

TECHNICAL EXHIBIT  
AMENDMENT TO  
DISPLACEMENT RELIEF  
APPLICATION FOR CONSTRUCTION PERMIT  
FCC FILE NO. BPTTL-20050929AAJ  
LOW POWER TV STATION KZSD-LP  
FACILITY ID 57054  
SAN DIEGO, CALIFORNIA  
CH 66 150 KW (MAX-DA)

Technical Narrative

The technical exhibit of which this narrative is part was prepared in support of an amendment to the pending displacement relief application for construction permit for Low Power TV (LPTV) station KZSD-LP (formerly KZDF-LP) at San Diego, California (Facility ID: 57054; FCC File No. BPTTL-20050929AAJ). The purpose of this instant amendment application is to modify the directional antenna system to provide additional protection to the Mexican NTSC channel 66 allotment at Mexicali, BN (see Appendix I attached). No other changes are proposed.

Station KZSD-LP is currently licensed to operate on NTSC channel 41 (632-638 MHz) with a directional antenna maximum effective radiated power (ERP) of 15 kW and an antenna radiation center height above mean sea level (RCAMSL) of 900 meters. However, Mexico recently allotted DTV co-channel 41 at Tijuana, BN which is located only 56.6 km from the KZSD-LP site.<sup>1</sup> Therefore KZSD-LP is considered to be displaced. This application is considered a "minor change" in facilities pursuant to Section 73.3572, as it is a displacement relief application and the proposed 74 dBu contour will overlap a portion of the licensed 74 dBu contour (see Figure 1). Furthermore, justification for site relocation is also provided below.

Proposed Operation

Station KZSD-LP proposes to operate on NTSC channel 66 (782-788 MHz) from a new transmitter site with a "zero" carrier frequency offset. A Superior Broadcast Products (SBP) model UPWL-4 directional antenna will be employed with an maximum ERP of 150 kW and an RCAMSL of 823 meters. The proposed antenna will

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<sup>1</sup> The notified facilities for the Tijuana DTV channel 41 allotment are: site coordinates N32°30'07", W117°02'23"; ERP 440 kW; and HAAT 248 meters.

be oriented with the main lobe at 238° true. The SBP UPWL-4 directional antenna will be mounted at the 43 meter level on an existing 45.7 meter tower. According to the FCC's TOWAIR program, the existing tower does not require registration.

Justification for Site Relocation

As noted above, KZSD-LP's channel 41 operation is being displaced by the Mexican channel 41 DTV allotment at Tijuana, BN located only 56.6 km from the KZSD-LP site. As such, a search of the entire TV band (Channels 2-69) was undertaken from the licensed KZSD-LP site. Figure 2 provides a summary of the results of the channel search. For each channel studied, the station(s) which preclude use of the channel are identified along with the distance from the existing KZSD-LP site to the pertinent station. As indicated, there are no channels which would be available from KZSD-LP's current site. It is noted that a majority of the channels are eliminated by Mexican NTSC and DTV allotments.

Furthermore, the only channel which offers some potential for operation is channel 66. However, operation on channel 66 requires relocation to a site which is essentially co-located with KUSI-TV on channel 51 at San Diego in order to permit compliance with the FCC's interference requirements of Section 74.705. The proposed site is located 0.1 km from the KUSI-TV site and 34.9 kilometers south of the existing KZSD-LP site. Therefore, it is believed that justification exists for relocation of the KZSD-LP site as proposed herein.

Response to Paragraph 13(a) - TV Broadcast Analog Protection

A study has been conducted using the provisions of Section 74.705 which indicates that the proposed KZSD-LP operation will not create prohibited interference to other existing, authorized or proposed NTSC full-power stations except with respect to the licensed operations of stations KUSI on channel 51 at San Diego, California and KSWB on channel 69 at San Diego, California. Therefore, waiver of Section 74.705 is respectfully requested with respect to KUSI and KSWB. Justification for the waiver requests are detailed below.

With respect to KUSI, it is believed that KZSD-LP's operation complies with the FCC's interference criteria based on consideration of terrain shielding and the provisions of the OET-69 Bulletin as permitted by FCC rules [Section 74.705(e)], Specifically, calculations have been made using the procedures outlined in the FCC's OET-69 Bulletin and a 1 square kilometer grid.<sup>2</sup> The results of the OET Bulletin No. 69 interference analyses are tabulated in Figure 3.

Station KSWB operates on a third upper adjacent channel to the proposed KZSD-LP operation. Section 74.705 specifies a minimum distance separation of 32 kilometers towards KSWB for LPTV stations operating in excess of 50 kW, whereas the actual distance to KSWB is 0 kilometers. Therefore, the proposed KZSD-LP operation will be short-spaced to the KSWB operation by 32 kilometers.

The 32 kilometer separation requirement is designed to prevent "cross modulation" and "intermodulation" interference. In cross modulation interference, the modulation of the undesired channel is superimposed on the modulation of the desired channel. The potential for cross modulation interference was analyzed based on OET Bulletin No. 69 which indicates that no interference is calculated to occur to KSWB. The results of the OET Bulletin No. 69 interference analyses are tabulated in Figure 3.

The intermodulation interference results from the combination of the proposed KZSD-LP channel 66 and KSWB channel 69 signals (visual carriers only) in a receiver to generate a signal which falls within the pass-band of a "desired" third signal. For the KZSD-LP channel 66/KSWB channel 69 combination, the desired signal will not be either channel 66 or channel 69. For the KZSD-LP channel 66/KSWB channel 69 combination, the intermodulation products fall on channel 63. If there are viewable signals on those channels in the vicinity of the proposed KZSD-LP channel 66 service area there will be a potential for interference. Our studies indicate that there are no viewable full-service NTSC signals on channel 63 in the area and, therefore, interference is not likely to occur.

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<sup>2</sup> The du Treil, Lundin & Rackley, Inc. DTV interference analysis program is based on the program and procedures outlined by the FCC in the Sixth Report and Order; subsequent Memorandum Opinion and Order; and FCC OET Bulletin No. 69. A nominal grid size resolution of 1 km was employed. An Sun based processor computer system was employed.

Response to Paragraph 13(b) - DTV Station Protection

Calculations based on OET Bulletin No. 69 indicate that the proposed KZSD-LP operation on channel 66 complies with the FCC's 0.5% interference threshold criteria to all allotted, proposed or actual DTV operating facilities on channels 65, 66 or 67. The results are tabulated in Figure 3.

Response to Paragraph 13(c)-LPTV/TV Translator/Class A Protection

A study has been conducted using the provisions of Section 74.707 which indicates that the KZSD-LP proposal will not create prohibited interference to other existing, authorized or proposed LPTV, TV translator, or Class A stations.

Mexican Coordination

The proposed KZSD-LP operation is located 16.1 kilometers from the US-Mexican border area. Therefore, it is respectfully requested that the proposal be coordinated with Mexico. In this regard, a Mexican allocation study is attached as Appendix I which indicates that the proposal will not create interference to any Mexican NTSC or DTV stations or allotments.

Response to Paragraph 14 - Environmental Protection Act

The proposed KZSD-LP facilities were evaluated in terms of potential radiofrequency radiation exposure at ground level in accordance with OST Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation."<sup>3</sup> The calculated power density at 2 meters above ground level at the base of the tower was calculated using the appropriate equation of the Bulletin. Figure 4 depicts the vertical pattern data for the proposed directional antenna. Using a worst-case vertical relative field value of 0.10 at depression angles towards the tower base (-60° to -90° elevation), a maximum visual ERP of 150 kilowatts and 10 percent aural power, the calculated power density at 2 meters above ground level at

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<sup>3</sup> See *Report and Order* in ET Docket 93-62, FCC 96-326, adopted August 1, 1996, 11 FCC Rcd 15123 (1997). See also *First Memorandum Opinion and Order*, ET Docket 93-62, FCC 96-487, adopted December 23, 1996, 11 FCC Rcd 17512 (1997), and

the base of the tower is 0.0149 milliwatts per square centimeter ( $\text{mW}/\text{cm}^2$ ), or 2.85% percent of the Commission's recommended limit of  $0.52 \text{ mW}/\text{cm}^2$  for TV channel 66 applicable to general population/uncontrolled exposure areas. Therefore, based on the responsibility threshold of 5%, the proposal will comply with the new RF emission rules.

Access to the transmitting site will be restricted and appropriately marked with warning signs. Furthermore, as this is a multi-user site, an agreement will be in place to ensure that appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down.

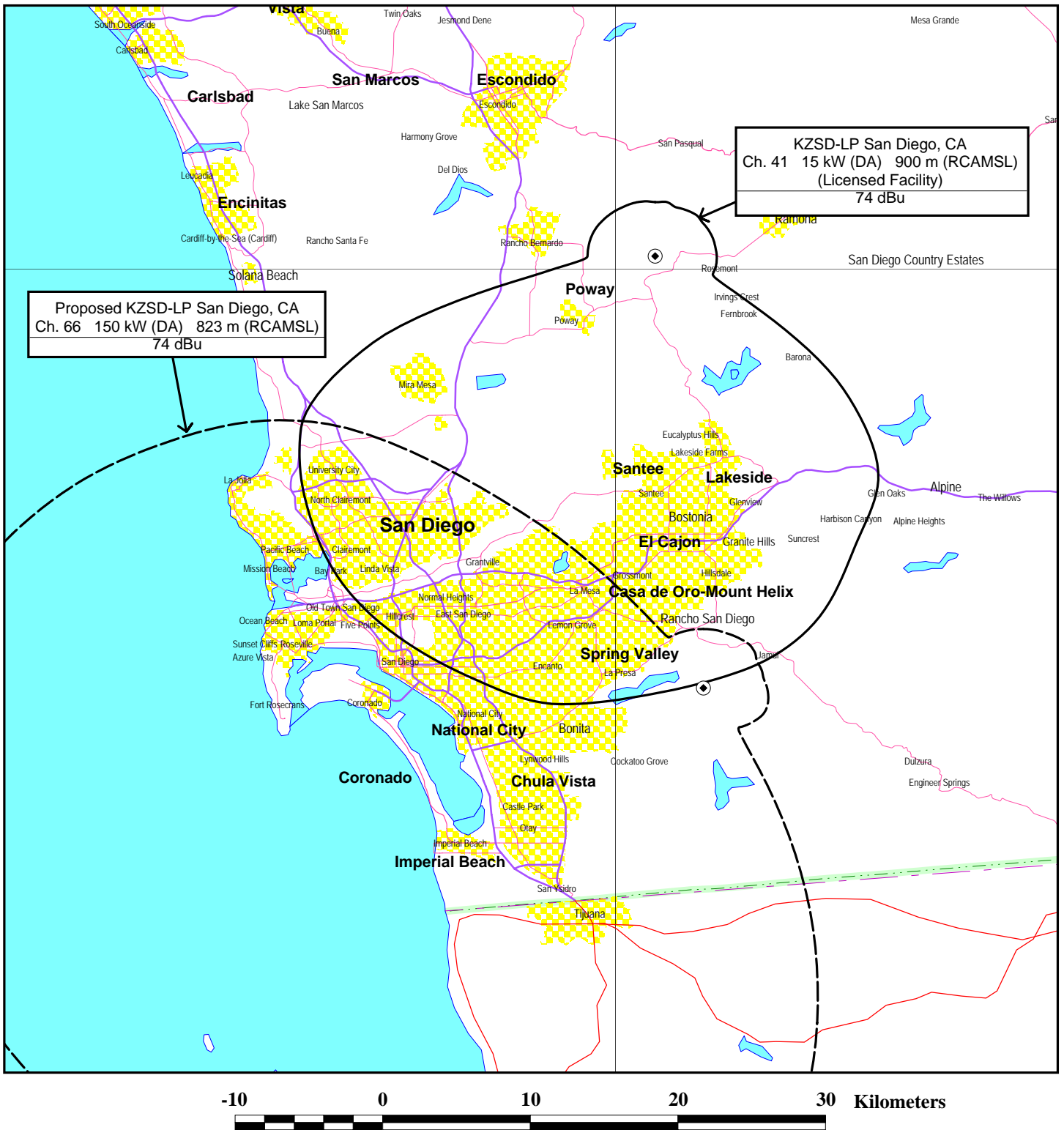


W. Jeffrey Reynolds

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237  
(941)329-60000  
JEFF@DLR.COM

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Figure 1



**SUMMARY OF ALTERNATE CHANNEL SEARCH  
FOR KZDF-LP, SAN DIEGO, CA**

Channel Studied	Station(s) Precluding Channel <sup>1</sup>	Distance from KZDF-LP Licensed Site (km)
<b>VHF Channels (Core Band)</b>		
2	NTSC Allotment, Ch. 3, Tijuana, MX	60
3	NTSC Allotment, Ch. 3, Tijuana, MX	60
4	NTSC Allotment, Ch. 3, Tijuana, MX	60
5	NTSC Allotment, Ch. 6, Tijuana, MX	57
6	NTSC Allotment, Ch. 6, Tijuana, MX	57
7	KFMB, NTSC Ch. 8, San Diego, CA (E/T)	32
8	KFMB, NTSC Ch. 8, San Diego, CA (E/T)	32
9	KFMB, NTSC Ch. 8, San Diego, CA (E/T)	32
10	KGTV, NTSC Ch. 10, San Diego, CA (E/T)	32
11	KGTV, NTSC Ch. 10, San Diego, CA (E/T)	32
12	NTSC Allotment, Ch. 12, Tijuana, MX	57
13	NTSC Allotment, Ch. 12, Tijuana, MX	57
<b>Core UHF Channels</b>		
14	NTSC Allotment, Ch. 14, Mexicali, MX	145
	KPBS, NTSC Ch. 15, San Diego, CA (E-30/T)	35
15	KPBS, NTSC Ch. 15, San Diego, CA (E-30/T)	35
16	KPBS, NTSC Ch. 15, San Diego, CA (E-30/T)	35
	DTV Allotment, Ch. 16, Ensenada, MX	130
17	KBNT-CA, NTSC Ch. 17, San Diego, CA	38
18	KUSA, DTV Ch. 18, San Diego, CA (E/T)	35
19	KSWB, DTV Ch. 19, San Diego, CA (E/T)	35
20	XHTIT, NTSC Ch. 21, Tijuana, MX	57
21	XHTIT, NTSC Ch. 21, Tijuana, MX	57
22	XHTIT, NTSC Ch. 21, Tijuana, MX	57
23	XETV, DTV Ch. 23, Tijuana, MX	57
24	XETV, DTV Ch. 23, Tijuana, MX	57
	KGTV, DTV Ch. 24, San Diego, CA (E-10/T)	32
25	KGTV, DTV Ch. 24, San Diego, CA (E-10/T)	25
26	K26FA, NTSC Ch. 26, Vista, CA (Application)	0
	XHJK, NTSC Ch. 27, Tijuana, MX	57
27	XHJK, NTSC Ch. 27, Tijuana, MX	57
28	XHJK, NTSC Ch. 27, Tijuana, MX	57
	DTV Allotment, Ch. 28, Tijuana, MX	57
	DTV Allotment, Ch. 29, Tijuana, MX	60
29	DTV Allotment, Ch. 29, Tijuana, MX	60
	KSDX-LP, NTSC Ch. 29, San Diego, CA	35
30	DTV Allotment, Ch. 29, Tijuana, MX	60
	KPBS, DTV Ch. 30, San Diego, CA (E-30/T)	35
31	DTV Allotment, Ch. 31, Ensenada, MX	130
	DTV Allotment, Ch. 32, Tijuana, MX	57
32	DTV Allotment, Ch. 32, Tijuana, MX	57
33	DTV Allotment, Ch. 32, Tijuana, MX	57
	NTSC Allotment, Ch. 33, Tijuana, MX	57
34	NTSC Allotment, Ch. 33, Tijuana, MX	57
35	K35DG, NTSC Ch. 35, La Jolla, CA	32
36	KDTV-LP, NTSC Ch. 36, San Diego, CA	35
37	Reserved For Radio Astronomy	--
38	KNSD, NTSC Ch. 39, San Diego, CA (E-40/T)	35
39	KNSD, NTSC Ch. 39, San Diego, CA (E-40/T)	35
40	KNSD, DTV Ch. 40, San Diego, CA (E-40/T)	35
41	DTV Allotment, Ch. 41, Tijuana, MX (Current KZDF-LP Channel)	57

Figure 2  
Sheet 2 of 2

Channel Studied	Station(s) Precluding Channel	Distance from KZDF-LP Licensed Site (km)
42	DTV Allotment, Ch. 41, Tijuana, MX	57
43	KSKT-CA, NTSC Ch. 43, San Diego, CA	0
44	NTSC Allotment, Ch. 45, Tijuana, MX	61
45	NTSC Allotment, Ch. 45, Tijuana, MX	61
46	KTCD-LP, NTSC Ch. 47, San Diego, CA	0
	DTV Allotment, Ch. 46, Tijuana, CA	61
47	DTV Allotment, Ch. 47, Tijuana, CA	57
48	K48AL, NTSC Ch. 48, Poway, CA	0
	DTV Allotment, Ch. 47, Tijuana, CA	61
	NTSC Allotment, Ch. 49, Tecate, MX	59
49	NTSC Allotment, Ch. 49, Tecate, MX	59
50	NTSC Allotment, Ch. 49, Tecate, MX	59
51	KUSI, NTSC Ch. 51, San Diego, CA (E-18/T)	35
<b>Non-Core UHF Channels</b>		
52	DTV Allotment, Ch. 53, Tecate, MX	59
53	DTV Allotment, Ch. 53, Tecate, MX	59
54	DTV Allotment, Ch. 53, Tecate, MX	59
55	KFMB, DTV Ch. 55, San Diego, CA (E-8/T)	32
56	NTSC Allotment, Ch. 57, Tijuana, MX	57
57	NTSC Allotment, Ch. 57, Tijuana, MX	57
58	NTSC Allotment, Ch. 57, Tijuana, MX	57
	DTV Allotment, Ch. 58, Tijuana, MX	
59	K59AL, NTSC Ch. 59, La Jolla, CA	34
	DTV Allotment, Ch. 58, Tijuana, MX	57
	DTV Allotment, Ch. 59, Tijuana, MX	57
60	DTV Allotment, Ch. 59, Tijuana, MX	57
61	K61GH, NTSC Ch. 61, National City, CA	37
62	KNSD-LP, NTSC Ch. 62, La Jolla, CA	32
63	K63EN, NTSC Ch. 63, San Diego, CA	36
64	NTSC Allotment, Ch. 49, Tecate, MX	59
65	DTV Allotment, Ch. 31, Ensenada, MX	130
<b>66</b>	<b>Proposed Channel</b>	<b>--</b>
67	KDIG-LP, NTSC Ch. 67, Encinitas, CA	51
68	KSWB, NTSC Ch. 69, San Diego, CA	35
69	KSWB, NTSC Ch. 69, San Diego, CA	35

<sup>1</sup> For US Stations, an "E" indicates that the channel was elected for the station's final DTV operation and an "E-Ch#" indicates that another channel was elected for the station's final DTV operation. A "T" indicates that the elected channel was a tentative selection by the FCC.



OET-69 TV/DTV INTERFERENCE and SPACING ANALYSIS PROGRAM

1990 Census data selected

Date: 01-23-2006

Record Selected for Analysis

KZSD-LP USERRECORD-01 SAN DIEGO CA US  
Channel 66 ERP 150. kW HAAT 740. m RCAMSL 00823 m  
Latitude 032-41-46 Longitude 0116-56-08  
Status APP Zone 2 Border Offset Z  
Dir Antenna Make usr Model 0000000000upwl Beam tilt N Ref Azimuth 238.  
Last update Cutoff date Docket  
Comments  
Applicant

Cell Size for Service Analysis 1.0 km/side

Distance Increments for Longley-Rice Analysis 1.00 km

Not full service station

Facility meets maximum power limit

Azimuth (Deg)	ERP (kW)	HAAT (m)	74.0 dBu F(50,50) (km)
0.0	0.000	656.1	1.0
45.0	0.000	546.4	1.0
90.0	0.000	411.9	1.0
135.0	0.000	295.6	1.0
180.0	30.537	663.3	42.5
225.0	147.669	696.4	54.7
270.0	107.104	739.6	53.2
315.0	2.606	663.1	26.1

Contour Overlap Evaluation from LPTV Station to Full Service TV & DTV

Station inside contour of station

KUSI-TV 51 SAN DIEGO CA BLCT 19990308KG

Contour overlap to station

KCOP-TV 66 LOS ANGELES CA BLCDT 20040528ADY

Contour overlap to station

KCOP-TV 66 LOS ANGELES CA BMPCDT 20040609ABC

Spacing violation to station

KSWB-TV 69 SAN DIEGO CA BLCT 19970929KI

Site-to-site distance 0.0km

Contour Overlap Evaluation from LPTV to Full Service TV & DTV Complete

## Contour Overlap Evaluation from LPTV Station to LPTV Stations

No Spacing violations or contour overlap from LPTV station

Contour Overlap Evaluation from LPTV to LPTV Stations Complete

Contour Overlap to Proposed Station

	Station	
K67AM	67 LA JOLLA	CA BLTT1751

Is inside contour of station  
KZSD-LP 66 SAN DIEGO CA USERRECORD01

### Contour Overlap Evaluation to Proposed Station Complete

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quite zone

Proposed facility OK toward Table Mountain

Proposed facility is beyond the Canadian coordination distance

Proposed facility is within the Mexican coordination distance  
Distance to border = 16.1km

Proposed station is OK toward AM broadcast stations

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Start of Interference Analysis

	Proposed Station		
Channel	Call	City/State	ARN
66	KZSD-LP	SAN DIEGO CA	USERRECORD01

### Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
51	KUSI-TV	SAN DIEGO CA	0.1	LIC	BLCT	-19990308KG
66	KCOP-TV	LOS ANGELES CA	199.5	LIC	BLCDT	-20040528ADY
66	KCOP-TV	LOS ANGELES CA	199.5	CP MOD	BMPCDT	-20040609ABC
69	KSWB-TV	SAN DIEGO CA	0.0	LIC	BLCT	-19970929KIC

# Analysis of Interference to Affected Station 1

## NTSC Baseline Analysis

Channel	Call	City/State	Application Ref. No.
51	KUSITV	SAN DIEGO CA	DTVPLN -NPLN1791

## Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
44	KRPA	RANCHO PALOS VERDES CA	150.7	PLN	DTVPLN -NPLN1653
50	KAJB-DT	CALIPATRIA CA	200.6	PLN	DTVPLN -DTVP1439
50	KOCETV	HUNTINGTON BEACH CA	170.1	PLN	DTVPLN -NPLN1768
51	KRPA-DT	RANCHO PALOS VERDES CA	150.7	PLN	DTVPLN -DTVP1469
52	KVEA	CORONA CA	199.3	PLN	DTVPLN -NPLN1805
52	KESQ-DT	PALM SPRINGS CA	111.3	PLN	DTVPLN -DTVP1500
55	KFMB-DT	SAN DIEGO CA	33.3	PLN	DTVPLN -DTVP1562
58	KLCS	LOS ANGELES CA	199.3	PLN	DTVPLN -NPLN1889

Results for: 51N CA SAN DIEGO	DTVPLN	NPLN1791	PLN
	POPULATION	AREA (sq km)	
within Noise Limited Contour	2528499	23676.4	
not affected by terrain losses	2399402	19598.0	
lost to NTSC IX	0	3.9	
lost to additional IX by ATV	164055	2333.7	
lost to all IX	164055	2337.6	

## Analysis of current record

Channel	Call	City/State	Application Ref. No.
51	KUSI-TV	SAN DIEGO CA	BLCT -19990308KG

## Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
43	NEW	BRAWLEY CA	137.7	ADD	BPRM -20000717ACQ
44	KXLA	RANCHO PALOS VERDES CA	199.8	CP MOD	BMPCT -20031128AAV
50	KAJB	CALIPATRIA CA	200.6	APP	BPCDT -19991101AEM
50	KAJB-DT	CALIPATRIA CA	200.7	PLN	DTVPLN -DTVP1439
50	KOCE-TV	HUNTINGTON BEACH CA	199.8	LIC	BLET -20040617AAC
51	KRPA-DT	RANCHO PALOS VERDES CA	150.7	PLN	DTVPLN -DTVP1469
51	KXLA	RANCHO PALOS VERDES CA	199.8	CP MOD	BMPCT -20031231AAM
52	KVEA	CORONA CA	198.3	LIC	BLCT -20030311AOQ
52	KESQ-TV	PALM SPRINGS CA	111.4	CP	BPCDT -19991029AGV
52	KESQ-DT	PALM SPRINGS CA	111.4	PLN	DTVPLN -DTVP1500
55	KFMB-DT	SAN DIEGO CA	33.3	PLN	DTVPLN -DTVP1562
55	KFMB-TV	SAN DIEGO CA	33.3	CP	BPCDT -20000501ADY
58	KLCS	LOS ANGELES CA	199.3	LIC	BLET -20030522AGL
66	KZSD-LP	SAN DIEGO CA	0.1	APP	USERRECORD-01

Proposal causes no interference

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# Analysis of Interference to Affected Station 2

## DTV Baseline Analysis

Channel	Call	City/State	Application Ref. No.
66	KCOP-DT	LOS ANGELES CA	DTVPLN -DTVP1678

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
65	KTTV-DT	LOS ANGELES CA	0.6	PLN	DTVPLN	-DTVP1676

Results for: 66A CA LOS ANGELES DTVPLN DTVP1678 PLN  
HAAT 899.0 m, ATV ERP 680.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	14328585	44310.3
not affected by terrain losses	13246176	32506.4
lost to NTSC IX	0	0.0
lost to additional IX by ATV	266266	368.6
lost to ATV IX only	266266	368.6
lost to all IX	266266	368.6

NTSC Baseline Analysis

Channel	Call	City/State	Application	Ref. No.
13	KCOPTV	LOS ANGELES CA	DTVPLN	-NPLN0818

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
12	KCOYTV	SANTA MARIA CA	208.2	PLN	DTVPLN	-NPLN0755
13	KSWT	YUMA AZ	327.0	PLN	DTVPLN	-NPLN0816
13	KCBA-DT	SALINAS CA	418.9	PLN	DTVPLN	-DTVP0110
13	KTNV	LAS VEGAS NV	334.8	PLN	DTVPLN	-NPLN0852

Results for: 13N CA LOS ANGELES DTVPLN NPLN0818 PLN

	POPULATION	AREA (sq km)
within Noise Limited Contour	14327874	44294.5
not affected by terrain losses	13488835	33957.1
lost to NTSC IX	22	93.6
lost to additional IX by ATV	0	0.0
lost to all IX	22	93.6

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
66	KCOP-TV	LOS ANGELES CA	BLCDT	-20040528ADY

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
65	KTTV	LOS ANGELES CA	0.0	LIC	BLCDT	-20040820AAK
65	KTTV-DT	LOS ANGELES CA	0.0	PLN	DTVPLN	-DTVP1676
66	KZSD-LP	SAN DIEGO CA	199.5	APP	USERRECORD-01	

Total scenarios = 4

Result key: 1  
Scenario 1 Affected station 2  
Before Analysis

Results for: 66A CA LOS ANGELES BLCDT 20040528ADY LIC

	POPULATION	AREA (sq km)
within Noise Limited Contour	14206342	37902.6
not affected by terrain losses	13097510	28559.6
lost to NTSC IX	0	0.0
lost to additional IX by ATV	14978	51.3
lost to ATV IX only	14978	51.3
lost to all IX	14978	51.3

Potential Interfering Stations Included in above Scenario 1

65A CA LOS ANGELES BLCDT 20040820AAK LIC

After Analysis

Results for: 66A CA LOS ANGELES BLCDT 20040528ADY LIC

HAAT 890.0 m, ATV ERP 371.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	14206342	37902.6
not affected by terrain losses	13097510	28559.6
lost to NTSC IX	59673	353.2
lost to additional IX by ATV	14978	51.3
lost to ATV IX only	14978	51.3
lost to all IX	74651	404.5

Potential Interfering Stations Included in above Scenario 1

65A CA LOS ANGELES BLCDT 20040820AAK LIC  
66N CA SAN DIEGO USERRECORD01 APP

Result key: 2  
Scenario 2 Affected station 2  
Before Analysis

Results for: 66A CA LOS ANGELES BLCDT 20040528ADY LIC

HAAT 890.0 m, ATV ERP 371.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	14206342	37902.6
not affected by terrain losses	13097510	28559.6
lost to NTSC IX	0	0.0
lost to additional IX by ATV	22151	87.8
lost to ATV IX only	22151	87.8
lost to all IX	22151	87.8

Potential Interfering Stations Included in above Scenario 2

65A CA LOS ANGELES DTVPLN DTVP1676 PLN

After Analysis

Results for: 66A CA LOS ANGELES BLCDT 20040528ADY LIC

HAAT 890.0 m, ATV ERP 371.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	14206342	37902.6
not affected by terrain losses	13097510	28559.6
lost to NTSC IX	59673	353.2
lost to additional IX by ATV	22151	87.8
lost to ATV IX only	22151	87.8
lost to all IX	81824	441.0

Potential Interfering Stations Included in above Scenario 2

65A CA LOS ANGELES DTVPLN DTVP1676 PLN  
66N CA SAN DIEGO USERRECORD01 APP

Result key: 3  
Scenario 3 Affected station 2  
Before Analysis

Results for: 66A CA LOS ANGELES BLCDT 20040528ADY LIC

HAAT 890.0 m, ATV ERP 371.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	14206342	37902.6
not affected by terrain losses	13097510	28559.6
lost to NTSC IX	0	0.0
lost to additional IX by ATV	14978	51.3
lost to ATV IX only	14978	51.3
lost to all IX	14978	51.3

Potential Interfering Stations Included in above Scenario 3

65A CA LOS ANGELES BLCDT 20040820AAK LIC

After Analysis

Results for: 66A CA LOS ANGELES BLCDT 20040528ADY LIC

HAAT 890.0 m, ATV ERP 371.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	14206342	37902.6
not affected by terrain losses	13097510	28559.6
lost to NTSC IX	59673	353.2
lost to additional IX by ATV	14978	51.3
lost to ATV IX only	14978	51.3
lost to all IX	74651	404.5

Potential Interfering Stations Included in above Scenario 3

65A CA LOS ANGELES BLCDT 20040820AAK LIC

66N CA SAN DIEGO USERRECORD01 APP

Result key: 4

Scenario 4 Affected station 2

Before Analysis

Results for: 66A CA LOS ANGELES BLCDT 20040528ADY LIC

HAAT 890.0 m, ATV ERP 371.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	14206342	37902.6
not affected by terrain losses	13097510	28559.6
lost to NTSC IX	0	0.0
lost to additional IX by ATV	22151	87.8
lost to ATV IX only	22151	87.8
lost to all IX	22151	87.8

Potential Interfering Stations Included in above Scenario 4

65A CA LOS ANGELES DTVPLN DTVPL1676 PLN

After Analysis

Results for: 66A CA LOS ANGELES BLCDT 20040528ADY LIC

HAAT 890.0 m, ATV ERP 371.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	14206342	37902.6
not affected by terrain losses	13097510	28559.6
lost to NTSC IX	59673	353.2
lost to additional IX by ATV	22151	87.8
lost to ATV IX only	22151	87.8
lost to all IX	81824	441.0

Potential Interfering Stations Included in above Scenario 4

65A CA LOS ANGELES DTVPLN DTVP1676 PLN  
66N CA SAN DIEGO USERRECORD01 APP

#####

# Analysis of Interference to Affected Station 3

## Analysis of current record

Channel	Call	City/State	Application	Ref. No.
66	KCOP-TV	LOS ANGELES CA	BMPCDT	-20040609ABC

## Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
65	KTTV	LOS ANGELES CA	0.0	LIC	BLCDT	-20040820AAK
65	KTTV-DT	LOS ANGELES CA	0.0	PLN	DTVPLN	-DTV1676
66	KZSD-LP	SAN DIEGO CA	199.5	APP	USERRECORD-01	

Total scenarios = 4

Result key: 5  
Scenario 1 Affected station 3  
Before Analysis

Results for: 66A CA LOS ANGELES BMPCDT 20040609ABC CP  
HAAT 890.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	14501414	44970.0
not affected by terrain losses	13432341	34905.4
lost to NTSC IX	0	0.0
lost to additional IX by ATV	4342	39.5
lost to ATV IX only	4342	39.5
lost to all IX	4342	39.5

Potential Interfering Stations Included in above Scenario 1

65A CA LOS ANGELES BLCDT 20040820AAK LIC

## After Analysis

Results for: 66A CA LOS ANGELES BMPCDT 20040609ABC CP  
HAAT 890.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	14501414	44970.0
not affected by terrain losses	13432341	34905.4
lost to NTSC IX	42314	577.2
lost to additional IX by ATV	4342	39.5
lost to ATV IX only	4342	39.5
lost to all IX	46656	616.7

Potential Interfering Stations Included in above Scenario 1

65A CA LOS ANGELES BLCDT 20040820AAK LIC  
66N CA SAN DIEGO USERRECORD01 APP

Result key: 6  
Scenario 2 Affected station 3  
Before Analysis

Results for: 66A CA LOS ANGELES      BMPCDT      20040609ABC    CP  
HAAT 890.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	14501414	44970.0
not affected by terrain losses	13432341	34905.4
lost to NTSC IX	0	0.0
lost to additional IX by ATV	4535	60.2
lost to ATV IX only	4535	60.2
lost to all IX	4535	60.2

Potential Interfering Stations Included in above Scenario      2

65A CA LOS ANGELES      DTVPLN      DTVPL676      PLN

After Analysis

Results for: 66A CA LOS ANGELES      BMPCDT      20040609ABC    CP  
HAAT 890.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	14501414	44970.0
not affected by terrain losses	13432341	34905.4
lost to NTSC IX	42314	577.2
lost to additional IX by ATV	4535	60.2
lost to ATV IX only	4535	60.2
lost to all IX	46849	637.4

Potential Interfering Stations Included in above Scenario      2

65A CA LOS ANGELES      DTVPLN      DTVPL676      PLN  
66N CA SAN DIEGO      USERRECORD01      APP

Result key:      7  
Scenario      3    Affected station      3  
Before Analysis

Results for: 66A CA LOS ANGELES      BMPCDT      20040609ABC    CP  
HAAT 890.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	14501414	44970.0
not affected by terrain losses	13432341	34905.4
lost to NTSC IX	0	0.0
lost to additional IX by ATV	4342	39.5
lost to ATV IX only	4342	39.5
lost to all IX	4342	39.5

Potential Interfering Stations Included in above Scenario      3

65A CA LOS ANGELES      BLCDT      20040820AAK    LIC

After Analysis

Results for: 66A CA LOS ANGELES      BMPCDT      20040609ABC    CP  
HAAT 890.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	14501414	44970.0
not affected by terrain losses	13432341	34905.4
lost to NTSC IX	42314	577.2
lost to additional IX by ATV	4342	39.5
lost to ATV IX only	4342	39.5
lost to all IX	46656	616.7

Potential Interfering Stations Included in above Scenario      3



65A CA LOS ANGELES BLCDT 20040820AAK LIC  
66N CA SAN DIEGO USERRECORD01 APP

Result key: 8  
Scenario 4 Affected station 3  
Before Analysis

Results for: 66A CA LOS ANGELES BMPCDT 20040609ABC CP  
HAAT 890.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	14501414	44970.0
not affected by terrain losses	13432341	34905.4
lost to NTSC IX	0	0.0
lost to additional IX by ATV	4535	60.2
lost to ATV IX only	4535	60.2
lost to all IX	4535	60.2

Potential Interfering Stations Included in above Scenario 4

65A CA LOS ANGELES DTVPLN DTVPL676 PLN

After Analysis

Results for: 66A CA LOS ANGELES BMPCDT 20040609ABC CP  
HAAT 890.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	14501414	44970.0
not affected by terrain losses	13432341	34905.4
lost to NTSC IX	42314	577.2
lost to additional IX by ATV	4535	60.2
lost to ATV IX only	4535	60.2
lost to all IX	46849	637.4

Potential Interfering Stations Included in above Scenario 4

65A CA LOS ANGELES DTVPLN DTVPL676 PLN  
66N CA SAN DIEGO USERRECORD01 APP

#####

Analysis of Interference to Affected Station 4

NTSC Baseline Analysis

Channel	Call	City/State	Application	Ref. No.
69	KSWB	SAN DIEGO CA	DTVPLN	-NPLN2010

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
62	KRCA	RIVERSIDE CA	180.3	PLN	DTVPLN	-NPLN1932
68	KRCA-DT	RIVERSIDE CA	180.3	PLN	DTVPLN	-DTVPL682

Results for: 69N CA SAN DIEGO DTVPLN NPLN2010 PLN

	POPULATION	AREA (sq km)
within Noise Limited Contour	2557832	25020.8
not affected by terrain losses	2404820	19259.8
lost to NTSC IX	0	0.0
lost to additional IX by ATV	0	0.0
lost to all IX	0	0.0

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
69	KSWB-TV	SAN DIEGO CA	BLCT	-19970929KI

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
62	KRCA	RIVERSIDE CA	198.4	LIC	BLCT	-20020308ABC
68	KRCA-DT	RIVERSIDE CA	180.3	PLN	DTVPLN	-DTVPL1682
68	KRCA	RIVERSIDE CA	198.4	CP MOD	BMPCDT	-20000501AFR
66	KZSD-LP	SAN DIEGO CA	0.0	APP	USERRECORD-01	

Proposal causes no interference

Summary of Results

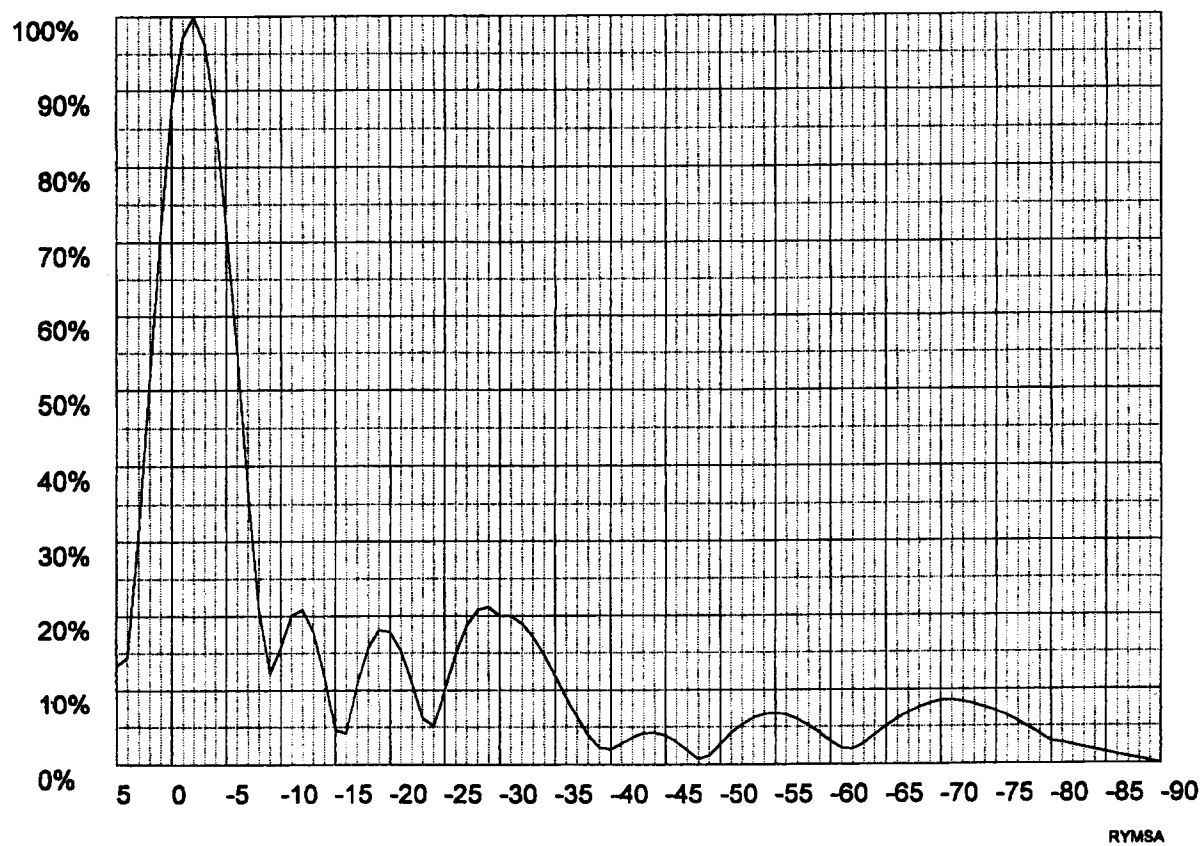
1	51	KUSI-TV	SAN DIEGO CA	0.1	LIC	BLCT	-19990308KG
2	66	KCOP-TV	LOS ANGELES CA	199.5	LIC	BLCDDT	-20040528ADY
3	66	KCOP-TV	LOS ANGELES CA	199.5	CP MOD	BMPCDT	-20040609ABC
4	69	KSWB-TV	SAN DIEGO CA	0.0	LIC	BLCT	-19970929KI

Result Key	Scenario	Affected Station	Before	After	Baseline	Net Change	Percentage
There is no interference to station 1							
There is no interference to station 1							
1	1	2	14978	74651	13488813	59673	0.442
5	1	3	4342	46656	13488813	42314	0.314
There is no interference to station 4							

Figure 4

Four Panels  
Azimuth:  $-2^\circ$   
Null Fill 10%

E/E<sub>max</sub>



## TOWAIR Determination Results

### \*\*\* NOTICE \*\*\*

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

#### DETERMINATION Results

**Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.**

#### Your Specifications

##### NAD83 Coordinates

Latitude	32-41-46.2 north
Longitude	116-56-11.1 west

##### Measurements (Meters)

Overall Structure Height (AGL)	46
Support Structure Height (AGL)	46
Site Elevation (AMSL)	780

##### Structure Type

TOWER - Free standing or Guyed Structure used for Communications Purposes

#### [Tower Construction Notification](#)

Notify Tribes and Historic Preservation Officers of your plans to build a tower.

Note: Notification does NOT replace [Section 106 Consultation](#).

CLOSE WINDOW

APPENDIX I

TECHNICAL EXHIBIT  
PREPARED ON BEHALF OF  
LOW POWER TV STATION KZSD-LP  
SAN DIEGO, CALIFORNIA  
CH 66(z) 150 KW (MAX-DA)

This technical exhibit has been prepared on behalf of Low Power TV (LPTV) station KZSD-LP (formerly KZDF-LP) at San Diego, California. The purpose is to provide information demonstrating that the proposed operation of KZSD-LP on TV channel 66 (782-788 MHz), as amended, will not adversely impact the operation of any Mexican NTSC or DTV stations.<sup>1</sup>

Station KZSD-LP is currently licensed (BLTTL-20030507AAF) to operate on NTSC channel 41 with a directional antenna maximum effective radiated power (ERP) of 15 kW and an antenna radiation center height above mean sea level (RCMSL) of 900 meters. However, Mexico recently allotted DTV co-channel 41 at Tijuana, BN which is located only 56.6 km from the KZSD-LP site.<sup>2</sup> Therefore KZSD-LP is considered to be displaced by the DTV channel 41 allotment at Tijuana. As such, KZSD-LP proposes to operate on channel 66 in lieu of channel 41. The following provides the technical parameters for the proposed operation.

1. City, State: San Diego, CA
2. Transmitter Location: 32-41-46 North Latitude (NAD 27)  
116-56-08 West Longitude (NAD 27)
3. Call Sign: KZSD-LP (LPTV Station)
4. Channel Number: 66 (782-788 MHz)
5. Frequency Offset: Zero (z)
6. Effective Radiated Power: 150 kW
7. Height Above Average Terrain: 579 meters
8. Radiation Center Height Above Mean Sea Level: 823 meters
9. Antenna System: Directional (pattern data attached as Figure 1A)

Make & Model: Superior Broadcast Products UPWL-4  
Polarization: Horizontal, 2° electrical beam tilt  
Antenna Orientation: 238° True

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<sup>1</sup> The pending KZSD-LP (formerly KZDF-LP) channel 66 application (FCC File No. BPTTL-20050929AAJ), was amended to modify the directional antenna system to provide an additional 9.5 dB of protection to the Mexican NTSC channel 66 allotment at Mexicali, BN.

<sup>2</sup> The notified facilities for the Tijuana DTV channel 41 allotment are: Site coordinates N32°30'07", W117°02'23"; ERP 440 kW; and HAAT 248 meters.

Figure 2A is a separation study based on the provisions of the US-Mexican TV Agreement (June 1982) and the Memorandum of Understanding (MOU) between the United States and Mexico regarding the use of DTV Broadcasting Service along the common border. The separation requirements are applicable to full-power NTSC and DTV stations and have been used for this analysis in an abundance of caution. As indicated, the proposed channel 66 operation complies with the separation requirements to all NTSC and DTV stations and allotments with the exception of a 135 kilometer short-spacing with a Mexican NTSC channel 66 allotment at Mexicali, BN. However, as indicated below, it is believed that there would not be any adverse impact to a Mexican NTSC channel 66 operation at Mexicali based on consideration of intervening terrain.

The MOU indicates that the allotment reference point for the NTSC channel 66 allotment at Mexicali is located at 32-36-41 North Latitude, 115-29-39 West Longitude. Furthermore, based on information provided by an agent of KZSD-LP as well as the FCC's International Bureau, channel 66 is operational in Mexicali with call letters XHILA-TV as a concession to Arnolando Cabada de la O by the Mexican Secretariat of Communications and Transport (SCT). Apparently XHILA-TV operates from a transmitter site located at 32°34'53" North Latitude, 115°31'06" West Longitude with a nondirectional antenna maximum ERP of 3334 kW. No other technical data for XHILA-TV is readily available. A minus (-) carrier frequency offset has been presumed for channel 66 at Mexicali based on a prior CDBS entry for this allotment.

Figure 3A is a topographic map<sup>3</sup> which depicts the proposed KZSD-LP transmitter site as well as the transmitter sites for the Mexicali allotment based on the MOU and for XHILA-TV based on the SCT concession. As can be seen from Figure 3A, there is an extensive mountain range (Vallecito Mountains) located between the proposed KZSD-LP site and the Mexicali channel 66 transmitter sites. This is graphically illustrated by the terrain profiles from the proposed KZSD-LP transmitter site to the Mexicali channel 66 allotment site

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<sup>3</sup> Portion of a Department of Commerce World Aeronautical Chart CG-18.

based on the MOU (Figure 4A) and to the XHILA-TV site (Figure 5A). The terrain used to develop the terrain profiles was derived from a 3-second terrain database. Also shown on Figures 4A and 5A are the line-of-sight paths drawn from the KZSD-LP antenna radiation center to the Mexicali transmitter sites. It is apparent that the effect of "terrain shielding" caused by intervening mountains would be significant.

The Federal Communications Commission (FCC) of the United States permits LPTV stations involved in co-channel allocation situations similar to the situation between the proposed operation of KZSD-LP and the Mexicali NTSC channel 66 allotments to seek waivers of the "normal" allocation criteria where it can be demonstrated that no actual interference would be expected to occur. In addition, such showings are typically based on the Longley-Rice methodology and the provisions of the Office of Technology (OET) Bulletin No. 69 ("Longley-Rice Methodology for Evaluating TV Coverage and Interference"). Furthermore, as part of the Memorandum of Understanding (MOU) between the US and Mexico concerning Digital TV Broadcasting (dated July 22, 1998)<sup>4</sup>, the Longley-Rice methodology and the provisions of OET Bulletin No. 69 were adopted for the purpose of "detailed" interference analysis. The Longley-Rice methodology is set forth in Appendix 5 of the MOU. A copy of Appendix 5 of the MOU is attached for convenient reference as Figure 8A.

For co-channel NTSC stations, the desired-to-undesired (D/U) ratio set forth on page 2 of Appendix 5 of the MOU for analog into analog interference is +28 decibels (dB). In other words, interference is predicted to occur in areas where the desired signal is less than 28 dB greater than the undesired signal. Therefore, in order to quantify the potential for adverse interference from the proposed KZSD-LP operation to the Mexicali operations, studies were conducted based on the provisions of the OET-69 Bulletin and Appendix 5

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<sup>4</sup> See "Memorandum of Understanding Between the Federal Communications Commission of the United States of America and the Secretaria De Comunicaciones Y Transportes of the United Mexican States Related to the Use of the 54-72 MHz, 76-88 MHz, 174-216 MHz and 470-806 MHz bands for the Digital Television Broadcasting Service Along the Common Border".

of the MOU.<sup>5</sup> The output of the OET-69/Appendix 5 interference analysis computer program is attached as Figures 6A (MOU allotment) and 7A (XHILA-TV per SCT). For each of the Mexicali facilities, a nondirectional ERP of 5000 kW and an HAAT of 610 meters has been presumed. These facilities are the maximum permitted for US UHF stations. As indicated on Figures 6A and 7A, the proposed KZSD-LP operation does not cause any interference (population or area) to either the Mexicali channel 66 allotment based on the MOU or the XHILA-TV channel 66 allotment based on the SCT concession.<sup>6</sup> Therefore, it is believed that the proposal complies with the interference standards of the MOU.

This technical statement has been prepared by or under the direct supervision of W. Jeffrey Reynolds, technical consultant with the firm of du Treil, Lundin and Rackley, Inc. (dLR), a telecommunications consulting firm located in Sarasota, Florida. dLR has provided consulting engineering services to the communications industry for almost 60 years. All data and statements contained herein are true and correct to the best of his knowledge and belief.



W. Jeffrey Reynolds

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237-6019  
(941) 329-6000  
JEFF@DLR.COM

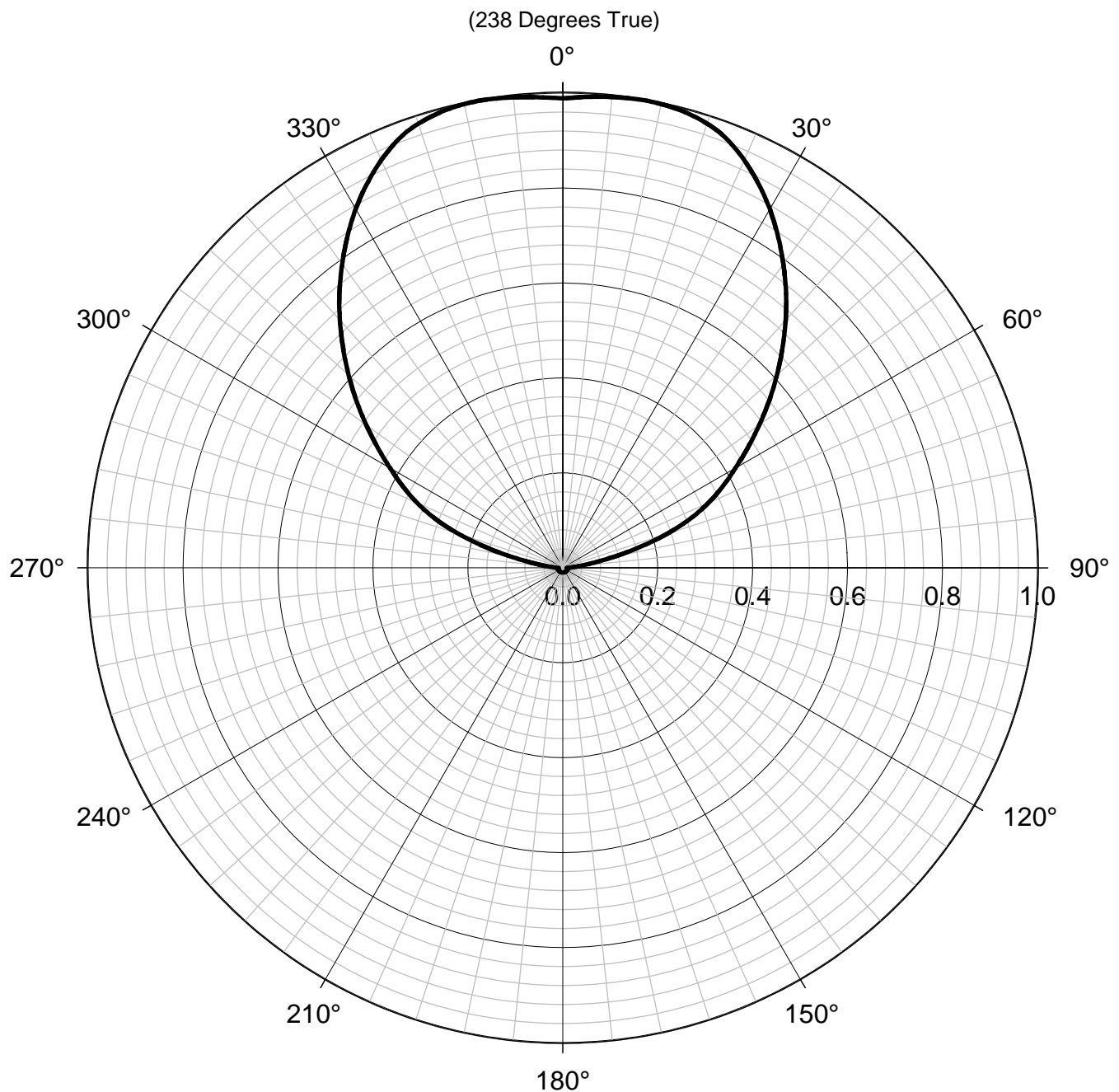
January 23, 2006

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<sup>5</sup> The du Treil, Lundin & Rackley, Inc. interference analysis program is based on the program and procedures outlined in FCC OET Bulletin No. 69 and Appendix 5 of the MOU. A nominal grid size resolution of 2 km was employed. An Sun based processor computer system was employed. The results have been found to be in very close agreement with the results of the FCC implementation of OET Bulletin No. 69.

<sup>6</sup> Population figures are US only.





**PROPOSED DIRECTIONAL ANTENNA RADIATION PATTERN**  
**(RELATIVE FIELD)**

**LPTV STATION KZSD-LP**  
**SAN DIEGO, CALIFORNIA**  
**CH 66 150 KW (MAX-DA) 579 M**

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

TECHNICAL EXHIBIT  
PREPARED ON BEHALF OF  
LOW POWER TV STATION KZSD-LP  
SAN DIEGO, CALIFORNIA  
CH 66 150 KW (MAX-DA)

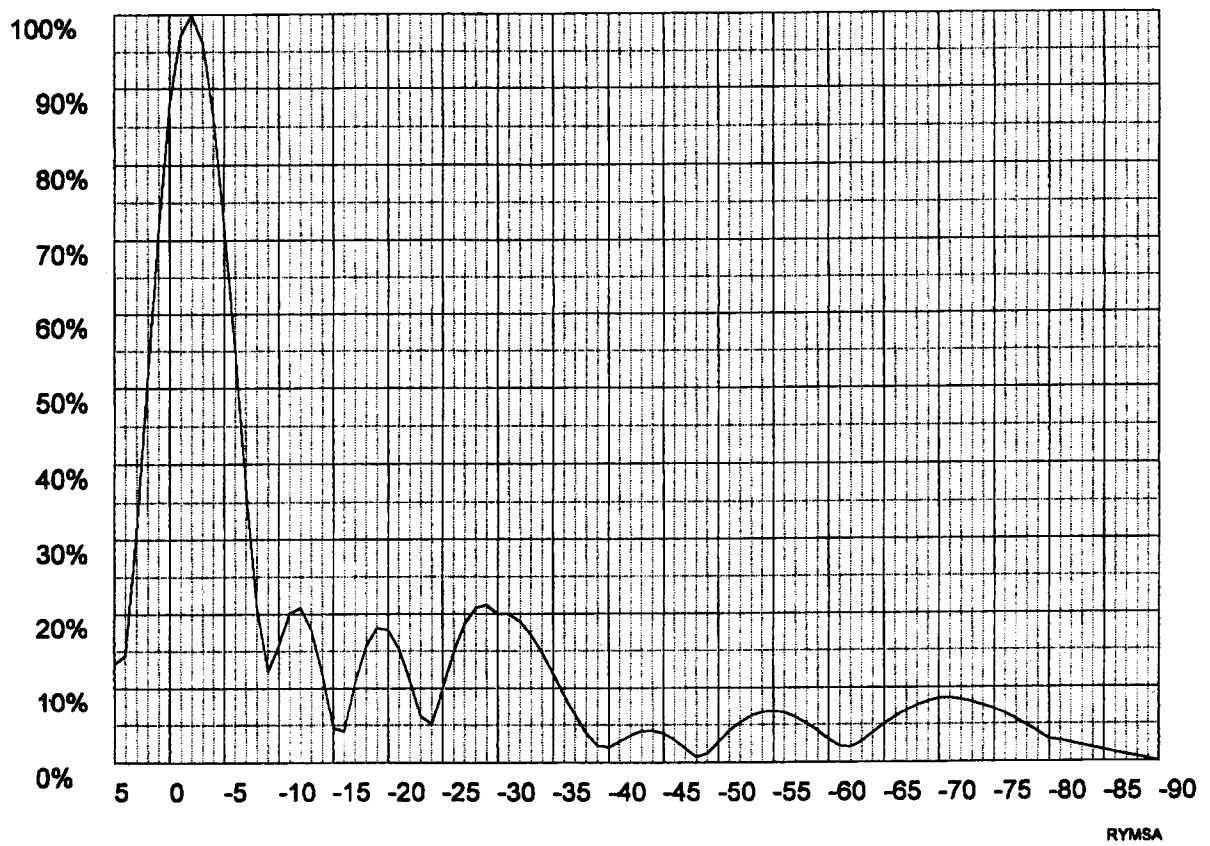
Horizontal Plane Relative Field Pattern

<u>Azimuth*</u>	<u>Relative Field</u>	<u>Azimuth*</u>	<u>Relative Field</u>
0	<b>0.989</b>	180	<b>0.010</b>
10	<b>1.000</b>	190	<b>0.010</b>
20	<b>0.974</b>	200	<b>0.010</b>
30	<b>0.873</b>	210	<b>0.010</b>
40	<b>0.733</b>	220	<b>0.010</b>
50	<b>0.576</b>	230	<b>0.010</b>
60	<b>0.420</b>	240	<b>0.010</b>
70	<b>0.269</b>	250	<b>0.010</b>
80	<b>0.073</b>	260	<b>0.010</b>
90	<b>0.010</b>	270	<b>0.010</b>
100	<b>0.010</b>	280	<b>0.073</b>
110	<b>0.010</b>	290	<b>0.269</b>
120	<b>0.010</b>	300	<b>0.420</b>
130	<b>0.010</b>	310	<b>0.576</b>
140	<b>0.010</b>	320	<b>0.733</b>
150	<b>0.010</b>	330	<b>0.873</b>
160	<b>0.010</b>	340	<b>0.974</b>
170	<b>0.010</b>	350	<b>1.000</b>

\*Referenced to 238° true.

Four Panels  
Azimuth:  $-2^\circ$   
Null Fill 10%

E/E<sub>max</sub>



TV/DTV SEPARATION STUDY BASED ON US-MEXICAN TV AGREEMENT AND MOU  
(APPLICABLE TO FULL-SERVICE TV/DTV STATIONS)

Job Title: Proposed KZSD-LP, Ch. 66, San Diego, CA      Separation Buffer: 50 km  
Channel: 66      Coordinates: 32-41-46 116-56-08  
Class:      Zone: II  
Type: TV

Call Id	City St	File Status	Channel Num	Channel Zone	ERP HAAT	DA Id	Latitude Longitude	Bear	Dist. (km)	Req. min	max
NEW-DT 164338	TIJUANA BN	APP C	BPFS 20041202AA	58(Z) II		N	32-30-08 117-02-21	204.3	23.6 0.36	24.0	32.0 Close
	TIJUANA BC MEX			58( ) III	0.000 0		32-30-08 117-02-21	204.3	23.6 0.36	24.0	32.0 Close
NEW-DT 164339	TIJUANA BN	APP C	BPFS 20041202AA	59(Z) II		N	32-30-08 117-02-21	204.3	23.6 0.36	24.0	95.0 Close
	TIJUANA BC MEX			59( ) III	0.000 0		32-30-08 117-02-21	204.3	23.6 0.36	24.0	95.0 Close
NEW-DT 164322	ENSENADA BN	APP C	BPFS 20041202AA	65(Z) II		N	31-52-22 116-37-51	162.5	95.9 7.91	10.0	88.0 Close
	ENSENADA BC MEX			65( ) III	0.000 0		31-52-22 116-37-51	162.5	95.9 7.91	10.0	88.0 Close
	MEXICALI BC MEX			65( ) III	0.000 0		32-36-41 115-29-39	93.6	135.3 47.25	10.0	88.0 Clear
NEW-DT 164328	MEXICALI BN	APP C	BPFS 20041202AA	65(Z) II		N	32-36-41 115-29-39	93.6	135.3 47.25	10.0	88.0 Clear
	MEXICALI BC MEX			66( ) III	0.000 0		32-36-41 115-29-39	93.6	135.3 144.75	280.0	280.0 <b>Short</b>
97798	MEXICALI BN	C		66(-) II		N	32-39-00 115-28-00	91.7	137.6 142.44	280.0	280.0 Short
	MEXICALI BC MEX			67( ) III	0.000 0		32-36-41 115-29-39	93.6	135.3 47.25	10.0	88.0 Clear
NEW-DT 164329	MEXICALI BN	APP C	BPFS 20041202AA	67(Z) II		N	32-36-41 115-29-39	93.6	135.3 47.25	10.0	88.0 Clear



Figure 3A

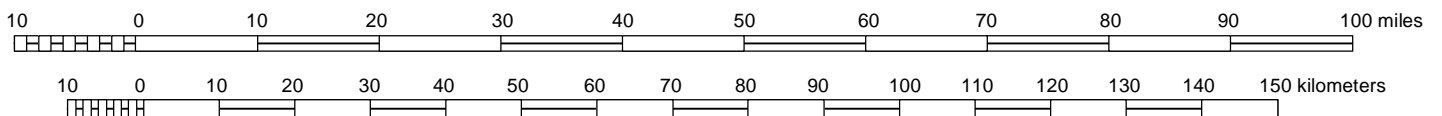
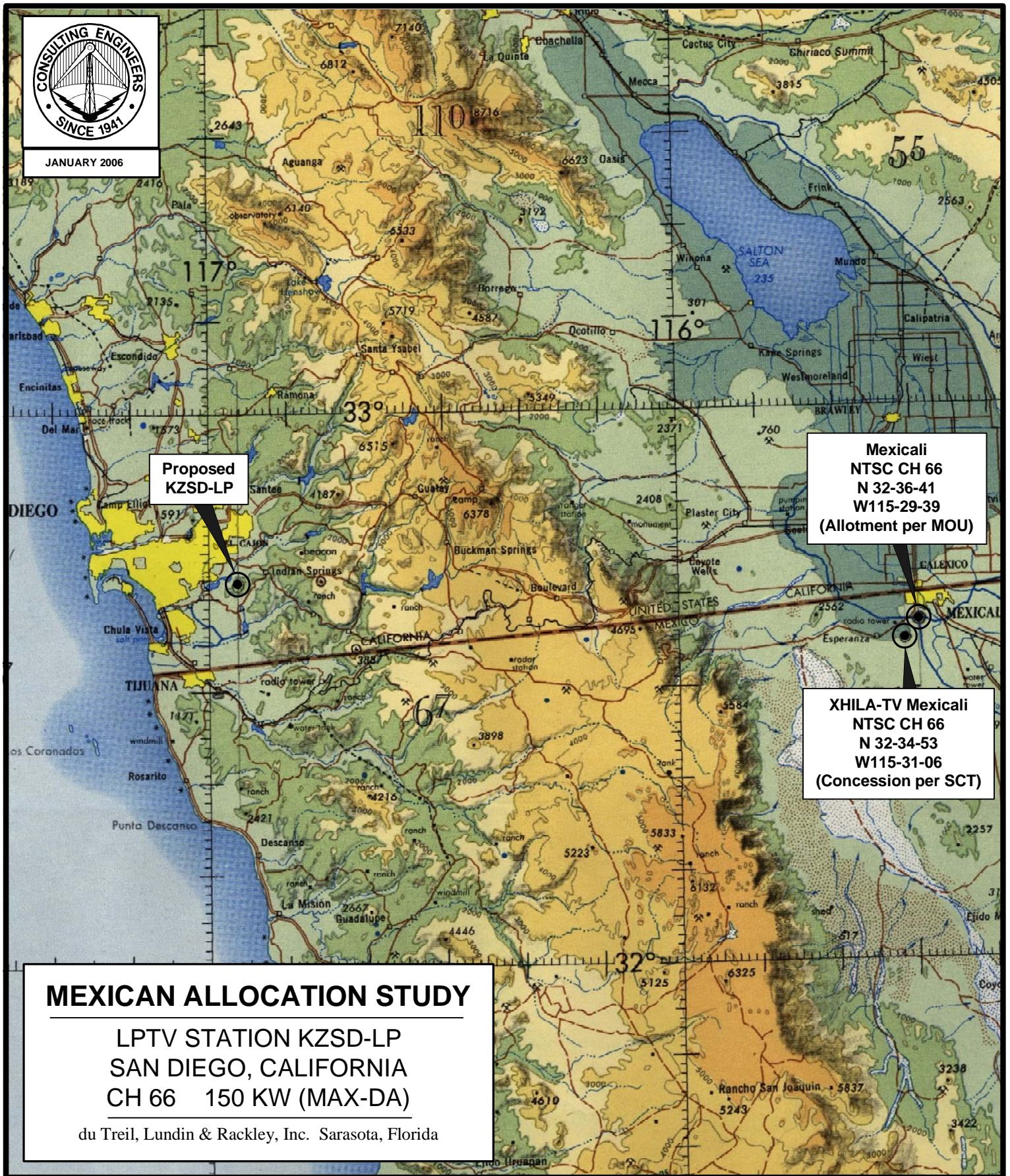
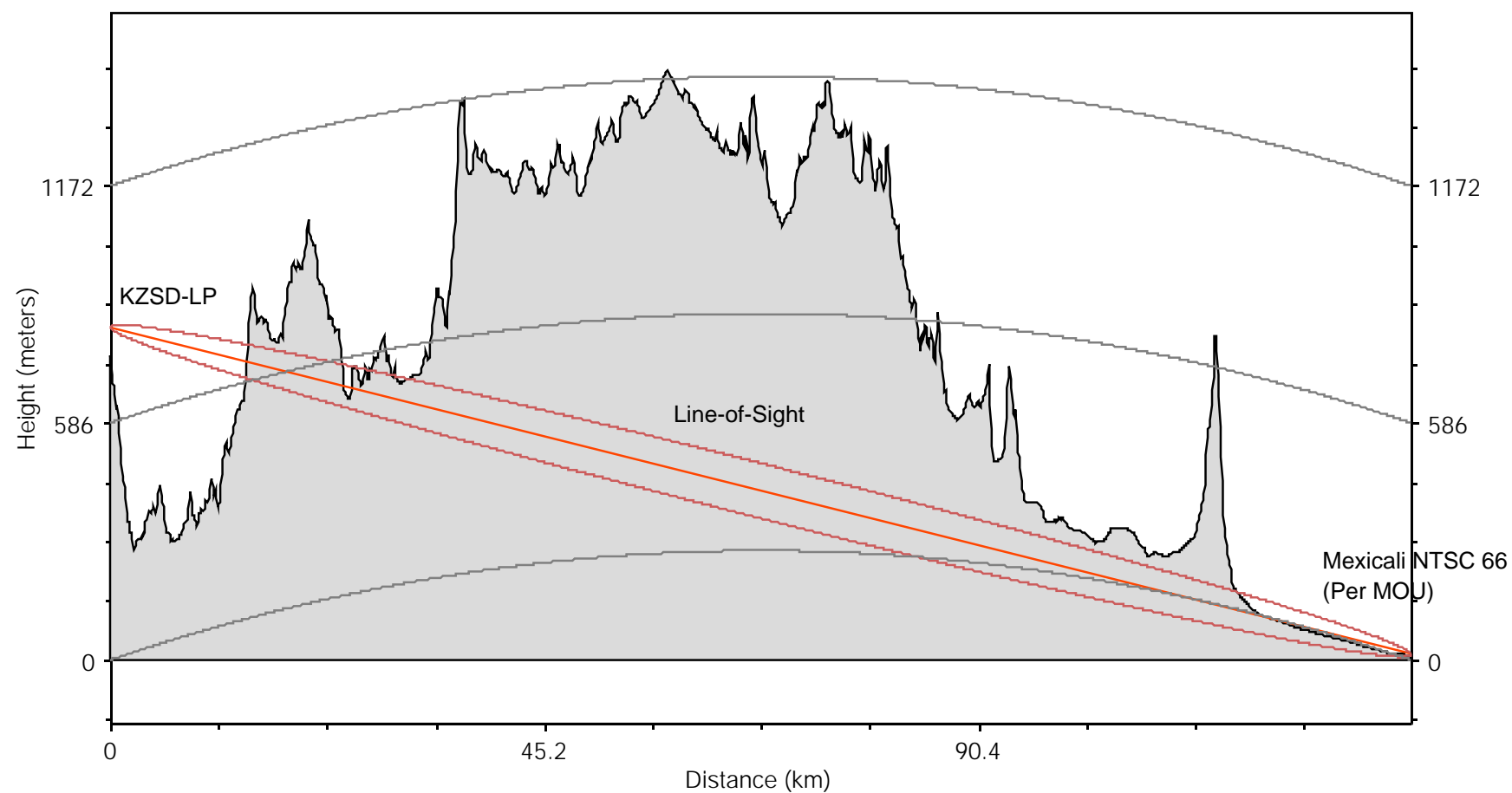




Figure 4A

Distance 135.55 km  
Azimuth 93.6 deg



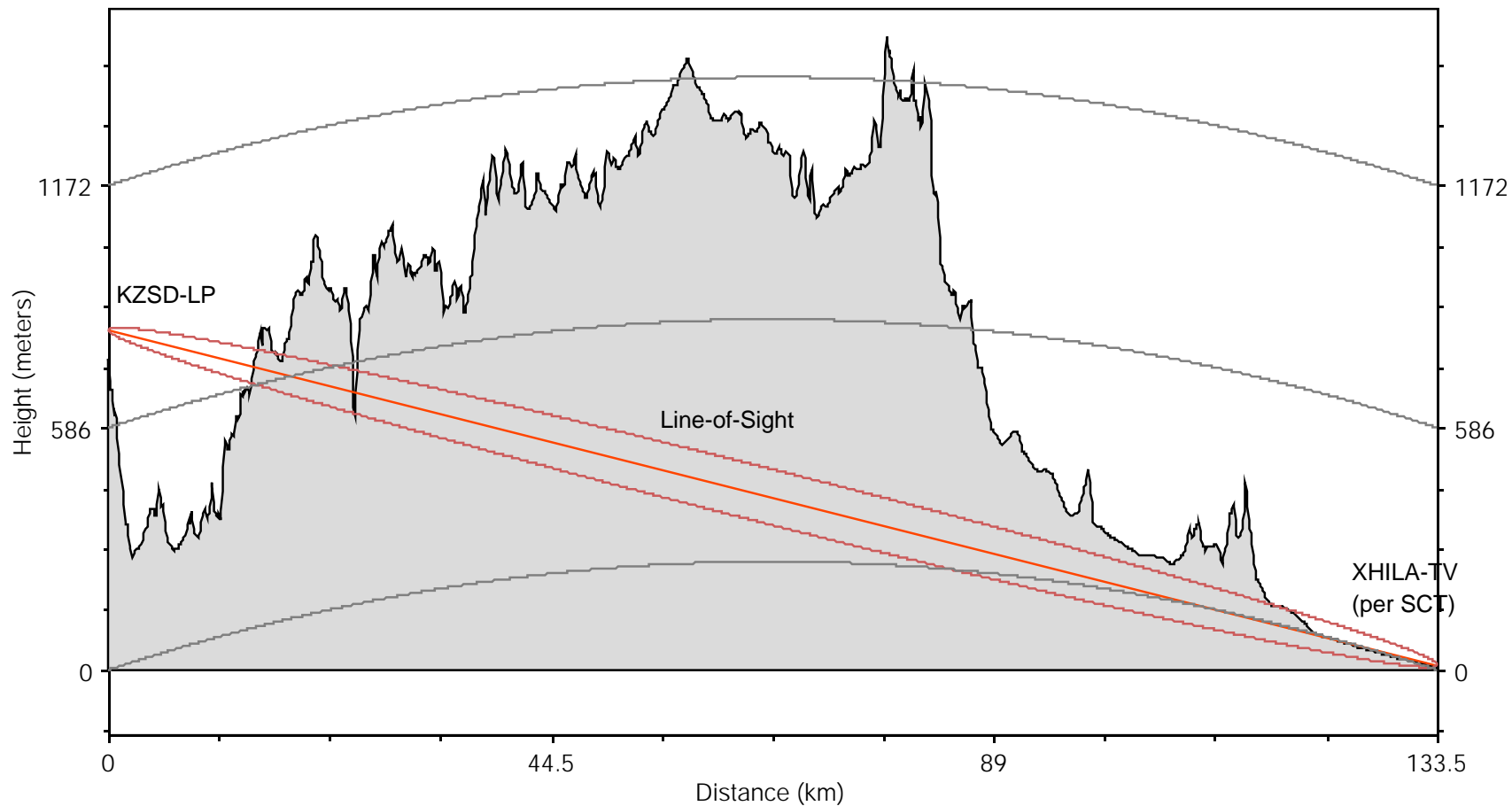
Latitude 32-41-46.0°  
Longitude 116-56-08.0°  
Elevation 754.06 m  
Transmitter Height (AMSL) 823 m  
Earth Curvature Factor 1.333333

Latitude 32-36-40.4°  
Longitude 115-29-30.2°  
Elevation 4 m  
Receiver Height (AGL) 9 m

Frequency (GHz)	.785
Fresnel Factor	0.6
Fresnel Zone	1

Figure 5A

Distance 133.59 km  
Azimuth 95.11 deg



Latitude 32-41-46.0°  
Longitude 116-56-08.0°  
Elevation 754.06 m  
Transmitter Height (AMSL) 823 m  
Earth Curvature Factor 1.333333

Latitude 32-34-52.4°  
Longitude 115-30-58.9°  
Elevation 3.33 m  
Receiver Height (AGL) 9 m

Frequency (GHz)	.785
Fresnel Factor	.6
Fresnel Zone	1

OET-69/APPENDIX 5 INTERFERENCE RECEIVED ANALYSIS

Study Date: 20060123

<b>CELL SIZE : 2.00</b> <b>TERRAIN INC : 1.00</b>
--

Using offset in determining thresholds  
 Per 6th Report & Order and FCC OET-69 Bulletin

\*\*\*\*\*

PER MOU 32-36-41 115-29-39 66(-) 5000.000 kw 622 m 50.0 % 66.1 dBu  
 MEXICALI BN

APP

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	32372	214606
not affected by terrain losses	23342	209899

\*\*\*\*\*

KZSD-LP 32-41-46 116-56-08 66(z) 150.000 kw 823 m DA 10.0 % 76.1  
 SAN DIEGO CA

0.99	1.00	0.97	0.87	0.73	0.58	0.42	0.27	0.07	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.07	0.27	0.42	0.58	0.73	0.87	0.97	1.00

Ref Az: 238.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 28.00

	<u>Area</u>	<u>Pop</u>
Interference	0	0

[Note: Population figures are US only]



OET-69/APPENDIX 5 INTERFERENCE RECEIVED ANALYSIS

Study Date: 20060123

<b>CELL SIZE : 2.00</b> <b>TERRAIN INC : 1.00</b>
--

Using offset in determining thresholds  
 Per 6th Report & Order and FCC OET-69 Bulletin

\*\*\*\*\*

XHILA 32-34-53 115-31-06 66(-) 5000.000 kw 644 m 50.0 % 66.1 dBu  
 MEXICALI BN

Null null

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	32187.691406	212955
not affected by terrain losses	23089.947266	205938

\*\*\*\*\*

KZSD-LP 32-41-46 116-56-08 66(Z) 150.000 kw 823 m DA 10.0 % 76.1  
 SAN DIEGO CA

0.99	1.00	0.97	0.87	0.73	0.58	0.42	0.27	0.07	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.07	0.27	0.42	0.58	0.73	0.87	0.97	1.00

Ref Az: 238.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 28.00

	Area	Pop
<b>Interference</b>	<b>0</b>	<b>0</b>

[Note: Population figures are US only]

### Longley-Rice Methodology

The Longley-Rice model is described in NTIA Report 82-100, *A Guide to the Use of the ITS Irregular Terrain Model in the Area Prediction Mode*, authors G.A. Hufford, A.G. Longley and W.A. Kissick, U.S. Department of Commerce, April 1982. The report may be obtained from the U.S. Department of Commerce, National Technical Information Service, Springfield, Virginia, USA, by requesting Accession No. PB 82-217977.

Parameter values for the Longley-Rice Fortran code are given in Table 1. In addition to these parameters, the percent of time and locations at which the predicted fields will be realized or exceeded must be specified, and also a percentage identifying the degree of confidence desired in the results. To determine whether TV service is present, the location variability is set at 50% and the time variability at 90%. The percent confidence is set at 50%, indicating interest in median situations.

Table 1.

Parameter Values to be Used in the Longley-Rice Model

Parameter	Value	Meaning/Comment
EPS	15.0	Relative permittivity of ground.
SGM	0.005	Ground conductivity, Siemens per meter.
ZSYS	0.0	Coordinated with setting of EN0. See page 72 of NTIA Report.
EN0	301.0	Surface refractivity in N-units (parts per million).
IPOL	0	Denotes horizontal polarization.
MDVAR	3	Code 3 sets broadcast mode of variability calculations.
KLIM	5	Climate code 5 for continental temperate.
HG(1)	see text	Height of the radiation center above ground.
HG(2)	10 m	Height of TV receiving antenna above ground.
MDP	-1	Point to Point mode

In using the Longley-Rice model, terrain elevation data is input at uniformly spaced points between transmitter and receiver. Elevations are retrieved from terrain elevation databases available from the United States Geological Survey (USGS) for points in the United States, and from the National Statistics, Geography and Informatics Institute (INEGI) for points in Mexico. The elevation of a point of interest is determined by linear interpolation of the values retrieved for the corners of the coordinate rectangle in which the point of interest

### Longley-Rice Methodology

lies.

The presence or absence of interference is determined by further application of Longley-Rice. Radio paths between undesired TV transmitters and points representing geographical cells are examined. The undesired transmitters included in the analysis of each cell are those which are possible sources of interference at that cell, considering their distance from the cell and channel offset relationships. For each such radio path, the Longley-Rice procedure is applied for median situations (that is, confidence 50%), and for 50% of locations, 10% of the time.

A cell being examined is counted as having interference if the ratio of the desired field strength to that of any one of the possible interference sources is less than a critical minimum value. The comparison is made after applying the discrimination effect of the receiving antenna. The critical value is a function of the channel offset relationship.

Criteria for the ratio of desired to undesired field strength are summarized in Tables 2A and 2B.

Table 2A.

Interference Criteria for Co- and Adjacent Channels

Channel Offset	D/U Ratio, dB			
	Analog into Analog	DTV into Analog	Analog into DTV	DTV into DTV
-1 (lower adjacent)	-3	-17	-48	-42
0 (co-channel)	+28	+34	+2	+15
+1 (upper adjacent)	-13	-12	-49	-43

### Receiving Antenna Pattern

The receiving antenna is assumed to have a directional gain pattern which tends to discriminate against off-axis undesired stations. This pattern is a planning factor affecting interference. The discrimination, in relative volts, provided by the assumed receiving pattern is a fourth-power cosine function of the angle between the lines joining the desired and

**Longley-Rice Methodology**

undesired stations to the reception point. One of these lines goes directly to the desired station, the other goes to the undesired station. The discrimination is calculated as the fourth power of the cosine of the angle between these lines but never more than represented by the front-to-back ratios identified in Table 3. When both desired and undesired stations are dead ahead, the angle is 0.0 giving a cosine of unity so that there is no discrimination. When the undesired station is somewhat off-axis, the cosine will be less than unity bringing discrimination into play; and when the undesired station is far off axis, the maximum discrimination given by the front-to-back ratio is attained.

Table 2B.

Interference Criteria for UHF Taboo Channels  
(NC means not considered)

Channel Offset Relative to Desired Channel N	D/U Ratio, dB			
	Analog into Analog	DTV into Analog	Analog into DTV	DTV into DTV
N - 8	-32	-32	NC	NC
N - 7	-30	-35	NC	NC
N - 4	NC	-34	NC	NC
N - 3	-33	-30	NC	NC
N - 2	-26	-24	NC	NC
N + 2	-29	-28	NC	NC
N + 3	-34	-34	NC	NC
N + 4	-23	-25	NC	NC
N + 7	-33	-34	NC	NC
N + 8	-41	-43	NC	NC
N+14	-25	-33	NC	NC
N+15	-9	-31	NC	NC

Longley-Rice Methodology

Table 3.

Front-to-Back Ratios Assumed for Receiving Antennas

TV Service	Front-to-Back Ratios, dB		
	Low VHF	High VHF	UHF
Analog	6	6	6
DTV	10	12	14

ANEJO I  
INFORME TECNICO  
PREPARADO PARA LA ESTACION DE  
TELEVISION DE BAJA POTENCIA KZSD-LP  
SAN DIEGO, CALIFORNIA  
CANAL 66(z) 150 KW (MAX-DA)

Este informe técnico ha sido preparado para la estación de Televisión de Baja Potencia (LPTV) KZSD-LP en San Diego, California. Es el propósito de este informe demostrar que la operación propuesta para KZSD-LP en el Canal 66 de TV (782-788 MHz), según enmendada, no tendrá efecto adverso sobre la operación de estaciones de televisión NTSC o TDT en México<sup>1</sup>.

La estación KZSD-LP al presente está licenciada (BLTTL-20030507AAF) para operar en el Canal (NTSC) 41, con antena direccional, una potencia radiada aparente (ERP) de 15 kW, con su centro eléctrico a una altura de 900 metros sobre el nivel del mar (RCAMSL). No obstante, recientemente México adjudicó el canal TDT 41 a la ciudad de Tijuana, BN, la cual está localizada solo a 56.6 km de la antena de KZSD-LP<sup>2</sup>. Dado este hecho, se considera que KZSD-LP ha sido desplazada por el canal de TDT 41 asignado a Tijuana. Es por esto que KZSD-LP propone operar en el canal 66, en vez del canal 41 al presente autorizado.

Los parámetros técnicos de la operación propuesta son los siguientes:

1. Ciudad, Estado: San Diego, CA
2. Coordenadas Geográficas ("NAD 27") del Transmisor:  
L.N.: 32-41-46  
L.W.: 116-56-08
3. Distintivo de llamada: KZSD-LP ("LPTV Station")
4. Número de canal: 66 (782-788 MHz)
5. Desplazamiento en frecuencia ("offset"): Cero ("z")
6. Potencia radiada aparente: 150 kW
7. Altura del centro eléctrico  
Sobre el nivel del mar: 823 metros  
Sobre el terreno promedio: 579 metros
8. Sistema de antena: direccional (se acompañan las especificaciones del patrón en la Figura 1A)

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<sup>1</sup> La solicitud pendiente de KZSD-LP (anteriormente KZDF-LP) para operar en el canal 66 (FCC File No. BPTTL-20050929AAJ), ha sido enmendada para modificar el sistema de antena direccional propuesto, de forma que provea 9.5 dB adicionales de protección a la asignación del canal NTSC 66 en Mexicali, BN.

<sup>2</sup> Facilidades notificadas para la asignación del canal TDT 41 a Tijuana: coordenadas geográficas L.N.: 32°30'07", L.W.: 117°02'23"; potencia radiada aparente: 440 kW; altura del centro eléctrico, en relación al terreno promedio (HAAT): 248 metros.

-2-

Marca y Modelo: Superior Broadcast Products, UPWL-4  
Polarización: Horizontal, 2° de inclinación eléctrica del  
haz ("electrical beam tilt")  
Orientación Azimutal: 238° (referido al Norte Verdadero)

La Figura 2A muestra un estudio de separación de canales realizado en base a las provisiones del Acuerdo de TV de EU-México (Junio de 1982) y el Memorándum de Entendimiento (conocido por "MOU" en Inglés y en adelante representado por las siglas MDE en este documento) entre los Estados Unidos de América y los Estados Unidos Mexicanos, concerniente a la utilización del Servicio de Radiodifusión TDT a lo largo de la Frontera Común. Los requisitos de separación son aplicables a las estaciones de televisión principales (de potencia completa o "full power") NTSC y TDT y se han utilizado con gran cuidado en este estudio.

Como se indica, la propuesta operación en el canal 66 cumple con los requisitos de separación con todos los canales de televisión NTSC y TDT de México, así como con las adjudicaciones de canales, con la excepción de un espaciamiento corto ("short-spacing") de 135 kilómetros con la adjudicación del canal NTSC 66 en Mexicali, BN. Sin embargo, como se muestra a continuación, en base a la naturaleza del terreno que interviene, concluimos que no habrá impacto negativo en la operación del canal NTSC 66 adjudicado a Mexicali.

El MDE indica que el punto de referencia para la adjudicación del canal NTSC 66 en Mexicali está localizado en las coordenadas geográficas L.N.: 32-36-41, L.W.: 115-29-39. Más aun, en base a la información suministrada por personal de KZSD-LP, así como por la División Internacional de la Comisión Federal de Comunicaciones de los Estados Unidos de Norteamérica (en adelante "FCC"), el canal 66 al presente opera en Mexicali bajo las siglas XHILA-TV, como una concesión de la Secretaría de Comunicaciones y Transporte de México (S.C.T.) a Arnoldo Cabada de la O.

Aparentemente, XHILA-TV opera con su planta transmisora ubicada en las coordenadas geográficas L.N.: 32°34'53", L.W.: 115°31'06", con antena no-direccional y una potencia radiada aparente de 3334 kW. No encontramos otros datos técnicos disponibles para la estación XHILA-TV. Un desplazamiento negativo (-) de la onda portadora ("minus carrier offset") a sido presumido para el canal 66 de Mexicali, en base a la información previa para esta adjudicación de canal contenida en la base de datos, CDBS, de la "FCC".

La Figura 3A muestra un mapa topográfico<sup>3</sup> que ilustra la ubicación propuesta para la planta transmisora de KZSD-LP y las ubicaciones de la planta trasmisora para el canal 66 en Mexicali, según la adjudicación de canal provista por el MDE, así como la ubicación en base a la concesión de XHILA-TV realizada por la S.C.T. Como se aprecia en la Figura 3A, hay una extensa cordillera de montañas (Vallecito) ubicadas entre el lugar propuesto para KZSD-LP y el canal 66 de Mexicali. Esto se ilustra en forma gráfica por los perfiles del terreno que interviene entre la ubicación propuesta para la planta transmisora de KZSD-LP y la ubicación del canal 66 de Mexicali; en el caso de la Figura 4A, según la adjudicación contenida en el MDE y en el caso de la Figura 5B, a la planta transmisora de XHILA-TV. Las elevaciones del terreno utilizadas para desarrollar estos perfiles han sido obtenidas de una base de datos topográfica de con segundos de resolución. Las Figuras 4A y 5A también muestran los pasos de línea visual ("line-of-sight") desde el centro eléctrico de la antena de KZSD-LP hasta las ubicaciones de las plantas transmisoras en Mexicali. Como se aprecia, es evidente que existiría un bloqueo substancial de señal a causa del terreno ("terrain shielding") que interviene entre los referidos canales 66 de Estados Unidos de América y México.

La Comisión Federal de Comunicaciones de los Estados Unidos ("FCC") permite que las estaciones de baja potencia (LPTV) involucradas en situaciones similares a la situación existente entre la operación propuesta para KZSD-LP y las asignaciones del canal NTSC 66 de Mexicali, soliciten permisos de excepción ("waiver") a los requisitos y criterios normales establecidos, en aquellos casos donde se puede demostrar que no se espera que en la práctica ocurra interferencia adversa.

En estos casos, las demostraciones, típicamente, se basan en la metodología Longley-Rice y las provisiones y guías señaladas en el Boletín 69 de la Oficina de Tecnología de la "FCC" ("Office of Technology (OET) - Bulletin No. 69: Longley-Rice Methodology for Evaluating TV Coverage and Interference"). Además, como parte del Memorándum de Entendimiento (MDE) entre la Secretaría de Comunicaciones y Transportes de los Estados Unidos Mexicanos (S.C.T.) y la Comisión Federal Comunicaciones ("FCC") de los Estados Unidos de América, relativo al Servicio de Radiodifusión de Televisión Digital, a lo largo de la Frontera Común, suscrito el 22 de julio de 1998<sup>4</sup>, la metodología

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<sup>3</sup> Parte de la Carta Aeronáutica Mundial CG-18 del Departamento de Comercio.

<sup>4</sup> Ver el "Memorándum de Entendimiento entre la Comisión Federal de Comunicaciones de los Estados Unidos de América y la Secretaría De Comunicaciones Y Transportes de los Estados Unidos Mexicanos, relativo al uso de las Bandas de 54-72 MHz, 76-88 MHz, 174-216 MHz and 470-806 MHz para el



Longley-Rice y las guías señaladas en el Boletín 69 de la Oficina de Tecnología de la "FCC" fueron adoptadas para realizar análisis detallados de interferencia. La metodología Longley-Rice se presenta en el Anejo 5 del MDE, copia del cual se adjunta como referencia en la Figura 8A.

Para estaciones NTSC que operan en el mismo canal ("co-channel"), la relación de señal deseada a señal no-deseada ("desired-to-undesired (D/U) ratio") establecida en la pagina 2 del Anejo 5 del MDE para interferencia de tipo analógica es de +28 decibeles (dB). En otra palabras, se predice que ocurrirá interferencia en áreas donde la señal deseada sea inferior a una señal 28 dB mayor que la señal no-deseada. Para poder cuantificar el potencial de interferencia adversa causada por la operación propuesta de KZSD-LP a las operaciones en Mexicali, los estudios deben realizarse teniendo como base las provisiones del Boletín 69 de la Oficina de Tecnología y del Anejo 5 del MDE<sup>5</sup>.

Los resultados del estudio de interferencia, siguiendo las provisiones del Boletín 69 de la Oficina de Tecnología de la "FCC" ("OET-69/Appendix 5 interference analysis computer program") se incluyen en las Figuras 6A (MDE, asignaciones) y 7A (XHILA-TV, según la S.C.T.). Para cada una de las facilidades de Mexicali, una potencia radiada aparente ("ERP"), no-direccional, de 5000 kW y una altura del centro eléctrico sobre el terreno promedio ("HAAT") de 610 metros fue asumida. Estas facilidades corresponden al máximo permisible en los Estados Unidos de América para estaciones de televisión UHF. Como se muestra en la Figura 6A, la operación propuesta para KZSD-LP no causará problemas de interferencia (en términos de cobertura de población o área de servicio) a la adjudicación del canal 66 en Mexicali (en base al MDE), o a la asignación de XHILA-TV, canal 66 (en base a la concesión realizada por la S.C.T.).<sup>6</sup>

Por lo tanto, entendemos que la operación propuesta cumple con los criterios de interferencia del MDE.

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Servicio de Radiodifusion de Televisión Digital, a lo largo de la Frontera Común".

<sup>5</sup> Los programas de ordenador utilizados por du Treil, Lundin & Rackley para el análisis de interferencia estan fundamentados en los procedimientos y guías contenidas en el Boletín No. 69 y el Anejo 5 del MDE. Una cuadrícula nominal de 2 Km. de resolución fue utilizada. Un sistema de ordenador Sun fue utilizado para este estudio. Los resultados obtenidos con este sistema, se ha encontrado que tienen una excelente correlación con los resultados obtenidos por la FCC para la implementación de las provisiones del Boletín No. 69.

<sup>6</sup> Las cifras de población solo aplican a los Estados Unidos de América.

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Este informe técnico ha sido preparado bajo la supervisión directa de W. Jeffrey Reynolds, ingeniero consultor de la firma du Treil, Lundin & Rackley, Inc. (dLR), una firma de consultoría en telecomunicaciones ubicada en Sarasota, Florida. dLR ha provisto servicios de consultoría en ingeniería de radio y TV a la industria de las comunicaciones durante los pasados 60 años.

Todos los datos y aseveraciones contenidas en este informe son correctos, según su mejor entendimiento.



W. Jeffrey Reynolds  
du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237-6019  
(941) 329-6000  
JEFF@DLR.COM  
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