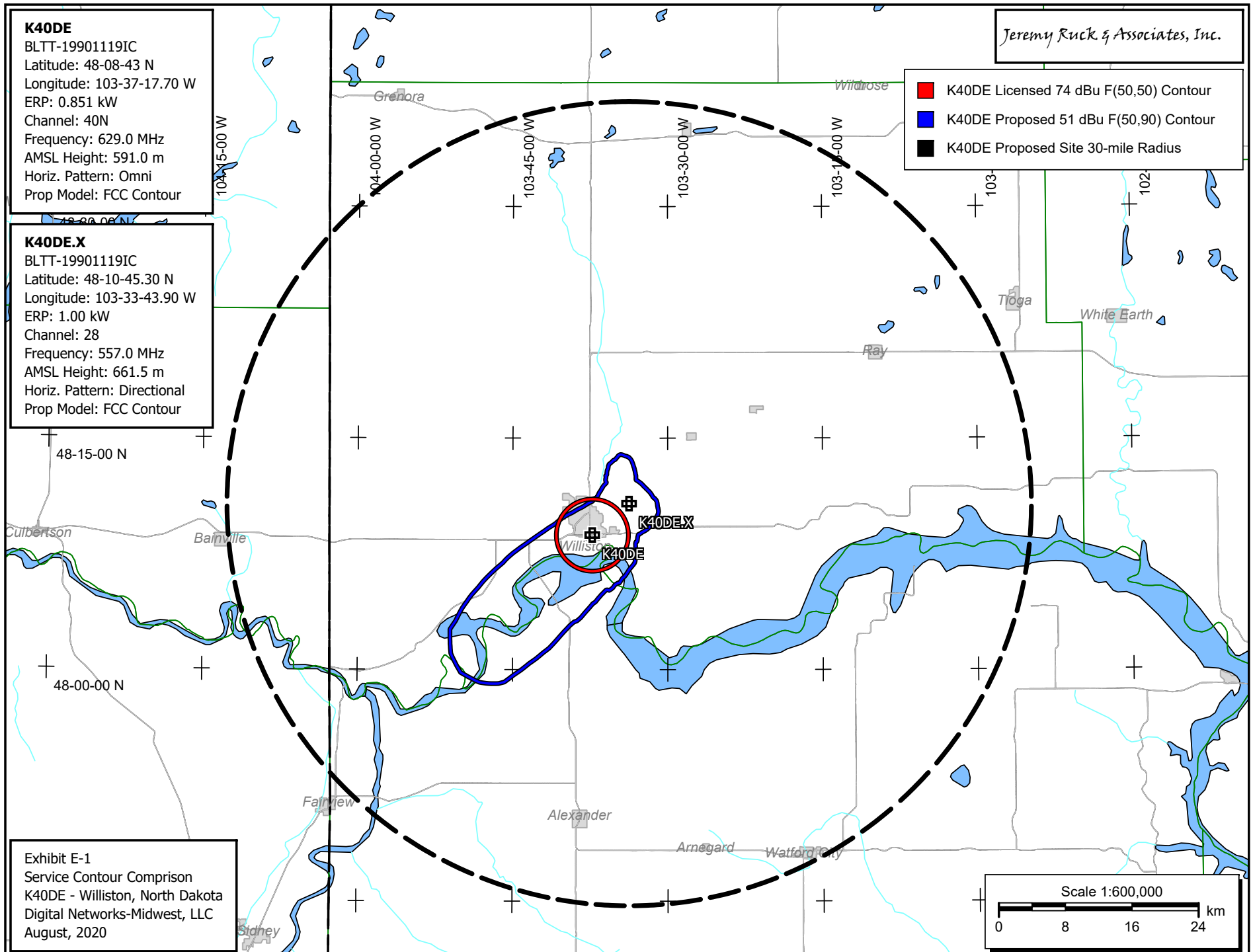
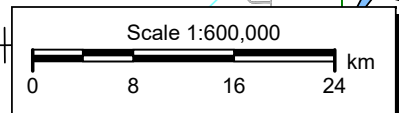


Exhibit E-1  
Service Contour Comprison  
K40DE - Williston, North Dakota  
Digital Networks-Midwest, LLC  
August, 2020



## Exhibit E-2 - TVStudy Interference Study

tvstudy v2.2.5 (4uoc83)

Database: 127.0.0.1, Study: K40DE DISP CH 28 ASRN 1059681 1 kW ERP 661.5 m AMSL PR-TV @225, Model: Longley-Rice

Start: 2020.08.26 11:17:51

Study created: 2020.08.26 11:17:51

Study build station data: LMS TV 2020-08-26

Proposal: K40DE D28 LD LIC WILLISTON, ND  
File number: BLTT19901119IC  
Facility ID: 68087  
Station data: User record  
Record ID: 198  
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	K14AG	N14	TX	LIC	CIRCLE, ETC., MT	BLTT19830420IH	171.7 km
No	K21GQ	N21-	TX	LIC	MINOT, ND	BLTT120030825AMY	167.8
No	K27JQ-D	D27	LD	CP	WOLF POINT, MT	BLANK0000013208	146.2
No	K27JQ-D	D27	LD	LIC	WOLF POINT, MT	BLDTT20120614ACH	146.2
No	K27MH-D	D27	LD	CP	GARRISON, ND	BNPDTL20100609AGS	162.3
No	K27LX-D	D27	LD	CP	MINOT, ND	BNPDTL20100331AFB	167.8
No	K28ON-D	D28	LD	LIC	CASTLE ROCK, ETC., MT	BLANK0000062952	363.3
No	K28LZ-D	D28	LD	CP	GLENDIVE, MT	BNPDTL20100506ACP	136.2
No	K28MK-D	D28	LD	LIC	PHILLIPS COUNTY, MT	BLDTT20111116ATU	373.3
No	K28OB-D	D28	LD	LIC	PLENTYWOOD, MT	BLANK0000067787	95.3
No	K28MS-D	D28	LD	CP	BISMARCK, ND	BDCCDTL20120409AAZ	257.6
No	KNDX-LD	D28	LD	CP	DICKINSON, ND	BLANK0000035940	143.4
No	K29FS-D	D29	LD	CP	WOLF POINT, MT	BLANK0000013209	146.2
No	K29FS-D	D29	LD	LIC	WOLF POINT, MT	BLDTT20120614ACG	146.2

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D28  
Mask: Full Service  
Latitude: 48 10 45.30 N (NAD83)  
Longitude: 103 33 43.90 W  
Height AMSL: 661.5 m  
HAAT: 41.8 m  
Peak ERP: 1.00 kW  
Antenna: SCA PR-TV 225.0 deg  
Elev Pattern: Generic

50.1 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	0.002 kW	81.5 m	5.8 km
45.0	0.000	23.1	2.9
90.0	0.002	-22.0	3.6
135.0	0.002	-14.2	3.9
180.0	0.005	94.6	8.3
225.0	1.00	97.7	29.8
270.0	0.005	37.6	5.3
315.0	0.002	36.4	4.2

Proposal 25.14 dBu contour does not cross Canadian border  
Distance to Canadian border: 91.1 km

Distance to Mexican border: 1839.4 km

Conditions at FCC monitoring station: Grand Island NE

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## Exhibit E-2 - TVStudy Interference Study

Bearing: 151.4 degrees Distance: 902.8 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:

Bearing: 189.0 degrees Distance: 901.9 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%

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Interference to proposal scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	K40DE	D28	LD	LIC	WILLISTON, ND	BLTT19901119IC	

	Service area		Terrain-limited		IX-free		Percent IX
330.2	15,859	324.1	15,855	324.1	15,855	0.00	0.00

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