ENGINEERING EXHIBIT

Special Temporary Authority
for Digital Low Power Television Station

prepared for

Gray Television Licensee, LLC
K31LQ-D Sherman, TX
Facility ID 184857
Ch. 28 4.8 kW Directional

Gray Television Licensee, LLC ("Gray") is the licensee of digital Low Power Television station K31LQ-D, Channel 31, Sherman TX, Facility ID 184857 (file# 0000013869). K31LQ-D is presently silent. As a result of the Special Displacement Window,[1] a Construction Permit ("CP" file# 0000054047) authorizes K31LQ-D to operate on Channel 28 with the callsign K28QF-D at increased power and height at the licensed site. The equipment to construct the Channel 28 CP facility has not yet been obtained. The Special Temporary Authority ("STA") sought herein by *Gray* seeks to operate K31LQ-D on Channel 28 with a reduced facility in order to resume operation prior to the 12-month anniversary of the date of going silent.

The proposed STA facility will operate with the same directional broadband antenna and power as presently licensed. The STA operation will be on the displacement Channel 28 at 4.8 kW effective radiated power at the licensed site (Antenna Structure Registration number 1011273).

Figure 1 supplies a plot of the directional antenna's azimuthal pattern. As shown in Figure 2, the proposed STA facility's contour matches that of the licensed Channel 31 facility and does not exceed that of the authorized Channel 28 facility.

[1] *"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.

Interference study per OET Bulletin 69[2] 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 proposed 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 tower at a height of two meters above ground level. The maximum calculated RF electromagnetic field attributable to the proposed STA facility is 19.1 percent of the general population / uncontrolled MPE limit at any location two meters above ground level, which occurs within 35 meters of the tower's base.

Four other LPTV facilities and one full power digital television station are authorized at this site. The following table supplies a summary of RF signal density calculations for the proposed K31LQ-D STA operation and the other facilities at this site. No other authorized broadcast facilities are near enough to the site to contribute significant RF levels.

[2]FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating 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 km terrain increment. Comparisons of various results of this computer program (run on a Mac processor) to the FCCs implementation of TVStudy show excellent correlation.

Summary of Radiofrequency Electromagnetic Field Calculations

Facility	Channel	ERP (kW)	Polari-zation	Relative Field	Height (meters)	S - Calculated ($\mu W/cm^2$)	S - Limit ($\mu W/cm^2$)	Percent of Limit
K31LQ-D Sherman, TX Proposed STA	28	4.8	H	See Graph	10	70.9	371.3	19.1%
KXII(DT) Sherman, TX Lic BLCDT-20090226ACF	12	36	C	0.2	505.6	0.4	200	0.2%
KJDA-LD Ardmore, OK Lic 0000001316	13	3	H	1.0	400	0.6	200	0.3%
K19II-D Ardmore, OK CP 0000072054	19	15	C	0.2	250	0.7	335.3	0.2%
K22JQ-D Ardmore, OK CP 0000072056	22	15	C	0.2	250	0.7	347.3	0.2%
K24IW-D Ardmore, OK CP 0000072055	20	15	C	0.2	250	0.7	339.3	0.2%
K24IW-D Ardmore, OK Lic BLDTL-20140224ACD	24	0.5	H	1.0	250	Use CP record above for greatest impact		---
						Total Calculated Signal Density:		**20.2%**

ERP: Effective Radiated Power
Polarization: H - Horizontal; C- Circular
Field: Elevation Pattern Relative Field Value (conservative or worst case assumed)
Height: Height of radiation center above ground level
S-Calc: OET Bulletin 65 calculated value of signal density at two meters above ground level
S-Limit §1.1310 uncontrolled/general population limit for signal density

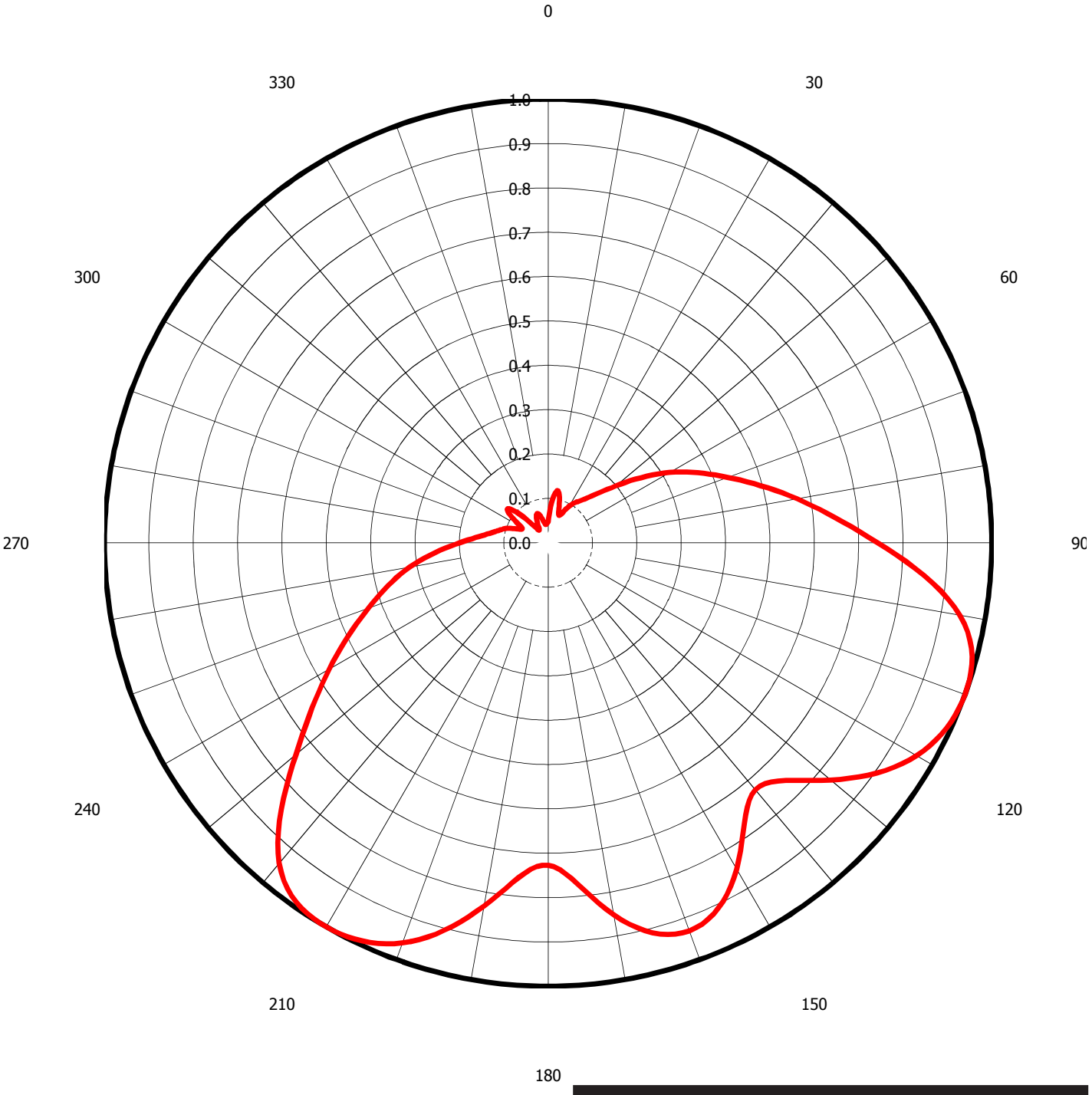
Based on this analysis and considering all broadcast facilities, the total maximum calculated RF density at two meters above ground level near the proposed site will be 20.2 percent of the FCC's uncontrolled / general population maximum permissible exposure limit. No other television or radio broadcast facilities are authorized within sufficient distance to be a significant contributor to RF exposure at this location.

The general public will not be exposed to RF levels in excess of the FCC's guidelines. The K31LQ-D STA facility will reduce power or cease operation as necessary to protect persons having access to the tower or antenna from RF electromagnetic field exposure in excess of FCC guidelines. RF exposure warning signs will continue to be posted. This exhibit is limited to the evaluation of exposure to RF electromagnetic field. No change in structure height is proposed.

List of Attachments

Chesapeake RF Consultants, LLC
Joseph M. Davis, P.E. April 23, 2021
207 Old Dominion Road Yorktown, VA 23692 703-650-9600

Azimuth Pattern - Relative Field
(True North)

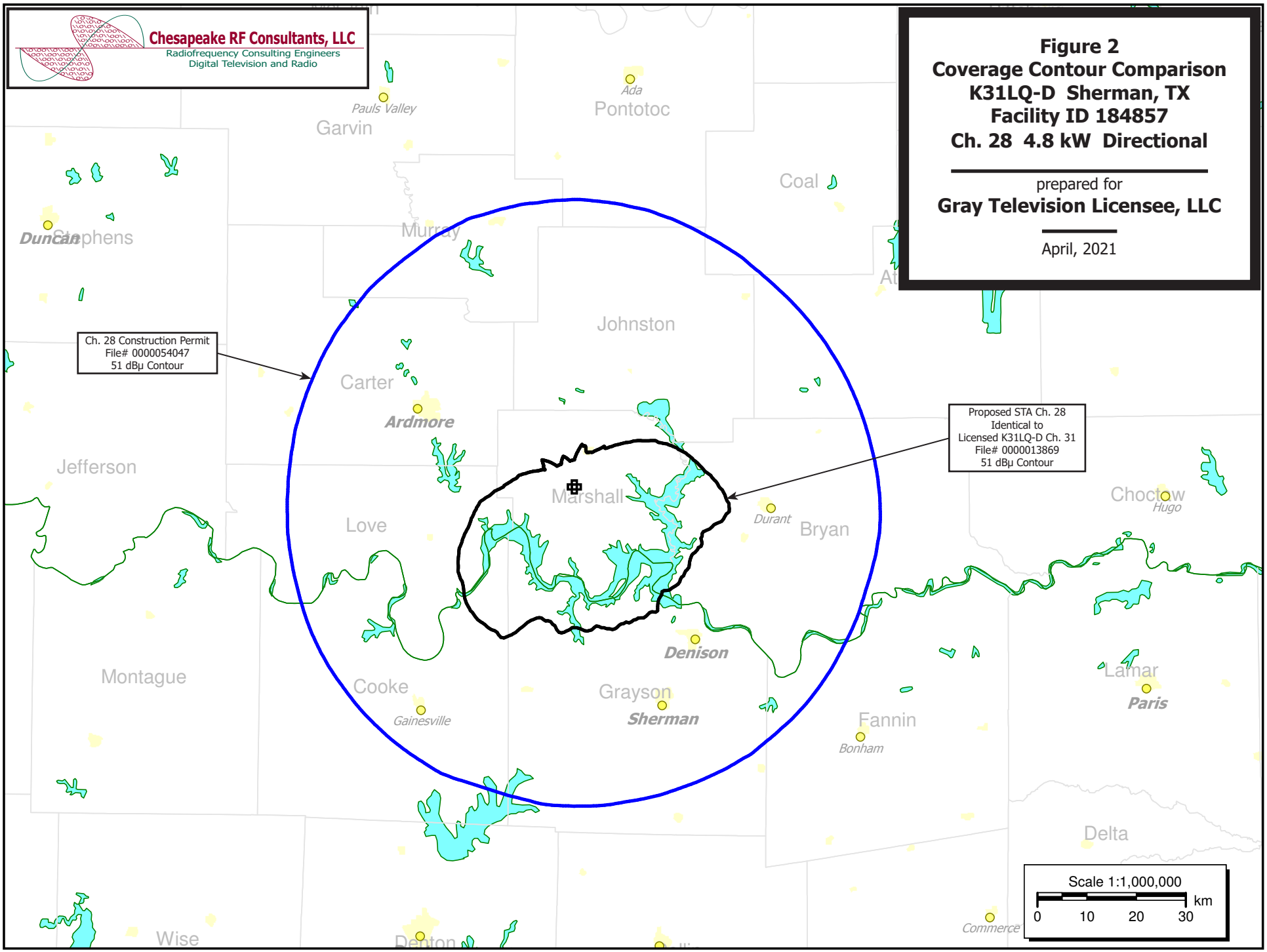


Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

Figure 1
STA Antenna Azimuthal Pattern
K31LQ-D Sherman, TX
Facility ID 184857
Ch. 28 4.8 kW Directional

prepared for
Gray Television Licensee, LLC

April, 2021

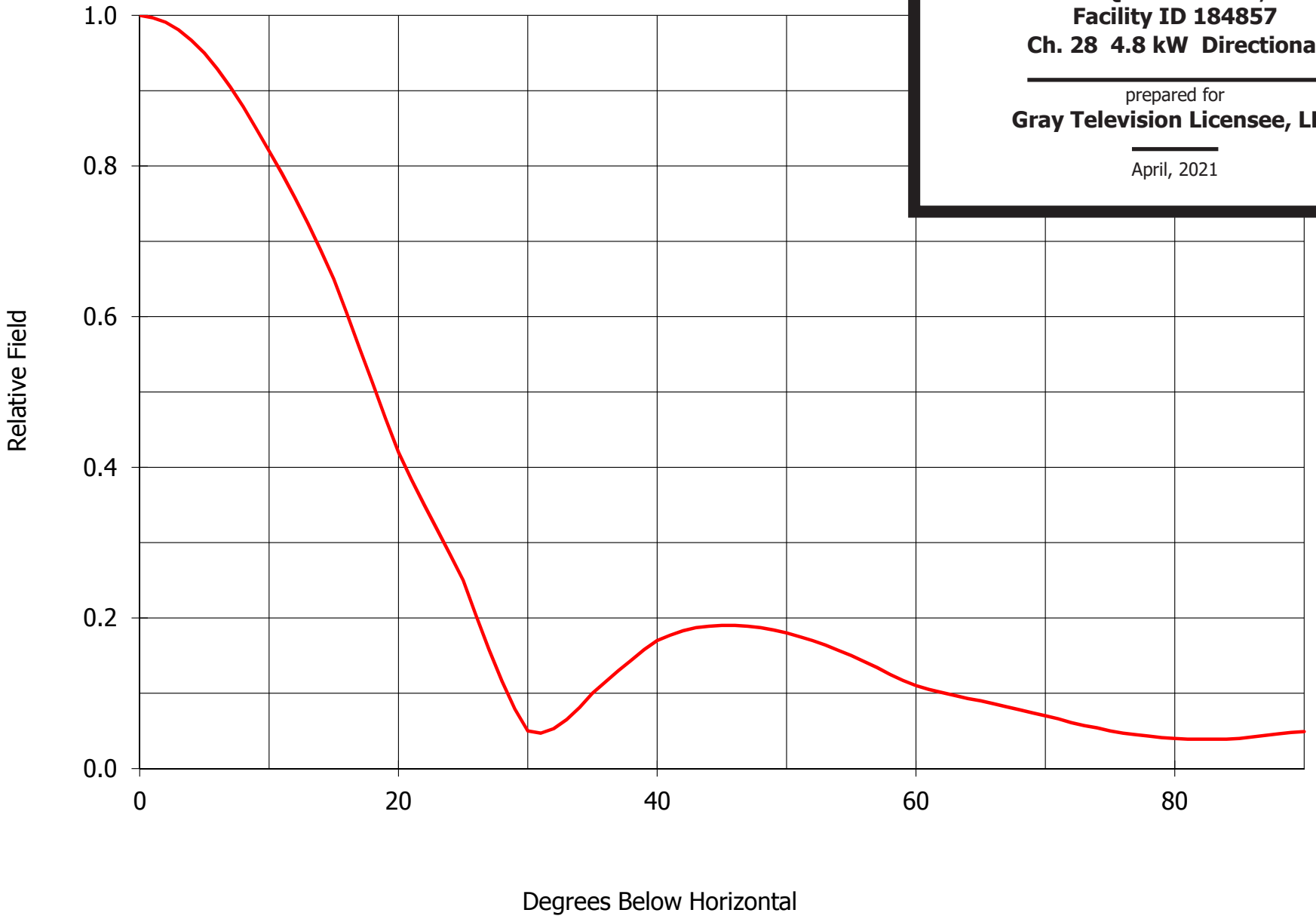

Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio
Figure 2
Coverage Contour Comparison
K31LQ-D Sherman, TX
Facility ID 184857
Ch. 28 4.8 kW Directional
prepared for
Gray Television Licensee, LLC
April, 2021
Ch. 28 Construction Permit
File# 0000054047
51 dBµ Contour
Proposed STA Ch. 28
Identical to
Licensed K31LQ-D Ch. 31
File# 0000013869
51 dBµ Contour
Garvin
Pauls Valley
Ada
Pontotoc
Coal
Murray
Duncan
Stephens
Johnston
Carter
Ardmore
Jefferson
Marshall
Love
Durant
Bryan
Choctaw
Hugo
Denison
Montague
Cooke
Gainesville
Grayson
Sherman
Fannin
Bonham
Lamar
Paris
Delta
Wise
Denton
Commerce
Scale 1:1,000,000
km
0
10
20
30

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

Figure 3
STA Antenna Elevation Pattern
Kathrein Model K723147 1x2
K31LQ-D Sherman, TX
Facility ID 184857
Ch. 28 4.8 kW Directional

prepared for
Gray Television Licensee, LLC

April, 2021



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

Figure 4
Calculated RF Electromagnetic Field
K31LQ-D Sherman, TX
Facility ID 184857
Ch. 28 4.8 kW Directional

prepared for
Gray Television Licensee, LLC

April, 2021

Graph depicts calculated percentage of General Population/Uncontrolled Maximum Exposure Limit attributable to K31LQ-D STA for locations 2 meters above ground level. Flat terrain assumed. Calculations conducted pursuant to FCC OET Bulletin Number 65.

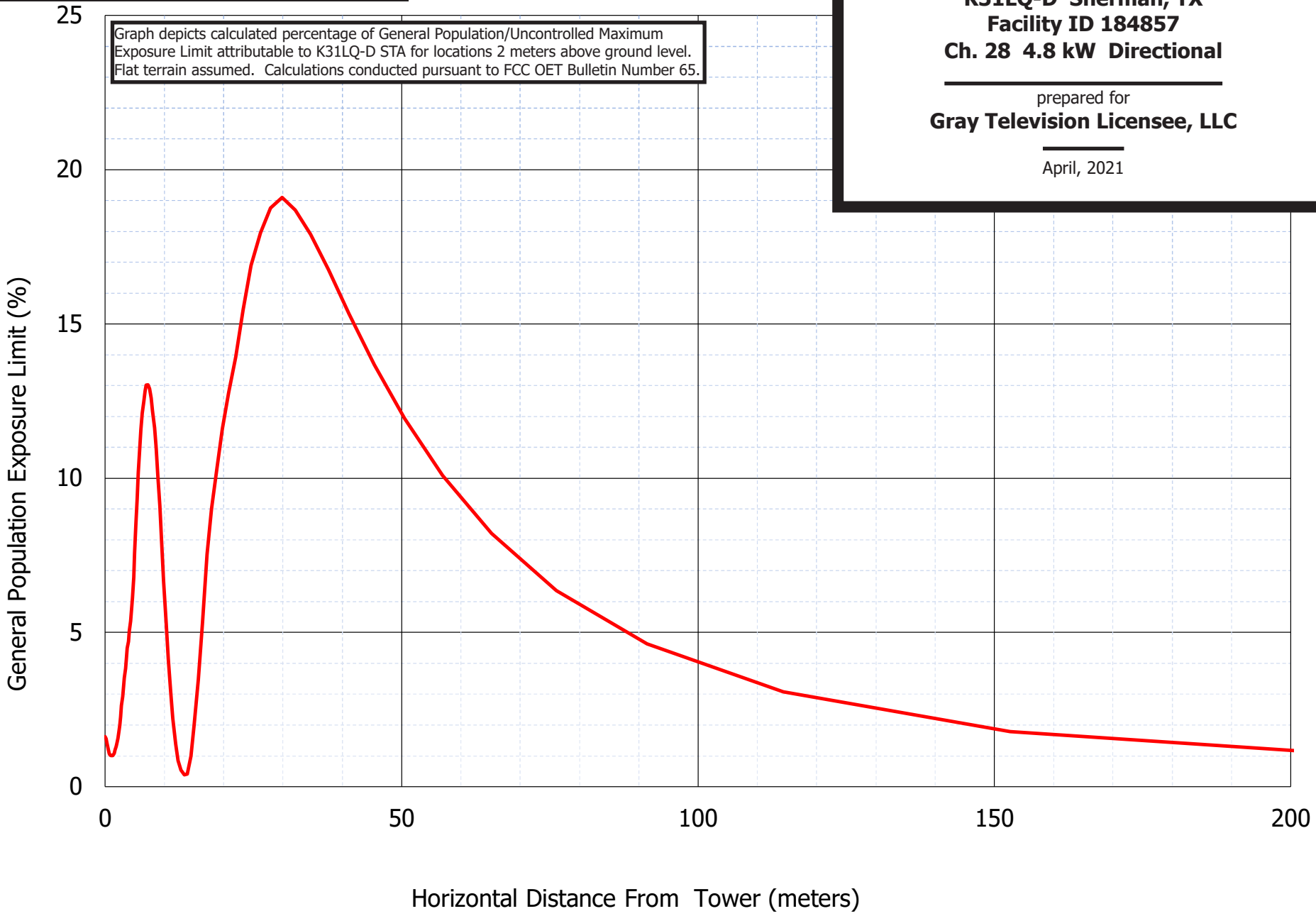


Table 1 K31LQ-D Ch. 28 STA TVStudy Analysis of Proposal


```
tvstudy v2.2.5 (4uoc83)
Database: localhost,  Study: K31LQ-D  28-STA,  Model: Longley-Rice
Start: 2021.04.23 13:42:59

Study created: 2021.04.23 13:42:59

Study build station data: LMS TV 2021-04-21

    Proposal: K31LQ-D D28 LD STA SHERMAN, TX
 File number: K31LQ-D  28-STA
 Facility ID: 184857
Station data: User record
   Record ID: 3614
     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
Yes	K46AI-D	D27	LD	LIC	DURANT, OK	BLANK0000063814	37.5 km
No	KFOR-TV	D27	DT	LIC	OKLAHOMA CITY, OK	BLANK0000121786	181.9
No	KFOR-TV	D27	DT	CP	OKLAHOMA CITY, OK	BLANK0000127588	181.9
No	KDFI	D27	DT	LIC	DALLAS, TX	BLANK0000074883	161.7
No	K28NT-D	D28z	LD	LIC	BENTONVILLE & ROGERS, AR	BLANK0000059138	341.8
No	KARZ-TV	D28	DT	LIC	LITTLE ROCK, AR	BLANK0000074890	404.1
No	KARZ-TV	D28	DT	CP	LITTLE ROCK, AR	BLANK0000127609	404.1
No	KWKD-LP	D28	LD	CP	WICHITA, KS	BDFCDTL20101025AAU	423.8
No	KTBS-TV	D28	DT	LIC	SHREVEPORT, LA	BLANK0000053971	305.3
No	K28JX-D	D28	LD	LIC	ALVA - CHEROKEE, OK	BLDTT20101007ABK	344.9
No	DDK28DJ-D	D28	LD	LIC	BROKEN BOW, OK	BLDTL20120314ABZ	188.1
No	K28NU-D	D28	LD	LIC	BUFFALO, OK	BLANK0000055257	399.6
No	K28LR-D	D28	LD	CP	ERICK, OK	BNPDTL20100406ACK	311.1
No	KTPX-TV	D28	DT	LIC	OKMULGEE, OK	BLCDT20020510AAQ	209.4
No	K28NV-D	D28	LD	LIC	PONCA CITY, OK	BLANK0000055256	301.6
No	K23IY-D	D28	LD	LIC	Weatherford, OK	BLANK0000063620	239.6
No	K28QN-D	D28	LD	CP	COLLEGE STATION, TX	BLANK0000116857	377.7
No	K25FW-D	D28	LD	APP	CORSICANA, TX	BLANK0000126784	190.3
No	KLEG-CD	D28	DC	LIC	DALLAS, TX	BLANK0000080460	139.2
No	KLEG-CD	D28	DC	CP	DALLAS, TX	BLANK0000143076	139.2
No	KETX-LP	D28	LD	CP	LIVINGSTON, TX	BDISDTL20090814AAJ	406.3
No	KCEB	D28	DT	LIC	LONGVIEW, TX	BLANK0000080719	305.3
No	K28OF-D	D28	LD	LIC	MEMPHIS, TX	BLANK0000076195	359.1
No	KWKT-TV	D28	DT	LIC	WACO, TX	BLANK0000117686	306.1
Yes	KFDX-TV	D28	DT	LIC	WICHITA FALLS, TX	BLCDT20090205ABU	162.9
No	KTUZ-TV	D29	DT	LIC	SHAWNEE, OK	BLCDT20081105ACO	180.9
No	KDTN	D29	DT	LIC	DENTON, TX	BLANK0000080184	161.2
No	KPTD-LP	D29	LD	CP	PARIS, TX	BLANK0000059305	161.2
No	KEGG-LP	N35+	TX	LIC	MCALESTER, OK	BLTT20051017ABG	139.2
No	KJBO-LP	N35	TX	LIC	WICHITA FALLS, TX	BLTTL19900423JN	161.3

```
No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

    Channel: D28
       Mask: Full Service
   Latitude:  34  1 58.00 N (NAD83)
  Longitude:  96 48  1.00 W
Height AMSL: 283.0 m (Adjusted based on actual ground elevation calculation)
       HAAT: 0.0 m
   Peak ERP: 4.80 kW
    Antenna: KAT-K723147 1X2 (ID 1001008) 160.0 deg
Elev Pattrn: Generic

50.1 dBu contour:
Azimuth      ERP       HAAT   Distance
```

0.0 deg	0.011 kW	31.0 m	5.9 km
45.0	0.129	46.2	13.0
90.0	2.65	67.1	30.6
135.0	2.92	59.2	29.9
180.0	2.54	62.8	29.8
225.0	3.41	72.0	32.6
270.0	0.190	52.7	15.1
315.0	0.033	22.0	7.6

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 52 m

Distance to Canadian border: 1482.2 km

Distance to Mexican border: 642.4 km

Conditions at FCC monitoring station: Kingsville TX
Bearing: 188.3 degrees Distance: 739.9 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 314.6 degrees Distance: 1006.9 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 BLANK0000063814 LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	K46AI-D	D27	LD	LIC	DURANT, OK	BLANK0000063814	
Undesireds:	K31LQ-D	D28	LD	STA	SHERMAN, TX	K31LQ-D 28-STA	37.5 km
	K19II-D	D26	LD	CP	ARDMORE, OK	BLANK0000072054	37.5
	KFTA-TV	D27	DT	CP	FORT SMITH, AR	BLANK0000127614	281.0
	KFOR-TV	D27	DT	LIC	OKLAHOMA CITY, OK	BLANK0000121786	201.9
	KDFI	D27	DT	LIC	DALLAS, TX	BLANK0000074883	165.2
	KLEG-CD	D28	DC	LIC	DALLAS, TX	BLANK0000080460	139.7

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
6337.1	148,538	6306.2	147,463	5979.6	127,574	5978.6	127,574	0.02	0.00

Undesired	Total IX		Unique IX, before		Unique IX, after	
K31LQ-D D28 LD STA	7.9	134			1.0	0
K19II-D D26 LD CP	28.6	234	13.8	124	11.8	0
KFTA-TV D27 DT CP	6.0	19	0.0	0	0.0	0
KFOR-TV D27 DT LIC	26.0	151	4.0	0	4.0	0
KDFI D27 DT LIC	305.8	19,758	274.0	19,504	272.0	19,494

Interference to BLANK0000063814 LIC scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	K46AI-D	D27	LD	LIC	DURANT, OK	BLANK0000063814	
Undesireds:	K31LQ-D	D28	LD	STA	SHERMAN, TX	K31LQ-D 28-STA	37.5 km
	K19II-D	D26	LD	CP	ARDMORE, OK	BLANK0000072054	37.5
	KFTA-TV	D27	DT	LIC	FORT SMITH, AR	BLCDT20090331AEC	281.0
	KFOR-TV	D27	DT	LIC	OKLAHOMA CITY, OK	BLANK0000121786	201.9
	KDFI	D27	DT	LIC	DALLAS, TX	BLANK0000074883	165.2
	KLEG-CD	D28	DC	LIC	DALLAS, TX	BLANK0000080460	139.7

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
6337.1	148,538	6306.2	147,463	5979.6	127,574	5978.6	127,574	0.02	0.00

Undesired	Total IX		Unique IX, before		Unique IX, after	
K31LQ-D D28 LD STA	7.9	134			1.0	0

K19II-D D26 LD CP	28.6	234	13.8	124	11.8	0
KFTA-TV D27 DT LIC	3.0	12	0.0	0	0.0	0
KFOR-TV D27 DT LIC	26.0	151	5.0	7	5.0	7
KDFI D27 DT LIC	305.8	19,758	275.0	19,504	273.0	19,494

Interference to BLANK0000063814 LIC scenario 3

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	K46AI-D	D27	LD	LIC	DURANT, OK	BLANK0000063814	
Undesireds:	K31LQ-D	D28	LD	STA	SHERMAN, TX	K31LQ-D 28-STA	37.5 km
	K19II-D	D26	LD	CP	ARDMORE, OK	BLANK0000072054	37.5
	KFTA-TV	D27	DT	CP	FORT SMITH, AR	BLANK0000127614	281.0
	KFOR-TV	D27	DT	CP	OKLAHOMA CITY, OK	BLANK0000127588	201.9
	KDFI	D27	DT	LIC	DALLAS, TX	BLANK0000074883	165.2
	KLEG-CD	D28	DC	LIC	DALLAS, TX	BLANK0000080460	139.7

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
6337.1	148,538	6306.2	147,463	5977.6	127,549	5976.7	127,549	0.02	0.00

Undesired	Total IX	Unique IX, before		Unique IX, after	
K31LQ-D D28 LD STA	7.9	134		1.0	0
K19II-D D26 LD CP	28.6	234	12.8	124	10.8	0
KFTA-TV D27 DT CP	6.0	19	0.0	0	0.0	0
KFOR-TV D27 DT CP	45.8	2,784	6.0	25	6.0	25
KDFI D27 DT LIC	305.8	19,758	260.1	16,896	258.1	16,886

Interference to BLANK0000063814 LIC scenario 4

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	K46AI-D	D27	LD	LIC	DURANT, OK	BLANK0000063814	
Undesireds:	K31LQ-D	D28	LD	STA	SHERMAN, TX	K31LQ-D 28-STA	37.5 km
	K19II-D	D26	LD	CP	ARDMORE, OK	BLANK0000072054	37.5
	KFTA-TV	D27	DT	LIC	FORT SMITH, AR	BLCDT20090331AEC	281.0
	KFOR-TV	D27	DT	CP	OKLAHOMA CITY, OK	BLANK0000127588	201.9
	KDFI	D27	DT	LIC	DALLAS, TX	BLANK0000074883	165.2
	KLEG-CD	D28	DC	LIC	DALLAS, TX	BLANK0000080460	139.7

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
6337.1	148,538	6306.2	147,463	5977.6	127,549	5976.7	127,549	0.02	0.00

Undesired	Total IX	Unique IX, before		Unique IX, after	
K31LQ-D D28 LD STA	7.9	134		1.0	0
K19II-D D26 LD CP	28.6	234	12.8	124	10.8	0
KFTA-TV D27 DT LIC	3.0	12	0.0	0	0.0	0
KFOR-TV D27 DT CP	45.8	2,784	7.0	32	7.0	32
KDFI D27 DT LIC	305.8	19,758	260.1	16,896	258.1	16,886

Interference to BLCDT20090205ABU LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KFDX-TV	D28	DT	LIC	WICHITA FALLS, TX	BLCDT20090205ABU	
Undesireds:	K31LQ-D	D28	LD	STA	SHERMAN, TX	K31LQ-D 28-STA	162.9 km
	KTPX-TV	D28	DT	LIC	OKMULGEE, OK	BLCDT20020510AAQ	309.8
	KLEG-CD	D28	DC	LIC	DALLAS, TX	BLANK0000080460	204.4
	KWKT-TV	D28	DT	LIC	WACO, TX	BLANK0000117686	308.5

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
28075.3	381,879	27943.9	381,193	27864.4	380,685	27860.4	380,685	0.01	0.00

Undesired	Total IX	Unique IX, before		Unique IX, after	
K31LQ-D D28 LD STA	10.9	56		4.0	0
KTPX-TV D28 DT LIC	9.9	1	6.9	0	3.0	0
KLEG-CD D28 DC LIC	60.6	508	52.6	451	50.7	451
KWKT-TV D28 DT LIC	16.9	56	12.0	0	12.0	0

Interference to BLCDT20090205ABU LIC scenario 2

Table 1 K31LQ-D Ch. 28 STA TVStudy Analysis of Proposal

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KFDX-TV	D28	DT	LIC	WICHITA FALLS, TX	BLCDT20090205ABU	
Undesireds:	K31LQ-D	D28	LD	STA	SHERMAN, TX	K31LQ-D 28-STA	162.9 km
	KTPX-TV	D28	DT	LIC	OKMULGEE, OK	BLCDT20020510AAQ	309.8
	KLEG-CD	D28	DC	CP	DALLAS, TX	BLANK0000143076	204.4
	KWKT-TV	D28	DT	LIC	WACO, TX	BLANK0000117686	308.5

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
28075.3	381,879	27943.9	381,193	27839.5	380,457	27835.6	380,457	0.01	0.00

Undesired		Total IX	Unique IX, before		Unique IX, after	
K31LQ-D D28 LD STA	10.9	56			4.0	0
KTPX-TV D28 DT LIC	9.9	1	5.0	0	2.0	0
KLEG-CD D28 DC CP	89.4	736	77.5	679	75.5	679
KWKT-TV D28 DT LIC	16.9	56	10.0	0	10.0	0

Interference to proposal scenario 1
3.48% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	K31LQ-D	D28	LD	STA	SHERMAN, TX	K31LQ-D 28-STA	
Undesireds:	K46AI-D	D27	LD	LIC	DURANT, OK	BLANK0000063814	37.5 km
	KTPX-TV	D28	DT	LIC	OKMULGEE, OK	BLCDT20020510AAQ	209.4
	KLEG-CD	D28	DC	LIC	DALLAS, TX	BLANK0000080460	139.2
	KFDX-TV	D28	DT	LIC	WICHITA FALLS, TX	BLCDT20090205ABU	162.9

Service area		Terrain-limited		IX-free		Percent IX	
1687.9	28,786	1681.0	28,772	1600.1	27,772	4.81	3.48

Undesired	Total IX		Unique IX		Prcnt Unique IX	
K46AI-D D27 LD LIC	12.8	377	0.0	0	0.00	0.00
KTPX-TV D28 DT LIC	4.0	68	0.0	0	0.00	0.00
KLEG-CD D28 DC LIC	1.0	0	0.0	0	0.00	0.00
KFDX-TV D28 DT LIC	80.9	1,000	64.1	555	3.81	1.93

Interference to proposal scenario 2
3.48% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	K31LQ-D	D28	LD	STA	SHERMAN, TX	K31LQ-D 28-STA	
Undesireds:	K46AI-D	D27	LD	LIC	DURANT, OK	BLANK0000063814	37.5 km
	KTPX-TV	D28	DT	LIC	OKMULGEE, OK	BLCDT20020510AAQ	209.4
	KLEG-CD	D28	DC	CP	DALLAS, TX	BLANK0000143076	139.2
	KFDX-TV	D28	DT	LIC	WICHITA FALLS, TX	BLCDT20090205ABU	162.9

Service area		Terrain-limited		IX-free		Percent IX	
1687.9	28,786	1681.0	28,772	1600.1	27,772	4.81	3.48

Undesired	Total IX		Unique IX		Prcnt Unique IX	
K46AI-D D27 LD LIC	12.8	377	0.0	0	0.00	0.00
KTPX-TV D28 DT LIC	4.0	68	0.0	0	0.00	0.00
KLEG-CD D28 DC CP	1.0	0	0.0	0	0.00	0.00
KFDX-TV D28 DT LIC	80.9	1,000	64.1	555	3.81	1.93