

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

**K39CP - POPLAR BLUFF, MISSOURI
FACILITY ID: 68030**

DIGITAL NETWORKS—MIDWEST, LLC

MAY 2018

APPLICATION FOR CONSTRUCTION PERMIT - DISPLACEMENT

The following engineering statement and attached exhibits have been prepared for **Digital Networks-Midwest, LLC** ("Midwest"), licensee of translator station K39CP at Poplar Bluff, and are in support of their amendment to application for construction permit.¹ This application is being filed as an amendment to the pending displacement application due to realignment of the television band resulting from the Commission's *Incentive Auction*. Midwest currently has an application pending before the Commission to change this facility to channel 20 operation under File No. 0000029995. This application seeks to further amend that application.

K39CP is currently license to operate on channel 39 as an analog translator facility with a maximum effective radiated power of 20.6 kW at a center of radiation of 299 meters above mean sea level utilizing a directional antenna. The proposed facility, as amended, would operate on channel 32 as a digital translator station with a maximum effective radiated power of 1.98 kW at 181.6 meters above mean sea level utilizing a directional antenna. The proposed directional antenna is a Kathrein-Scala PR-TV-32 array, with elements 80 degrees true.

This further amendment has become necessary due to the repack channel assignment for WPSD-TV at Paducah, Kentucky.² That facility following the repack will operate on channel 19. Due to the location of the proposed facility relative to WPSDT-V, both channel 20 specified in the pending application, and channel 19, the channel on which the outstanding digital companion channel construction permit specifies, will result in interference levels to WPSD-TV in excess of those permissible under the Commission's Rules.

¹ The Facility ID for K39CP at Poplar Bluff, Missouri is 68030.

² The Facility ID for WPSD-TV at Paducah, Kentucky is 65758.

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

Additionally, the technical parameters specified in the current pending application before the Commission specify a site location that is greater than 16.1 kilometers from the reference coordinates of the community of license. This application therefore specifies the proposed changes from the licensed transmitter site location.

Exhibit E-1 provides the output from *TVStudy* for the proposed facility. This study demonstrates that the proposed facility results in an interference check failure to BLCDT-20040227ABD. This authorization is the current license for full power television station WPSD-TV at Paducah, Kentucky. As was previously discussed, WPSD-TV is currently licensed on channel 32, but as part of the repack will transition to channel 19 during phase nine. Midwest therefore respectfully requests a waiver of the provisions of Section 73.3517 of the Commission's Rules, if necessary, as this amendment to the pending application is contingent on the cessation of operation on channel 19 by WPSD-TV. A grant of this application would be in the public interest, as it will permit K39CP to serve its viewers on a new channel within the repacked core. Midwest agrees to the placement of a condition on the construction permit that operations on channel 32 cannot commence until such time as WPSD-TV commences operation on channel 19.

The proposed facility would not constitute a significant environmental impact, and is exempt from environmental processing. The proposed antenna would utilize an existing antenna mounted to an existing tower registered with the Commission. 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 $3.49 \mu\text{W}/\text{cm}^2$. This value is less than the upper limit of the uncontrolled environment condition. Midwest certifies it will coordinate with all other users of the

JEREMY RUCK & ASSOCIATES, INC.

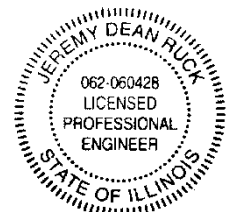
P.O. Box 415
221 S. 1st Avenue
Canton, IL 61520

Tel: 309.647.1200
Fax: 855.332.9537
jeremyruck.com

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 Section 74.793(g) and 74.793(h) of the Commission's Rules. Section 74.793(f) is no longer applicable due to the sunset of full-power analog television broadcasting. The proposed facility does not strictly comply with Section 74.793(e) due to the interference caused to WPSD-TV as previously discussed, however, once WPSD-TV changes its channel of operation the interference described in Exhibit E-1 will become moot.

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, 2019

Jeremy D. Ruck, PE
May 18, 2018

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

5.18.2018

Exhibit E-1 - TVStudy Interference Study

tvstudy v2.2.5 (4uoc83)

Database: 127.0.0.1, Study: K39CP Channel 32 1.98 kW SCA PR at 80 Deg True for Filing, Model: Longley-Rice
Start: 2018.05.18 14:09:54

Study created: 2018.05.18 14:09:54

Study build station data: LMS TV 2018-05-18

Proposal: K39CP D32 LD APP POPLAR BLUFF, MO
File number: BLTT19930329IE
Facility ID: 68030
Station data: User record
Record ID: 72
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	KWBM	D31	DT	APP	HARRISON, AR	BLANK0000036086	232.8 km
No	KWBM	D31	DT	LIC	HARRISON, AR	BLCDT20091201ASC	232.8
No	WKMA-TV	D31	DT	CP	MADISONVILLE, KY	BLANK0000034649	264.4
No	KDNL-TV	D31	DT	LIC	ST. LOUIS, MO	BLCDT20021216AAE	198.1
No	WLMT	D31	DT	LIC	MEMPHIS, TN	BLCDT20050427ABN	180.0
No	WAAY-TV	D32	DT	LIC	HUNTSVILLE, AL	BLCDT20050701ABO	421.3
No	KPBI-CD	D32	DC	CP	BENTONVILLE, AR	BLANK0000030478	341.7
No	KARK-TV	D32	DT	LIC	LITTLE ROCK, AR	BMLCDT20121102ACP	289.1
No	WICD	D32	DT	CP	CHAMPAIGN, IL	BLANK0000034392	425.2
No	WTJR	D32	DT	LIC	QUINCY, IL	BLCDT20091110ADL	360.6
No	NEW	D32	LD	APP	EVANSVILLE, IN	BNPDTL20090825AZT	299.7
No	WDRB	D32	DT	CP	LOUISVILLE, KY	BLANK0000034591	440.4
Yes	WPSD-TV	D32	DT	LIC	PADUCAH, KY	BLCDT20040227ABD	137.6
No	K32KV-D	D32	LD	LIC	JEFFERSON CITY, MO	BLANK0000013642	370.2
No	KSMO-TV	D32	DT	CP	KANSAS CITY, MO	BLANK0000024829	434.6
No	KCLG-LD	D32	LD	LIC	NEOSHO, MO	BLDTL20120522ADN	351.9
No	K32JJ-D	D32	LD	LIC	ROLLA, MO	BLDTL20130222ADB	173.2
No	KUMO-LD	D32	LD	APP	ST LOUIS, MO	BLANK0000030456	197.4
No	W32ET-D	D32	LD	CP	AUBURN, MS	BNPDTL20100510AGA	325.7
No	WABG-TV	D32	DT	LIC	GREENWOOD, MS	BLCDT20051024ABR	381.1
No	W32EP-D	D32	LD	CP	TUPELO, MS	BDCCDTL20120625ACW	325.7
No	KRSU-TV	D32	DT	CP	CLAREMORE, OK	BLANK0000025823	462.3
No	W18BL-D	D32	DC	CP	ADAMSVILLE, TN	BLANK0000034140	256.4
No	WNPX-TV	D32	DT	CP	COOKEVILLE, TN	BLANK0000034404	331.8
No	WQEO-LD	D32	LD	APP	JACKSON, TN	BLANK0000053627	180.0
No	K33MV-D	D33	LD	CP	PARAGOULD, AR	BNPDTL20101019AAP	60.9
No	K33NG-D	D33	LD	CP	SPRINGFIELD, MO	BDCCDTT20121214ADU	226.5
No	KBGU-LP	D33	LD	LIC	ST. LOUIS, MO	BLANK0000001766	197.4
No	KTVI	D33	DT	CP	ST. LOUIS, MO	BLANK0000034468	192.9
No	WPXX-TV	D33	DT	CP	MEMPHIS, TN	BLANK0000053807	185.7
No	WFBI-LD	D33	LD	LIC	SOUTH EAST MEMPHIS, TN	BLDTL20100715AFO	185.9

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D32
Mask: Full Service
Latitude: 36 48 4.00 N (NAD83)
Longitude: 90 27 6.00 W
Height AMSL: 181.6 m
HAAT: 53.1 m
Peak ERP: 1.98 kW
Antenna: 80.0 deg
Elev Pattn: Generic

50.5 dBu contour:

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

5.18.2018

1

Exhibit E-1 - TVStudy Interference Study

Azimuth	ERP	HAAT	Distance
0.0 deg	0.005 kW	53.8 m	6.2 km
45.0	0.032	41.4	8.6
90.0	1.29	75.8	27.9
135.0	0.006	75.4	7.7
180.0	0.004	71.4	6.7
225.0	0.002	54.2	5.2
270.0	0.001	33.7	3.5
315.0	0.004	19.0	4.3

Distance to Canadian border: 847.6 km

Distance to Mexican border: 1276.9 km

Conditions at FCC monitoring station: Powder Springs GA
Bearing: 120.5 degrees Distance: 613.4 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 290.5 degrees Distance: 1335.8 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%

Interference to BLCDT20040227ABD LIC scenario 1
**IX: 0.60% interference caused

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WPSD-TV	D32	DT	LIC	PADUCAH, KY	BLCDT20040227ABD	
Undesireds:	K39CP	D32	LD	APP	POPLAR BLUFF, MO	BLTT19930329IE	137.6 km
	WAAY-TV	D32	DT	LIC	HUNTSVILLE, AL	BLCDT20050701ABO	350.7
	WTJR	D32	DT	LIC	QUINCY, IL	BLCDT20091110ADL	370.2
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
40887.2	883,328	40306.9		876,996	40227.4	875,927	39781.9 870,700 1.11 0.60
Undesired		Total IX		Unique IX, before		Unique IX, after	
K39CP	D32 LD APP	445.4		5,227		445.4 5,227	
WAAY-TV	D32 DT LIC	68.4		987	68.4 987	68.4 987	
WTJR	D32 DT LIC	11.1		82	11.1 82	11.1 82	

Interference to proposal scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	K39CP	D32	LD	APP	POPLAR BLUFF, MO	BLTT19930329IE	
Service area		Terrain-limited		IX-free		Percent IX	
386.5	22,344	386.5		22,344	386.5 22,344	0.00 0.00	

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

5.18.2018