

***COMPREHENSIVE TECHNICAL EXHIBIT  
APPLICATION FOR CONSTRUCTION PERMIT***

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**K16LO-D – WICHITA FALLS, TEXAS  
FACILITY ID: 67912**

**DIGITAL NETWORKS–MIDWEST, LLC**

**JANUARY 2021**

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JEREMY RUCK & ASSOCIATES, INC.

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**1.2.2021**

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## **APPLICATION FOR CONSTRUCTION PERMIT**

The following engineering statement and attached exhibits have been prepared for **Digital Networks-Midwest, LLC** ("Midwest"), licensee of digital low power television station K16LO-D at Wichita Falls, Texas, and are in support of their application for construction permit.<sup>1</sup> This application proposes a relocation of the licensed facility.

K16LO-D is licensed on television channel 16 as a digital low-power television station. The facility is authorized to operate with a maximum effective radiated power of 4.86 kW at a center of radiation of 352.4 meters above mean sea level, 54.9 meters above ground level, utilizing a composite directional antenna. The proposed facility would continue to operate on television channel 16, but with a maximum effective radiated power of 15 kW at a center of radiation of 400 meters above mean sea level with a directional antenna. The antenna proposed for use by the facility is a Propagation Systems, Inc. ("PSI") model PSILP16AER. This antenna is to be oriented at 100 degrees true.

The proposed relocation of the facility would be consistent with the provisions of Section 73.3572 of the Commission's Rules. Exhibit E-1 illustrates the predicted 51 dBu F(50,90) service contour from the licensed K16LO-D facility, as well as the corresponding contour from the proposed facility. As this map demonstrates, a large area of overlap between these two contours exists. Additionally, the proposed site is located within thirty (30) miles of the licensed site.

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

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<sup>1</sup> The Facility ID for K16LO-D at Wichita Falls, Texas is 67912.

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E-2 provides tabular output from *TVStudy*. This study demonstrates that the proposed technical parameters would not result in impermissible interference, and that no interference check failures exists.

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. Additionally, the proposed facility would not create an RF exposure hazard to persons at the site.

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  $6.29 \mu\text{W}/\text{cm}^2$ . This value is less than 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.

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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  
January 2, 2021

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**K16LO-D**  
 0000120912  
 Latitude: 34-14-45 N  
 Longitude: 098-25-51 W  
 ERP: 4.86 kW  
 Channel: 16  
 Frequency: 485.0 MHz  
 AMSL Height: 352.4 m  
 Horiz. Pattern: Directional  
 Prop Model: FCC Contour

**K16LO-D.X**  
 PROPOSED  
 Latitude: 33-58-20.40 N  
 Longitude: 098-45-36.10 W  
 ERP: 15.00 kW  
 Channel: 16  
 Frequency: 485.0 MHz  
 AMSL Height: 400.0 m  
 Horiz. Pattern: Directional  
 Prop Model: FCC Contour

Jeremy Ruck & Associates, Inc.

- Licensed K16LO 51 dBu F(50,90) Contour
- Proposed K16LO 51 dBu F(50,90) Contour
- Licensed K16LO 30-mile Site Radius

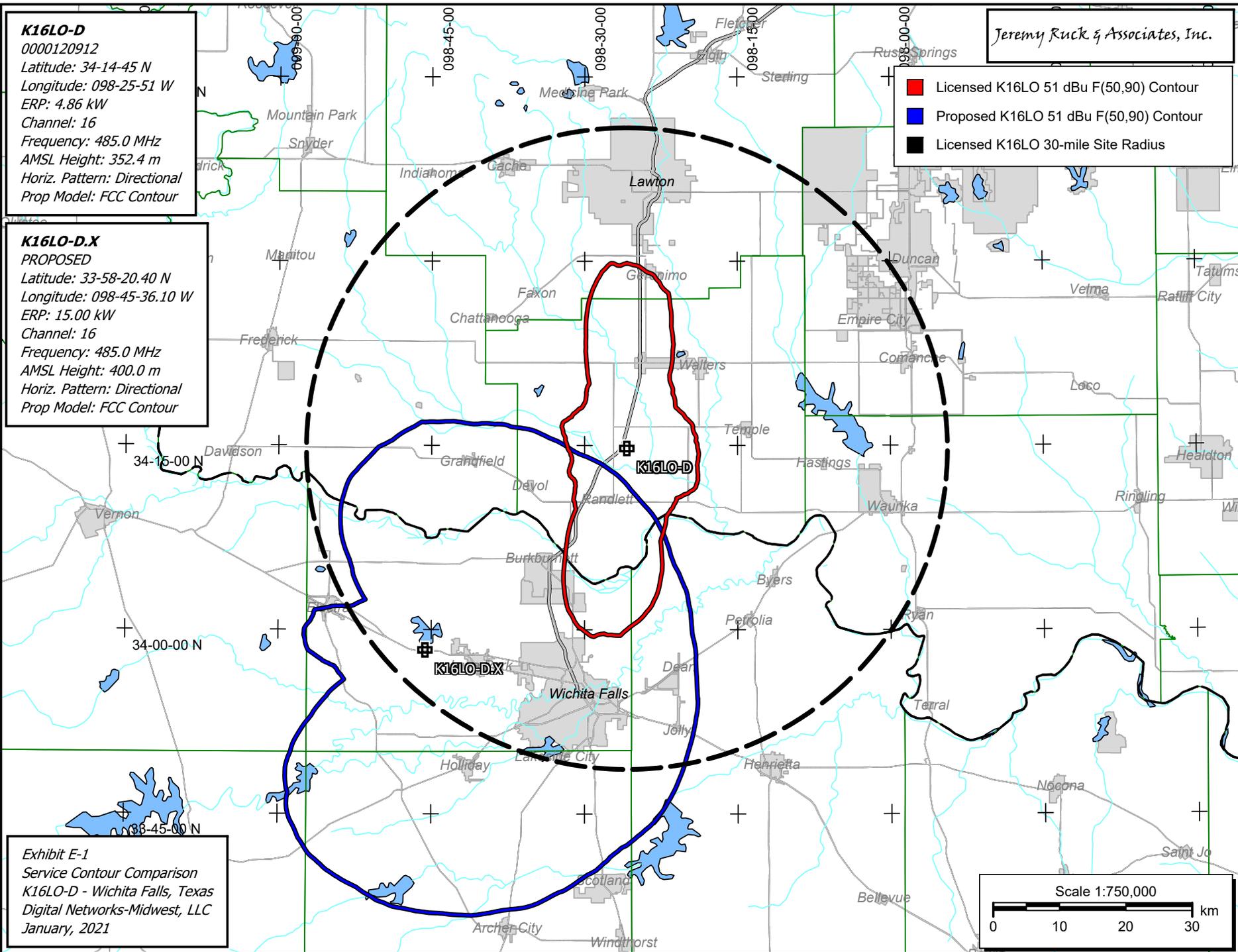
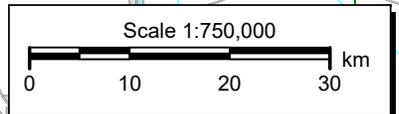


Exhibit E-1  
 Service Contour Comparison  
 K16LO-D - Wichita Falls, Texas  
 Digital Networks-Midwest, LLC  
 January, 2021



## Exhibit E-2 - TVStudy Interference Study

tvstudy v2.2.5 (4uoc83)

Database: 127.0.0.1, Study: K16LO CH 16 Final ASRN 1231196 15 kW ERP 400 m AMSL PSILP16AER @100, Model: Longley-Rice  
Start: 2021.01.02 14:35:17

Study created: 2021.01.02 14:35:17

Study build station data: LMS TV 2021-01-01

Proposal: K16LO-D D16 LD LIC WICHITA FALLS, TX  
File number: BLANK0000120912  
Facility ID: 67912  
Station data: User record  
Record ID: 272  
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	KTBO-TV	D15	DT	LIC	OKLAHOMA CITY, OK	BLCDT20111028AAX	212.9 km
No	K15HQ-D	D15	LD	LIC	SAYRE, OK	BLDPT20100802BAC	157.5
No	KXVA	D15	DT	LIC	ABILENE, TX	BLCDT20110520ADO	203.8
No	KJTL	D15	DT	LIC	WICHITA FALLS, TX	BLCDT20090303ACS	25.6
No	KSHV-TV	D16	DT	LIC	SHREVEPORT, LA	BLANK0000074895	471.1
No	K16JG-D	D16	LD	CP	CLINTON, OK	BNPDTL20100406ACF	173.9
No	K16DX-D	D16	LD	LIC	GAGE, OK	BLDPT20101007ACF	288.8
Yes	KOCM	D16	DT	LIC	NORMAN, OK	BLANK0000072046	211.4
No	K16IR-D	D16	LD	LIC	SAYRE, OK	BLDPT20100802BAA	157.5
No	K16LQ-D	D16	LD	LIC	SEILING, OK	BLANK0000058906	236.4
No	KWHB	D16	DT	LIC	TULSA, OK	BLANK0000067852	343.9
Yes	K16JH-D	D16	LD	CP	ABILENE, TX	BNPDTL20100304AAS	198.5
No	KVAD-LD	D16	LD	LIC	AMARILLO, TX	BLDPTL20091008ACB	319.5
No	K16JU-D	D16	LD	CP	BIG SPRING, TX	BNPDTL20100312ACW	327.3
No	KBTX-TV	D16	DT	LIC	BRYAN, TX	BLANK0000112137	458.3
No	K16LY-D	D16	LD	LIC	CHILDRESS, TX	BLANK0000076192	145.5
No	KIVY-LD	D16	LD	LIC	CROCKETT, TX	BLDPTL20120106ABD	428.6
No	KPTB-DT	D16	DT	LIC	LUBBOCK, TX	BLCDT20090210AFA	286.6
No	KSAN-TV	D16	DT	LIC	SAN ANGELO, TX	BLANK0000004868	304.5
No	KTEN	D17	DT	LIC	ADA, OK	BLANK0000116861	206.9
No	KKTM-LP	N17+	TX	LIC	ALTUS, OK	BLTTL20041001AFP	91.3
No	K17MK-D	D17	LD	LIC	ELK CITY, OK	BLANK0000058432	160.8
No	K17LE-D	D17	LD	CP	RANGER, TX	BMJADTL20100524AGL	156.6

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D16  
Mask: Full Service  
Latitude: 33 58 20.40 N (NAD83)  
Longitude: 98 45 36.10 W  
Height AMSL: 400.0 m  
HAAT: 76.3 m  
Peak ERP: 15.0 kW  
Antenna: PSILP16AER 100.0 deg  
Elev Pattn: Generic  
Elec Tilt: 1.00

48.9 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	5.84 kW	71.1 m	36.5 km
45.0	14.0	71.7	40.8
90.0	15.0	82.7	42.8
135.0	15.0	91.9	44.1
180.0	9.96	87.8	41.5

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## Exhibit E-2 - TVStudy Interference Study

225.0      1.95      77.8      32.1  
 270.0      0.277      63.1      20.1  
 315.0      0.170      58.2      17.0

Distance to Canadian border: 1627.7 km

Distance to Mexican border: 529.3 km

Conditions at FCC monitoring station: Kingsville TX  
 Bearing: 173.2 degrees    Distance: 730.7 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
 Bearing: 321.9 degrees    Distance: 891.4 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%

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 Interference to BLANK0000072046 LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KOCM	D16	DT	LIC	NORMAN, OK	BLANK0000072046	
Undesireds:	K16LO-D	D16	LD	LIC	WICHITA FALLS, TX	BLANK0000120912	211.4 km
	KTBO-TV	D15	DT	LIC	OKLAHOMA CITY, OK	BLCDT20111028AAX	1.8
	KWHB	D16	DT	LIC	TULSA, OK	BLANK0000067852	148.2
	KTEN	D17	DT	LIC	ADA, OK	BLANK0000116861	157.9

Service area	Terrain-limited	IX-free, before		IX-free, after		Percent New IX			
22095.2	1,434,658	22046.3	1,433,913	21597.8	1,423,587	21596.8	1,423,587	0.00	0.00

Undesired	Total IX	Unique IX, before		Unique IX, after	
K16LO-D D16 LD LIC	5.0	0		1.0	0
KTBO-TV D15 DT LIC	200.2	2,570	176.2	2,492	176.2
KWHB D16 DT LIC	263.3	7,691	240.3	7,613	237.3
KTEN D17 DT LIC	9.0	143	8.0	143	8.0

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 Interference to BNPDTL20100304AAS CP scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	K16JH-D	D16	LD	CP	ABILENE, TX	BNPDTL20100304AAS	
Undesireds:	K16LO-D	D16	LD	LIC	WICHITA FALLS, TX	BLANK0000120912	198.5 km
	KSAN-TV	D16	DT	LIC	SAN ANGELO, TX	BLANK0000004868	106.1

Service area	Terrain-limited	IX-free, before		IX-free, after		Percent New IX			
1483.3	125,253	1480.3	125,253	1280.8	122,299	1280.8	122,299	0.00	0.00

Undesired	Total IX	Unique IX, before		Unique IX, after	
K16LO-D D16 LD LIC	1.0	0		0.0	0
KSAN-TV D16 DT LIC	199.5	2,954	199.5	2,954	198.4

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 Interference to proposal scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	K16LO-D	D16	LD	LIC	WICHITA FALLS, TX	BLANK0000120912	

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## Exhibit E-2 - TVStudy Interference Study

Undesireds: KJTL	D15	DT	LIC	WICHITA FALLS, TX	BLCDT20090303ACS	25.6 km
Service area			Terrain-limited		IX-free	Percent IX
4016.0	141,875	4015.0	141,875	3745.4	141,598	6.72 0.20
Undesired			Total IX		Unique IX	Prcnt Unique IX
KJTL D15 DT LIC		269.6	277	269.6	277	6.72 0.20

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