

## **ENGINEERING EXHIBIT**

### **Special Temporary Authority for Digital Low Power Television Station**

prepared for

#### **Gray Television Licensee, LLC**

K25PZ-D Alexandria, LA

Facility ID 186715

Ch. 25 4.8 kW

*Gray Television Licensee, LLC* (“Gray”) is the licensee of Low Power Television (“LPTV”) station K33MP-D, Channel 33, Alexandria LA, Facility ID 186715 (file# 0000014176). As a result of the Special Displacement Window,<sup>1</sup> a Construction Permit (“CP” file# 0000054048) authorizes operation on Channel 25 with the new callsign K25PZ-D. Operation on Channel 33 was displaced by the reassignment of KLPA-TV to Channel 33 (Facility ID 38590, Alexandria LA), 30.2 km distant. The equipment to construct the K25PZ-D Channel 25 CP facility has not yet been obtained. The STA sought herein by *Gray* seeks to operate K25PZ-D on Channel 25 with a reduced facility in advance of constructing the displacement facility as authorized.

The proposed Channel 25 STA facility will operate with 4.8 kW effective radiated power using the same site and broadband antenna as the licensed Channel 33 facility, located 30.4 km from the site authorized in the Channel 25 CP. The STA operation will be sited at the studio location associated with KALB-TV (Ch. 35, Facility ID 51598, Alexandria, LA). *Gray* is the licensee of KALB-TV.

The proposed STA facility will utilize a directional transmitting antenna side mounted on a pole atop the KALB-TV studio building. The structure does not require an FCC Antenna Structure Registration number since it does not extend more than 6.1 meters above the rooftop.

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<sup>1</sup>“*Incentive Auction Task Force and Media Bureau Announce Post-Incentive Auction Special Displacement Window April 10, 2018, through May 15, 2018, and Make Location and Channel Data Available,*” Public Notice, DA 18-124, released February 9, 2018.

Figure 1 supplies a plot of the directional antenna's azimuthal pattern. As shown in Figure 2, the proposed STA facility's 51 dBμ contour matches the Channel 33 licensed contour and does not exceed that of the Channel 25 CP.

Interference study per OET Bulletin 69<sup>2</sup> shows that the proposal complies with the FCC's interference protection requirements toward all digital television, television translator, LPTV, and 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.

The only authorized AM station within 3 km of the proposed site is directional AM station KJMJ (580 kHz, Alexandria, LA) which is located 2.8 km distant. The proposal does not involve construction or modification of an antenna support structure that would exceed a height of five electrical degrees at KJMJ's frequency. Therefore, notification to KJMJ and consideration of AM pattern disturbance is not required.

### **Human Exposure to Radiofrequency Electromagnetic Field (Environmental)**

The proposed K25PZ-D STA operation was evaluated for human exposure to RF energy using the procedures outlined in the FCC's OET Bulletin Number 65. The transmitting antenna is a Kathrein panel array. Figure 3 supplies a plot of the antenna's elevation pattern as provided by the manufacturer. Based on OET-65 equation (10), and considering the antenna relative field in downward elevations, the graph in Figure 4 depicts calculated power density levels attributable to the proposed STA facility at locations near the site at a height of two meters above ground level. The maximum calculated RF electromagnetic field attributable to the proposed K25PZ-D STA facility is 40.3 percent of the general population / uncontrolled MPE limit at any location two meters above ground level, which occurs within 25 meters of the transmitting antenna location.

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<sup>2</sup>FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 ("OET-69"). The implementation of OET-69 for this study followed the guidelines of OET-69 as specified therein. The default cell size of 1 km was employed. Comparisons of various results of this computer program (run on a Sun Sparc processor) to the Commission's implementation of OET-69 show excellent correlation.

One other LPTV facility emitter is authorized at this site. K23MM-D (Ch. 23, Facility ID 187970, Alexandria LA) is licensed to utilize the same broadband antenna. The maximum calculated RF electromagnetic field attributable to K23MM-D is 41.2 percent of the general population / uncontrolled MPE limit at any location two meters above ground level.

Based on this analysis and considering both facilities, the total maximum calculated RF density at two meters above ground level near the proposed site will be 81.5 percent of the FCC's uncontrolled / general population maximum permissible exposure limit. No other television broadcast, radio broadcast, or other nonexcluded facilities are known to be within sufficient distance to be a significant contributor to RF exposure at this location.

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. Access to the building's rooftop will be restricted. The K25PZ-D STA facility will reduce power or cease operation as necessary to protect persons having access to the rooftop, pole, or antenna from RF electromagnetic field exposure in excess of FCC guidelines. RF exposure warning signs will be posted at rooftop access points. Environmental matters covered by this exhibit are limited to the evaluation of exposure to RF electromagnetic field.

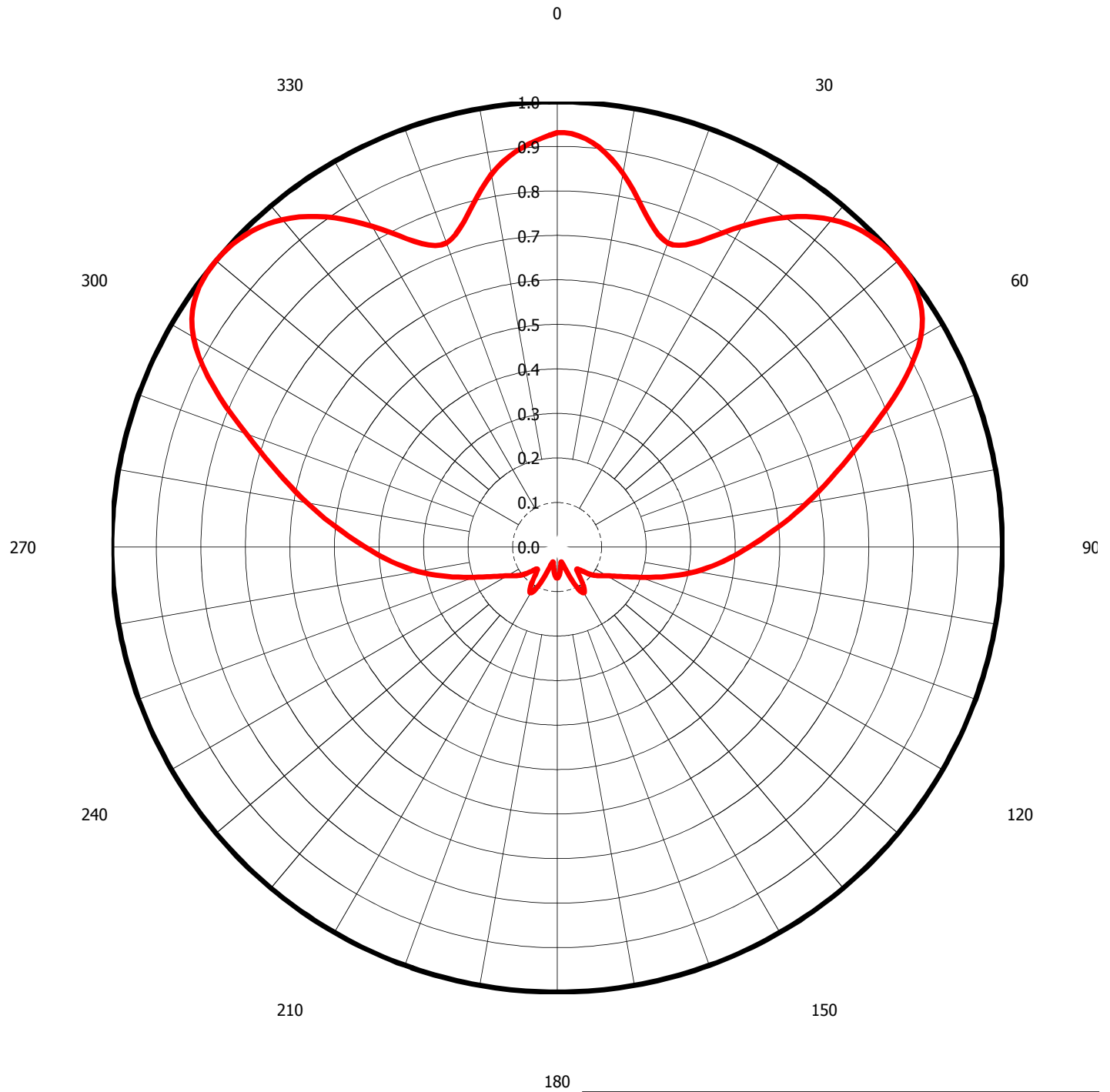
#### List of Attachments

Figure 1	Antenna Azimuthal Pattern
Figure 2	Coverage Contour Comparison
Figure 3	Antenna Elevation Pattern
Figure 4	Calculated RF Electromagnetic Field
Table 1	TVStudy Analysis of Proposal

#### **Chesapeake RF Consultants, LLC**

Joseph M. Davis, P.E.	July 24, 2020	
207 Old Dominion Road	Yorktown, VA 23692	703-650-9600

**Azimuth Pattern - Relative Field  
(True North)**



**Figure 1**  
**Antenna Azimuthal Pattern**  
**K25PZ-D Alexandria, LA**  
**Facility ID 186715**  
**STA Ch. 25 4.8 kW**

prepared for  
**Gray Television Licensee, LLC**

July, 2020

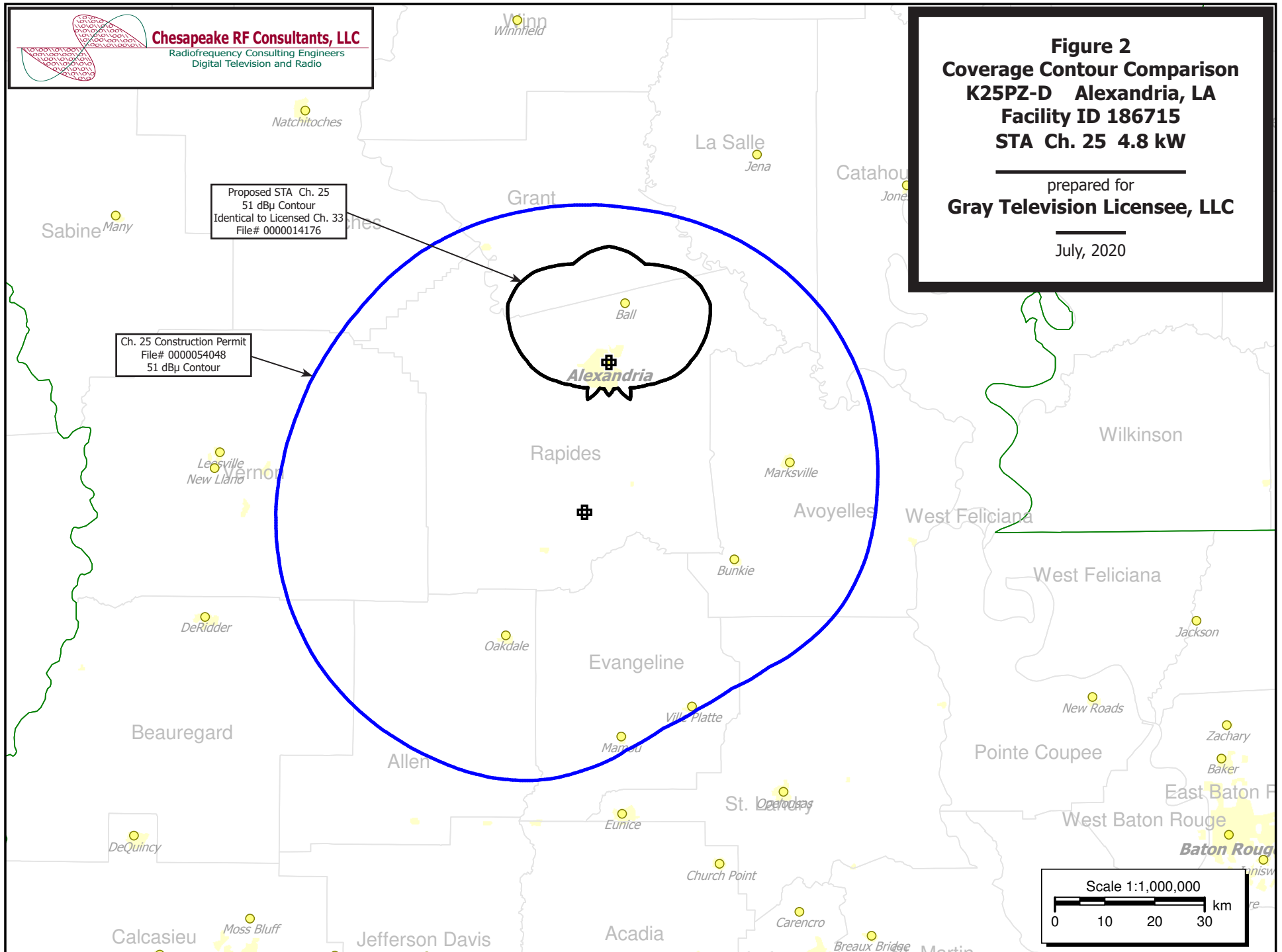


**Chesapeake RF Consultants, LLC**  
Radiofrequency Consulting Engineers  
Digital Television and Radio

**Figure 2**  
**Coverage Contour Comparison**  
**K25PZ-D Alexandria, LA**  
**Facility ID 186715**  
**STA Ch. 25 4.8 kW**

prepared for  
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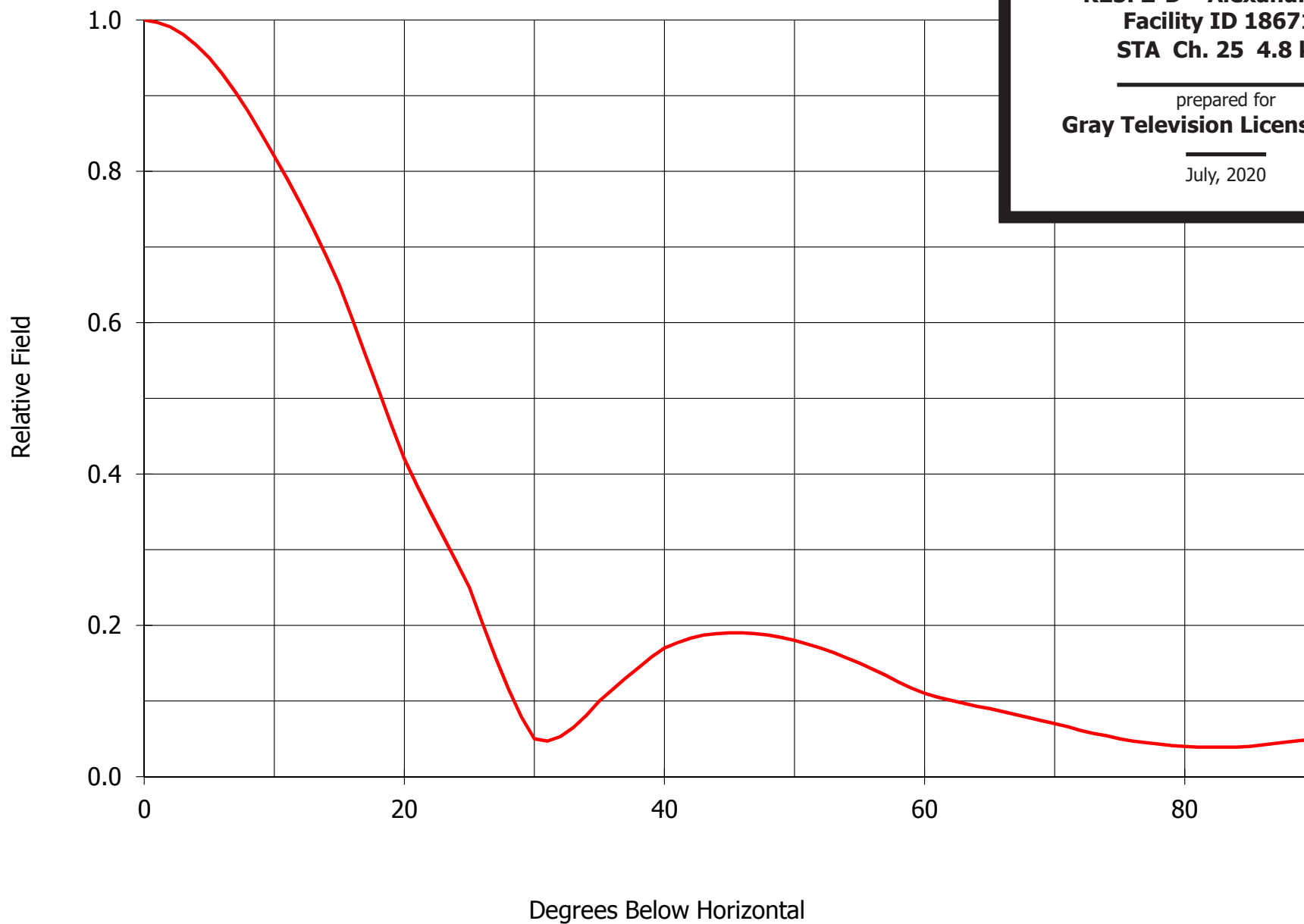
July, 2020



**Figure 3**  
**Antenna Elevation Pattern**  
**Kathrein Model K723147 1x2**  
**K25PZ-D Alexandria, LA**  
**Facility ID 186715**  
**STA Ch. 25 4.8 kW**

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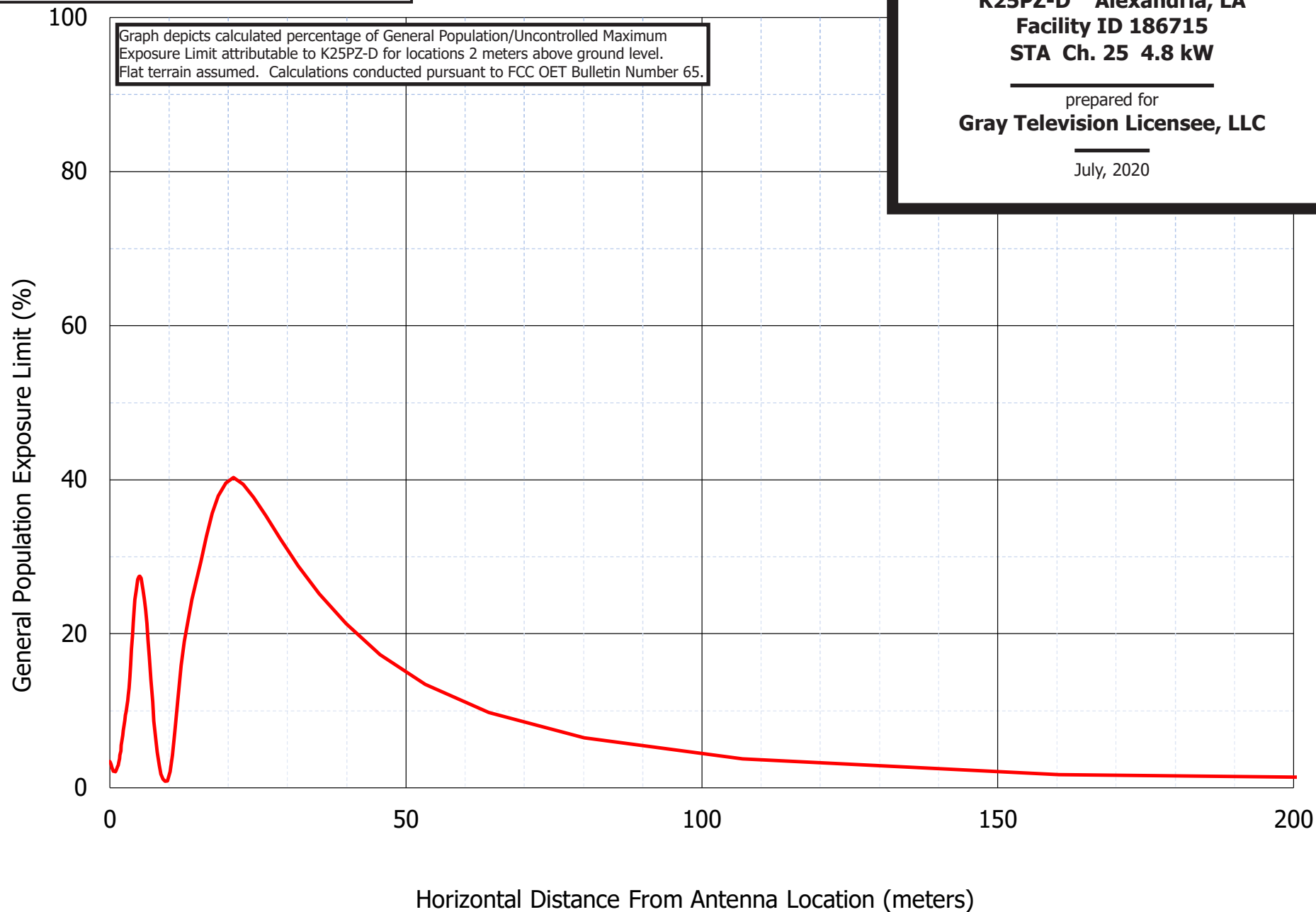
July, 2020



**Figure 4**  
**Calculated RF Electromagnetic Field**  
**K25PZ-D Alexandria, LA**  
**Facility ID 186715**  
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July, 2020



# **Table 1 K25PZ-D TVStudy Analysis of Proposal** (page 1 of 4)



tvstudy v2.2.5 (4uoc83)  
Database: localhost, Study: K25PZ-D prop STA, Model: Longley-Rice  
Start: 2020.07.24 10:31:45

Study created: 2020.07.24 10:31:45

Study build station data: LMS TV 2020-07-23

Proposal: K25PZ-D D25 LD STA ALEXANDRIA, LA  
File number: K25PZ-D prop STA  
Facility ID: 186715  
Station data: User record  
Record ID: 3141  
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	KLIA-LD	D24	LD	CP	TEXARKANA, AR	BLANK0000052927	206.7 km
Yes	K24LJ-D	D24	LD	CP	ALEXANDRIA, LA	BNPDTL20100511ABM	8.0
No	WGMB-TV	D24	DT	LIC	BATON ROUGE, LA	BLANK0000113571	156.1
No	W24DX-D	D24	LD	CP	IOWA, LA	BNPDTL20100407ABU	126.7
No	KFAM-CD	D24	DC	LIC	LAKE CHARLES, LA	BLANK0000063954	146.4
No	KCWL-LD	D24	LD	CP	MONROE, LA	BLANK0000068619	139.3
No	KLTS-TV	D24	DT	LIC	SHREVEPORT, LA	BLEDTL20100216ABQ	206.5
No	K24KQ-D	D24	LD	CP	BEAUMONT, TX	BNPDTT20090825BRG	195.8
No	K25NT-D	D25	LD	CP	EL DORADO, AR	BNPDTL20101020AAN	219.5
No	KMYA-LD	D25	LD	LIC	SHERIDAN, AR	BLANK0000075097	387.2
No	K25QH-D	D25	LD	CP	TEXARKANA, AR	BLANK0000071810	294.0
Yes	WLPB-TV	D25	DT	APP	BATON ROUGE, LA	BLANK0000035855	157.6
No	WLPB-TV	D25	DT	LIC	BATON ROUGE, LA	BLEDTL20101201ALR	157.6
No	W25FM-D	D25	LD	CP	LAKE CHARLES, LA	BLANK0000071877	140.4
No	K25MH-D	D25	LD	CP	MONROE, LA	BNPDTL20100510AED	134.1
No	WMAO-TV	D25	DT	LIC	GREENWOOD, MS	BLEDTL20090612AAI	291.1
No	WXV-TV	D25	DT	LIC	GULFPORT, MS	BLANK0000090276	328.6
No	KPXD-TV	D25	DT	LIC	ARLINGTON, TX	BLANK0000073172	450.1
No	KOPS-LD	D25	LD	CP	BEAUMONT, TX	BLANK0000054093	206.5
No	KYAZ	D25	DT	LIC	KATY, TX	BLANK0000072098	352.0
No	KCTL-LD	D25	LD	LIC	LIVINGSTON, TX	BLDTL20140508ABU	247.0
No	K25ND-D	D25	LD	CP	MOUNT VERNON, TX	BMJADTL20100521ACE	328.3
No	K25LG-D	D25	LD	LIC	TYLER, TX	BLANK0000107602	283.9
Yes	KBCA	D26	DT	LIC	ALEXANDRIA, LA	BLANK0000078715	48.0
No	WEAZ-LD	D26	LD	APP	MCCOMB, MS	BLANK0000116390	175.1
No	KULC-LD	D26	LD	CP	PORT ARTHUR, TX	BLANK0000074302	201.6
No	KTAL-TV	D26	DT	LIC	TEXARKANA, TX	BLANK0000073076	230.2
No	KWCE-LP	N27-	TX	LIC	ALEXANDRIA, LA	BLTTL20060714ACI	4.0

No non-directional AM stations found within 0.8 km

Directional AM stations within 3.2 km:  
KJMJ 580 L DAN D ALEXANDRIA, LA BML20001103ACL  
KJMJ 580 L DAN N ALEXANDRIA, LA BML20001103ACL

Record parameters as studied:

Channel: D25  
Mask: Stringent  
Latitude: 31 18 30.10 N (NAD83)  
Longitude: 92 26 43.60 W  
Height AMSL: 32.9 m (Adjusted based on actual ground elevation calculation)  
HAAT: 0.0 m  
Peak ERP: 4.80 kW  
Antenna: KAT-K723147 1x2 (ID 1001039) 0.0 deg  
Elev Pattn: Generic

49.9 dBu contour:  
Azimuth ERP HAAT Distance



**Table 1 K25PZ-D TV Study Analysis of Proposal**  
(page 2 of 4)



0.0 deg	4.16 kW	-8.3 m	24.6 km
45.0	4.61	-5.1	25.1
90.0	0.892	4.0	17.5
135.0	0.032	10.9	7.6
180.0	0.024	10.8	7.1
225.0	0.032	8.3	7.6
270.0	0.892	7.9	17.5
315.0	4.61	8.7	25.1

Database HAAT does not agree with computed HAAT  
Database HAAT: 0 m    Computed HAAT: 5 m

Distance to Canadian border: 1439.1 km

Distance to Mexican border: 736.2 km

Conditions at FCC monitoring station: Kingsville TX  
Bearing: 232.1 degrees    Distance: 679.6 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 313.9 degrees    Distance: 1510.1 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 BNPDTL20100511ABM CP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	K24IJ-D	D24	LD	CP	ALEXANDRIA, LA	BNPDTL20100511ABM	
Undesireds:	K25PZ-D	D25	LD	STA	ALEXANDRIA, LA	K25PZ-D prop STA	8.0 km
	K23MM-D	D23	LD	LIC	ALEXANDRIA, LA	BLANK0000014074	8.0
	WGMB-TV	D24	DT	LIC	BATON ROUGE, LA	BLANK00000113571	152.0
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
6275.9    177,054		6273.9    177,054		6197.5    174,482		6197.5    174,482	0.00    0.00
Undesired		Total IX		Unique IX, before		Unique IX, after	
K25PZ-D D25 LD STA		1.0		144		0.0	0
K23MM-D D23 LD LIC		1.0		144		0.0	0
WGMB-TV D24 DT LIC		75.3		2,428		75.3	2,428

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Interference to BLANK0000035855 APP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WLPB-TV	D25	DT	APP	BATON ROUGE, LA	BLANK0000035855	
Undesireds:	K25PZ-D	D25	LD	STA	ALEXANDRIA, LA	K25PZ-D prop STA	157.6 km
	WGMB-TV	D24	DT	LIC	BATON ROUGE, LA	BLANK00000113571	8.6
	WMAO-TV	D25	DT	LIC	GREENWOOD, MS	BLEDT20090612AAI	339.6
	WXXV-TV	D25	DT	LIC	GULFPORT, MS	BLANK0000090276	209.6
	WGNO	D26	DT	LIC	NEW ORLEANS, LA	BLCDT20121019AAK	128.7
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
24272.8    1,357,305		24171.9    1,357,062		23620.3    1,338,825		23620.3    1,338,825	0.00    0.00
Undesired		Total IX		Unique IX, before		Unique IX, after	
K25PZ-D D25 LD STA		1.0		0		0.0	0
WGMB-TV D24 DT LIC		91.5		654		78.4	654
WMAO-TV D25 DT LIC		65.2		145		57.0	49
WXXV-TV D25 DT LIC		88.2		1,505		44.0	1,158
WGNO D26 DT LIC		364.0		16,280		316.0	16,029

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**Table 1 K25PZ-D TVStudy Analysis of Proposal**  
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Interference to BLANK0000078715 LIC scenario 1

Desired:	Call KBCA	Chan D26	Svc DT	Status LIC	City, State ALEXANDRIA, LA	File Number BLANK0000078715	Distance
Undesireds:	K25PZ-D	D25	LD	STA	ALEXANDRIA, LA	K25PZ-D prop STA	48.0 km
	WLPB-TV	D25	DT	APP	BATON ROUGE, LA	BLANK0000035855	148.1
	WGNO	D26	DT	LIC	NEW ORLEANS, LA	BLCDT20121019AAK	276.7
	KRIV	D26	DT	CP	HOUSTON, TX	BLANK0000035805	312.7
	KTAL-TV	D26	DT	LIC	TEXARKANA, TX	BLANK0000073076	257.5
Service area		Terrain-limited			IX-free, before	IX-free, after	Percent New IX
24245.6	478,850	24179.5		478,711	23680.5	476,224	23677.5
						475,218	0.01
							0.21
Undesired				Total IX	Unique IX, before	Unique IX, after	
K25PZ-D	D25	LD	STA	3.0	1,006	3.0	1,006
WGNO	D26	DT	LIC	2.0	0	1.0	0
KRIV	D26	DT	CP	70.3	386	12.2	60
KTAL-TV	D26	DT	LIC	485.8	2,427	426.7	2,101

Interference to BLANK0000078715 LIC scenario 2

Desired:	Call KBCA	Chan D26	Svc DT	Status LIC	City, State ALEXANDRIA, LA	File Number BLANK0000078715	Distance				
Undesireds:	K25PZ-D	D25	LD	STA	ALEXANDRIA, LA	K25PZ-D prop STA	48.0 km				
	WLPB-TV	D25	DT	APP	BATON ROUGE, LA	BLANK0000035855	148.1				
	WGNO	D26	DT	LIC	NEW ORLEANS, LA	BLCDT20121019AAK	276.7				
	KRIV	D26	DT	LIC	HOUSTON, TX	BLCDT20111212AHM	312.7				
	KTAL-TV	D26	DT	LIC	TEXARKANA, TX	BLANK0000073076	257.5				
Service area		Terrain-limited			IX-free, before		IX-free, after		Percent New IX		
24245.6	478,850	24179.5	478,711		23683.6	476,224	23680.5	475,218	0.01	0.21	
Undesired				Total IX		Unique IX, before		Unique IX, after			
K25PZ-D	D25	LD	STA	3.0	1,006		3.0	1,006			
WGNO	D26	DT	LIC	2.0	0		1.0	0			
KRIV	D26	DT	LIC	62.2	384		9.2	60			
KTAL-TV	D26	DT	LIC	485.8	2,427		431.8	2,103			

Interference to proposal scenario 1

\*\*MX: 15.27% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	K25PZ-D	D25	LD	STA	ALEXANDRIA, LA	K25PZ-D prop STA	
Undesireds:	K24LJ-D	D24	LD	CP	ALEXANDRIA, LA	BNPDTL20100511ABM	8.0 km
	WLPB-TV	D25	DT	APP	BATON ROUGE, LA	BLANK0000035855	157.6
	WMAO-TV	D25	DT	LIC	GREENWOOD, MS	BLEDT20090612AAI	291.1
	KBCA	D26	DT	LIC	ALEXANDRIA, LA	BLANK0000078715	48.0
Service area		Terrain-limited			IX-free	Percent IX	
1005.5	107,285	982.2	107,113		652.2	90,760	33.60 15.27
Undesired				Total IX		Unique IX	Prcnt Unique IX
K24LJ-D	D24	LD	CP	236.6	8,613	99.5	5,602 10.14 5.23
WLPB-TV	D25	DT	APP	66.0	741	2.0	31 0.21 0.03
WMAO-TV	D25	DT	LIC	3.0	1	0.0	0 0.00 0.00
KBCA	D26	DT	LIC	189.8	10,374	88.3	7,678 8.99 7.17

Interference to proposal scenario 2

15.27% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	K25PZ-D	D25	LD	STA	ALEXANDRIA, LA	K25PZ-D prop STA	
Undesireds:	K24LJ-D	D24	LD	CP	ALEXANDRIA, LA	BNPDTL20100511ABM	8.0 km
	WLPB-TV	D25	DT	LIC	BATON ROUGE, LA	BLEDT20101201ALR	157.6
	WMAO-TV	D25	DT	LIC	GREENWOOD, MS	BLEDT20090612AAI	291.1
	KBCA	D26	DT	LIC	ALEXANDRIA, LA	BLANK0000078715	48.0

**Table 1 K25PZ-D TVStudy Analysis of Proposal**  
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Service area		Terrain-limited		IX-free		Percent IX	
1005.5	107,285	982.2	107,113	653.2	90,760	33.49	15.27
Undesired		Total IX		Unique IX		Prcnt Unique IX	
K24LJ-D	D24 LD CP	236.6	8,613	119.9	5,758	12.20	5.38
WLPB-TV	D25 DT LIC	33.5	443	1.0	31	0.10	0.03
WMAO-TV	D25 DT LIC	3.0	1	0.0	0	0.00	0.00
KBCA	D26 DT LIC	189.8	10,374	90.3	7,708	9.20	7.20