

TECHNICAL EXHIBIT
APPLICATION FOR MODIFICATION OF
CONSTRUCTION PERMIT
TELEVISION STATION KEYC-DT
EL CENTRO, CALIFORNIA

April 18, 2007

CHANNEL 48 67 KW (MAX-DA) 414 M

TECHNICAL EXHIBIT
APPLICATION FOR MODIFICATION OF CONSTRUCTION PERMIT
TELEVISION STATION KECY-DT
EL CENTRO, CALIFORNIA
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Technical Statement

This Technical Exhibit was prepared on behalf of digital television broadcast station KECY-DT, El Centro, California, in support of an application for modification of construction permit. KECY-DT is paired with analog NTSC TV station KECY-TV, Channel 9. Pursuant to the FCC *Sixth Report and Order* concerning digital television, KECY-DT was allotted Channel 48 as its transitional DTV channel, with a maximum effective radiated power (ERP) of 997.9 kW and antenna height above average terrain (HAAT) of 488 m, located at its analog transmitter site on Black Mountain.* KECY-DT is authorized for operation on Channel 48 with a non-directional ERP of 950 kW with an HAAT of 414 m from the transmitter site on Black Mountain.†

The instant application proposes operation of the KECY-DT facility at an existing tower site located on Black Mountain, near Glamis, California. The proposed facility will employ a different antenna with an increase in ERP and HAAT. The proposal complies with the requirements the FCC Filing Freeze for television stations.‡ The proposed KECY-DT facility provides service to more than 98% of the KECY-DT baseline service population under the criteria adopted in the Report and Order in the

* See DTV Table of Allotments, *Second Memorandum Opinion and Order on Reconsideration of the Fifth and Sixth Report and Orders*, 14 FCC Rcd 1348, at Appendix B.

† See FCC File No. BMPCDT-20041028AFC.

‡ See *August 2004 Filing Freeze PN*, DA 04-2446 (MB rel. Aug. 3, 2004).

Second Periodic Review of digital television (September 2004). This is demonstrated in Appendix 2 herein.

Proposed Facilities

The proposed transmitting antenna is a Dielectric, model TLP-24N, which is side-mounted on the existing FCC registered tower. The transmitter site elevation is 624 m AMSL. The antenna center of radiation will be located at 74 m above ground level and 698 m AMSL. The proposed KECY-DT facility will operate on Channel 48 with a maximum directional average ERP of 18.3 dBk (67 kW) and antenna radiation center HAAT of 414 m.

There are no AM broadcast stations located within 3.2 km of the proposed transmitter site. There are no FCC Monitoring stations in proximity to the proposed facility.

The proposed facility is located 38 km from the closest point on the US/Mexico border and it is located within the Mexican coordination zone. The proposed transmitter site is located more than 1000 km from the Table Mountain location within the Table Mountain Radio Receiving Zone and there are no FCC monitoring stations located within 500 km of the proposed site.

The applicant recognizes its responsibility to correct objectionable electromagnetic interference problems that may result from its proposed operation.

The proposed facility provides minimum 48 dBu, f(50,90), coverage of El Centro in compliance with Section 73.625(a)(1) of the FCC Rules. Figure 2 herein is a map depicting the predicted coverage contours of the proposed facility.

Tower Registration

The existing antenna structure is registered with the FCC. The FCC antenna structure registration number is 1225054. There will be no change in the overall height of the antenna structure as a result of the instant proposal.

Allocation Considerations

The proposed KECY-DT Channel 48 facility meets the requirements of Section 73.623 of the FCC Rules concerning predicted interference to other existing U.S. NTSC facilities and U.S. DTV allotments and assignments. Longley-Rice interference analyses were conducted pursuant to the requirements of the FCC Rules; OET Bulletin No. 69; and published FCC guidelines for preparation of such interference analyses. The Longley-Rice interference analyses were conducted using the software developed by du Treil, Lundin & Rackley, Inc. based on the FCC published software routines.[§] Stations selected for analysis were determined pursuant to the distance requirements outlined in the FCC DTV Processing Guidelines Public Notice. The results of the interference analyses for the proposed KECY-DT facility are summarized herein at Figure 3. As indicated therein, the proposed facility will meet the 2%/10% criterion outlined in the FCC Rules and published guidelines with respect to all considered stations.

[§] The duTreil, Lundin & Rackley, Inc. DTV interference analysis program is a precise implementation of the 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 2 km was employed.

With respect to Class A TV station protection, the proposal has been evaluated according to the requirements of Section 73.623(c)(5) of the FCC Rules. The analysis reveals no potentially affected Class A TV stations.

Environmental Considerations

With respect to the potential for human exposure to radio frequency (RF) radiation, calculations prepared in accordance with FCC Bulletin OET-65 (Edition 97-01) indicate that the proposal will not result in human exposure to RF radiation at ground level in excess of FCC standards. ** Power density calculations were conducted at 2-m above ground based on the following conservative assumptions, with the following results:

Call Sign	Channel	Average ERP (kW)	Distance (m)	Relative Field Factor ^{††}	FCC Limit ^{‡‡} (mW/cm ²)	Percentage of Limit
KECY-DT	48	67	72	0.20	0.451	4.1%

As indicated above, the exposure to RF radiation at 2-m above ground level will not exceed 4.1% of the FCC limit for general population / uncontrolled exposure. Therefore, the proposal complies with the FCC limits for human exposure to RF radiation and it is categorically excluded from environmental processing.

** See FCC Office of Engineering and Technology Bulletin No. 56 for background information on non-ionizing RF energy of the type discussed here. Internet web reference:

http://www.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet56/oet56e4.pdf

†† This is a conservative estimate of the elevation pattern relative field toward ground level.

‡‡ for general population/uncontrolled environments

The applicant shall reduce power or cease operation as necessary to protect persons having access to the tower or antenna from radio frequency radiation in excess of the FCC guidelines.



Louis Robert du Treil, Jr.

du Treil, Lundin & Rackley, Inc.
201 Fletcher Ave.
Sarasota, FL 34237

April 18, 2007

Figure 1

TECHNICAL EXHIBIT
 APPLICATION FOR MODIFICATION OF CONSTRUCTION PERMIT
 TELEVISION STATION KEYC-DT
 EL CENTRO, CALIFORNIA
 CHANNEL 48 67 KW (MAX-DA) 414 M

Technical Specifications

Channel / Frequency Band	48 / 674-680 MHz
Site Coordinates (NAD 27)	33°09'19" North Latitude 114°49'44" West Longitude
Site elevation	624 m AMSL
Average elevation of standard eight radials, 3 to 16 km	284 m AMSL
Overall height of existing structure	152 m AGL / 776 m AMSL
Height of antenna radiation center	74 m AGL / 698 m AMSL
Antenna radiation center HAAT	414 m

Proposed Operation	
Parameter	DTV
Transmitter power output	3.39 dBk (2.2 kW)
Transmission line loss (Dielectric, FLEXLine, 3-1/8" air, 300-ft)	1.01 dB
Antenna input power	2.38 dBk
Antenna maximum gain (RF Technologies, SFN-2030-5456-16)	15.92 dB
Maximum directional effective radiated power (ERP)	18.3 dBk
Maximum directional ERP in kilowatts	67 kW

duTreil, Lundin & Rackley, Inc. Sarasota, Florida

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Summary of OET-69 Interference Analysis

Stations Potentially Affected by Proposed Station							
Facility Number	Channel	Call	City State	Distance (km)	Status	Application Prefix	Application Reference Number
1	48	KOCE-DT	HUNTINGTON BEACH CA	306.6	PLN	DTVPLN	DTVP1382
2	48	KOCE-TV	HUNTINGTON BEACH CA	326.6	LIC	BLEDT	20041117ADG

Summary of Interference Analysis for Worst-Case Scenarios							
Facility Number	Interference Population Before Analysis	Interference Population After Analysis	Baseline Population	Net Change in Interference	Percent of Baseline	Permissible Percent of Baseline	Result
1	--	--	--	*	0.000	--	pass
2	--	--	--	*	0.000	--	pass

*Proposal causes no interference.

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Transmitting Antenna Manufacturer's Pattern Data

(four pages follow)



Exhibit No.

Date

12 Apr 2005

Call Letters

Channel 48

Location

El Centro, CA

Customer

Antenna Type

TLP-24N

AZIMUTH PATTERN

Gain

1.70 (2.30 dB)

Frequency

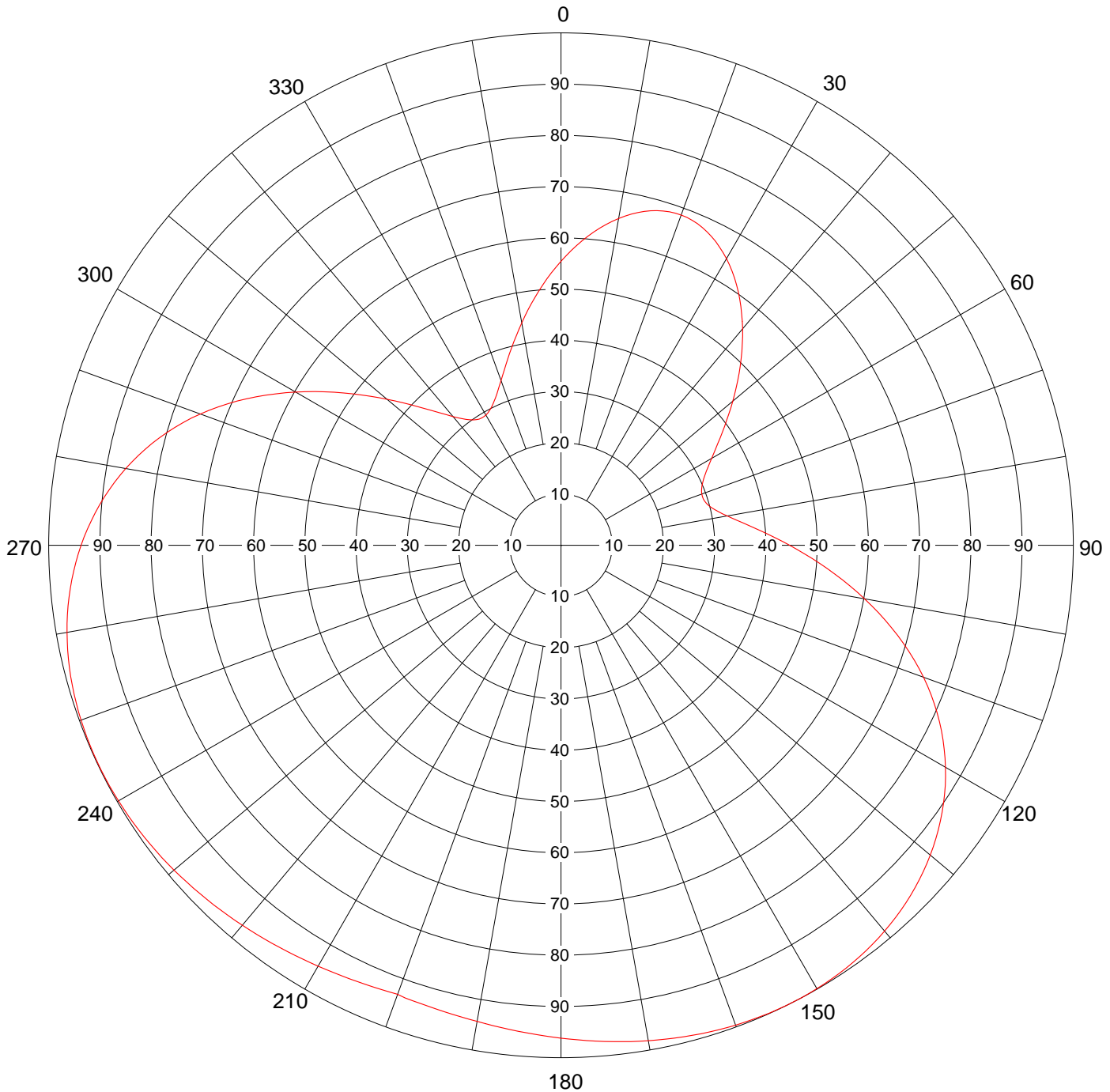
677 MHz

Calculated / Measured

Calculated

Drawing #

TLP-N



Remarks:



Date **12 Apr 2005**
Call Letters
Location **El Centro, CA**
Customer
Antenna Type **TLP-24N**

Channel **48**

TABULATION OF AZIMUTH PATTERNAzimuth Pattern Drawing # **TLP-N**

Angle	Field	ERP (kW)	ERP (dBk)
0	0.554	20.6	13.13
10	0.648	28.1	14.49
20	0.686	31.5	14.99
30	0.646	28.0	14.47
40	0.551	20.3	13.08
50	0.438	12.9	11.09
60	0.339	7.7	8.86
70	0.292	5.7	7.57
80	0.329	7.3	8.60
90	0.446	13.3	11.25
100	0.602	24.3	13.85
110	0.753	38.0	15.80
120	0.866	50.2	17.01
130	0.941	59.3	17.73
140	0.983	64.7	18.11
150	0.999	66.9	18.25
160	0.996	66.5	18.23
170	0.982	64.6	18.10
180	0.962	62.0	17.92
190	0.944	59.7	17.76
200	0.933	58.3	17.66
210	0.948	60.2	17.80
220	0.968	62.8	17.98
230	0.986	65.1	18.14
240	0.998	66.7	18.24
250	0.997	66.6	18.23
260	0.979	64.2	18.08
270	0.937	58.8	17.70
280	0.863	49.9	16.98
290	0.749	37.6	15.75
300	0.598	24.0	13.79
310	0.443	13.1	11.19
320	0.328	7.2	8.58
330	0.293	5.8	7.60
340	0.342	7.8	8.94
350	0.441	13.0	11.15

Maxima

Angle	Field	ERP (kW)	ERP (dBk)
20	0.686	31.5	14.99
153	1.000	67.0	18.26
245	0.999	66.9	18.25

Minima

Angle	Field	ERP (kW)	ERP (dBk)
71	0.292	5.7	7.57
200	0.933	58.3	17.66
329	0.293	5.8	7.60

Remarks:



Date

12 Apr 2005

Call Letters

Channel 48

Location

El Centro, CA

Customer

Antenna Type

TLP-24N

ELEVATION PATTERN

RMS Gain at Main Lobe

23.0 (13.62 dB)

Beam Tilt

1.00 Degrees

RMS Gain at Horizontal

10.3 (10.13 dB)

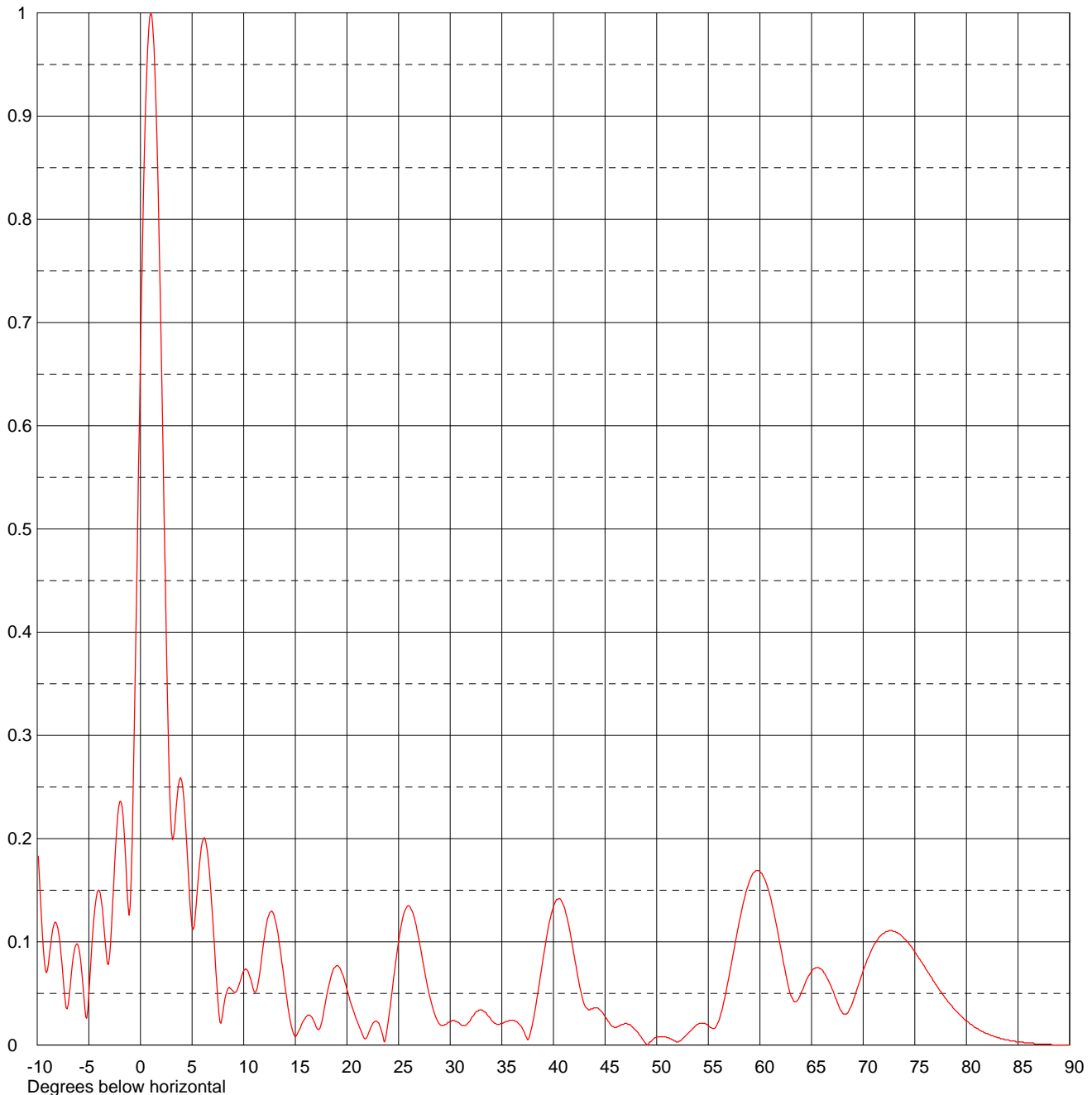
Frequency

677.00 MHz

Calculated / Measured

Calculated

Drawing #

24L230100-90

Remarks:



Date **12 Apr 2005**
 Call Letters
 Location **El Centro, CA**
 Customer
 Antenna Type **TLP-24N**

Channel **48**

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing # **24L230100-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.202	2.4	0.451	10.6	0.066	30.5	0.023	51.0	0.007	71.5	0.104
-9.5	0.108	2.6	0.343	10.8	0.059	31.0	0.020	51.5	0.005	72.0	0.108
-9.0	0.073	2.8	0.257	11.0	0.052	31.5	0.019	52.0	0.003	72.5	0.111
-8.5	0.112	3.0	0.207	11.5	0.066	32.0	0.025	52.5	0.006	73.0	0.110
-8.0	0.113	3.2	0.202	12.0	0.104	32.5	0.032	53.0	0.011	73.5	0.108
-7.5	0.066	3.4	0.222	12.5	0.128	33.0	0.034	53.5	0.016	74.0	0.103
-7.0	0.039	3.6	0.245	13.0	0.123	33.5	0.031	54.0	0.020	74.5	0.097
-6.5	0.086	3.8	0.258	13.5	0.095	34.0	0.024	54.5	0.021	75.0	0.090
-6.0	0.095	4.0	0.256	14.0	0.057	34.5	0.020	55.0	0.019	75.5	0.083
-5.5	0.049	4.2	0.239	14.5	0.024	35.0	0.021	55.5	0.016	76.0	0.075
-5.0	0.049	4.4	0.209	15.0	0.008	35.5	0.023	56.0	0.023	76.5	0.067
-4.5	0.124	4.6	0.173	15.5	0.017	36.0	0.024	56.5	0.042	77.0	0.059
-4.0	0.150	4.8	0.137	16.0	0.027	36.5	0.022	57.0	0.066	77.5	0.052
-3.5	0.110	5.0	0.115	16.5	0.028	37.0	0.016	57.5	0.093	78.0	0.045
-3.0	0.085	5.2	0.115	17.0	0.018	37.5	0.005	58.0	0.120	78.5	0.039
-2.8	0.116	5.4	0.136	17.5	0.020	38.0	0.022	58.5	0.142	79.0	0.033
-2.6	0.156	5.6	0.162	18.0	0.046	38.5	0.051	59.0	0.159	79.5	0.028
-2.4	0.194	5.8	0.184	18.5	0.068	39.0	0.084	59.5	0.168	80.0	0.023
-2.2	0.222	6.0	0.197	19.0	0.077	39.5	0.114	60.0	0.168	80.5	0.020
-2.0	0.236	6.2	0.201	19.5	0.070	40.0	0.134	60.5	0.160	81.0	0.016
-1.8	0.232	6.4	0.193	20.0	0.054	40.5	0.142	61.0	0.144	81.5	0.013
-1.6	0.210	6.6	0.176	20.5	0.037	41.0	0.135	61.5	0.121	82.0	0.011
-1.4	0.173	6.8	0.152	21.0	0.023	41.5	0.115	62.0	0.095	82.5	0.009
-1.2	0.134	7.0	0.122	21.5	0.010	42.0	0.087	62.5	0.069	83.0	0.007
-1.0	0.134	7.2	0.089	22.0	0.009	42.5	0.059	63.0	0.048	83.5	0.006
-0.8	0.200	7.4	0.057	22.5	0.021	43.0	0.039	63.5	0.042	84.0	0.005
-0.6	0.305	7.6	0.030	23.0	0.022	43.5	0.034	64.0	0.051	84.5	0.004
-0.4	0.425	7.8	0.021	23.5	0.008	44.0	0.036	64.5	0.063	85.0	0.003
-0.2	0.550	8.0	0.033	24.0	0.023	44.5	0.034	65.0	0.071	85.5	0.003
0.0	0.670	8.2	0.046	24.5	0.063	45.0	0.028	65.5	0.075	86.0	0.002
0.2	0.779	8.4	0.053	25.0	0.101	45.5	0.020	66.0	0.073	86.5	0.002
0.4	0.872	8.6	0.056	25.5	0.127	46.0	0.017	66.5	0.065	87.0	0.001
0.6	0.941	8.8	0.054	26.0	0.135	46.5	0.019	67.0	0.054	87.5	0.001
0.8	0.985	9.0	0.052	26.5	0.124	47.0	0.021	67.5	0.041	88.0	0.001
1.0	1.000	9.2	0.051	27.0	0.101	47.5	0.019	68.0	0.031	88.5	0.000
1.2	0.986	9.4	0.054	27.5	0.073	48.0	0.014	68.5	0.031	89.0	0.000
1.4	0.944	9.6	0.060	28.0	0.048	48.5	0.008	69.0	0.042	89.5	0.000
1.6	0.876	9.8	0.067	28.5	0.030	49.0	0.001	69.5	0.057	90.0	0.000
1.8	0.787	10.0	0.072	29.0	0.020	49.5	0.004	70.0	0.072		
2.0	0.681	10.2	0.074	29.5	0.020	50.0	0.008	70.5	0.085		
2.2	0.567	10.4	0.072	30.0	0.023	50.5	0.008	71.0	0.096		

Remarks:

TECHNICAL EXHIBIT
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TELEVISION STATION KECY-DT
EL CENTRO, CALIFORNIA
CHANNEL 48 67 KW (MAX-DA) 414 M

Calculation of Predicted Service Population
Using FCC OET Bulletin No. 69 Methodology

(three pages follow)

Summary of analysis:

FCC Baseline Data for KECY-DT from Public Notice, "DTV Channel Election Information and First Round Election Filing Deadline," Released: December 21, 2004, DA 04-3922, Table II.

El Centro, CA, KECY-TV, NTSC = 322,173; DTV = 322,579.

Using lesser of the NTSC and DTV Baselines, baseline population = 322,173.

From OET-69 Analysis, net service of KECY-DT proposed facility = 315,885.

Calculated percentage of service = $315,885 / 322,173 \times 100\% = \underline{98.05\%}$

2000 Census data selected
TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Record Selected for Analysis

KEYYDT USERRECORD-01 EL CENTRO CA US
Channel 48 ERP 67. kW HAAT 414. m RCAMSL 00698 m
Latitude 033-03-19 Longitude 0114-49-44
Status APP Zone 2 Border
Dir Antenna Make CDB Model 00000000069474 Beam tilt N Ref Azimuth 0.
Last update Cutoff date Docket
Comments
Applicant

Cell Size for Service Analysis 2.0 km/side

Distance Increments for Longley-Rice Analysis 1.00 km

Facility meets maximum height/power limits

Azimuth (Deg)	ERP (kW)	HAAT (m)	41.0 dBu F(50,90) (km)
0.0	20.563	333.0	71.8
45.0	16.384	388.3	74.4
90.0	13.327	522.0	79.7
135.0	62.005	406.4	84.5
180.0	62.005	456.8	87.1
225.0	63.953	486.2	89.0
270.0	58.824	429.8	85.4
315.0	9.957	288.2	64.8

Evaluation toward Class A Stations

No Spacing violations or contour overlap to Class A stations

Class A Evaluation 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 = 38.1km

Proposed station is OK toward AM broadcast stations

Start of Interference Analysis

Channel	Proposed Station Call	City/State	ARN
48	KECYDT	EL CENTRO CA	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
48	KOCE-DT	HUNTINGTON BEACH CA	306.6	PLN	DTVPLN	-DTVP1382
48	KOCE-TV	HUNTINGTON BEACH CA	326.6	LIC	BLEDT	-20041117ADG

%%%

Analysis of Interference to Affected Station 3

DTV Baseline Analysis

Channel	Call	City/State	Application	Ref. No.
48	KECY-DT	EL CENTRO CA	DTVPLN	-DTVP1381

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
48	KOCE-DT	HUNTINGTON BEACH CA	306.7	PLN	DTVPLN	-DTVP1382

Results for: 48A CA EL CENTRO DTVPLN DTVP1381 PLN
HAAT 488.0 m, ATV ERP 998.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	327024	30046.2
not affected by terrain losses	322378	26972.7
lost to NTSC IX	0	0.0
lost to additional IX by ATV	0	0.0
lost to ATV IX only	0	0.0
lost to all IX	0	0.0

NTSC Baseline Analysis

Channel	Call	City/State	Application	Ref. No.
09	KECYTV	EL CENTRO CA	DTVPLN	-NPLN0581

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
09	KCFG	FLAGSTAFF AZ	383.8	PLN	DTVPLN	-NPLN0579
09	KGUN	TUCSON AZ	390.9	PLN	DTVPLN	-NPLN0580
09	KCALTV	LOS ANGELES CA	326.8	PLN	DTVPLN	-NPLN0582

Results for: 9N CA EL CENTRO DTVPLN NPLN0581 PLN
POPULATION AREA (sq km)

within Noise Limited Contour	327024	30054.2
not affected by terrain losses	322173	26628.6
lost to NTSC IX	0	4.0
lost to additional IX by ATV	0	0.0
lost to all IX	0	4.0

Analysis of current record

Channel	Call	City/State	Application Ref. No.
48	KECYDT	EL CENTRO CA	USERRECORD-01

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
48	KOCE-DT	HUNTINGTON BEACH CA	306.6	PLN	DTVPLN -DTVP1382
48	KOCE-TV	HUNTINGTON BEACH CA	326.6	LIC	BLEDT -20041117ADG

Total scenarios = 1

Result key: 1
Scenario 1 Affected station 3
Before Analysis

Results for: 48A CA EL CENTRO USERRECORD01 APP
HAAT 414.0 m, ATV ERP 67.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	316576	19435.8
not affected by terrain losses	315885	17723.1
lost to NTSC IX	0	0.0
lost to additional IX by ATV	0	0.0
lost to ATV IX only	0	0.0
lost to all IX	0	0.0

Potential Interfering Stations Included in above Scenario 1

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FINISHED FINISHED FINISHED FINISHED FINISHED FINISHED