

ENGINEERING STATEMENT  
APPLICATION FOR DISPLACEMENT  
OF AN EXISTING LPTV TELEVISION TRANSLATOR  
FOR STATION K40FZ-D LICENSED TO  
BROOKINGS, SOUTH DAKOTA  
FROM CHANNEL 40 TO CHANNEL 17  
CHANNEL 17 4.27 KW 596.5 METERS RC/AMSL

JANUARY 2019

**Preparer Contact Information:**

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### **Introduction**

This engineering statement supports the displacement application for a construction permit filed by Red River Broadcast Co., LLC., licensee of television translator station K40FZ, licensed to Brookings, South Dakota (Facility ID: 68032). K40FZ is displaced from its currently licensed Channel 40 to the proposed Channel 17 due to the 600MHz Incentive Auction and the recent notification by T-Mobile. T-Mobile has advised that it requires the station to terminate its operation by August 14<sup>th</sup>, 2018. This displacement application has a companion special temporary authority ("STA") application that accompanies this request.

K40FZ's displacement application due to the Incentive Auction requests a construction permit for digital translator television facilities for Channel 17 with an effective radiated power ("ERP") of 4.27 kW directional at a radiation center above mean sea level ("RCAMSL") of 596.5 meters. The K40FZ channel modification is located at the same transmitter site and specifying the same radiation center. No other changes are proposed.

### **Tower Location**

The geographic coordinates of the proposed transmitter site are as follows:

North Latitude: 44° 20' 22"

West Longitude: 96° 46' 07"

NAD-27

The antenna registration number is 1042108. The application will specify the ASRN NAD-83 coordinates which are:

North Latitude: 44° 20' 22"

West Longitude: 96° 46' 08"

NAD-83

### **Elevation Data**

Antenna Location Site Elevation Above Mean Sea Level	493.5 meters (1619 feet)
Height of Radiation Center Above Ground Level	103 meters (337.9 feet)
Height of Radiation Center Above Mean Sea Level	596.5 meters (1957 feet)
Overall Tower Height Above Ground Level	106.8 meters (350.4 feet)

### **Equipment Data**

Transmitter:	Type-approved
Transmission Line:	106.7 meters (350 feet) of Andrew, Type HJ7-50A, 1-5/8", 50 ohm or equivalent with 68.20% efficiency, 0.472 dB/100 feet loss
Antenna:	DIELECTRIC DLP-12B with maximum gain of 13.12 dB and 1.00 degree of electrical beam tilt

### **Power Data**

Transmitter output:	0.305 kW	-5.156 dBk
Transmission line efficiency/loss:	68.20%	1.652 dB
Input power to the antenna:	0.208 kW	-6.818 dBk
Antenna gain:	20.5	13.12 dB
Effective Radiated Power:	4.27 kW	6.304 dBk
Emission Mask:	Simple	

Note: Conversion to dB may result in slight difference.

As indicated above, the transmitter with a typical output power (simple emission mask) of 305 Watts will deliver 208 Watts to the input of the antenna. The antenna having a maximum gain of 13.12 dB and an electrical beam tilt of 1.00 degrees will produce a maximum ERP of 4.27 kW. A coverage map (Exhibit E-2) provides the normally protected contour of the proposed Channel 17 facility. A coverage map (Exhibit E-3) provides the normally protected contour of the proposed and licensed operations.

### **Other Broadcast Facilities**

A brief analysis was completed to determine the presence of stations in the vicinity of the K45JD tower using the April 5<sup>th</sup>, 2018, data contained within the Commission's Consolidated Database System ("CDBS"). Within 500 meters of the proposed site, one authorized FM radio station was identified, no authorized DTV and NTSC television stations, no other low-power analog television and no television translator stations aside from K40FZ. There are no AM facilities within 3.2 km of the existing tower. Although no adverse technical affects are expected due to the proposed changes, the licensee will take measures to resolve any problems proven to be related to the changes proposed in this application.

### **Interference Analysis**

A study of predicted interference caused by the proposed K40FZ operation on Channel 17 digital operation has been performed using the TVStudy 2.2.4 evaluation program for which the source data has been posted by the Commission on its website at <http://www.fcc.gov/oet/tvstudy>. The model employs the Longley-Rice propagation methodology and evaluates in grid cells of approximately 1 sq. km. Using one-second terrain data sampled approximately every 1.0 km at one-degree azimuth intervals with 2010 census centroids, all studies are based upon data in the current LMS database update of the FCC's engineering database. A Longley-Rice study was performed with the proposed K40FZ operating

on Channel 17 low-power digital facilities and all relevant stations listed in the FCC database as of April 5<sup>th</sup>, 2018. The study results and the included stations are listed in Table I.

### **Other Licensed and Broadcast Facilities**

No adverse technical effect is anticipated by the proposed DTV operation to any other FCC licensed facility. If required, the licensee will install filters or take other measures as necessary to resolve the problem.

### **FCC Rule, Section 1.1307**

Pursuant to OET Bulletin No. 65 dated August 1997, these non-broadcast stations are all exempt from RFF evaluations for the following reason:

<u>Station</u>	<u>Licensed Under Part No.</u>	<u>Reason for Exemption</u>
	Part 74, Subpart F	Subpart F Exempt
	Part 90	Antenna Height > 10 meters
	Part 90	ERP < 1000 watts
	Part 74, Subpart F	Subpart F Exempt

The RFF contribution of each station will be calculated using the following formula:

$$S = \frac{33.4(F^2) \text{ Total ERP}}{R^2}$$

where:

S = power density in  $\mu\text{W}/\text{cm}^2$

F = relative field factor

Total ERP = ERP Horizontal Polarization + ERP Vertical Polarization

R = RCAGL - 2 meters

ERP = RMS ERP in watts for DTV Stations

The proposed 4.27 kW directional operation will utilize a DIELECTRIC DLP-12B (or equivalent) described above with a center of radiation aboveground of 103 meters. The proposed antenna will be side-mounted on an existing tower with an overall height of 106.8 meters above ground. The proposed operation of K40FZ will create a radio frequency field level of less than one  $\mu\text{W}/\text{cm}^2$  at the base of the tower. This level is less than one percent of the Maximum Permissible Exposure (“MPE”) limit for the general population and uncontrolled environment.

Authorized personnel and rigging contractors will be alerted to the potential zone of high field levels on the tower, and if necessary, the station will operate with reduced power or terminate the operation of the transmitter as appropriate when it is necessary for authorized personnel or contractors to perform work on or near the tower. Workers and the general public, therefore, will not be subjected to RFF levels in excess of the current FCC guidelines.

### **Environmental Assessment**

An environmental assessment (“EA”) is categorically excluded under Section 1.1306 of the FCC Rules and Regulations as the tower was constructed prior to the requirements specified in WT Docket No. 03-128 and the licensee indicates:

- (a)(1) The existing tower is not located in an officially designated wilderness area.
- (a)(2) The existing tower is not located in an officially designated wildlife preserve.
- (a)(3) The proposed facilities will not affect any listed threatened or endangered species or habitats.
- (a)(3)(ii) The proposed facilities will not jeopardize the continued existence of any proposed endangered or threatened species or likely to result in the destruction or adverse modification of proposed critical habitats.
- (a)(4) The proposed facilities located on a tower which was built prior to the adoption of WT Docket No. 03-128 and is grandfathered and has not affected any known districts, sites, buildings, structures, or objects significant in American history, architecture, archaeology, engineering, or culture.

(a)(5) The existing tower is not located near any known Indian religious sites.

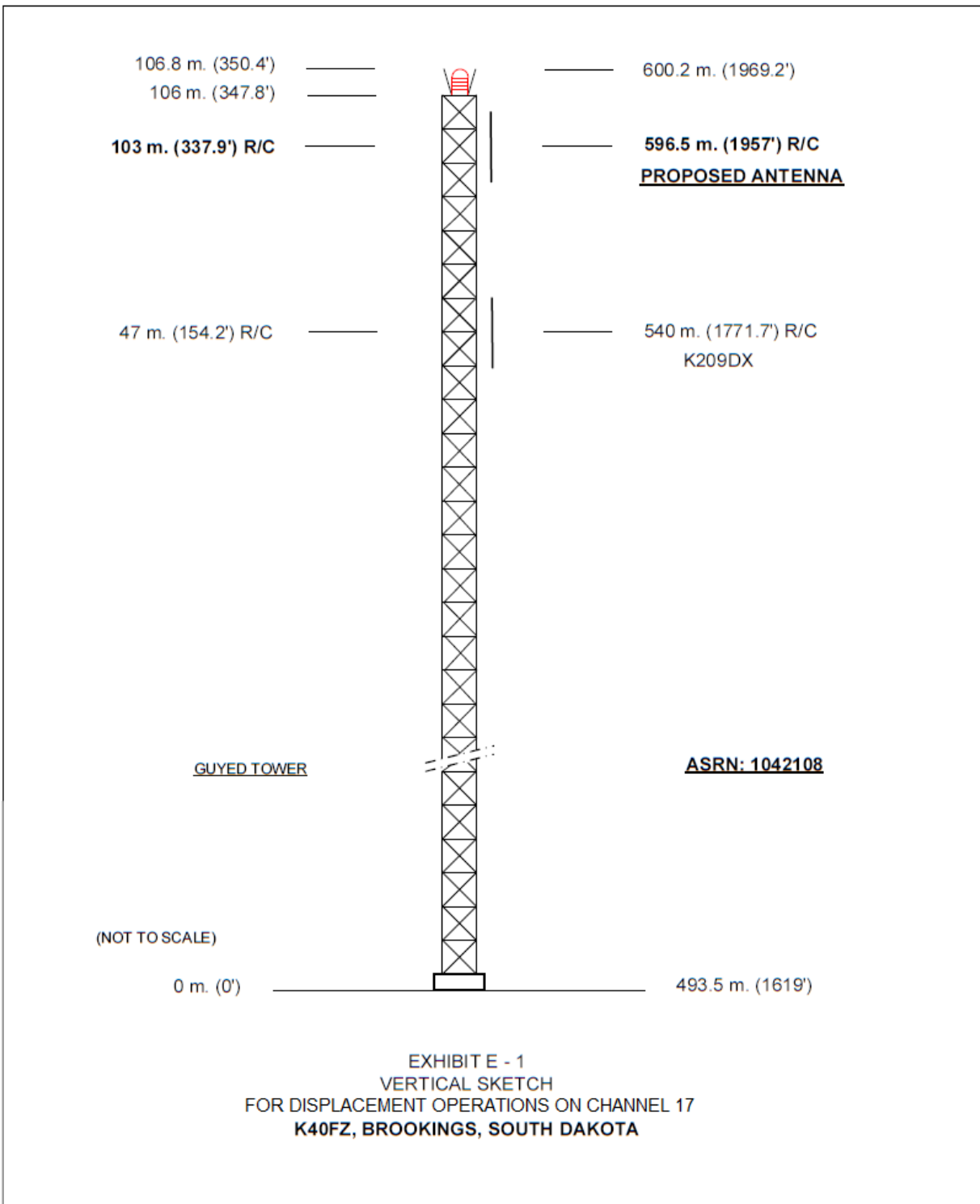
(a)(6) The existing tower is not located in a flood plain.

(a)(7) The installation of the DTV facilities on an existing tower will not involve a significant change in surface features of the ground in the vicinity of the tower.

(a)(8) It is not proposed to equip the tower with high intensity white lights unless required by the FAA.

(b) Workers and the general public will not be subjected to RFF levels in excess of the current FCC guidelines contained in OET Bulletin No. 65, Edition 97-01, dated August 1997 and Supplement A.

EXHIBIT E – 1







Antenna Model:

**TLP-12B**

Proposal Number: C-7111  
 Date: 4-Apr-18  
 Customer: KQDS  
 Location: Brookings, SD

**Electrical Specifications**

Polarization:	Horizontal		
Azimuth Pattern:	Directional		
Antenna Input:	1-5/8"	50 Ohm	EIA/DCA
VSWR:	Channel	1.08 : 1	
Bandwidth:	6 MHz		
Rated Input Power:	5 kW	(6.99 dBk)	Maximum Average Power

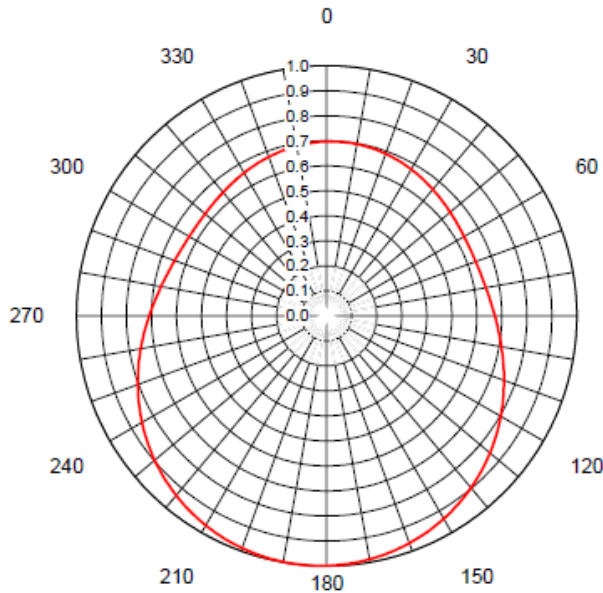
**Mechanical Specifications**

Mounting:	Side Mounted		
Environmental Protection:	Slot Cover		
Height:	26.2 ft (8m)		
Weight:	200 lb (0.1t)	Excludes Mounts	
Effective Projected Area:	25.2 ft <sup>2</sup> (2.3m <sup>2</sup> )	TIA/EIA-222-F	Basic Wind Speed: 90 m/h (144.8 km/h)

**Channel Specifications**

Call	CH	Freq	Hpol ERP	TPO	Peak Main Lobe Hpol Gain	Peak at Horizontal Hpol Gain
K40FZ	17	491 MHz	4.27 kW (6.30 dBk)	0.305 kW (-5.16 dBk)	20.50 (13.12dB)	17.58 (12.45dB)

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### AZIMUTH PATTERN Horizontal Polarization

In Free Space

Proposal No. C-7111  
Date 4-Apr-18  
Call Letters K40FZ  
Channel 17  
Frequency 491 MHz  
Antenna Type TLP-12B  
Gain 1.64 (2.15dB)  
Calculated

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.697	36	0.667	72	0.635	108	0.745	144	0.914	180	0.999	216	0.949	252	0.794	288	0.651
1	0.697	37	0.665	73	0.636	109	0.750	145	0.918	181	0.999	217	0.946	253	0.789	289	0.648
2	0.697	38	0.663	74	0.637	110	0.754	146	0.921	182	0.999	218	0.943	254	0.784	290	0.646
3	0.698	39	0.662	75	0.639	111	0.759	147	0.925	183	1.000	219	0.940	255	0.779	291	0.645
4	0.698	40	0.660	76	0.640	112	0.764	148	0.929	184	1.000	220	0.936	256	0.774	292	0.643
5	0.698	41	0.658	77	0.641	113	0.769	149	0.933	185	1.000	221	0.933	257	0.769	293	0.641
6	0.698	42	0.657	78	0.643	114	0.774	150	0.936	186	1.000	222	0.929	258	0.764	294	0.640
7	0.698	43	0.655	79	0.645	115	0.779	151	0.940	187	1.000	223	0.925	259	0.759	295	0.639
8	0.697	44	0.653	80	0.646	116	0.784	152	0.943	188	0.999	224	0.921	260	0.754	296	0.637
9	0.697	45	0.652	81	0.648	117	0.789	153	0.946	189	0.999	225	0.918	261	0.750	297	0.636
10	0.697	46	0.650	82	0.651	118	0.794	154	0.949	190	0.999	226	0.914	262	0.745	298	0.635
11	0.696	47	0.649	83	0.653	119	0.798	155	0.953	191	0.998	227	0.910	263	0.740	299	0.635
12	0.696	48	0.647	84	0.655	120	0.803	156	0.956	192	0.997	228	0.906	264	0.736	300	0.634
13	0.695	49	0.646	85	0.658	121	0.808	157	0.959	193	0.997	229	0.901	265	0.731	301	0.634
14	0.695	50	0.644	86	0.660	122	0.813	158	0.961	194	0.996	230	0.897	266	0.727	302	0.633
15	0.694	51	0.643	87	0.663	123	0.818	159	0.964	195	0.995	231	0.893	267	0.722	303	0.633
16	0.693	52	0.642	88	0.666	124	0.823	160	0.967	196	0.993	232	0.889	268	0.718	304	0.633
17	0.692	53	0.641	89	0.669	125	0.828	161	0.969	197	0.992	233	0.884	269	0.714	305	0.633
18	0.691	54	0.639	90	0.672	126	0.833	162	0.972	198	0.991	234	0.880	270	0.709	306	0.633
19	0.691	55	0.638	91	0.675	127	0.838	163	0.974	199	0.989	235	0.875	271	0.705	307	0.633
20	0.689	56	0.637	92	0.679	128	0.843	164	0.976	200	0.988	236	0.871	272	0.701	308	0.633
21	0.688	57	0.636	93	0.682	129	0.847	165	0.979	201	0.986	237	0.866	273	0.697	309	0.634
22	0.687	58	0.636	94	0.686	130	0.852	166	0.981	202	0.984	238	0.862	274	0.693	310	0.634
23	0.686	59	0.635	95	0.690	131	0.857	167	0.983	203	0.983	239	0.857	275	0.690	311	0.635
24	0.685	60	0.634	96	0.693	132	0.862	168	0.984	204	0.981	240	0.852	276	0.686	312	0.636
25	0.683	61	0.634	97	0.697	133	0.866	169	0.986	205	0.979	241	0.847	277	0.682	313	0.636
26	0.682	62	0.633	98	0.701	134	0.871	170	0.988	206	0.976	242	0.843	278	0.679	314	0.637
27	0.681	63	0.633	99	0.705	135	0.875	171	0.989	207	0.974	243	0.838	279	0.675	315	0.638
28	0.679	64	0.633	100	0.709	136	0.880	172	0.991	208	0.972	244	0.833	280	0.672	316	0.639
29	0.678	65	0.633	101	0.714	137	0.884	173	0.992	209	0.969	245	0.828	281	0.669	317	0.641
30	0.676	66	0.633	102	0.718	138	0.889	174	0.993	210	0.967	246	0.823	282	0.666	318	0.642
31	0.675	67	0.633	103	0.722	139	0.893	175	0.995	211	0.964	247	0.818	283	0.663	319	0.643
32	0.673	68	0.633	104	0.727	140	0.897	176	0.996	212	0.961	248	0.813	284	0.660	320	0.644
33	0.672	69	0.634	105	0.731	141	0.901	177	0.997	213	0.959	249	0.808	285	0.658	321	0.646
34	0.670	70	0.634	106	0.736	142	0.906	178	0.997	214	0.956	250	0.803	286	0.655	322	0.647
35	0.668	71	0.635	107	0.740	143	0.910	179	0.998	215	0.953	251	0.798	287	0.653	323	0.649

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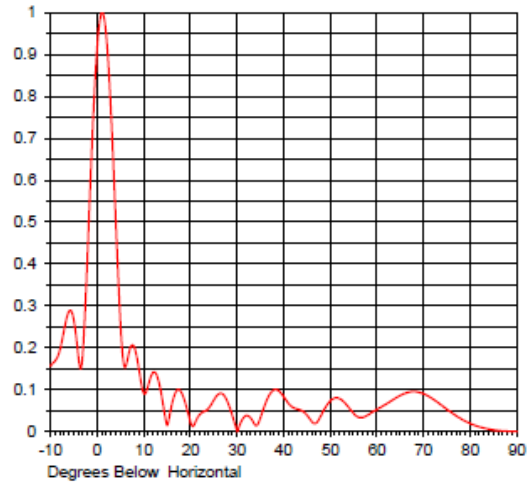
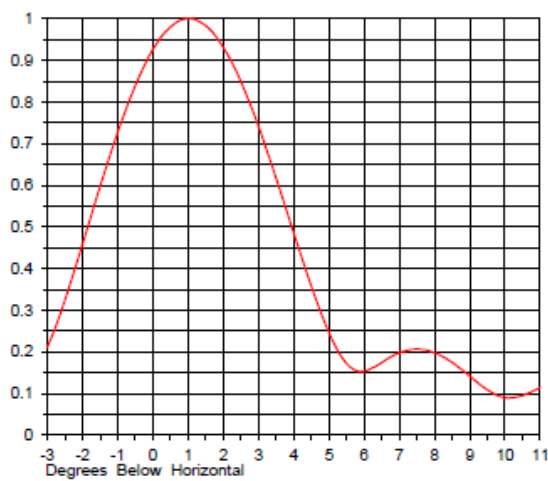


### ELEVATION PATTERN

Proposal No. C-7111  
 Date 4-Apr-18  
 Call Letters K40FZ  
 Channel 17  
 Frequency 491 MHz  
 Antenna Type TLP-12B

RMS Directivity at Main Lobe 12.5 ( 10.97 dB )  
 RMS Directivity at Horizontal 10.7 ( 10.29 dB )  
 Calculated

Beam Tilt 1.00 deg  
 Pattern Number 12L125100



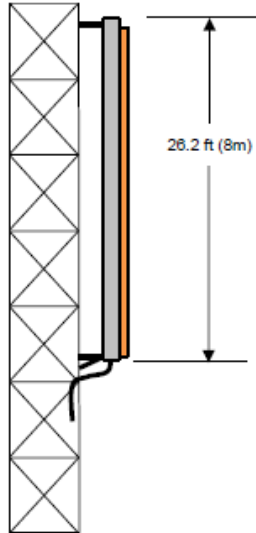
Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.156	10.0	0.090	30.0	0.000	50.0	0.074	70.0	0.090
-9.0	0.170	11.0	0.114	31.0	0.027	51.0	0.080	71.0	0.094
-8.0	0.197	12.0	0.142	32.0	0.038	52.0	0.078	72.0	0.077
-7.0	0.250	13.0	0.125	33.0	0.030	53.0	0.069	73.0	0.089
-6.0	0.288	14.0	0.070	34.0	0.014	54.0	0.056	74.0	0.061
-5.0	0.262	15.0	0.015	35.0	0.034	55.0	0.042	75.0	0.052
-4.0	0.171	16.0	0.066	36.0	0.066	56.0	0.034	76.0	0.044
-3.0	0.211	17.0	0.097	37.0	0.090	57.0	0.034	77.0	0.037
-2.0	0.459	18.0	0.093	38.0	0.100	58.0	0.039	78.0	0.030
-1.0	0.727	19.0	0.082	39.0	0.096	59.0	0.046	79.0	0.024
0.0	0.926	20.0	0.021	40.0	0.082	60.0	0.053	80.0	0.019
1.0	1.000	21.0	0.022	41.0	0.067	61.0	0.059	81.0	0.014
2.0	0.931	22.0	0.041	42.0	0.057	62.0	0.066	82.0	0.010
3.0	0.742	23.0	0.048	43.0	0.053	63.0	0.073	83.0	0.008
4.0	0.496	24.0	0.058	44.0	0.048	64.0	0.080	84.0	0.005
5.0	0.247	25.0	0.076	45.0	0.038	65.0	0.086	85.0	0.003
6.0	0.154	26.0	0.089	46.0	0.023	66.0	0.091	86.0	0.002
7.0	0.188	27.0	0.088	47.0	0.021	67.0	0.094	87.0	0.001
8.0	0.198	28.0	0.068	48.0	0.039	68.0	0.095	88.0	0.000
9.0	0.142	29.0	0.035	49.0	0.059	69.0	0.093	89.0	0.000
								90.0	0.000

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## MECHANICAL SPECIFICATIONS



Proposal No. C-7111  
 Date 4-Apr-18  
 Call Letters K40FZ  
 Channel 17  
 Frequency 491 MHz  
 Antenna Type TLP-12B

### Preliminary Specifications

#### Side Mounted

##### With ice TIA/EIA-222-F

Height AGL 300 ft (91.4 m)  
 Basic Wind Speed 90 m/h (144.8 km/h)

Design Ice 0.5 in (1.3 cm)  
 Wind Speed w/ice 50 m/h ( km/hr)

Mechanical Specifications		without ice	with ice	
Height	H2	26.2 ft (8m)		
Height of Center of Radiation	H3	13.1 ft (4m)		
Force Coeff. x Projected Area	CaAc	25.2 ft <sup>2</sup> (2.3m <sup>2</sup> )	30.7 ft <sup>2</sup> (2.9m <sup>2</sup> )	Mounts Excluded
Weight	W	200 lb (0.1t)	340 lb (0.2t)	Mounts Excluded

Antenna designed in accordance with AISC specifications for design of structural steel as prescribed by TIA/EIA-222-F

Prepared by: JBC

Date: 4-Apr-18

ME:

EE:

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### Summary

Proposal No.	C-7111
Date	4-Apr-18
Call Letters	K40FZ
Channel	17
Frequency	491 MHz
Antenna Type	TLP-12B

### Antenna

	Hpol
ERP:	4.27 kW ( 6.30 dBk )
Peak Gain*	20.50 ( 13.12 dB )

Antenna Input Power	0.208 kW -( 6.81 dBk )
---------------------	------------------------

### Transmission Line

Type:	Flexline Air	Attenuation:	( 1.66 dB )
Size:	1-5/8"	Efficiency:	68.3%
Impedance:	50 Ohm		
Length:	350 ft	106.7 m	

### Transmitter Output

0.305 kW -( 5.16 dBk )
------------------------

Transmitter filter losses not included

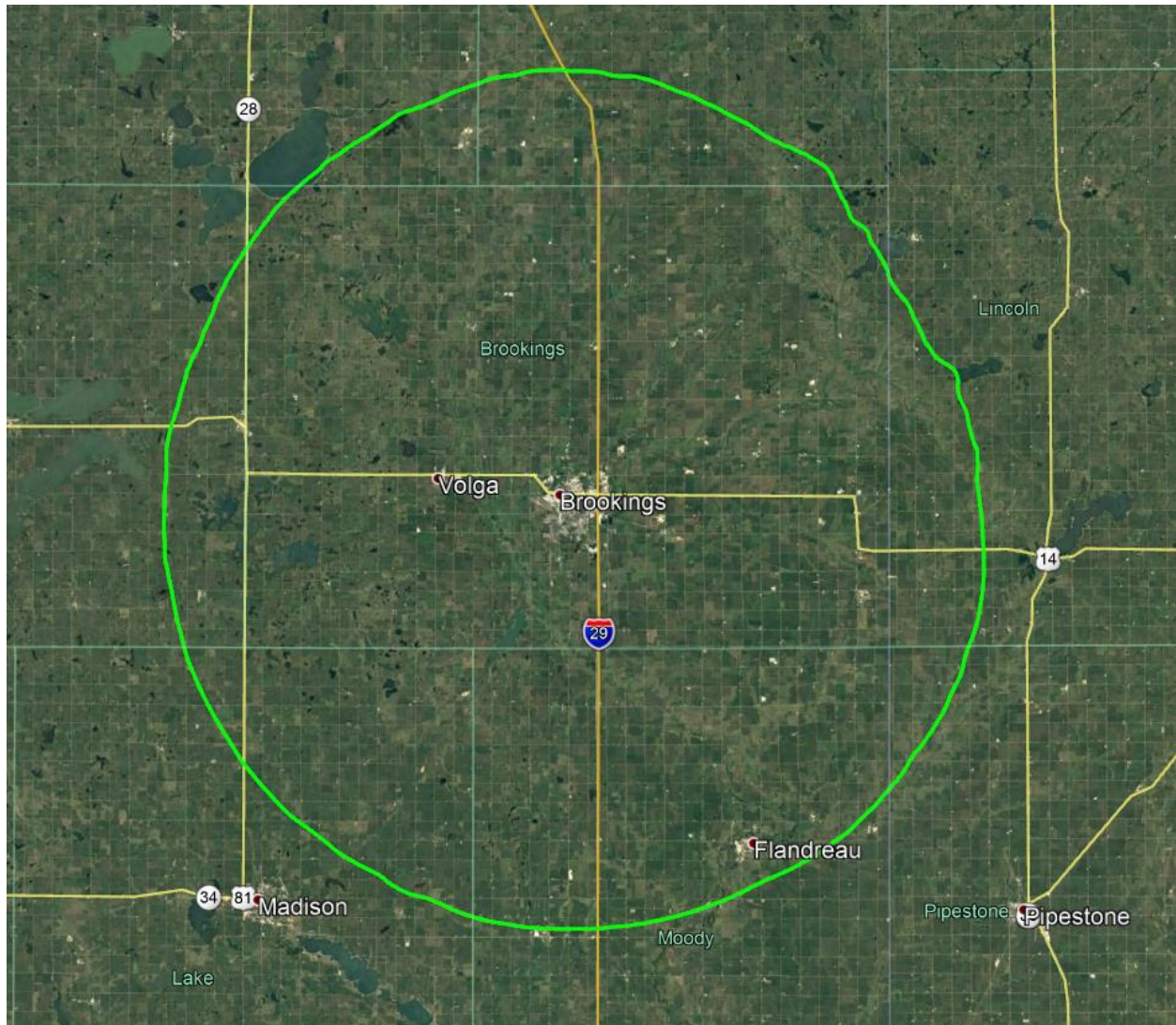
\* Directivity and Gain are with respect to half wave dipole. The gain includes feed system losses

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EXHIBIT E2 – MAP SHOWING THE NOMALLY PROTECTED CONTOUR OF THE PROPOSED CHANNEL 17 FACILITY



Map Scale | ← 7mi. → |

CREATED USING TV STUDY .KML OUTPUT FILE

APRIL 2018

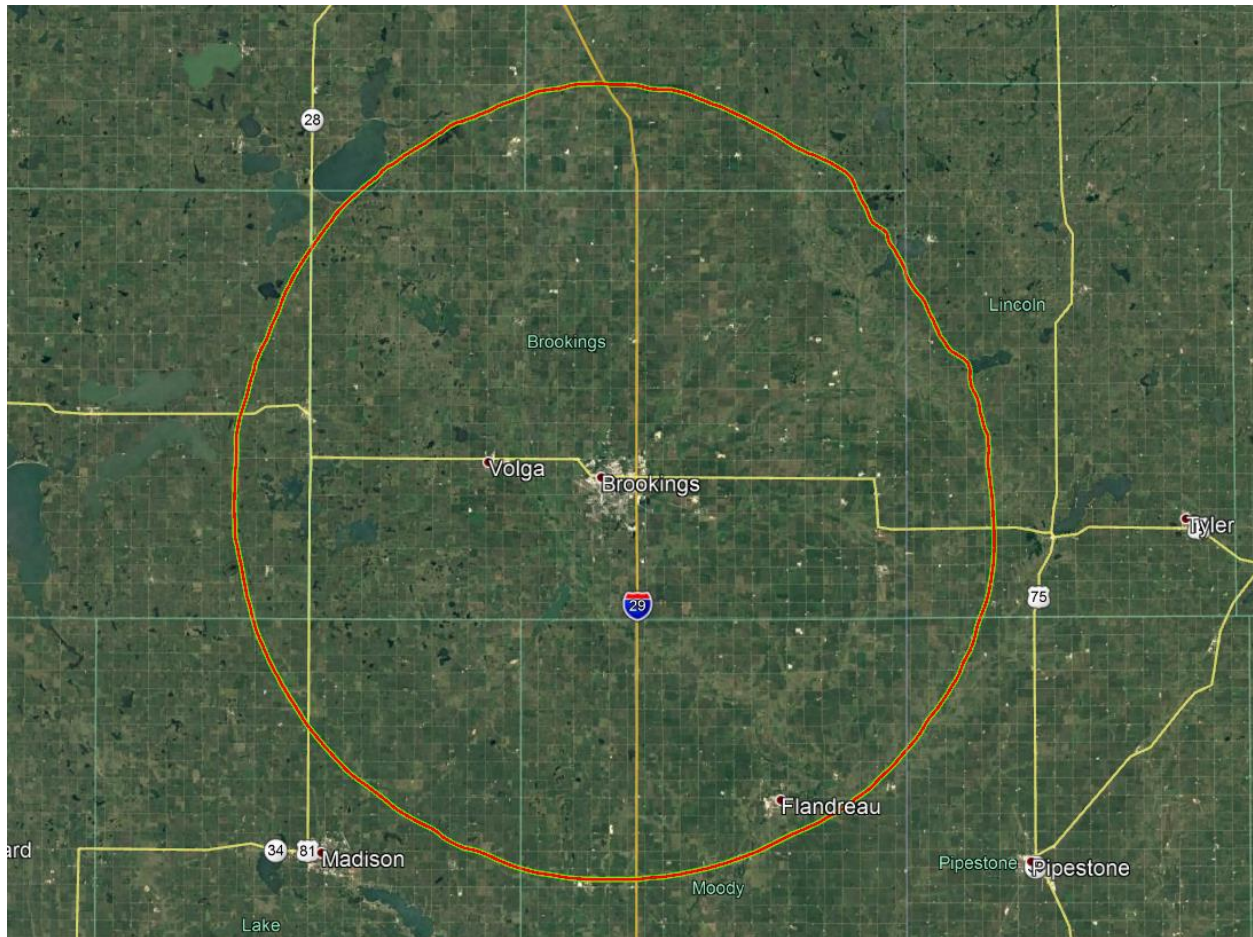
FOR THE PROPOSED DISPLACEMENT OPERATION OF

K40FZ-D, BROOKINGS, SOUTH DAKOTA

CHANNEL 17 – 4.27 kW ERP 596.5 METERS RC/AMSL

49.0 dBu F(50,90)

EXHIBIT E3 - COMPARISON OF PROPOSED CH17 49.0 dBu F(50,90) AND LICENSED CHANNEL 40 51 dBu F(50,90) NOISE-LIMITED CONTOUR



*Green Contour = Proposed Channel 20 49.0 dBu F(50, 90)*

Map Scale | ← 7mi. → |

*Red Contour = Current License Channel 40 51 dBu F(50, 90)*

CREATED USING TV STUDY .KML OUTPUT FILE

APRIL 2018

FOR THE PROPOSED DISPLACEMENT OPERATION OF

K40FZ-D, BROOKINGS, SOUTH DAKOTA

CHANNEL 17 – 4.27 kW ERP 596.5 METERS RC/AMSL

49.0 dBu F(50,90)

**TABLE I**

tvstudy v2.2.4 (Z2Qqz3)

Database: localhost, Study: K40FZ Brookings, SD on 17 (on 17), Model: Longley-Rice

Start: 2018.04.05 10:42:44

Study created: 2018.04.05 10:42:44

Study build station data: LMS TV 2018-04-05 (12)

Proposal: K40FZ-D D17 (D40+) LD LIC BROOKINGS, SD

File number: BLANK0000018919

Facility ID: 68032

Station data: LMS TV 2018-04-05 (12)

Record ID: 25076f915816498a0158b5f7d5e83d40

Country: U.S.

Build options:

Protect pre-transition records not on baseline channel

Search options:

Non-U.S. records included

Stations potentially affected by proposal:

IX	Call	Chan	Svc Status	City, State	File Number	Distance
No	K16CP-D	D16	LD LIC	GRANITE FALLS, MN	BLDTL20110824ADB	107.4 km
No	K17MH-D	D17	LD CP	CEDAR FALLS, IA	BNPDTL20101013AB	362.6



# K40FZ-D BROOKINGS SOUTH DAKOTA

No	KQDS-TV	D17	DT LIC	DULUTH, MN	BLCDT20060707ADN	453.1
No	WUMN-LD	D17	LD LIC	MINNEAPOLIS, MN	BLDTL20141217AAM	285.4
No	K17BV-D	D17	LD LIC	REDWOOD FALLS, MN	BLDTT20120604AAY	144.9
No	K17MA-D	D17	LD CP	RUSHMORE, MN	BNPDTL20100510AHY	112.6
No	K17FE	N17+	TX LIC	WADENA, MN	BLTT20021223AAH	263.8
No	K17FA-D	D17	LD LIC	WILLMAR, MN	BLDTT20100122ABO	164.3
No	KBMY	D17	DT LIC	BISMARCK, ND	BLCDT20090701ADJ	401.7
No	K17LT-D	D17	LD CP	FARGO, ND	BNPDTL20100902AAZ	275.6
No	KYNE-TV	D17	DT LIC	OMAHA, NE	BLANK0000019249	342.2
No	KYNE-TV	D17	DT APP	OMAHA, NE	BLANK0000035901	342.2
Yes	KDSD-TV	D17	DT LIC	ABERDEEN, SD	BLEDT20110816AAM	147.2
No	K17KW-D	D17	LD CP	GETTYSBURG, SD	BLANK0000013919	276.2
No	K17KW-D	D17	LD LIC	GETTYSBURG, SD	BLANK0000013888	262.6
No	WEAU	D17	DT CP	EAU CLAIRE, WI	BLANK0000034098	461.7
No	WLAX	D17	DT LIC	LA CROSSE, WI	BLCDT20081105ABY	435.0
No	K18KG-D	D18	LD LIC	SPENCER, IA	BLDTL20130327AAU	187.6
No	K18IR-D	D18	LD LIC	OLIVIA, MN	BLDTT20120213ABO	157.2
Yes	K18IW-D	D18	LD CP	RAPID CITY, SD	BPDTL20140613ABU	66.1
No	K18IW-D	D18	LD LIC	RAPID CITY, SD	BLDTL20140228AEJ	65.9

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D17+

Mask: Simple

Latitude: 44 20 22.00 N (NAD83)

K40FZ-D BROOKINGS SOUTH DAKOTA

Longitude: 96 46 8.00 W

Height AMSL: 596.5 m

HAAT: 0.0 m

Peak ERP: 4.27 kW

Antenna: (replication) 0.0 deg

Elev Pattn: Generic

Elec Tilt: 0.50

49.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	1.94 kW	80.6 m	32.3 km
45.0	1.66	72.1	30.3
90.0	1.80	85.1	32.6
135.0	3.24	98.8	37.2
180.0	4.25	106.3	39.4
225.0	3.58	107.6	38.7
270.0	2.04	102.0	35.3
315.0	1.58	94.4	33.1

Database HAAT does not agree with computed HAAT

Database HAAT: 0 m    Computed HAAT: 93 m

Distance to Canadian border: 514.0 km

Distance to Mexican border: 1631.6 km

Conditions at FCC monitoring station: Grand Island NE

Bearing: 200.2 degrees    Distance: 403.3 km

K40FZ-D BROOKINGS SOUTH DAKOTA

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:

Bearing: 239.1 degrees Distance: 836.4 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 BLEDT20110816AAM LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KDSD-TV	D17	DT	LIC	ABERDEEN, SD	BLEDT20110816AAM	
Undesireds:	K40FZ-D	D17+	LD	LIC	BROOKINGS, SD	BLANK0000018919	147.2 km

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
17740.1 64,404	17027.8 59,677	17027.8 59,677	17024.7 59,623	0.02 0.09

Undesired	Total IX	Unique IX, before	Unique IX, after
K40FZ-D D17+ LD LIC	3.0 54		3.0 54

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# K40FZ-D BROOKINGS SOUTH DAKOTA

## Interference to BPDTL20140613ABU CP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	K18IW-D	D18	LD	CP	RAPID CITY, SD	BPDTL20140613ABU	
Undesireds:	K40FZ-D	D17+	LD	LIC	BROOKINGS, SD	BLANK0000018919	66.1 km
	K18DG-D	D18z	LD	LIC	ALEXANDRIA, MN	BLANK0000024529	267.8
	K18CD-D	D18	LD	CP	LINCOLN, NE	BLANK0000036613	326.2

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
4326.6 212,660	4320.6 212,659	4320.6 212,659	4319.6 212,655	0.02 0.00

Undesired	Total IX	Unique IX, before	Unique IX, after
K40FZ-D D17+ LD LIC	1.0 4		1.0 4

## Interference to proposal scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	K40FZ-D	D17+	LD	LIC	BROOKINGS, SD	BLANK0000018919	
Undesireds:	KDSD-TV	D17	DT	LIC	ABERDEEN, SD	BLED20110816AAM	147.2 km
	K17KW-D	D17	LD	CP	GETTYSBURG, SD	BLANK0000013919	276.2
	K18IW-D	D18	LD	CP	RAPID CITY, SD	BPDTL20140613ABU	66.1

Service area	Terrain-limited	IX-free	Percent IX
3827.3 39,576	3824.3 39,549	3823.3 39,549	0.03 0.00

Undesired	Total IX	Unique IX	Prcnt Unique IX
KDSD-TV D17 DT LIC	1.0 0	1.0 0	0.03 0.00