

TECHNICAL EXHIBIT  
DTV MAXIMIZATION APPLICATION  
STATION KTDO-DT  
LAS CRUCES, NEW MEXICO  
CH 47    200 KW    555 M

Technical Narrative

This Technical Exhibit supports an application for digital television (DTV) station KTDO-DT for its DTV operation at Las Cruces, New Mexico. This application requests a modification of construction permit (CP) for KTDO-DT digital television operation on channel 47 at Las Cruces with a non-directional effective radiated power of 200 kilowatts.

This application makes a slight modification to the present authorization (BMPCDT-20080612AAP) by changing the registered tower location by one second of Latitude and one second of Longitude and decreasing the antenna height above average terrain by 8 meters.

Proposed Facilities

Station KTDO-DT proposes to operate DTV channel 47 from atop *Ranger Peak* located near El Paso, Texas. The antenna height above average terrain for the channel 47 DTV operation will be 555 meters. The proposed KTDO-DT effective radiated power exceeds the Commission's *Appendix B* allocated maximum effective radiated power in some

azimuthal directions for KTDO-DT.<sup>1</sup> Therefore, an allocation study was completed to ensure no prohibited interference would occur.

The proposed DTV transmitter site will be located atop *Ranger Peak*. Therefore, the proposed site location is:

31° 48' 19" North Latitude  
106° 28' 59" West Longitude

A sketch of antenna and pertinent elevations are included as Figure 1.

The Appendix contains the vertical plane radiation pattern for the proposed antenna system.

Figure 2 is a map showing the DTV predicted coverage contour and the associated analog Grade B coverage contour. The extent of the contour has been calculated using the normal FCC prediction method. The Las Cruces city limits were derived from information contained in the 2000 U.S. Census of Population and Housing.

#### Population Served

The herein proposed KTDO-DT "maximized" facility is predicted to serve 849,645 persons, post-transition based upon the 2000 Census. KTDO-DT's associated Appendix B facility is predicted to serve 693,000 persons. Therefore, the herein proposed KTDO-DT facility would serve more than 100% of KTDO-DT's Appendix B population.

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<sup>1</sup> See Seventh Report And Order And Eighth Further Notice Of Proposed Rule Making in the Matter of Advanced Television Systems and their

### Allocation Considerations

The proposed KTD0-DT Channel 47 facility meets the requirements of Section 73.623 of the FCC Rules concerning predicted interference to other Appendix B DTV allotments. 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.<sup>2</sup> 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 KTD0-DT facility are summarized herein at Figure 3. As indicated therein, the proposed facility will meet the 0.5% criterion outlined in the FCC Rules and published guidelines with respect to all considered stations.<sup>3</sup>

### Mexican Coordination

The proposed transmitter site is located 4.4 kilometers from the nearest point of the common U.S/Mexico border. However, coordination with Mexico has already been obtained for nearly identical facilities.

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Impact Upon the Existing Television Broadcast Service, MB Docket 87-268, Released August 6, 2007; Adopted August 1, 2007.

2 The duTreil, 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 2 km was employed.

3 Interference analysis results reflect the net change in interference to a given station considering the interference predicted to occur from all other stations (i.e. "masking") including the allotment facility for KTD0-DT. This properly reflects the net interference change for determining compliance with the FCC 0.5% *de minimis* standard.

Radiofrequency Electromagnetic Field Exposure

The proposed KTDO-DT facilities were evaluated in terms of potential radiofrequency electromagnetic field exposure at ground level to workers and the general public. The radiation center for the proposed KTDO-DT antenna is located 88 meters above ground level. The maximum effective radiated power is 200 kilowatts. A "worst case" downward relative field value of 0.15 is assumed for the antenna's downward radiation. The calculated power density at a point 2 meters above ground level is  $0.0204 \text{ mW/cm}^2$ . This is less than 5 percent of the Commission's recommended limit of  $0.447 \text{ mW/cm}^2$  for channel 47 for an "uncontrolled" environment.

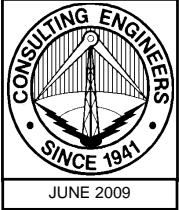
Access to the transmitting site is restricted and appropriately marked with warning signs. In the event that workers or other authorized personnel enter restricted areas or climb the tower, appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. 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. The proposed KTDO-DT operation appears to be otherwise categorically excluded from environmental processing.

It is noted that this statement only addresses the potential for radiofrequency electromagnetic field exposure. All other aspects of the environmental processing analysis will be or already have been provided to the FCC by the tower owner.

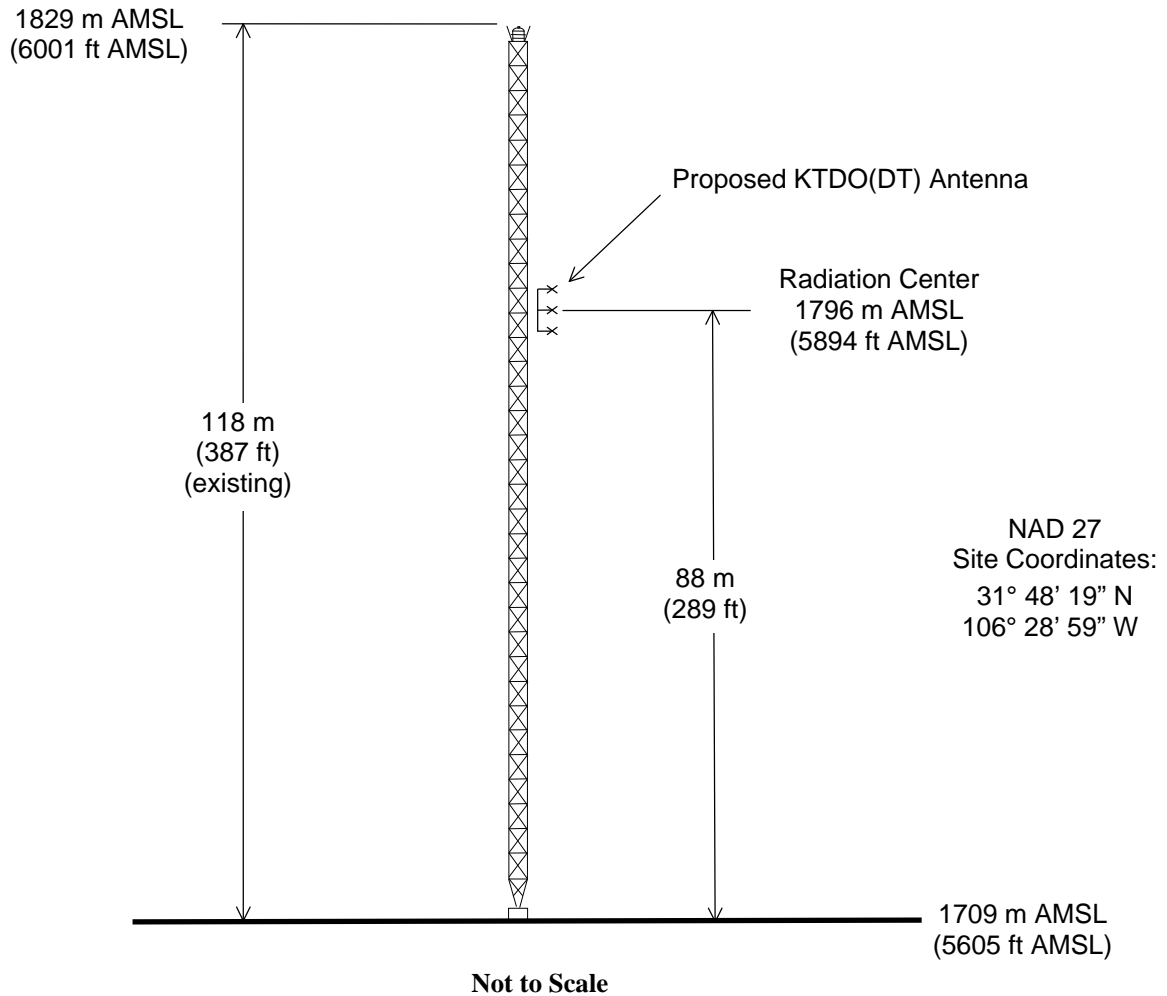
Charles Cooper

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 32437  
941.329.6000

June 2, 2009



ASRN: 1202400

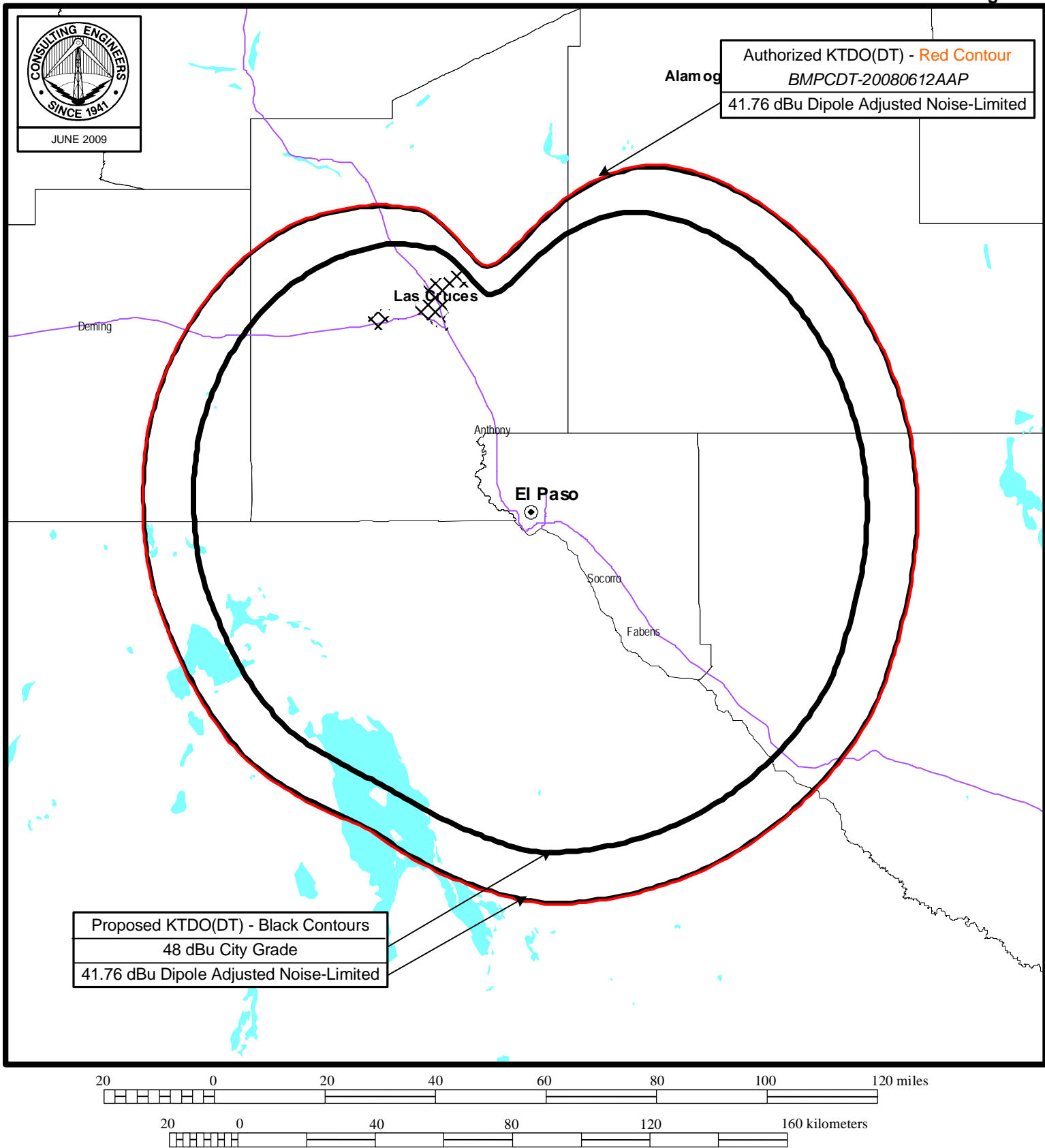


## ANTENNA AND SUPPORTING STRUCTURE

DTV STATION KTDO(DT)  
 LAS CRUCES, NEW MEXICO  
 CH 47 200 KW 555 M

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

Figure 2



## **PREDICTED COVERAGE CONTOURS**

STATION KTDO(DT)

LAS CRUCES, NEW MEXICO

CH 47 200 KW 555 M

du Treil, Lundin & Rackley, Inc Sarasota, Florida

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OET-69 Post-Transition Interference Analysis

TW Census data selected 2000  
Post Transition Data Base Selected /export/home/cdbs/pt\_tvdb.sff

TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 06-02-2009    Time: 13:33:32

Record Selected for Analysis

KTDO        USERRECORD-01                    LAS CRUCES                    NM US  
Channel 47 ERP 200.    kW    HAAT 554. m    RCAMSL 01796 m  
Latitude 031-48-19    Longitude 0106-28-59  
Status APP            Zone 2        Border  
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	200.000	253.8	78.2
45.0	200.000	597.2	105.9
90.0	200.000	598.9	105.9
135.0	200.000	670.1	109.0
180.0	200.000	620.5	106.9
225.0	200.000	528.7	101.6
270.0	200.000	609.0	106.4
315.0	200.000	557.6	103.7

Evaluation toward Class A Stations

No Spacing violations or contour overlap to Class A stations

Class A Evaluation Complete

SPACING VIOLATION FOUND BETWEEN STATION

KTDO        47 LAS CRUCES                    NM USERRECORD01

and station

SHORT TO: KTDO        47 LAS CRUCES                    NM DTVPLN        DTVPL682  
32 -02-30    106 -27-41  
Req. separation 223.7 Actual separation 26.3 Short 197.4 km

SHORT TO: KTDO        48 LAS CRUCES                    NM BSTA            20030703ACP  
032-18-19    0106-46-41



Figure 3

Req. separation => 12.0 <= 106.0 Actual separation 62.0 Short 44.0( 50.0) km

SHORT TO: KTDO 48 LAS CRUCES NM BLCT 19900625KE  
032-02-30 0106-27-41

Req. separation => 12.0 <= 106.0 Actual separation 26.3 Short 79.7( 14.3) km

LANDMOBILE SPACING VIOLATIONS FOUND

NONE

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quiet 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 = 4.4km

Proposed station is OK toward AM broadcast stations

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#### Start of Interference Analysis

Channel	Proposed Station Call	City/State	ARN
47	KTDO	LAS CRUCES NM	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
47	KTEL-LP	ALBUQUERQUE NM	378.9	CP	BPTTL -20031229ABO

%%%

Analysis of Interference to Affected Station 1

Analysis of current record

Channel	Call	City/State	Application Ref. No.
47	KTEL-LP	ALBUQUERQUE NM	BPTTL -20031229ABO

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
45	KASY-TV	ALBUQUERQUE NM	0.1	LIC	BLCDT -20030429ABF
45	KASY-TV	ALBUQUERQUE NM	0.1	PLN	DTVPLN -DTVP1625
46	K46GY	SANTA FE NM	0.0	LIC	BLTT -20030403AAN
47	K47KC	ROMEO CO	187.0	LIC	BLTT -20090410AAC
47	K47KC	ROMEO CO	187.0	APP	BPTTL -20090526AFR
47	KTDO	LAS CRUCES NM	352.6	PLN	DTVPLN -DTVP1682
47	K47GV	LAS VEGAS NM	119.4	LIC	BLTT -20011031AAU
47	KGDR-LP	RUIDOSO NM	210.4	LIC	BLTT -19950502IF
48	KTFA-LP	ALBUQUERQUE NM	0.3	LIC	BLTTL -20031212ABM
47	KTDO	LAS CRUCES NM	378.9	APP	USERRECORD-01

Proposed station is beyond the site to  
nearest cell evaluation distance

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Analysis of Interference to Affected Station 2

Analysis of current record

Channel	Call	City/State	Application Ref. No.
47	KTDO	LAS CRUCES NM	USERRECORD-01

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
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**Figure 3**

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Total scenarios = 1

Result key: 1
Scenario 1 Affected station 2
Before Analysis

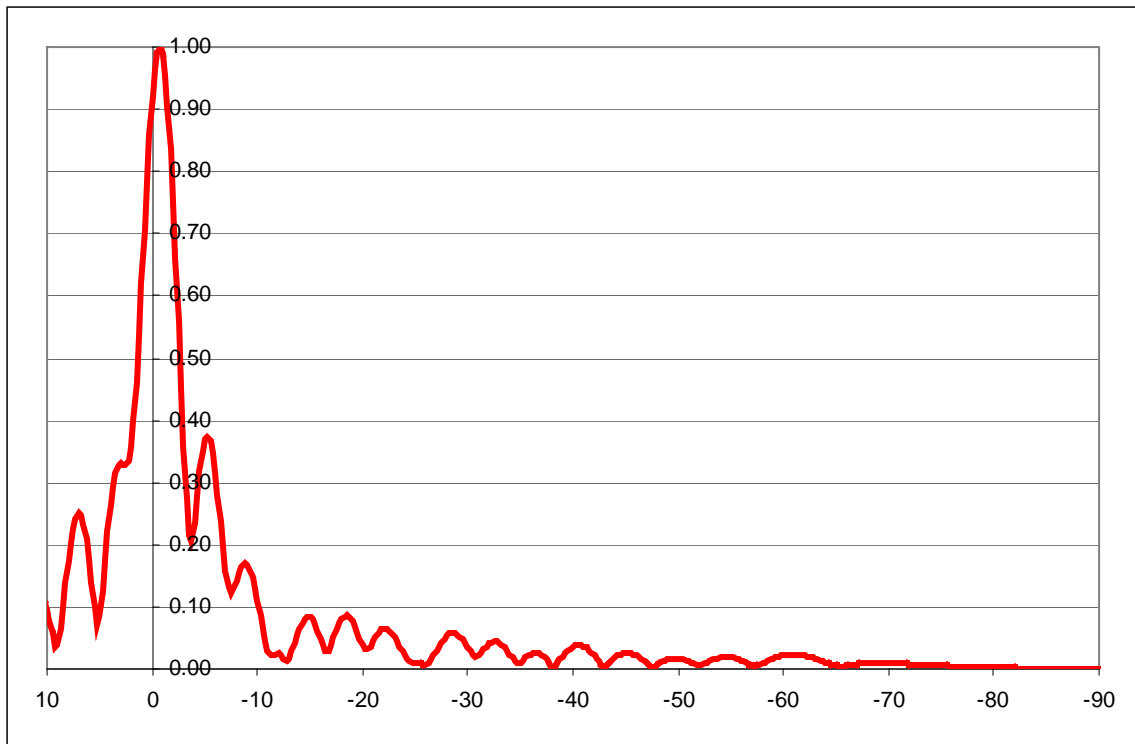
Results for: 47A NM LAS CRUCES USERRECORD01 APP
HAAT 554.0 m, ATV ERP 200.0 kW
      POPULATION  AREA (sq km)
within Noise Limited Contour 855122 32295.0
not affected by terrain losses 849645 29815.4
lost to NTSC IX 0 0.0
lost to additional IX by ATV 0 0.0
lost to ATV IX only 0 0.0
lost to all IX 0 0.0

Potential Interfering Stations Included in above Scenario 1

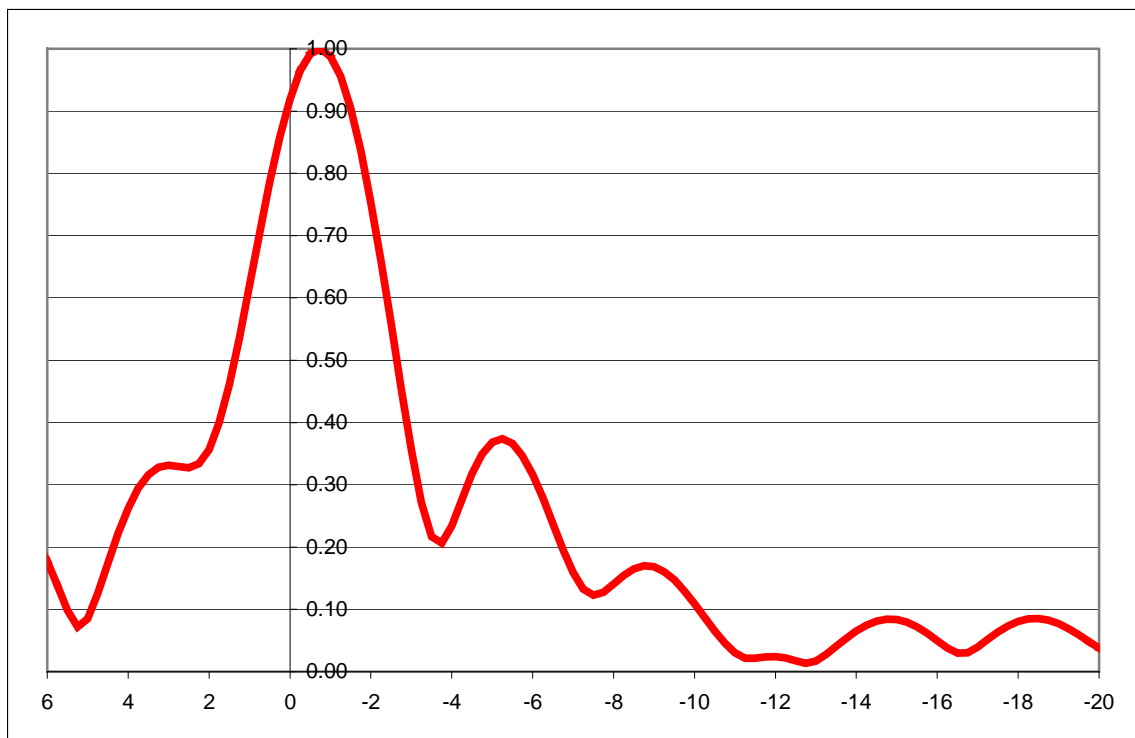
#####
FINISHED FINISHED FINISHED FINISHED FINISHED FINISHED
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# APPENDIX

TRANSMITTING ANTENNA  
VERTICAL PLANE PATTERN



**18 Bay Elevation pattern – Beam Tilt 0.75 Degree – 10 to -90 Degree Plot**



**18 Bay Elevation pattern – Beam Tilt 0.75 6 to -20 Degree Plot**