

# **ENGINEERING STATEMENT**

**In support of a request for**

**Repack Transition Filing Waiver Request**

**KPBT-TV CH 28**

**Odessa, TX**

**Facility ID: 50044**

## **PURPOSE**

MARSAND, INC. has been retained by Permian Basin Public Telecommunications, Inc. to perform the engineering study for new channel assignment and antenna development and act as the project engineering firm for the post-incentive auction reassigned facilities for KPBT-TV, the "station". KPBT-TV operates on channel 38. It was assigned repack channel 28 following the close of the Incentive Auction. As described in detail in the DISCUSSION below, the tower where the station leases space for its current facility is not able to accommodate a replacement channel 28 antenna. The tower owner has another broadcast tower available. However, as also described in DISCUSSION below, relocating to this tower will not allow the station to meet both the baseline service area not to exceed 1% requirement while at the same time reduce by no more than 5% the predicted population served as defined in the post-incentive auction channel reassignment public notice.

## **DISCUSSION**

In the process of developing a plan to implement the post-incentive auction facilities, a structural analysis was commissioned of B+T Group out of Tulsa, OK, in June of 2017 on the tower on which the station currently leases space. The analysis (copy provided as Attachment 1) determined the tower would not have sufficient capacity to carry the final load configuration under the current TIA-222-G standard. The final load configuration consisted of replacing the current CH38 antenna with a new CH28 antenna and adding an interim, low power antenna and line.

Subsequent analyses performed at the request of the station revealed that the tower as it stands with its existing load configuration fails under the current standard with no changes.

Methods to modify the tower were examined by the structural engineering firm, however the analysis indicated the tower leg foundations require modification. An existing building located under the tower prevents the required changes to strengthen the tower leg foundations. The station cannot construct its post-incentive auction facility at this site.

The tower owner, KOSA-TV, has offered leased space on their broadcast tower located 23 km (14.3 miles) away (ASRN 1233693). From this location, the station is able to provide a 48 dBu “city grade” service contour over the principal community of license, Odessa, TX. However, in satisfying the requirement not to expand the noise-limited service contour in any direction beyond that established by the post-incentive auction channel reassignment public notice, no feasible antenna pattern could be identified that would also meet the requirement to match or reduce by no more than five percent with respect to predicted population from those defined in the post-incentive auction channel reassignment public notice. Exhibit 1 shows an antenna pattern with greatly reduced rear radiation. Exhibit 2 shows the resultant service grade contours in relation to the “baseline” service area. The FCC’s coverage and analysis software, TVStudy v2.2.2, was used to perform a study to confirm that the maximized service area from the proposed new tower location was within the 1% baseline limit. The study results (copy provided as Attachment 2) show the predicted population serviced count to be 275,465. This is 90.9% of the Coverage Baseline for Post-Auction Table of Allotments Interference Free Population count of 302,876.

Furthermore, as the proposed site is 222 km from the Mexican border, any service area expansion to recapture more of the baseline population will require Mexican coordination.

## **CONCLUSION**

The station respectfully requests that it be granted this Repack Transition Filing Waiver Request.

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**DECLARATION**

David Sanderford, declares and states that he is a graduate Electrical Engineer with a Bachelor of Science in Electrical Engineering from the Georgia Institute of Technology. He is the Vice-President of MARSAND, INC., a Registered Professional Corporation in the State of Texas, and that firm has been retained by Permian Basin Public Telecommunications, Inc. to perform the measurements contained in this report.

All facts contained herein are true of his own knowledge except where stated to be on information or belief, and as to those facts, he believes them to be true.

I declare under penalty of perjury that the foregoing is true and correct.



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David Sanderford

Vice-President - MARSAND, INC.

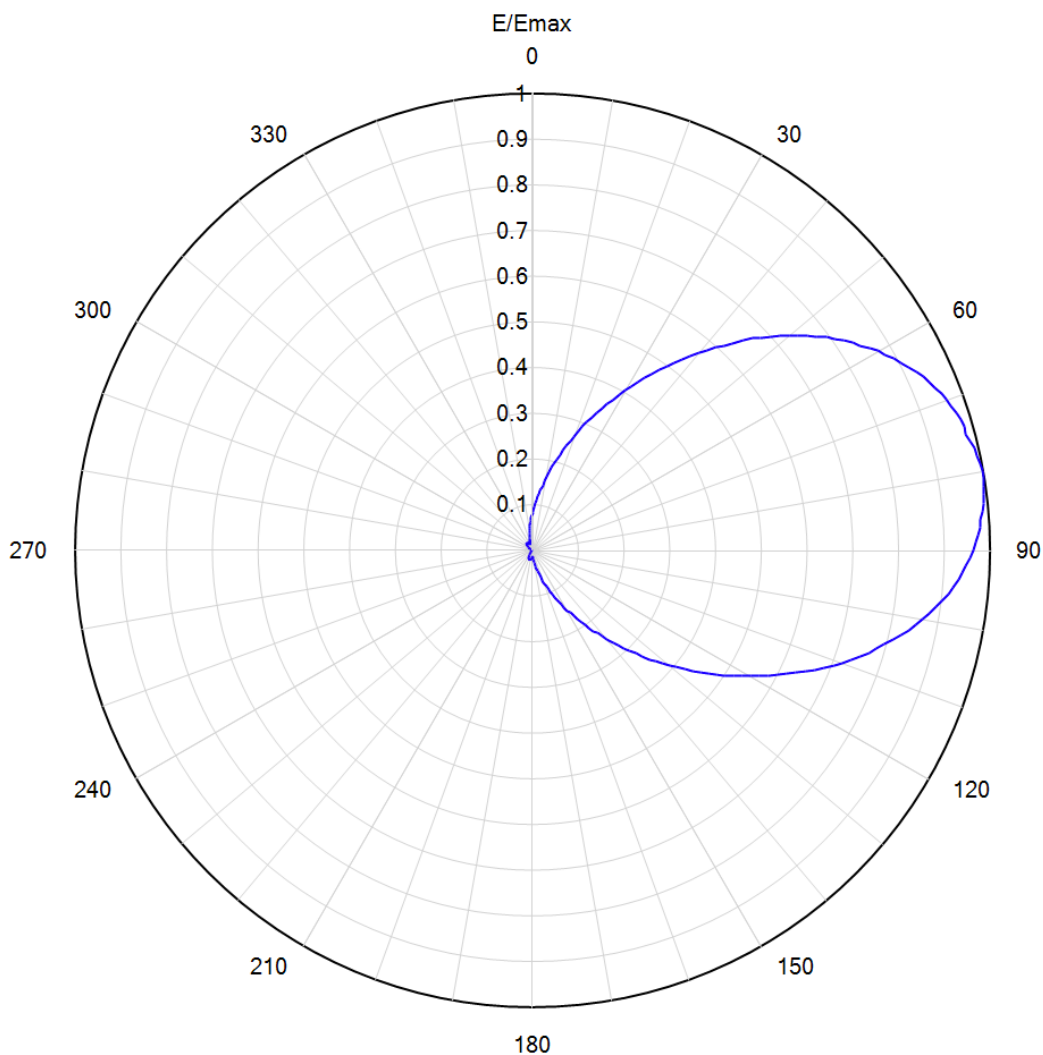
Executed this 3<sup>rd</sup> of July, 2017

State of Texas

## EXHIBIT 1



### Azimuth Pattern



Model: PHP8A

Location:

Customer:

Date: June 16, 2017

Rotation Angle: 80 degrees

Note: Pattern Tolerance +/-5% of Emax

Polarisation: Horizontal

Frequency: 557.00 MHz

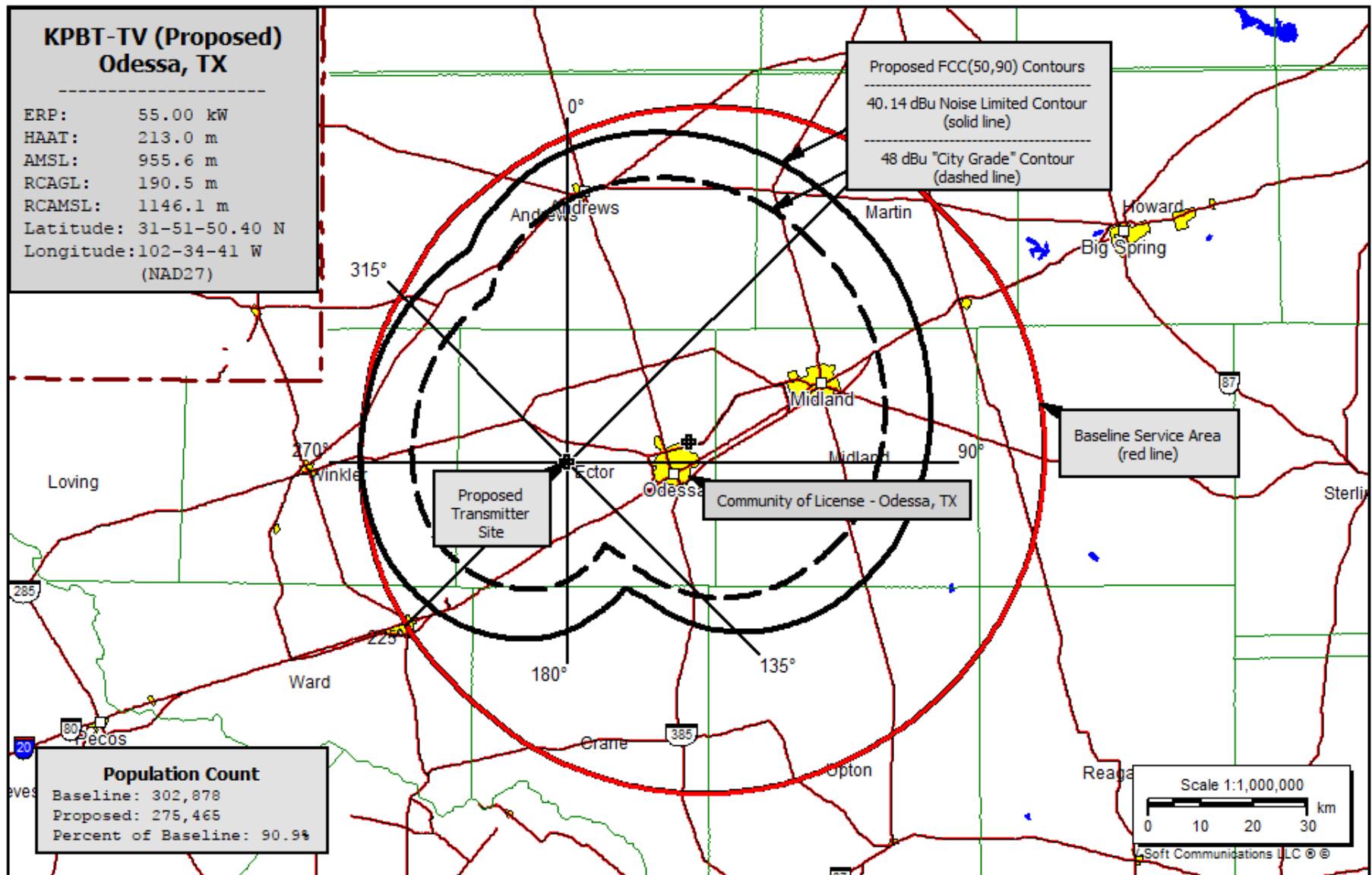
Directivity: 5.5 (7.40 dB)

Elevation Angle: 0.75 degrees

Horizontal Unit Pattern:

File = PHP4S-With 90 deg phase offset.pat

**EXHIBIT 2**



## Attachment 1

June 07, 2017

Domingo Machuca  
Basin PBS  
P.O. Box 8940  
Midland, TX 79708  
(432) 563-5728



B+T Group  
1717 S. Boulder, Suite 300  
Tulsa, OK 74119  
(918) 587-4630  
btwo@btgrp.com

**Subject:** Structural Analysis Report

**Basin PBS Designation:** **Site Number:** 861 TX OD  
**Site Name:** KPBT

**Engineering Firm Designation:** **B+T Group Project Number:** 82569.011.01

**Site Data:** 4101 E. 42nd Street, Odessa TX 79762, Ector County, TX  
Latitude 31° 53' 84.3", Longitude -102° 20' 26.8"  
350 Foot - Self Support Tower

Dear Domingo Machuca,

B+T Group is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

Existing + Proposed Equipment

Insufficient Capacity

Note: See Table 1 and Table 2 for the proposed and existing loading, respectively.

This analysis has been performed in accordance with the 2015 International Building Code based upon an ultimate 3-second gust wind speed of 115 mph converted to a nominal 3-second gust wind speed of 89 mph per section 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category C with Risk Category II was used in this analysis.

All equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at B+T Group appreciate the opportunity of providing our continuing professional services to you and Basin PBS. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:  
B+T Engineering, Inc.



Leena Kantheti, E.I.T.  
Project Engineer

John W. Kelly, P.E., S.E.  
Engineer of Record  
COA: F-9683 Expires: 12/31/2018

tnxTower Report - version 7.0.5.1

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## Attachment 2

tvstudy v2.2.2

Database: localhost, Study: KPBT\_PROPOSED01\_run01, Model: Longley-Rice  
Start: 2017.07.02 23:38:45

Study created: 2017.07.02 23:38:34

Study build station data: LMS TV 2017-07-01 (9)

Proposal: KPBT-TV D28 DT BL ODESSA, TX  
File number: KPBT\_PROPOSED01  
Facility ID: 50044  
Station data: User record  
Record ID: 57  
Country: U.S.

Stations potentially affected:

Call	Chan	Svc	Status	City, State	File Number	Distance
KRPV-DT	D27	DT	LIC	ROSWELL, NM	BLCDT20090211ABQ	239.5 km
KAMC	D27	DT	LIC	LUBBOCK, TX	BLCDT20080227ABN	196.3
KYVV-TV	D28	DT	APP	DEL RIO, TX	BMPCDT20080618ACC	366.5
KYVV-TV	D28	DT	LIC	DEL RIO, TX	BLCDT20110527AKP	324.7
KFDX-TV	D28	DT	LIC	WICHITA FALLS, TX	BLCDT20090205ABU	437.6
KUPT	D29	DT	LIC	HOBBS, NM	BLCDT20081125ADR	107.3

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  
Latitude: 31 51 50.80 N (NAD83)  
Longitude: 102 34 42.50 W  
Height AMSL: 1146.1 m  
HAAT: 213.0 m  
Peak ERP: 55.0 kW  
Antenna: RFS PHP4-8AQ 0.0 deg

40.1 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	0.379 kW	199.1 m	43.7 km
45.0	23.2	222.6	65.9
90.0	51.1	241.8	71.2
135.0	5.63	225.1	58.9
180.0	0.011	217.0	26.2
225.0	0.000	210.4	14.0
270.0	0.000	167.9	5.9
315.0	0.014	173.3	25.3

Database HAAT does not agree with computed HAAT

Database HAAT: 213 m Computed HAAT: 207 m

Proposal service area is within baseline plus 1.0%

\*\*Proposal service area population is less than 95.0% of baseline

Distance to Canadian border: 1904.5 km

\*\*Proposal is within coordination distance of Mexican border

Distance to Mexican border: 222.0 km

Conditions at FCC monitoring station: Kingsville TX

Bearing: 136.1 degrees Distance: 668.6 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:

Bearing: 346.2 degrees Distance: 947.7 km

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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%

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Interference to BLCDDT20090211ABQ LIC, scenario 1  
Proposal causes no interference.

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Interference to BLCDDT20080227ABN LIC, scenario 1  
Proposal causes no interference.

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Interference to BMPCDDT20080618ACC APP, scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance		
	KYVV-TV	D28	DT	APP	DEL RIO, TX	BMPCDDT20080618ACC			
Undesireds:	KPBT-TV	D28	DT	BL	ODESSA, TX	DTVBL50044	353.9 km		
	KPBT-TV	D28	DT	BL	ODESSA, TX	KPBT_PROPOSED01	366.5		
	KBVO	D27	DT	LIC	LLANO, TX	BLCDDT20090622ABA	188.4		
	WOAI-TV	D28	DT	CP	SAN ANTONIO, TX	BLANK0000025130	163.9		
	KWKT-TV	D28	DT	BL	WACO, TX	DTVBL12522	323.9		
	KENS	D29	DT	BL	SAN ANTONIO, TX	DTVBL26304	163.9		
	Service area	Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
37358.8	288,751	36728.4	272,171	33524.2	213,135	33528.2	213,135	-0.01	0.00
2554.8	303,964	2554.8	303,964	2526.8	303,681	2526.8	303,681	0.00	0.00 (in Mexico)

Undesired	Total IX	Unique IX, before	Unique IX, after
KPBT-TV D28 DT BL	4.0	0	4.0
KPBT-TV D28 DT BL	0.0	0	0.0
WOAI-TV D28 DT CP	3192.1	59,036	2908.3
WOAI-TV D28 DT CP	28.0	283	28.0
KWKT-TV D28 DT BL	20.1	35	8.0
KENS D29 DT BL	271.8	8,772	0.0

(in Mexico)

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Interference to BMPCDDT20080618ACC APP, scenario 2

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance		
	KYVV-TV	D28	DT	APP	DEL RIO, TX	BMPCDDT20080618ACC			
Undesireds:	KPBT-TV	D28	DT	BL	ODESSA, TX	DTVBL50044	353.9 km		
	KPBT-TV	D28	DT	BL	ODESSA, TX	KPBT_PROPOSED01	366.5		
	KBVO	D27	DT	LIC	LLANO, TX	BLCDDT20090622ABA	188.4		
	WOAI-TV	D28	DT	CP	SAN ANTONIO, TX	BLANK0000025130	163.9		
	KWKT-TV	D28	DT	BL	WACO, TX	DTVBL12522	323.9		
	KENS	D29	DT	BL	SAN ANTONIO, TX	DTVBL26304	163.9		
	Service area	Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
37358.8	288,751	36728.4	272,171	33524.2	213,135	33528.2	213,135	-0.01	0.00
2554.8	303,964	2554.8	303,964	2526.8	303,681	2526.8	303,681	0.00	0.00 (in Mexico)

Undesired	Total IX	Unique IX, before	Unique IX, after
KPBT-TV D28 DT BL	4.0	0	4.0
KPBT-TV D28 DT BL	0.0	0	0.0
WOAI-TV D28 DT CP	3192.1	59,036	2908.3
WOAI-TV D28 DT CP	28.0	283	28.0
KWKT-TV D28 DT BL	20.1	35	8.0
KENS D29 DT BL	271.8	8,772	0.0

(in Mexico)

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Interference to BMPCDDT20080618ACC APP, scenario 3

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KYVV-TV	D28	DT	APP	DEL RIO, TX	BMPCDDT20080618ACC	
Undesireds:	KPBT-TV	D28	DT	BL	ODESSA, TX	DTVBL50044	353.9 km

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KPBT-TV	D28	DT	BL	ODESSA, TX	KPBT_PROPOSED01	366.5
KBVO	D27	DT	LIC	LLANO, TX	BLCDDT20090622ABA	188.4
WOAI-TV	D28	DT	BL	SAN ANTONIO, TX	DTVBL69618	163.9
KWKT-TV	D28	DT	BL	WACO, TX	DTVBL12522	323.9
KENS	D29	DT	BL	SAN ANTONIO, TX	DTVBL26304	163.9

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent	New IX	
37358.8	288,751	36728.4	272,171	33508.1	211,907	33512.2	211,907	-0.01	0.00	
2554.8	303,964	2554.8	303,964	2526.8	303,681	2526.8	303,681	0.00	0.00	(in Mexico)

Undesired			Total IX		Unique IX, before		Unique IX, after		
KPBT-TV D28 DT BL		4.0	0		4.0	0			
KPBT-TV D28 DT BL		0.0	0			0.0	0		
WOAI-TV D28 DT BL	3208.2		60,264		2924.4	51,457	2924.4	51,457	
WOAI-TV D28 DT BL	28.0		283		28.0	283	28.0	283	(in Mexico)
KWKT-TV D28 DT BL	20.1		35		8.0	0	8.0	0	
KENS D29 DT BL	271.8		8,772		0.0	0	0.0	0	

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Interference to BMPCDT20080618ACC APP, scenario 4

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KYVV-TV	D28	DT	APP	DEL RIO, TX	BMPCDT20080618ACC	
Undesireds:	KPBT-TV	D28	DT	BL	ODESSA, TX	DTVBL50044	353.9 km
	KPBT-TV	D28	DT	BL	ODESSA, TX	KPBT_PROPOSED01	366.5
	KBVO	D27	DT	LIC	LLANO, TX	BLCDDT20090622ABA	188.4
	WOAI-TV	D28	DT	BL	SAN ANTONIO, TX	DTVBL69618	163.9
	KWKT-TV	D28	DT	BL	WACO, TX	DTVBL12522	323.9
	KENS	D29	DT	BL	SAN ANTONIO, TX	DTVBL26304	163.9

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent	New IX	
37358.8	288,751	36728.4	272,171	33508.1	211,907	33512.2	211,907	-0.01	0.00	
2554.8	303,964	2554.8	303,964	2526.8	303,681	2526.8	303,681	0.00	0.00	(in Mexico)

Undesired			Total IX		Unique IX, before		Unique IX, after		
KPBT-TV D28 DT BL		4.0	0		4.0	0			
KPBT-TV D28 DT BL		0.0	0			0.0	0		
WOAI-TV D28 DT BL	3208.2		60,264		2924.4	51,457	2924.4	51,457	
WOAI-TV D28 DT BL	28.0		283		28.0	283	28.0	283	(in Mexico)
KWKT-TV D28 DT BL	20.1		35		8.0	0	8.0	0	
KENS D29 DT BL	271.8		8,772		0.0	0	0.0	0	

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Interference to BLCDDT20110527AKP LIC, scenario 1  
Proposal causes no interference.

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Interference to BLCDDT20110527AKP LIC, scenario 2  
Proposal causes no interference.

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Interference to BLCDDT20110527AKP LIC, scenario 3  
Proposal causes no interference.

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Interference to BLCDDT20110527AKP LIC, scenario 4  
Proposal causes no interference.

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Interference to BLCDDT20090205ABU LIC, scenario 1  
Proposal causes no interference.

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Interference to BLCDDT20090205ABU LIC, scenario 2  
Proposal causes no interference.

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Interference to BLCDDT20081125ADR LIC, scenario 1  
Proposal causes no interference.

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Interference to proposal, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KPBT-TV	D28	DT	BL	ODESSA, TX	KPBT_PROPOSED01	
Undesireds:	KUPT	D29	DT	LIC	HOBBS, NM	BLCDT20081125ADR	107.3 km
	Service area			Terrain-limited		IX-free	Percent IX
	6478.2	275,465		6478.2	275,465	6478.2	275,465 0.00 0.00

Interference to proposal, scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KPBT-TV	D28	DT	BL	ODESSA, TX	KPBT_PROPOSED01	
Undesireds:	KYVV-TV	D28	DT	LIC	DEL RIO, TX	BLCDT20110527AKP	324.7 km
	KUPT	D29	DT	LIC	HOBBS, NM	BLCDT20081125ADR	107.3
	Service area			Terrain-limited		IX-free	Percent IX
	6478.2	275,465		6478.2	275,465	6478.2	275,465 0.00 0.00