

Engineering Statement

prepared for

Gray Television Licensee, LLC

SagamoreHill of Lubbock, LLC

KCBD(DT) Lubbock, TX Facility ID 27507

KJTV-TV Lubbock, TX Facility ID 55031

This engineering statement has been prepared on behalf of *Gray Television Licensee, LLC* (“Gray”) and *SagamoreHill of Lubbock, LLC* (“SagamoreHill”) in support of a *Petition for Rulemaking* to amend §73.622(j) to exchange digital television channel assignments between two digital television stations. *Gray* is licensee of KCBD (Facility ID 27507, Lubbock TX) and *SagamoreHill* is licensee of KJTV-TV (Facility ID 55031 Lubbock, TX).

KCBD is licensed to operate on Channel 11 (File# 0000010766). A recent channel substitution changed the digital channel allotment for KCBD from Channel 11 to Channel 36 as described in the FCC Report and Order in MB Docket 21-477¹. A Construction Permit (“CP” file# 0000149814), which has not been built out, authorizes KCBD to operate on Channel 36. As currently authorized, KCBD would operate on Channel 36 at 1000 kW effective radiated power (“ERP”) using the existing broadband antenna that is shared by KJTV-TV (Channel 35) and KLCW-TV (Channel 23, Facility ID 77719, Wolfforth TX), located 5.5 km distant from the licensed KCBD Channel 11 site.

Gray and *SagamoreHill* propose to swap the KCBD and KJTV-TV allotments such that the channels, antennas, and power levels will continue to operate as currently licensed but with each other’s television transmitting facilities. That is, the Channel 35 technical facility currently utilized by KJTV-TV will be employed by KCBD and the existing Channel 11 technical facility of KCBD will be utilized by KJTV-TV.

The attached Figure 1 provides an overview comparison map of the noise limited service contour (“NLSC”) for each station. There will be no change in the total number of existing

¹*Amendment of Section 73.622(i), Post-Transition Table of DTV Allotments, Television Broadcast Stations (Lubbock, TX)*, MB Docket No. 21-61, RM 11885, DA 21-477, released April 26, 2021.

television NLSC services for any location. A summary of the technical parameters is provided in the following.

KCBD Facility ID 27507: currently licensed on Channel 11

Proposed substitution: KCBD to use Channel 35 with the antenna and ERP currently utilized by KJTV-TV (1000 kW ERP, file# 0000074582)

Proposed KCBD Channel 35 Parameters
Same as Licensed KJTV-TV Channel 35 (file# 0000074582)

FacID	Call	Ch	City	St	Lat	Lon	RCAMSL	HAAT	ERP	DA
27507	KCBD	35	LUBBOCK	TX	333008.3	1015221.3	1263.7	282.1	1000	DA 1005100

KJTV-TV Facility ID 55031: currently licensed on Channel 35

Proposed substitution: KJTV-TV to use Channel 11 with the antenna and ERP currently utilized by KCBD (41 kW ERP, file# 0000010766)

Proposed KJTV-TV Channel 11 Parameters
Same as Licensed KCBD Channel 11 (file# 0000010766)

FacID	Call	Ch	City	St	Lat	Lon	RCAMSL	HAAT	ERP	DA
55031	KJTV-TV	11	LUBBOCK	TX	333229.9	1015013.6	1208.2	234	41	ND

Discussion – KCBD

The proposed KCBD Channel 35 operation will employ the existing UHF broadband directional antenna that is top-mounted on the tower structure associated with FCC Antenna Structure Registration (“ASR”) number 1248244. The antenna will continue to be shared with the licensed KLCW-TV Channel 23 facility.

The KCBD Channel 35 proposed ERP is 1000 kW. The Channel 35 directional antenna azimuthal pattern (FCC Antenna ID 1005100) is plotted in Figure 2. The proposed KCBD Channel 35 facility parameters match those of the licensed KJTV-TV Channel 35 facility (file# 0000074582).

A map is supplied as Figure 2A that depicts the proposed KCBD standard predicted coverage contours. As demonstrated thereon, the proposed facility complies with §73.625(a)(1) as the entire community of Lubbock will be encompassed by the 48 dBμ contour.

Interference study per FCC OET Bulletin 69² shows that the KCBD proposal complies with the 0.5 percent limit of new interference caused to pertinent nearby full service and Class A television stations as required by §73.616. The interference study output report is provided as Table 1. No predicted interference is caused to any relevant facility.

Figure 2B shows that the proposed KCBD Channel 35 NLSC encompasses and expands slightly beyond the NLSC corresponding to the KCBD Channel 36 NLSC adopted in MB Docket 21-477 and authorized by CP (file# 0000149814). Owing to the use of the same broadband antenna at the same ERP of 1000 kW and the dipole factor NLSC adjustment, no loss of service will occur when the Channel 35 proposal is compared to the authorized Channel 36. The population within the KCBD authorized Channel 36 NLSC is 406,634 persons (2010 census) and increases by 191 persons to 406,825 for the proposed Channel 35 NLSC.

As with the KCBD Channel 36 CP, the proposed Channel 35 NLSC will fall short of matching that of the licensed Channel 11 facility. The KCBD licensed Channel 11 NLSC encompasses 414,829 persons (2010 census) and decreases by 8,004 persons to 406,825 for the proposed Channel 35 NLSC. KCBD is a top-four network affiliate (NBC), and further analysis shows that only a *de minimis* level of population in the NLSC loss area will lose NBC terrain-limited service when compared to the licensed Channel 11.

As was provided in MB Docket 21-477, a loss area analysis is provided in Figure 2C to consider terrain-limited coverage predictions of the licensed Channel 11 facility and the proposed Channel 35 operation. Here, the FCC's TVStudy computer program was used to determine terrain-

²FCC 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, 2 km cell size, and 1 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.

limited coverage predictions at locations beyond the proposed Channel 35 NLSC. The study area was set using the “fixed geography” option to match the KCBD licensed Channel 11 NLSC. Default cell size and profile step settings were employed. The analysis included examination of each cell that is located beyond the proposed KCBD Channel 35 NLSC and within the existing KCBD Channel 11 facility’s NLSC. Cells in this region were counted as lost service if they are predicted to have terrain-limited service from the licensed Channel 11 facility and not from the proposed Channel 35.

This analysis shows that nearly all of the terrain-limited service population achieved by the licensed KCBD within its Channel 11 NLSC will receive terrain-limited service from the proposed Channel 35. The determination of terrain-limited service loss considers each cell that is located within the existing Channel 11 facility’s NLSC and beyond the proposed Channel 35 NLSC. This analysis shows that the terrain-limited loss population is only 350 persons, which is the same result that was determined for Channel 36 in MB Docket 21-477. The FCC has previously found that population loss of less than 500 persons is *de minimis*,³ and the predicted population loss in this case is only 350 persons.

Discussion – KJTV-TV

The proposed KJTV-TV Channel 11 operation will employ the existing nondirectional antenna that is top-mounted on the tower structure associated with ASR number 1298672. The proposed ERP is 41 kW. The proposed KJTV-TV Channel 11 facility parameters match those of the licensed KCBD Channel 11 facility (file# 0000010766).

A map is supplied as Figure 3 that depicts the proposed KJTV-TV standard predicted coverage contours. As demonstrated thereon, the proposed facility complies with §73.625(a)(1) as the entire community of Lubbock will be encompassed by the 43 dBμ contour.

TVStudy interference analysis shows that the KJTV-TV proposal complies with the 0.5 percent limit of new interference caused to pertinent nearby full service and Class A television

³See *WSET, Inc.*, 80 FCC 2d 233, 246 (1980).

stations and reassignments as required by §73.616. The interference study output report is provided as Table 2.

Figure 3A shows that the proposed KJTV-TV Channel 11 NLSC encompasses and expands beyond that of the licensed Channel 35 facility. The population within the licensed Channel 35 NLSC is 406,825 persons (2010 census) and increases by 8,004 persons to 414,829 for the proposed Channel 11 NLSC.

Conclusion

The proposed channel swap involving K CBD and KJTV-TV complies with the FCC's principal community coverage requirements of §73.625 and the interference protection requirements of §73.616. There will be no change in the total number of existing television NLSC services for any location. Individual station NLSC area differences will occur, while terrain-limited analysis shows that only a *de minimis* level of population in the K CBD NLSC loss area will lose top-four network service.

List of Attachments

Figure 1	Coverage Contour Comparison – Proposed Channel Substitutions
Figure 2	K CBD Antenna Azimuthal Pattern
Figure 2A	K CBD Proposed Coverage Contours
Figure 2B	K CBD Coverage Contour Comparison
Figure 2C	K CBD NBC Loss Area Analysis – Terrain-Limited Method
Figure 3	KJTV-TV Proposed Coverage Contours
Figure 3A	KJTV-TV Coverage Contour Comparison
Table 1	K CBD Ch. 35 TVStudy Analysis of Proposal
Table 2	KJTV-TV Ch. 11 TVStudy Analysis of Proposal

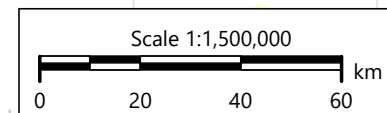
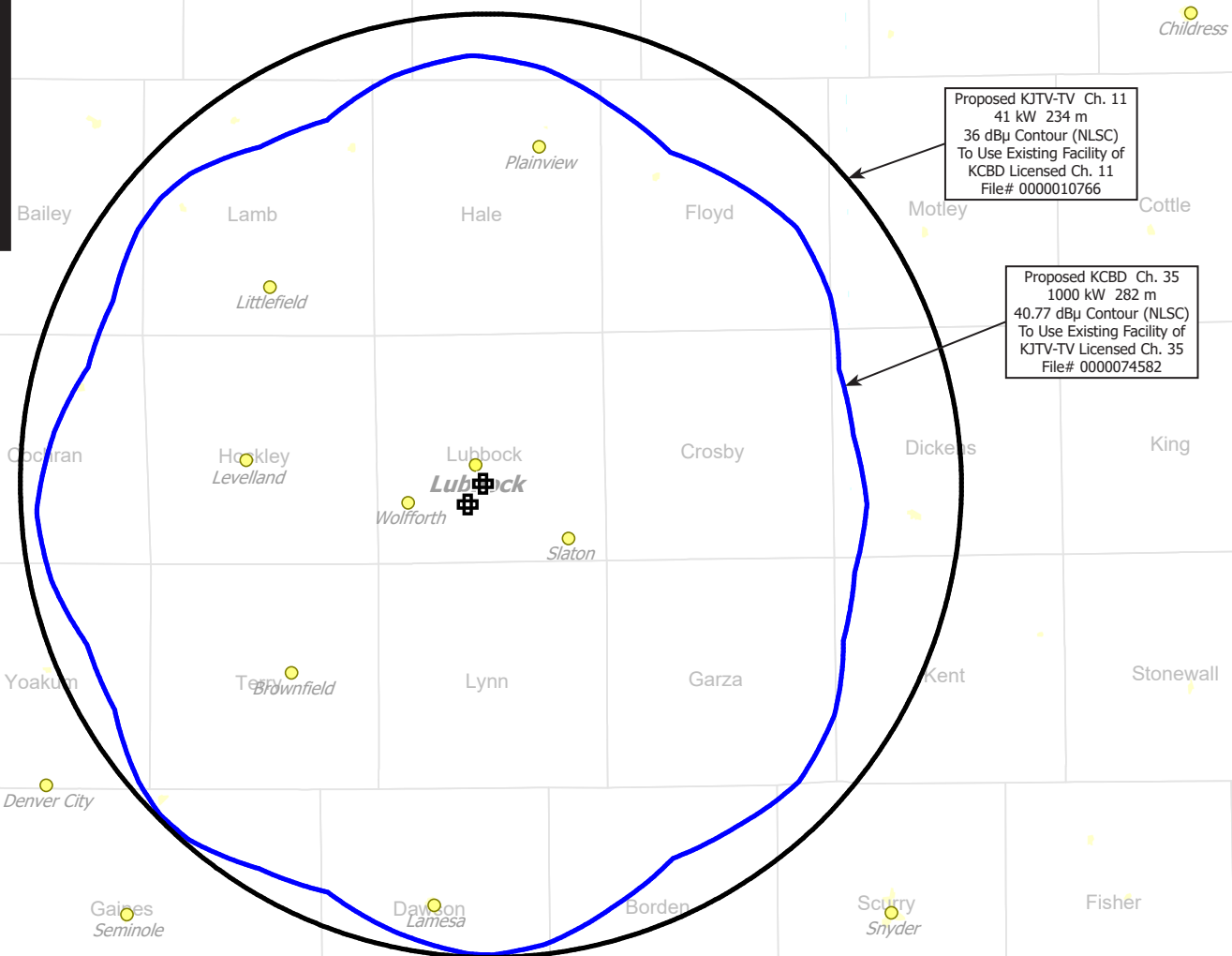
Chesapeake RF Consultants, LLC

Joseph M. Davis, P.E.	May 14, 2024	
207 Old Dominion Road	Yorktown, VA 23692	703-650-9600

Figure 1
Coverage Contour Comparison
Proposed Channel Substitutions
KCBD(DT) Lubbock, TX
KJTV-TV Lubbock, TX

prepared for
Gray Television Licensee, LLC
SagamoreHill of Lubbock, LLC

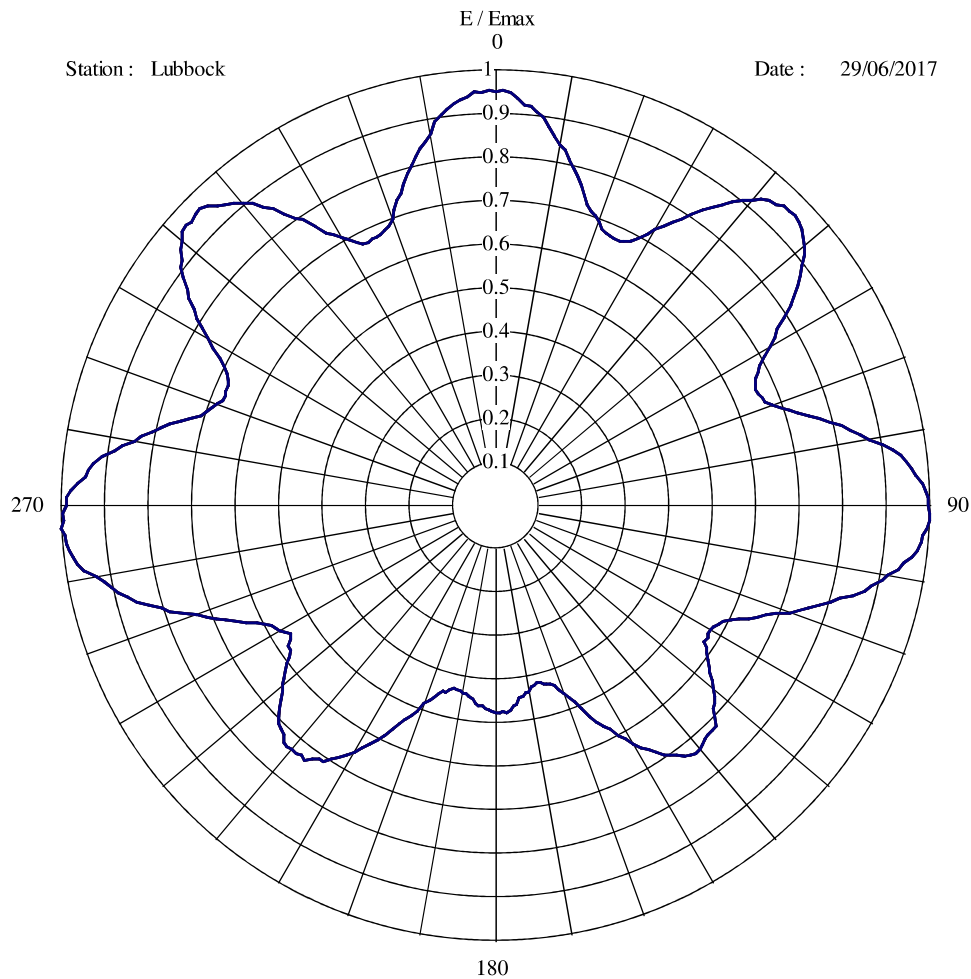
May, 2024





Rotate Pattern
270 Degrees

Horizontal Radiation Pattern



Model : PHP64U3313

Polarisation : Horizontal
Frequency (MHz) : 602.00
Directivity : 2.45 dB
Elevation Angle : 0.7 degrees

Figure 2
Antenna Azimuthal Pattern
KCBD(DT) Lubbock, TX
Facility ID 27507
Ch. 35 1000 kW 282 m

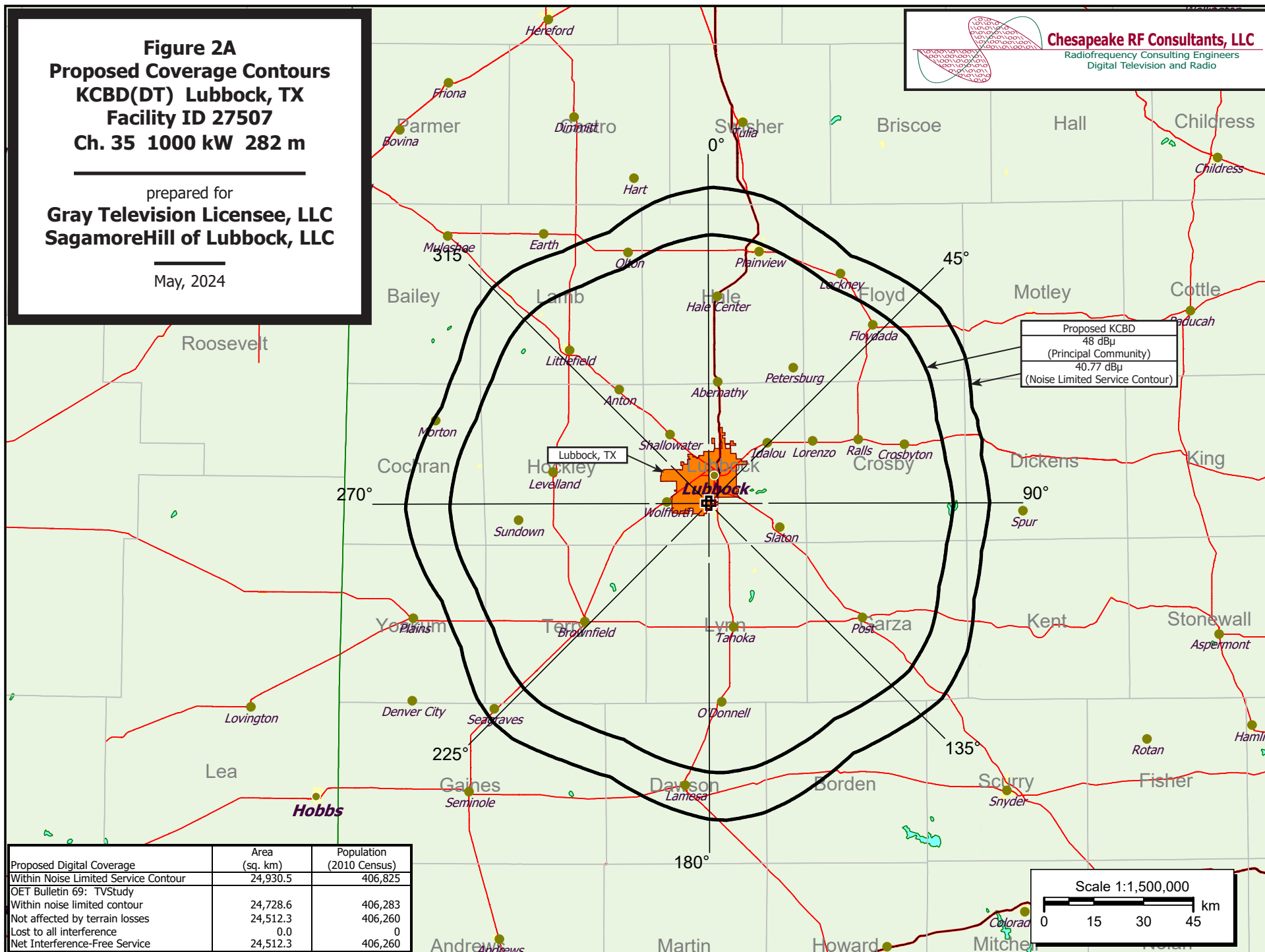
prepared for
Gray Television Licensee, LLC
SagamoreHill of Lubbock, LLC

May, 2024

Figure 2A
Proposed Coverage Contours
KCBD(DT) Lubbock, TX
Facility ID 27507
Ch. 35 1000 kW 282 m

prepared for
Gray Television Licensee, LLC
SagamoreHill of Lubbock, LLC

May, 2024



Proposed Digital Coverage	Area (sq. km)	Population (2010 Census)
Within Noise Limited Service Contour	24,930.5	406,825
OET Bulletin 69: TVStudy		
Within noise limited contour	24,728.6	406,283
Not affected by terrain losses	24,512.3	406,260
Lost to all interference	0.0	0
Net Interference-Free Service	24,512.3	406,260

Figure 2B
Coverage Contour Comparison
KCBD(DT) Lubbock, TX
Facility ID 27507
Ch. 35 1000 kW 282 m

prepared for
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SagamoreHill of Lubbock, LLC

May, 2024

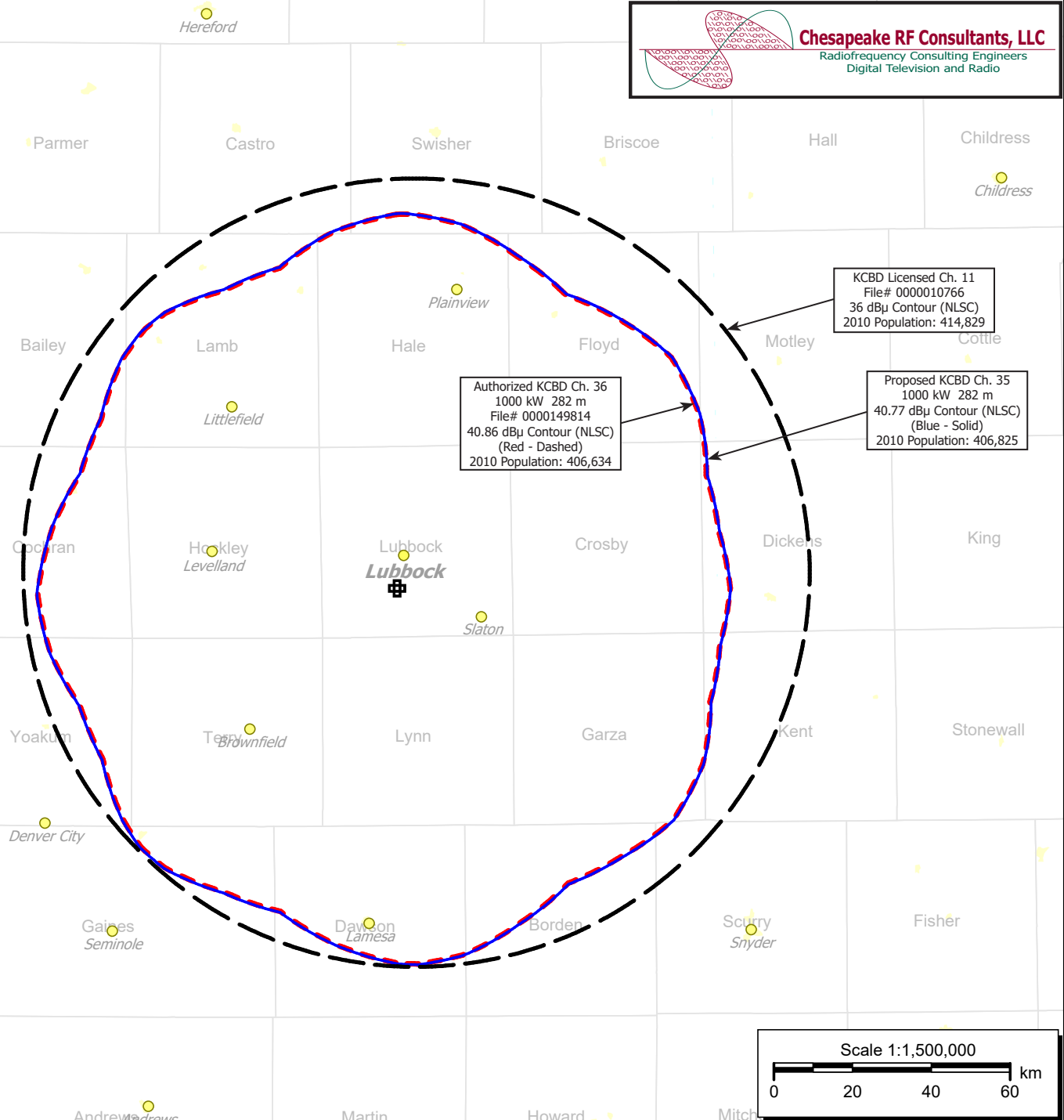
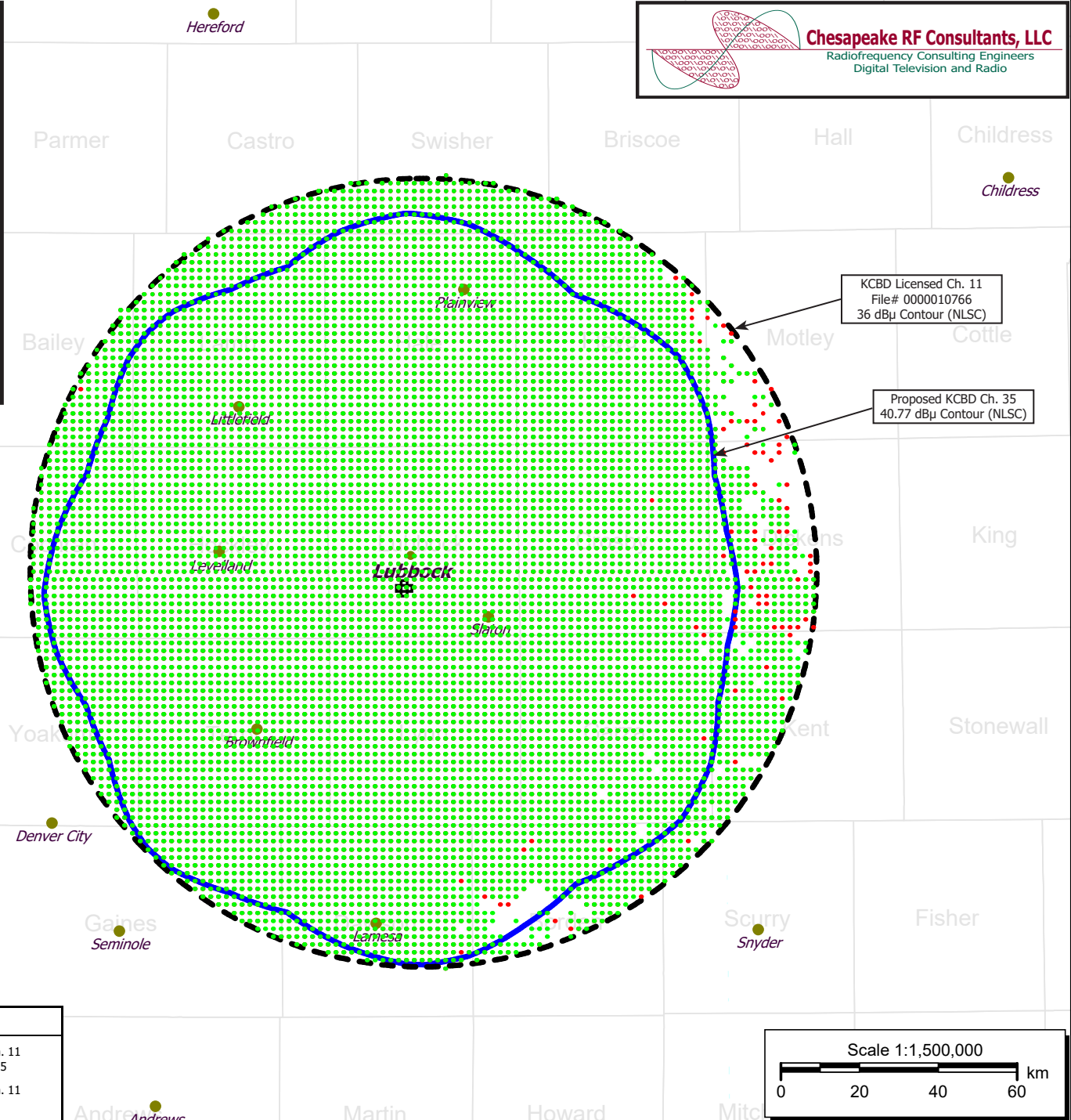


Figure 2C
NBC Loss Area Analysis
Terrain-Limited Method
KCBD(DT) Lubbock, TX
Facility ID 27507
Ch. 35 1000 kW 282 m

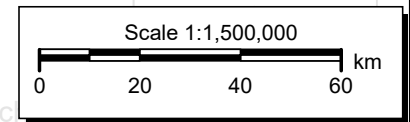
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May, 2024



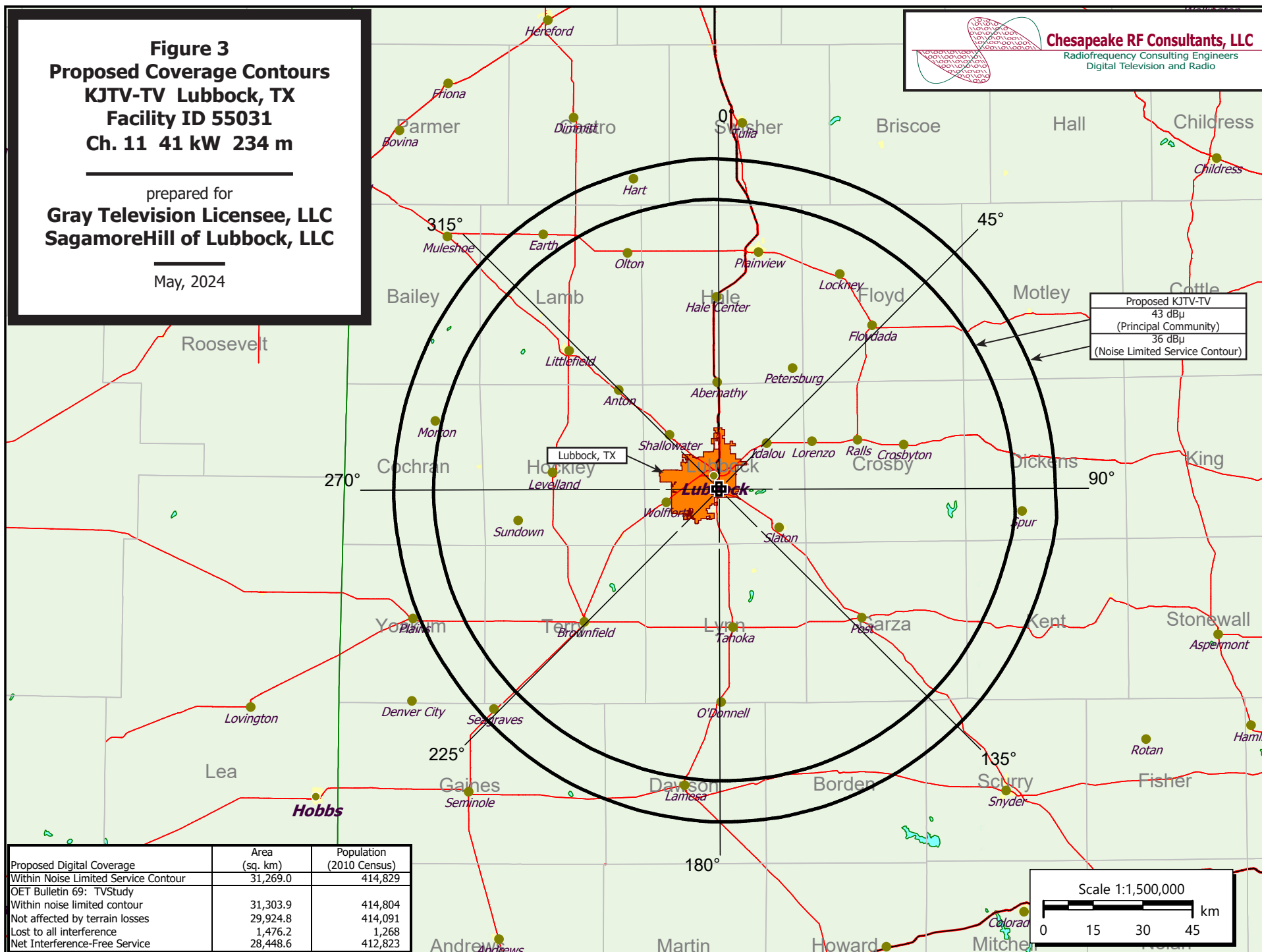
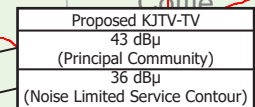
KCBD Terrain-Limited Population TVStudy at Fixed Geography Area	(2010 census)
Licensed Ch. 11 Total	414,091
Loss Beyond Proposed Ch. 35 NLSC	350

FCC "TVStudy" Analysis (default settings)	
Terrain-Limited Results	
● No Loss	Cells Having Terrain-Limited Service From Licensed Ch. 11 Terrain-Limited Service Is Provided for Proposed Ch. 35
● Loss	Cells Having Terrain-Limited Service From Licensed Ch. 11 Terrain-Limited Service Is Lost for Proposed Ch. 35



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	Area (sq. km)	Population (2010 Census)
Proposed Digital Coverage		
Within Noise Limited Service Contour	31,269.0	414,829
OET Bulletin 69: TVStudy		
Within noise limited contour	31,303.9	414,804
Not affected by terrain losses	29,924.8	414,091
Lost to all interference	1,476.2	1,268
Net Interference-Free Service	28,448.6	412,823

Figure 3A
Coverage Contour Comparison
KJTV-TV Lubbock, TX
Facility ID 55031
Ch. 11 41 kW 234 m

prepared for
Gray Television Licensee, LLC
SagamoreHill of Lubbock, LLC

May, 2024

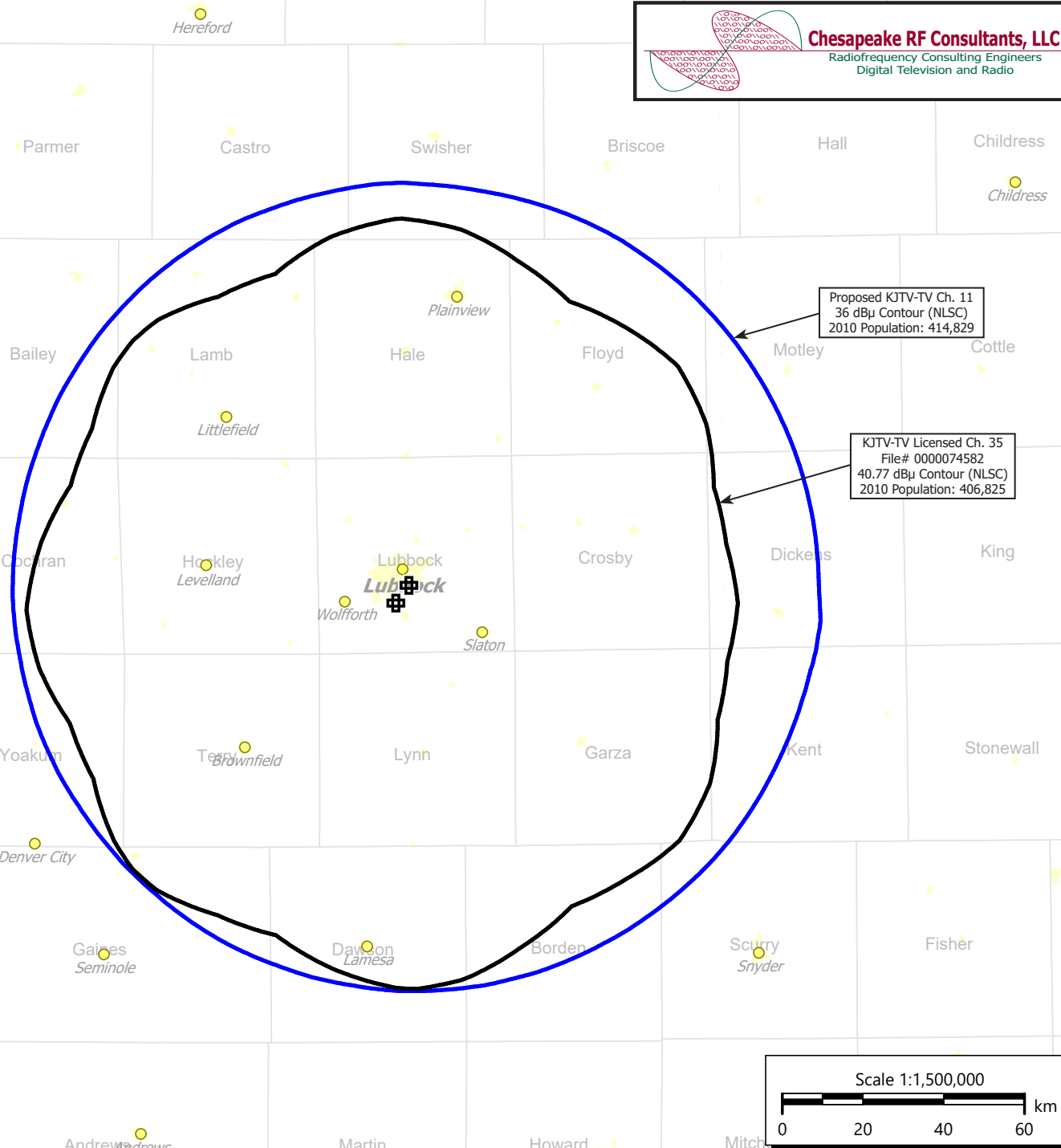


Table 1 KCBD Ch. 35 TV Study Analysis of Proposal
(page 1 of 2)



tvstudy v2.2.5 (4uoc83)
Database: localhost, Study: KCBD Ch-35_, Model: Longley-Rice
Start: 2024.05.13 14:49:57

Study created: 2024.05.13 14:49:57

Study build station data: LMS TV 2024-05-13

Proposal: KCBD D35 DT APP LUBBOCK, TX
File number: KCBD Ch-35
Facility ID: 27507
Station data: User record
Record ID: 232
Country: U.S.
Zone: II

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

Search options:
Baseline record excluded if station has CP

Individual records excluded:
0000074582 KJTV-TV D35 DT LIC LUBBOCK, TX BLANK0000074582
55031 KJTV-TV D35 DT BL LUBBOCK, TX DTVBL55031

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	KNME-TV	D35	DT	LIC	ALBUQUERQUE, NM	BLANK0000131933	461.0 km
No	KUOK	D35	DT	LIC	WOODWARD, OK	BLANK0000004509	379.2
No	KDFW	D35	DT	LIC	DALLAS, TX	BLANK0000120280	467.2

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D35
Latitude: 33 30 8.30 N (NAD83)
Longitude: 101 52 21.30 W
Height AMSL: 1263.7 m
HAAT: 282.1 m
Peak ERP: 1000 kW
Antenna: RFS-PHPR64U3313 (ID 1005100) 0.0 deg
Elev Pattern: Generic
Elec Tilt: 0.70

40.8 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	990 kW	282.3 m	94.9 km
45.0	478	295.1	89.8
90.0	227	300.8	84.3
135.0	468	298.4	90.1
180.0	976	283.8	95.0
225.0	929	268.6	92.2
270.0	903	261.9	90.7
315.0	914	265.8	91.5

Distance to Canadian border: 1722.5 km

Distance to Mexican border: 404.8 km

Conditions at FCC monitoring station: Douglas AZ
Bearing: 255.2 degrees Distance: 762.4 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 338.9 degrees Distance: 793.4 km

Table 1 KCBD Ch. 35 TVStudy Analysis of Proposal
(page 2 of 2)



Study cell size: 2.00 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 proposal scenario 1

Desired:	Call KCBD	Chan D35	Svc DT	Status APP	City, State LUBBOCK, TX	File Number KCBD Ch-35	Distance
	Service area				Terrain-limited		
24728.6	406,283	24512.3		406,260	24512.3	IX-free 406,260	Percent IX 0.00 0.00

Table 2 KJTV-TV Ch. 11 TVStudy Analysis of Proposal
(page 1 of 3)



tvstudy v2.2.5 (4uoc83)
Database: localhost, Study: KJTV-TV Ch-11 prop, Model: Longley-Rice
Start: 2024.05.13 14:47:06

Study created: 2024.05.13 14:47:06

Study build station data: LMS TV 2024-05-13

Proposal: KJTV-TV D11 DT APP Lubbock, TX
File number: KJTV-TV Ch-11 prop
Facility ID: 88031
Station data: User record
Record ID: 395
Country: U.S.
Zone: II

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

Search options:
Baseline record excluded if station has CP

Individual records excluded:
0000010766 KCBD D11 DT LIC LUBBOCK, TX BLANK0000010766
0000235315 KLCW-TV D11 DT APP *P WOLFFORTH, TX BLANK0000235315

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	KBIM-TV	D10	DT	LIC	ROSWELL, NM	BLANK0000067866	192.2 km
No	KFDA-TV	D10	DT	LIC	AMARILLO, TX	BLCDT20111114BLB	194.6
Yes	KSWO-TV	D11	DT	LIC	LAWTON, OK	BLANK0000005143	297.1
Yes	KLST	D11	DT	LIC	SAN ANGELO, TX	BLCDT20090316ABJ	294.3
Yes	KVIH-TV	D12	DT	LIC	CLOVIS, NM	BLANK0000211126	151.5

No non-directional AM stations found within 0.8 km

Directional AM stations within 3.2 km:
KRFE 580 L DA2 D LUBBOCK, TX BL5108
KRFE 580 L DA2 N LUBBOCK, TX BL5108

Record parameters as studied:

Channel: D11
Latitude: 33 32 29.90 N (NAD83)
Longitude: 101 50 13.60 W
Height AMSL: 1208.2 m
HAAT: 234.0 m
Peak ERP: 41.0 kW
Antenna: Omnidirectional
Elev Pattn: Generic
Elec Tilt: 0.75

36.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	41.0 kW	228.8 m	99.5 km
45.0	41.0	239.7	100.5
90.0	41.0	252.7	101.3
135.0	41.0	249.0	101.1
180.0	41.0	236.8	100.2
225.0	41.0	218.8	98.6
270.0	41.0	212.8	98.0
315.0	41.0	221.4	98.9

Database HAAT does not agree with computed HAAT
Database HAAT: 234 m Computed HAAT: 233 m

Distance to Canadian border: 1718.1 km

Distance to Mexican border: 409.5 km

Conditions at FCC monitoring station: Douglas AZ
Bearing: 254.9 degrees Distance: 766.7 km

Table 2 KJTV-TV Ch. 11 TVStudy Analysis of Proposal
(page 2 of 3)



Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 338.6 degrees Distance: 790.5 km

Study cell size: 2.00 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 BLANK000005143 LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KSWO-TV	D11	DT	LIC	LAWTON, OK	BLANK000005143	
Undesireds:	KJTV-TV	D11	DT	APP	Lubbock, TX	KJTV-TV Ch-11 prop	297.1 km
	KOED-TV	D11	DT	LIC	TULSA, OK	BLEDT20120419ABK	341.9
	KUVN-CD	D11	DC	LIC	FORT WORTH, TX	BLANK0000092996	215.0
	KLST	D11	DT	LIC	SAN ANGELO, TX	BLCDT20090316ABJ	339.9
	KXII	D12	DT	LIC	SHERMAN, TX	BLCDT20090226ACF	178.0
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
42777.7		483,132		41477.2		448,907	0.75 0.03
				458,057		40350.0	
				40653.8		449,052	
Undesired		Total IX		Unique IX, before		Unique IX, after	
KJTV-TV D11 DT APP		364.0		145		303.9	145
KOED-TV D11 DT LIC		615.3		7,061		579.4	6,336
KUVN-CD D11 DC LIC		104.0		816		88.0	401
KLST D11 DT LIC		72.1		0		64.1	0
KXII D12 DT LIC		79.9		2,268		47.9	1,543

Interference to BLCDT20090316ABJ LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KLST	D11	DT	LIC	SAN ANGELO, TX	BLCDT20090316ABJ	
Undesireds:	KJTV-TV	D11	DT	APP	Lubbock, TX	KJTV-TV Ch-11 prop	294.3 km
	KSWO-TV	D11	DT	LIC	LAWTON, OK	BLANK000005143	339.9
	KVCT	D11	DT	CP	VICTORIA, TX	BPCDT20120105ABP	396.8
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
36414.8		199,067		34048.6		168,131	1.06 0.02
				169,551		33306.6	
				33664.8		168,169	
Undesired		Total IX		Unique IX, before		Unique IX, after	
KJTV-TV D11 DT APP		451.1		475		358.3	38
KSWO-TV D11 DT LIC		379.8		1,337		286.9	900
KVCT D11 DT CP		4.0		45		4.0	45

Interference to BLCDT20090316ABJ LIC scenario 2

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KLST	D11	DT	LIC	SAN ANGELO, TX	BLCDT20090316ABJ	
Undesireds:	KJTV-TV	D11	DT	APP	Lubbock, TX	KJTV-TV Ch-11 prop	294.3 km
	KSWO-TV	D11	DT	LIC	LAWTON, OK	BLANK000005143	339.9
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
36414.8		199,067		34048.6		168,176	1.06 0.02
				169,551		33310.6	
				33668.8		168,214	
Undesired		Total IX		Unique IX, before		Unique IX, after	
KJTV-TV D11 DT APP		451.1		475		358.3	38
KSWO-TV D11 DT LIC		379.8		1,337		286.9	900

Interference to BLANK0000211126 LIC scenario 1

Table 2 KJTV-TV Ch. 11 TVStudy Analysis of Proposal
(page 3 of 3)



Desired:	Call KVIH-TV	Chan D12	Svc DT	Status LIC	City, State CLOVIS, NM	File Number BLANK0000211126	Distance				
Undesireds:	KJTV-TV	D11	DT	APP	Lubbock, TX	KJTV-TV Ch-11 prop	151.5 km				
	Service area 36986.6	144,902	Terrain-limited 33311.4		122,956	IX-free, before 33311.4	122,956	IX-free, after 33206.9	122,450	Percent New IX 0.31	0.41
Undesired				Total IX	Unique IX, before	Unique IX, after					
KJTV-TV	D11	DT	APP	104.5	506	104.5	506				

Interference to proposal scenario 1

Desired:	Call KJTV-TV	Chan D11	Svc DT	Status APP	City, State Lubbock, TX	File Number KJTV-TV Ch-11 prop	Distance
Undesireds:	KSWO-TV	D11	DT	LIC	LAWTON, OK	BLANK0000005143	297.1 km
	KLST	D11	DT	LIC	SAN ANGELO, TX	BLCDT20090316ABJ	294.3
	KVIH-TV	D12	DT	LIC	CLOVIS, NM	BLANK0000211126	151.5
Service area		Terrain-limited			IX-free	Percent IX	
31303.9	414,804	29924.8		414,091	28448.6	412,823	4.93 0.31
Undesired				Total IX	Unique IX	Prct Unique IX	
KSWO-TV	D11	DT	LIC	1227.5	1,125	999.4	1,008 3.34 0.24
KLST	D11	DT	LIC	468.8	252	240.7	135 0.80 0.03
KVIH-TV	D12	DT	LIC	8.0	8	8.0	8 0.03 0.00