

ENGINEERING EXHIBIT

Digital Low Power Television Station Application for Modification of Construction Permit

prepared for

Gray Television Licensee, LLC

KJNM-LD Fayetteville, AR

Facility ID 184462

Ch. 20 5 kW Directional

Gray Television Licensee, LLC (“Gray”) is the licensee of digital Low Power Television station KJNM-LD, Channel 20, Facility ID 184462, Fayetteville AR. KJNM-LD is licensed to operate at 2.31 kW effective radiated power (“ERP”) with a directional antenna (file# 0000179335, granted January 21, 2022). A Construction Permit (“CP”, file# 0000218621) authorizes relocation of KJNM-LD and use of a different directional antenna at increased ERP. It has been determined that other appurtenances on the tower obstruct the authorized antenna height. *Gray* herein seeks a modification of the CP to specify a 6.1 meter increase in the authorized antenna height, to 51.8 meters above ground level.

As with the current CP, KJNM-LD will employ an antenna to be side-mounted on the tower structure associated with FCC Antenna Structure Registration number 1037467, located 41.4 km (25.8 miles) from the licensed site. No change to the overall structure height is proposed.

The proposed antenna is a Dielectric model DLP-4F having horizontal polarization. The proposed ERP is 5 kW using a “full service” out of channel emission mask. A plot of the directional antenna’s azimuthal pattern is supplied in Figure 1. Figure 2 depicts the coverage contour of the proposed facility as well as that of the licensed facility, demonstrating compliance with §73.3572 for a minor change.

Interference study per OET Bulletin 69¹ shows that the proposal complies with the FCC’s interference protection requirements toward all digital television, television translator, LPTV, and

¹FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating*

Class A stations. The results, summarized in Table 1, show that any new interference does not exceed the FCC's interference limits (0.5 percent to full power and Class A stations, and 2.0 percent to secondary stations) to any facility.

Human Exposure to Radiofrequency Electromagnetic Field (Environmental)

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the FCC's OET Bulletin Number 65. Based on OET-65 equation (10) and considering 30 percent antenna relative field in downward elevations (antenna elevation pattern data shows 30 percent relative field or less for angles 20-90 degrees below the horizontal), the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is $6.1 \mu\text{W}/\text{cm}^2$, which is 1.8 percent of the general population/uncontrolled maximum permitted exposure limit. This is below the five percent threshold limit described in §1.1307(b) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent.

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, tower, or antenna from RF electromagnetic field exposure in excess of FCC guidelines. This exhibit is limited to the evaluation of exposure to RF electromagnetic field. No increase in structure height is proposed.

TV Coverage and Interference, February 6, 2004 ("OET-69"). This analysis employed the FCC's current "TVStudy" software with the default application processing template settings, 1 km cell size, and 1.0 km terrain increment. Comparisons of various results of this computer program (run on a Mac processor) to the FCC's implementation of TVStudy show excellent correlation.

Engineering Exhibit
Gray Television Licensee, LLC (KJNM-LD)
(page 3 of 3)

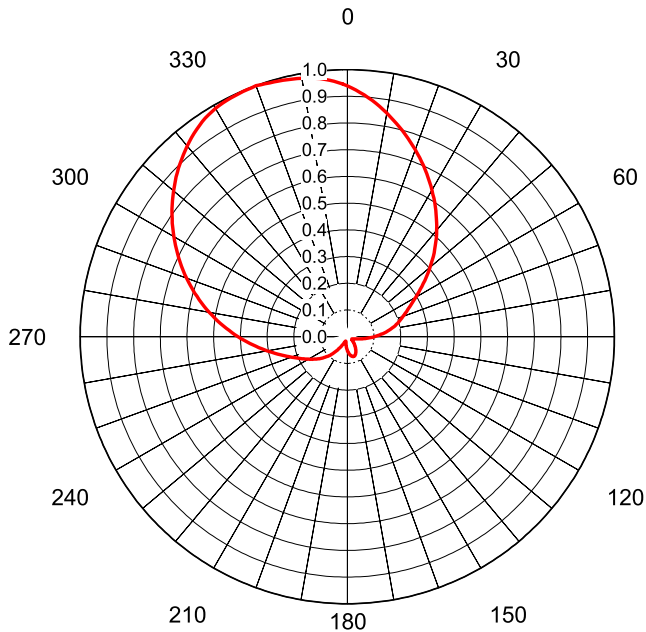


List of Attachments

Figure 1	Antenna Azimuthal Pattern
Figure 2	Coverage Contour Comparison
Table 1	TVStudy Analysis of Proposal
Form 2100	Saved Version of Engineering Sections of FCC Form at Time of Upload

Chesapeake RF Consultants, LLC

Joseph M. Davis, P.E.	August 15, 2023	
207 Old Dominion Road	Yorktown, VA 23692	703-650-9600



AZIMUTH PATTERN Horizontal Polarization

Proposal No. **20230705jmd**
Date **5-Jul-23**
Call Letters **KJNM-LD**
Channel **20**
Frequency **509 MHz**
Antenna Type **DLP-4F**
Gain **3.86 (5.86dB)**
Calculated

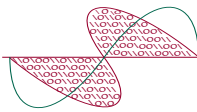
Pattern Number **TLP-F-20 Hpol**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.939	36	0.566	72	0.211	108	0.026	144	0.052	180	0.051	216	0.060	252	0.237	288	0.617
1	0.932	37	0.555	73	0.206	109	0.025	145	0.054	181	0.048	217	0.065	253	0.245	289	0.629
2	0.924	38	0.544	74	0.200	110	0.023	146	0.056	182	0.046	218	0.070	254	0.252	290	0.640
3	0.916	39	0.532	75	0.195	111	0.022	147	0.058	183	0.043	219	0.075	255	0.260	291	0.651
4	0.907	40	0.521	76	0.189	112	0.021	148	0.060	184	0.041	220	0.080	256	0.268	292	0.663
5	0.899	41	0.509	77	0.184	113	0.020	149	0.062	185	0.039	221	0.085	257	0.277	293	0.674
6	0.889	42	0.498	78	0.178	114	0.020	150	0.064	186	0.036	222	0.090	258	0.286	294	0.685
7	0.880	43	0.486	79	0.172	115	0.019	151	0.066	187	0.034	223	0.094	259	0.295	295	0.696
8	0.870	44	0.475	80	0.165	116	0.019	152	0.068	188	0.032	224	0.099	260	0.304	296	0.707
9	0.860	45	0.463	81	0.159	117	0.019	153	0.069	189	0.030	225	0.104	261	0.314	297	0.718
10	0.850	46	0.452	82	0.153	118	0.019	154	0.071	190	0.028	226	0.108	262	0.324	298	0.729
11	0.840	47	0.440	83	0.146	119	0.019	155	0.073	191	0.026	227	0.112	263	0.334	299	0.739
12	0.830	48	0.428	84	0.140	120	0.019	156	0.074	192	0.024	228	0.117	264	0.344	300	0.750
13	0.819	49	0.417	85	0.133	121	0.020	157	0.075	193	0.023	229	0.121	265	0.354	301	0.760
14	0.809	50	0.405	86	0.127	122	0.020	158	0.076	194	0.021	230	0.125	266	0.365	302	0.771
15	0.798	51	0.393	87	0.120	123	0.021	159	0.077	195	0.020	231	0.129	267	0.376	303	0.781
16	0.788	52	0.382	88	0.114	124	0.022	160	0.077	196	0.019	232	0.134	268	0.387	304	0.791
17	0.777	53	0.370	89	0.108	125	0.023	161	0.078	197	0.018	233	0.138	269	0.398	305	0.801
18	0.766	54	0.359	90	0.101	126	0.024	162	0.078	198	0.018	234	0.142	270	0.409	306	0.811
19	0.755	55	0.348	91	0.095	127	0.025	163	0.078	199	0.017	235	0.146	271	0.420	307	0.821
20	0.745	56	0.337	92	0.089	128	0.026	164	0.077	200	0.017	236	0.151	272	0.432	308	0.830
21	0.734	57	0.326	93	0.084	129	0.027	165	0.077	201	0.017	237	0.155	273	0.443	309	0.840
22	0.723	58	0.316	94	0.078	130	0.028	166	0.076	202	0.018	238	0.159	274	0.455	310	0.849
23	0.712	59	0.306	95	0.072	131	0.030	167	0.075	203	0.019	239	0.164	275	0.466	311	0.858
24	0.701	60	0.296	96	0.067	132	0.031	168	0.074	204	0.020	240	0.168	276	0.478	312	0.867
25	0.690	61	0.287	97	0.062	133	0.033	169	0.072	205	0.021	241	0.173	277	0.489	313	0.876
26	0.678	62	0.278	98	0.057	134	0.034	170	0.071	206	0.023	242	0.178	278	0.501	314	0.885
27	0.667	63	0.270	99	0.053	135	0.036	171	0.069	207	0.026	243	0.183	279	0.513	315	0.893
28	0.656	64	0.262	100	0.049	136	0.038	172	0.068	208	0.028	244	0.188	280	0.525	316	0.901
29	0.645	65	0.255	101	0.045	137	0.039	173	0.066	209	0.031	245	0.194	281	0.536	317	0.909
30	0.634	66	0.248	102	0.041	138	0.041	174	0.064	210	0.035	246	0.199	282	0.548	318	0.917
31	0.623	67	0.241	103	0.038	139	0.043	175	0.062	211	0.038	247	0.205	283	0.559	319	0.925
32	0.611	68	0.235	104	0.035	140	0.045	176	0.060	212	0.042	248	0.211	284	0.571	320	0.932
33	0.600	69	0.228	105	0.033	141	0.047	177	0.058	213	0.047	249	0.217	285	0.583	321	0.940
34	0.589	70	0.223	106	0.030	142	0.048	178	0.055	214	0.051	250	0.224	286	0.594	322	0.947
35	0.578	71	0.217	107	0.028	143	0.050	179	0.053	215	0.055	251	0.230	287	0.606	323	0.953

Figure 1
Antenna Azimuthal Pattern
KJNM-LD Fayetteville, AR
Facility ID 184462
Ch. 20 5 kW Directional

prepared for
Gray Television Licensee, LLC

August, 2023



Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

Figure 2
Coverage Contour Comparison
KJNM-LD Fayetteville, AR
Facility ID 184462
Ch. 20 5 kW Directional

prepared for
Gray Television Licensee, LLC

August, 2023

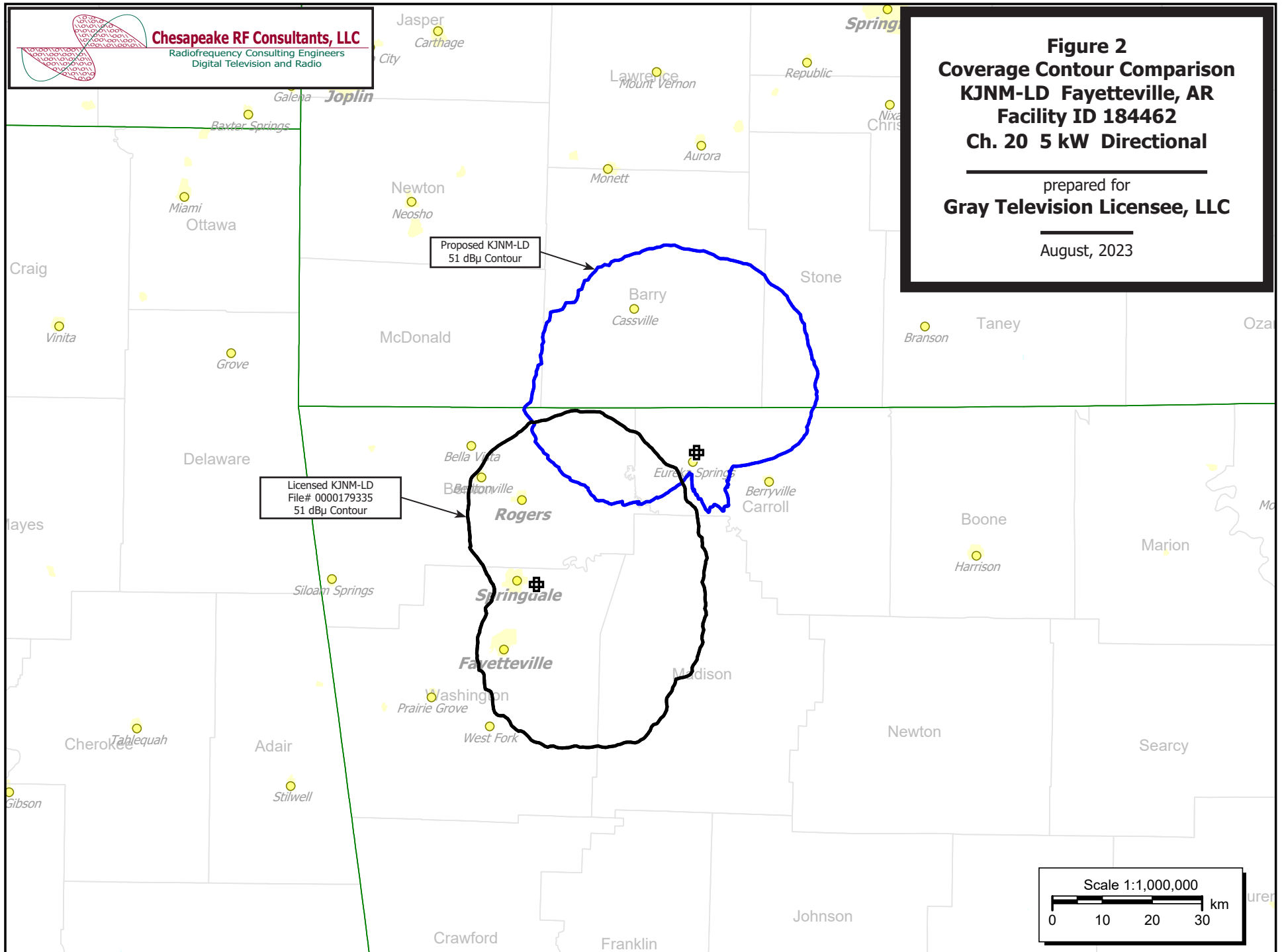


Table 1 KJNM-LD TVStudy Analysis of Proposal (page 1 of 4)



tvstudy v2.2.5 (4uoc83)
Database: localhost, Study: KJNM-LD 1037467 CP-MOD, Model: Longley-Rice
Start: 2023.08.14 16:13:37

Study created: 2023.08.14 16:13:36

Study build station data: LMS TV 2023-08-13

Proposal: KJNM-LD D20 LD APP FAYETTEVILLE, AR
File number: KJNM-LD 1037467 CP-MOD
Facility ID: 184462
Station data: User record
Record ID: 65
Country: U.S.

Build options:
Protect pre-transition records not on baseline channel

Search options:
Baseline record excluded if station has CP

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	KUFS-LD	D19	LD	CP	FORT SMITH, AR	BLANK0000193819	172.7 km
No	KUFS-LD	D19+	LD	LIC	FORT SMITH, AR	BLANK0000067178	172.9
No	K19MT-D	D19	LD	CP	SPRINGDALE, AR	BLANK0000195561	37.9
No	K19MT-D	D19	LD	LIC	SPRINGDALE, AR	BLANK0000198130	37.9
Yes	KYTV	D19	DT	LIC	SPRINGFIELD, MO	BLANK0000172336	109.5
No	K20OC-D	D20	LD	LIC	EL DORADO, AR	BLANK0000084798	369.4
No	K20OL-D	D20	LD	LIC	FORT SMITH, AR	BLANK0000217458	122.1
No	KTEJ	D20	DT	LIC	JONESBORO, AR	BLEDT20110818AAQ	271.6
No	KLRA-CD	D20	DC	LIC	LITTLE ROCK, AR	BLANK0000004217	211.7
No	KTMJ-CD	D20	DC	LIC	TOPEKA, KS	BLANK0000122285	347.9
No	KFDR	D20	DT	LIC	JEFFERSON CITY, MO	BLCDT20110121ACA	292.3
No	KEFN-CD	D20z	DC	LIC	ST. LOUIS, MO	BLANK0000146089	397.2
No	W20DW-D	D20	LD	LIC	CLARKSDALE, MS	BLANK0000199038	349.8
No	K20OH-D	D20	LD	CP	ARDMORE, OK	BLANK0000168880	384.7
No	K20MH-D	D20	LD	LIC	DUNCAN, OK	BLANK0000072559	420.7
Yes	KQCW-DT	D20	DT	CP	MUSKOGEE, OK	BLANK0000211781	180.0
No	KQCW-DT	D20	DT	LIC	MUSKOGEE, OK	BMLCDT20130823ACR	200.5
No	KBZC-LD	D20	LD	LIC	Oklahoma city, OK	BLANK0000112197	350.1
No	KFXK-TV	D20	DT	LIC	LONGVIEW, TX	BLANK0000071623	475.5
No	KHBS	D21	DT	LIC	FORT SMITH, AR	BLCDT20031121AMR	172.5
No	K21JS-D	D21	LD	LIC	HARRISON, AR	BLANK0000194711	49.5
No	KKYK-CD	D21	DC	LIC	LITTLE ROCK, AR	BLANK0000062774	211.7
No	KGCS-LD	D21	LD	LIC	JOPLIN, MO	BLANK0000078095	106.6
No	KRFT-LD	D21	LD	LIC	SPRINGFIELD, MO	BLANK0000156037	99.5

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D20
Mask: Full Service
Latitude: 36 25 3.60 N (NAD83)
Longitude: 93 43 45.70 W
Height AMSL: 494.7 m
HAAT: 0.0 m
Peak ERP: 5.00 kW
Antenna: Dielectric-DLP-4F (ID 1010906) 340.0 deg
Elev Pattn: Generic
Elec Tilt: 1.00

49.4 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	4.41 kW	147.0 m	42.2 km
45.0	1.07	123.4	33.4
90.0	0.051	149.7	19.6
135.0	0.007	104.4	9.9
180.0	0.013	64.5	9.2

Table 1 KJNM-LD TVStudy Analysis of Proposal
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225.0 0.053 90.5 15.2
270.0 0.836 130.4 32.6
315.0 3.96 150.5 41.9

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 120 m

Distance to Canadian border: 1099.1 km

Distance to Mexican border: 1026.9 km

Conditions at FCC monitoring station: Grand Island NE
Bearing: 322.3 degrees Distance: 645.6 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 295.8 degrees Distance: 1083.2 km

No land mobile station failures found

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 BLANK0000172336 LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KYTV	D19	DT	LIC	SPRINGFIELD, MO	BLANK0000172336	
Undesireds:	KJNM-LD	D20	LD	APP	FAYETTEVILLE, AR	KJNM-LD 1037467 CP-MOD	109.5 km
	KFSM-TV	D18	DT	CP	FORT SMITH, AR	BLANK0000216674	184.6
	WGEM-TV	D19	DT	CP	QUINCY, IL	BLANK0000157750	338.9
	WPSD-TV	D19	DT	LIC	PADUCAH, KY	BLANK0000116960	350.6
	KFDR	D20	DT	LIC	JEFFERSON CITY, MO	BLCDT20110121ACA	185.8
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
49985.5	1,095,450	48882.8	1,083,066	48266.9	1,073,911	48243.7 1,073,158	0.05 0.07
Undesired		Total IX		Unique IX, before		Unique IX, after	
KJNM-LD	D20 LD APP	25.2	755			23.1 753	
KFSM-TV	D18 DT CP	37.3	308	37.3	308	35.3 306	
WGEM-TV	D19 DT CP	252.2	4,751	194.7	3,852	194.7 3,852	
WPSD-TV	D19 DT LIC	311.5	4,006	290.2	3,824	290.2 3,824	
KFDR	D20 DT LIC	72.6	989	36.3	272	36.3 272	

Interference to BLANK0000172336 LIC scenario 2

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KYTV	D19	DT	LIC	SPRINGFIELD, MO	BLANK0000172336	
Undesireds:	KJNM-LD	D20	LD	APP	FAYETTEVILLE, AR	KJNM-LD 1037467 CP-MOD	109.5 km
	KFSM-TV	D18	DT	LIC	FORT SMITH, AR	BLCDT20060530AIM	184.6
	WGEM-TV	D19	DT	CP	QUINCY, IL	BLANK0000157750	338.9
	WPSD-TV	D19	DT	LIC	PADUCAH, KY	BLANK0000116960	350.6
	KFDR	D20	DT	LIC	JEFFERSON CITY, MO	BLCDT20110121ACA	185.8
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
49985.5	1,095,450	48882.8	1,083,066	48272.9	1,074,035	48249.8 1,073,282	0.05 0.07
Undesired		Total IX		Unique IX, before		Unique IX, after	
KJNM-LD	D20 LD APP	25.2	755			23.1 753	
KFSM-TV	D18 DT LIC	31.2	184	31.2	184	29.2 182	
WGEM-TV	D19 DT CP	252.2	4,751	194.7	3,852	194.7 3,852	
WPSD-TV	D19 DT LIC	311.5	4,006	290.2	3,824	290.2 3,824	
KFDR	D20 DT LIC	72.6	989	36.3	272	36.3 272	

Table 1 KJNM-LD TVStudy Analysis of Proposal
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Interference to BLANK0000211781 CP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KQCW-DT	D20	DT	CP	MUSKOGEE, OK	BLANK0000211781	
Undesireds:	KJNM-LD	D20	LD	APP	FAYETTEVILLE, AR	KJNM-LD 1037467 CP-MOD	180.0 km
	KAUT-TV	D19	DT	LIC	OKLAHOMA CITY, OK	BLANK0000121785	171.0
	KLRA-CD	D20	DC	LIC	LITTLE ROCK, AR	BLANK0000004217	318.5
	KHBS	D21	DT	LIC	FORT SMITH, AR	BLCDT20031121AMR	138.8
	KUOT-CD	D21	DC	LIC	OKLAHOMA CITY, OK	BLANK0000069721	176.7
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
40145.4 1,393,181		39179.6 1,383,690		37931.4 1,364,420		37930.4 1,364,401	0.00 0.00
Undesired		Total IX		Unique IX, before		Unique IX, after	
KJNM-LD D20 LD APP		1.0 19				1.0 19	
KAUT-TV D19 DT LIC		232.3 2,874		231.3 2,869		231.3 2,869	
KLRA-CD D20 DC LIC		1.0 52		0.0 0		0.0 0	
KHBS D21 DT LIC		1015.9 16,396		1014.9 16,344		1014.9 16,344	
KUOT-CD D21 DC LIC		1.0 5		0.0 0		0.0 0	

Interference to BLANK0000211781 CP scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KQCW-DT	D20	DT	CP	MUSKOGEE, OK	BLANK0000211781	
Undesireds:	KJNM-LD	D20	LD	APP	FAYETTEVILLE, AR	KJNM-LD 1037467 CP-MOD	180.0 km
	KAUT-TV	D19	DT	CP	OKLAHOMA CITY, OK	BLANK0000127590	171.0
	KLRA-CD	D20	DC	LIC	LITTLE ROCK, AR	BLANK0000004217	318.5
	KHBS	D21	DT	LIC	FORT SMITH, AR	BLCDT20031121AMR	138.8
	KUOT-CD	D21	DC	LIC	OKLAHOMA CITY, OK	BLANK0000069721	176.7
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
40145.4 1,393,181		39179.6 1,383,690		37906.5 1,364,348		37905.5 1,364,329	0.00 0.00
Undesired		Total IX		Unique IX, before		Unique IX, after	
KJNM-LD D20 LD APP		1.0 19				1.0 19	
KAUT-TV D19 DT CP		257.3 2,946		256.3 2,941		256.3 2,941	
KLRA-CD D20 DC LIC		1.0 52		0.0 0		0.0 0	
KHBS D21 DT LIC		1015.9 16,396		1014.9 16,344		1014.9 16,344	
KUOT-CD D21 DC LIC		1.0 5		0.0 0		0.0 0	

Interference to proposal scenario 1
7.01% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KJNM-LD	D20	LD	APP	FAYETTEVILLE, AR	KJNM-LD 1037467 CP-MOD	
Undesireds:	K19MT-D	D19	LD	CP	SPRINGDALE, AR	BLANK0000195561	37.9 km
	KYTV	D19	DT	LIC	SPRINGFIELD, MO	BLANK0000172336	109.5
	KTEJ	D20	DT	LIC	JONESBORO, AR	BLEDT20110818AAQ	271.6
	KFDR	D20	DT	LIC	JEFFERSON CITY, MO	BLCDT20110121ACA	292.3
	KQCW-DT	D20	DT	CP	MUSKOGEE, OK	BLANK0000211781	180.0
Service area		Terrain-limited		IX-free		Percent IX	
2543.8 43,317		2149.0 36,815		1945.1 34,235		9.49 7.01	
Undesired		Total IX		Unique IX		Prcnt Unique IX	
KYTV D19 DT LIC		32.1 154		20.1 106		0.93 0.29	
KTEJ D20 DT LIC		4.0 134		0.0 0		0.00 0.00	
KFDR D20 DT LIC		6.0 7		2.0 5		0.09 0.01	
KQCW-DT D20 DT CP		180.8 2,469		164.7 2,287		7.67 6.21	

Interference to proposal scenario 2
3.61% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KJNM-LD	D20	LD	APP	FAYETTEVILLE, AR	KJNM-LD 1037467 CP-MOD	

Table 1 KJNM-LD TVStudy Analysis of Proposal
(page 4 of 4)



Undesireds:	K19MT-D	D19	LD	CP	SPRINGDALE, AR	BLANK0000195561	37.9 km
	KYTV	D19	DT	LIC	SPRINGFIELD, MO	BLANK0000172336	109.5
	KTEJ	D20	DT	LIC	JONESBORO, AR	BLEDT20110818AAQ	271.6
	KFDR	D20	DT	LIC	JEFFERSON CITY, MO	BLCDT20110121ACA	292.3
	KQCW-DT	D20	DT	LIC	MUSKOGEE, OK	BMLCDT20130823ACR	200.5

Service area		Terrain-limited		IX-free		Percent IX	
2543.8	43,317	2149.0	36,815	2026.5	35,487	5.70	3.61
Undesired		Total IX		Unique IX		Prcnt Unique IX	
KYTV	D19 DT LIC	32.1	154	23.1	137	1.07	0.37
KTEJ	D20 DT LIC	4.0	134	1.0	0	0.05	0.00
KFDR	D20 DT LIC	6.0	7	0.0	0	0.00	0.00
KQCW-DT	D20 DT LIC	97.5	1,191	83.4	1,035	3.88	2.81

**Channel and
Facility
Information**

Section	Question	Response
Facility ID	184462	
State	Arkansas	
City	FAYETTEVILLE	
LPD Channel	20	

Antenna Location
Data

Section	Question	Response
Antenna Structure Registration	Do you have an FCC Antenna Structure Registration (ASR) Number?	Yes
	ASR Number	1037467
Coordinates (NAD83)	Latitude	36° 25' 03.6" N+
	Longitude	093° 43' 45.7" W-
	Structure Type	TOWER-A free standing or guyed struct
	Overall Structure Height	120.4 meters
	Support Structure Height	116.1 meters
	Ground Elevation (AMSL)	442.9 meters
Antenna Data	Height of Radiation Center Above Ground Level	51.8 meters
	Height of Radiation Center Above Mean Sea Level	494.7 meters
	Effective Radiated Power	5 kW

Antenna
Technical Data

Section	Question	Response
Antenna Type	Antenna Type	Directional Custom
	Do you have an Antenna ID?	Yes
	Antenna ID	1010906
Antenna Manufacturer and Model	Manufacturer:	Dielectric
	Model	DLP-4F
	Rotation	340 degrees
	Electrical Beam Tilt	1.0
	Mechanical Beam Tilt	Not Applicable
	toward azimuth	
	Polarization	Horizontal
Elevation Radiation Pattern	Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt?	No
	Uploaded file for elevation antenna (or radiation) pattern data	
	Out-of-Channel Emission Mask:	Full Service

Directional Antenna Relative Field Values (Pre-rotated Pattern)

Degree	Value	Degree	Value	Degree	Value	Degree	Value
0	1.000	90	0.223	180	0.077	270	0.224
10	0.983	100	0.165	190	0.071	280	0.304
20	0.939	110	0.101	200	0.051	290	0.409
30	0.850	120	0.049	210	0.028	300	0.525
40	0.745	130	0.023	220	0.017	310	0.640
50	0.634	140	0.019	230	0.035	320	0.750
60	0.521	150	0.028	240	0.080	330	0.849
70	0.405	160	0.045	250	0.125	340	0.932
80	0.296	170	0.064	260	0.168	350	0.987

Additional Azimuths

Degree	V _A
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