

# *APPLICATION FOR CONSTRUCTION PERMIT*

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K39CP – MEMPHIS, TENNESSEE  
FACILITY ID: 68030

DIGITAL NETWORKS–MIDWEST, LLC

APRIL 2020

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

The following engineering statement and attached exhibits have been prepared for **Digital Networks-Midwest, LLC** ("Midwest"), licensee of low power television station K39CP at Poplar Bluff, Missouri, and are in support of their application for construction permit for displacement.<sup>1</sup> The current analog license for K39CP is found under FCC File No. BLTT-19930329IE. AS part of this application, a change in the transmitter location and community of license is proposed.

The license facility operates on television channel 39 with a maximum effective radiated power of 20.6 kW at a center of radiation of 299 meters above mean sea level, 146 meters above ground level, utilizing a directional antenna. The proposed facility would operate on television channel 27 with a maximum effective radiated power of 2 kW at a center of radiation of 141.2 meters above mean sea level, 50 meters above ground level, utilizing a composite directional antenna system. The proposed composite array consists of two Kathrein-Scala PR-TV with equal power division. One of these antennas is to be oriented at 0 degrees true, and the other at 170 degrees true.

Exhibit E-1 provides a service contour comparison between the license analog facility and the proposed displaced digital facility. As this map demonstrates, the proposed 51 dBu F(50,90) service contour would overlap the licensed 74 dBu F(50,50) service contour. Additionally, the proposed transmitter site is located within 30 miles of the licensed analog site.<sup>2</sup>

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<sup>1</sup> The Facility ID for K39CP is 68030.

<sup>2</sup> The Commission's distance calculation utility returns a site-to-site distance of 24.9 miles.

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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 study was performed at the default parameters of a 1.0 kilometers cell size, and a profile spacing increment of 1.0 kilometers.

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 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  $2.61 \mu\text{W}/\text{cm}^2$ . 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

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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 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  
April 2, 2020

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## Exhibit E-2 - TVStudy Interference Study

tvstudy v2.2.5 (4uoc83)

Database: 127.0.0.1, Study: K39CP DISP APP Ch 27 ASRN 1247642 2 kW 141.1 2 m AMSL PR-TV x2 1@0 1@170,

Model: Longley-Rice

Start: 2020.04.01 16:44:53

Study created: 2020.04.01 16:44:53

Study build station data: LMS TV 2020-03-31

Proposal: K39CP D27 LD LIC Poplar Bluff, MO  
File number: BLTT19930329IE  
Facility ID: 68030  
Station data: User record  
Record ID: 143  
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	KPLR-TV	D26	DT	APP	ST. LOUIS, MO	BLANK0000050068	237.0 km
No	KPLR-TV	D26	DT	LIC	ST. LOUIS, MO	BLCDT20030812ABY	237.0
No	WBUY-TV	D26	DT	LIC	HOLLY SPRINGS, MS	BLANK0000063641	141.1
No	WUWT-CD	D26	DC	LIC	UNION CITY, TN	BLDTA20120625ACG	121.4
No	WNAL-LD	D27-	LD	LIC	SCOTTSBORO, AL	BLANK0000044789	401.2
No	WNAL-LD	D27-	LD	CP	SCOTTSBORO, AL	BLANK0000059899	354.3
No	KTVE	D27	DT	LIC	EL DORADO, AR	BLCDT20070105ABH	409.6
No	KFTA-TV	D27	DT	LIC	FORT SMITH, AR	BLCDT20090331AEC	346.0
Yes	KJNB-LD	D27	LD	LIC	JONESBORO, AR	BLANK0000055089	65.1
No	K27JP-D	D27	LD	LIC	LITTLE ROCK, AR	BLDTL20080625ABK	254.1
No	WEEJ-LD	D27	LD	CP	JACKSONVILLE, IL	BLANK0000052931	376.7
No	W27EN-D	D27	LD	CP	MOUNT VERNON, IL	BLANK0000071886	254.0
No	W27DF-D	D27	LD	LIC	QUINCY, IL	BLANK0000023020	400.7
No	W27DH-D	D27	LD	LIC	EVANSVILLE, IN	BLANK0000081701	304.0
No	K27OS-D	D27	LD	CP	ROLLA, MO	BNPDTL20090825BJV	209.2
No	KULG-LD	D27	LD	LIC	Springfield, MO	BLANK000007881	306.1
No	KULG-LD	D27	LD	CP	Springfield, MO	BLANK0000036446	308.5
No	KBGU-LD	D27	LD	CP	ST. LOUIS, MO	BLANK0000051595	237.0
No	WCBT-TV	D27	DT	LIC	COLUMBUS, MS	BLANK0000059851	329.3
No	WLJT-DT	D27	DT	LIC	LEXINGTON, TN	BLANK0000058637	180.7
No	WKRN-TV	D27	DT	LIC	NASHVILLE, TN	BLCDT20090624ABO	322.5
No	KARZ-TV	D28	DT	LIC	LITTLE ROCK, AR	BLANK0000074890	263.2
No	WSIU-TV	D28	LD	APP	CARBONDALE, IL	BLANK0000054907	129.7
No	WSIU-TV	D28	LD	APP	CARBONDALE, IL	BLANK0000107828	130.2
No	WSIU-TV	D28	LD	CP	CARBONDALE, IL	BDRTEDT20100830ABG	129.7
No	WRBU	D28	DT	LIC	EAST ST. LOUIS, IL	BLANK0000108757	216.4
No	WQTV-LP	D28+	LD	CP	MURRAY, KY	BLANK0000054105	184.7
No	KOZL-TV	D28	DT	LIC	SPRINGFIELD, MO	BLCDT20070213ABB	243.1
No	WREG-TV	D28	DT	LIC	MEMPHIS, TN	BLCDT20050513AAE	149.1

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D27  
Mask: Full Service  
Latitude: 36 26 33.00 N (NAD83)  
Longitude: 90 23 40.00 W  
Height AMSL: 141.2 m  
HAAT: 44.9 m  
Peak ERP: 2.00 kW  
Antenna: SCA PR-TV x2 Array 1@0 1@170 0.0 deg  
Elev Pattern: Generic

50.0 dBu contour:

Azimuth ERP HAAT Distance

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## Exhibit E-2 - TVStudy Interference Study

0.0 deg	2.00 kW	50.4 m	26.4 km
45.0	0.024	49.8	9.1
90.0	0.017	37.7	7.2
135.0	0.048	21.2	8.3
180.0	1.32	40.8	22.0
225.0	0.017	54.3	8.7
270.0	0.016	53.4	8.5
315.0	0.021	51.9	8.9

Distance to Canadian border: 872.1 km

Distance to Mexican border: 1256.8 km

Conditions at FCC monitoring station: Powder Springs GA  
 Bearing: 117.4 degrees Distance: 589.6 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
 Bearing: 292.0 degrees Distance: 1355.0 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 BLANK0000055089 LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KJNB-LD	D27	LD	LIC	JONESBORO, AR	BLANK0000055089	
Undesireds:	K39CP	D27	LD	LIC	Poplar Bluff, MO	BLTT19930329IE	65.1 km
	KULG-LD	D27	LD	LIC	Springfield, MO	BLANK0000007881	275.5
	WLJT-DT	D27	DT	LIC	LEXINGTON, TN	BLANK0000058637	214.4

  

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
6241.8	164,390	6201.4	163,779	6190.3
				162,672
				6174.2
				162,513
				0.26
				0.10

  

Undesired	Total IX	Unique IX, before	Unique IX, after
K39CP D27 LD LIC	17.2	222	16.1
WLJT-DT D27 DT LIC	11.1	1,107	159
		11.1	1,044
			10.1

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 Interference to proposal scenario 1  
 3.82% interference received

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	K39CP	D27	LD	LIC	Poplar Bluff, MO	BLTT19930329IE	
Undesireds:	KJNB-LD	D27	LD	LIC	JONESBORO, AR	BLANK0000055089	65.1 km
	KULG-LD	D27	LD	LIC	Springfield, MO	BLANK0000007881	306.1
	WLJT-DT	D27	DT	LIC	LEXINGTON, TN	BLANK0000058637	180.7

  

Service area	Terrain-limited	IX-free	Percent IX
569.4	1,807	569.4	1,807
		545.2	1,738
			4.25
			3.82

  

Undesired	Total IX	Unique IX	Prcnt Unique IX
KJNB-LD D27 LD LIC	23.2	69	22.2
WLJT-DT D27 DT LIC	2.0	4	1.0
			65
			0
			3.89
			3.60
			0.18
			0.00

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