

TECHNICAL EXHIBIT
DISPLACEMENT APPLICATION
STATION KXTU-LP (FACILITY ID 16747)
COLORADO SPRINGS, COLORADO
CH 57(Z) 83 KW (MAX-DA)

Technical Narrative

This Technical Exhibit supports a displacement application for low-power television station KXTU-LP, on channel 68 at Colorado Springs, Colorado. Station KXTU-LP is licensed to operate on channel 68 with a directional antenna maximum effective radiated power (ERP) of 1.49 kW and an antenna height above mean sea level (RCAMSL) of 2873 meters (BLTT-19931110JD).

Proposed Facilities

This application proposes operation on channel 57 at the currently licensed site. There is a slight coordinate correction, but no actual change in transmitter site (proposed NAD27 coordinates: 38-44-43 N, 104-51-40 W). A Dielectric TLP-26J/VP directional antenna with an ERP of 83 kW at the radio horizon and antenna RCAMSL of 2882.5 meters is proposed. The antenna will be oriented to the east with maximum lobes at 20° and 160° True. The antenna employs 2.1 degrees of electrical beam tilt and 1 degree of mechanical tilt at 60 degrees True and also a vertical polarization component. The maximum ERP due to the beam tilting is also 142.4 kW.

Figure 1 is the azimuth antenna pattern without the calculation of the beam tilting. Figure 2 is the resulting azimuth antenna pattern at the radio horizon, based on the electrical and mechanical beam tilt contributions.

Since the proposed site is essentially the same as the licensed KXTU-LP site, it is apparent that there will be common contour overlap of the 74 dBu contours.

NTSC Allocation Considerations

A study has been conducted using the provisions of Sections 74.705, 74.707 and 74.709 to assure that the proposal will not create prohibited interference with other licensed, authorized or pending analog (NTSC) full-power TV, LPTV and Class A TV stations. Prohibited contour overlap will be caused to the following stations:

K57IL	57	ANTON	CO	BLTT-20020717AAN
K57CY	57	COTOPAXI, ETC.	CO	BLTT-19860218ID
K57BY	57	CRIPPLE CREEK, ETC.	CO	BLTT-19850722IF
K57BT	57	DENVER	CO	BLTTL-19950209IB
K57AA	57	ESTES PARK	CO	BLTT-1485
K57CB	57	ROMEO, ETC.	CO	BLTT-19810226IY
K57AB	57	COLFAX	NM	BLTT-19971223JF

Using the procedures outlined in the FCC's OET-69 Bulletin, there is no predicted interference to any of the above mentioned stations (see Figure 3). If necessary, a waiver of the FCC rules is respectfully requested based on use of the procedures outlined in the FCC's OET-69 Bulletin.

DTV Allocation Considerations

There are no licensed, authorized, pending or allotted digital (DTV) stations on channels 56, 57 or 58 within 500 kilometers of the KXTU-LP site. Therefore, not impact to any DTV stations is expected.

The applicant recognizes the proposal is secondary to authorized full-service analog and DTV operations. The applicant understands that it must correct and/or eliminate prohibited interference that may result from its proposed operation.

Environmental Considerations

The proposed KXTU-LP facilities were evaluated in terms of potential radio frequency (RF) energy exposure at ground level to workers and the general public. The radiation center for the proposed STA antenna is located 14.5 meters above ground level with a maximum visual ERP of 142.4 kW. A conservative relative field value of 0.15 was assumed for the proposed antenna. Therefore, the "worst-case" calculated power density at a point 2 meters above ground level will be 0.34 mW/cm^2 . This is 70% of the FCC's recommended limit of 0.49 mW/cm^2 for channel 57 for an "uncontrolled" environment. RF measurements will be taken to ensure the site is in compliance with the ANSI standards.

Access to the transmitting site will be restricted and appropriately marked with warning signs. As this is a multi-user site an agreement will restrict site access. 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 KXTU-LP operation appears to be otherwise categorically excluded from environmental processing.



Jonathan N. Edwards

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

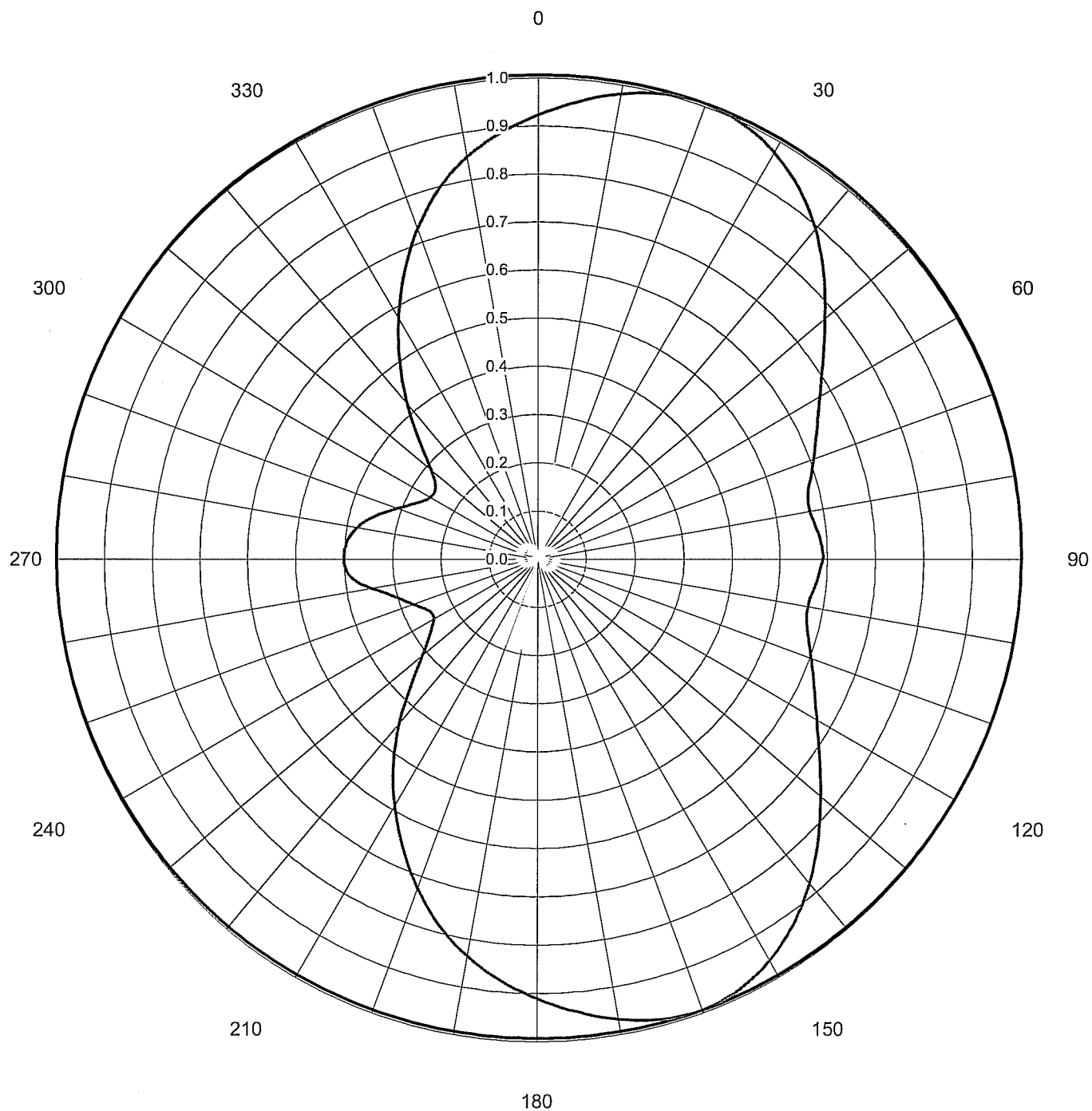
June 12, 2003

Proposal Number	DCA-8229	1
Date	8-Apr-99	
Call Letters	KXRM	Channel 57
Location	Colorado Springs, CO	
Customer		
Antenna Type	TLP-26J/VP (C)	

AZIMUTH PATTERN

Gain	2.00	(3.01 dB)
Calculated / Measured	Calculated	

Frequency	731.00 MHz
Drawing #	TLP-J



Proposal Number	DCA-8229	1
Date	8-Apr-99	36391
Call Letters	KXRM	Channel 57
Location	Colorado Springs, CO	
Customer		
Antenna Type	TLP-26J/VP (C)	

AZIMUTH PATTERN/VERTICAL POLARIZATION

Gain	2.60	(4.15 dB)
Calculated / Measured	Calculated	

Frequency	731.00 MHz
Drawing #	TLP-J/VP-57

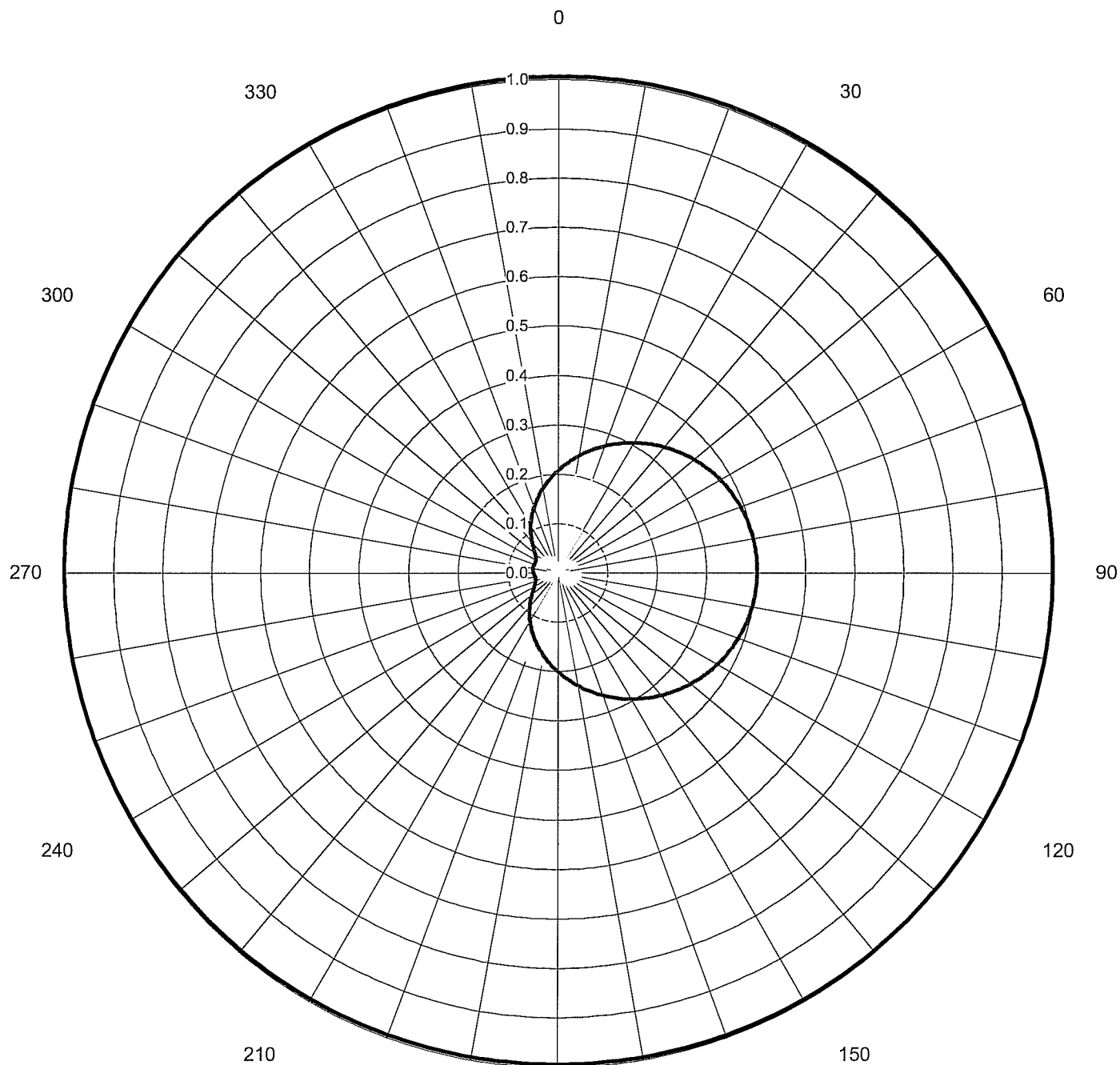
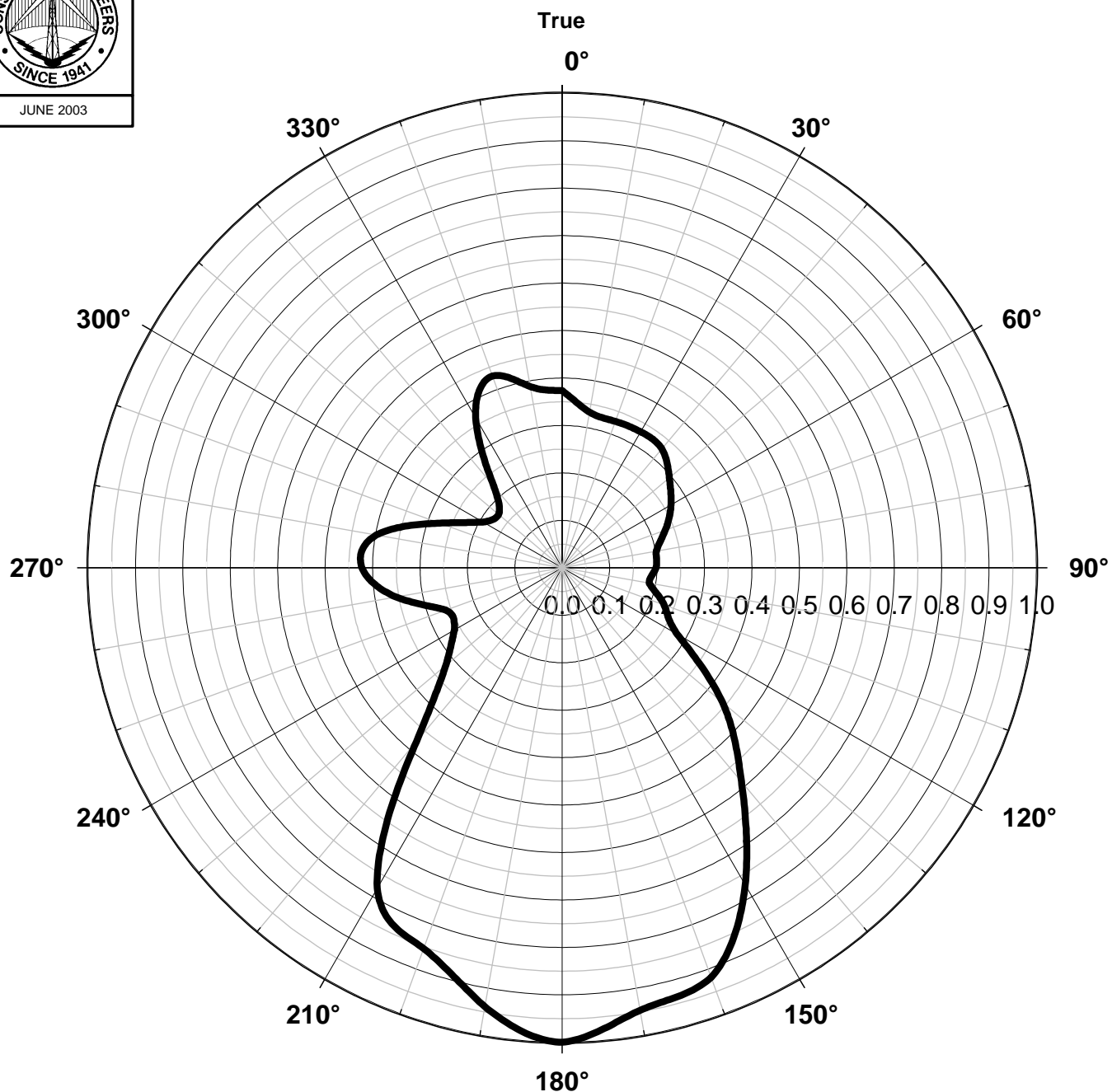
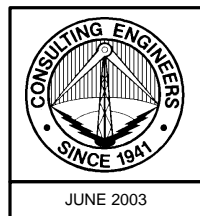


Figure 2



DIE TLP-26J/VP

**HORIZONTAL RELATIVE FIELD PATTERN AT RADIO
HORIZON (DUE TO ELECTRICAL & MECHANICAL BEAM TILT)**

STATION KXTU-LP
COLORADO SPRINGS, COLORADO
CH 57(Z) 83 KW (MAX-DA)

du Treil, Lundin & Rackley, Inc Sarasota, Florida

OET-69 TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 06-12-2003

Record Selected for Analysis

KXTU-LP USERRECORD-01 COLORADO SPRINGS CO US
 Channel 57 ERP 83 kW RCAMSL 02883 m
 Latitude 038-44-43 Longitude 0104-51-40
 Status APP Zone 2 Border Offset Z
 Dir Antenna Make usr Model KXTUradiohoriz Ref Azimuth 0

Cell Size for Service Analysis 2.0 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	4.956	963.2	34.6
45.0	0.170	1037.8	14.1
90.0	0.039	1107.3	7.8
135.0	10.053	1094.7	41.3
180.0	63.726	847.1	51.4
225.0	13.215	61.8	12.2
270.0	14.780	33.0	9.1
315.0	3.303	96.6	10.8

Evaluation from Class A Station

No Spacing violations or contour overlap from Class A station

Contour Overlap Evaluation from Class A Complete

Contour Overlap Evaluation from LPTV Station to LPTV Stations

Contour overlap to station

K57IL 57 ANTON CO BLTT 20020717AAN

Contour overlap to station

K57CY 57 COTOPAXI, ETC. CO BLTT 19860218ID

Contour overlap to station

K57BY 57 CRIPPLE CREEK, ETC. CO BLTT 19850722IF

Contour overlap to station

K57BT 57 DENVER CO BLTTL 19950209IB

Contour overlap to station

K57AA 57 ESTES PARK CO BLTT 1485

Contour overlap to station

K57CB 57 ROMEO, ETC. CO BLTT 19810226IY

Contour overlap to station

K57AB 57 COLFAX NM BLTT 19971223JF

Contour Overlap Evaluation from LPTV to LPTV Stations 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 beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

Start of Interference Analysis

Proposed Station

Channel	Call	City/State	ARN
57	KXTU-LP	COLORADO SPRINGS CO	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
57	K57IL	ANTON CO	179.5	LIC	BLTT	-20020717AAN
57	K57CY	COTOPAXI, ETC. CO	83.7	LIC	BLTT	-19860218ID
57	K57BY	CRIPPLE CREEK, ETC. CO	27.5	LIC	BLTT	-19850722IF
57	K57BT	DENVER CO	114.4	LIC	BLTTTL	-19950209IB
57	K57AA	ESTES PARK CO	192.8	LIC	BLTT	-1485
57	K57CB	ROMEO, ETC. CO	233.3	LIC	BLTT	-19810226IY
57	K57AB	COLFAX NM	244.7	LIC	BLTT	-19971223JF

%%%

Analysis of Interference to Affected Station 1

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
57	K57IL	ANTON CO	BLTT	-20020717AAN

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
57	K57AM	BETHUNE, BURLINGTON CO	103.7	LIC	BLTT	-2009
57	K57BT	DENVER CO	162.1	LIC	BLTTTL	-19950209IB
57	K57AA	ESTES PARK CO	189.2	LIC	BLTT	-1485
57	KXTU-LP	COLORADO SPRINGS CO	179.5	APP	USERRECORD-01	

Total scenarios = 2

Result key: 1

Scenario 1 Affected station 1

Before Analysis

Results for: 57N CO ANTON		BLTT	20020717AAN	LIC
		POPULATION	AREA (sq km)	
within Noise Limited Contour		36	151.8	
not affected by terrain losses		36	151.8	
lost to NTSC IX		15	59.9	
lost to additional IX by ATV		0	0.0	
lost to all IX		15	59.9	

Potential Interfering Stations Included in above Scenario 1

57N CO ESTES PARK	BLTT	1485	LIC
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After Analysis

Results for: 57N CO ANTON		BLTT	20020717AAN	LIC
		POPULATION	AREA (sq km)	
within Noise Limited Contour		36	151.8	
not affected by terrain losses		36	151.8	
lost to NTSC IX		15	67.9	
lost to additional IX by ATV		0	0.0	
lost to all IX		15	67.9	

Potential Interfering Stations Included in above Scenario 1

57N CO ESTES PARK	BLTT	1485	LIC
57N CO COLORADO SPRINGS	USERRECORD01		APP

Result key: 2

Scenario 2 Affected station 1

Before Analysis

Results for: 57N CO ANTON		BLTT	20020717AAN	LIC
		POPULATION	AREA (sq km)	

within Noise Limited Contour	36	151.8
not affected by terrain losses	36	151.8
lost to NTSC IX	15	59.9
lost to additional IX by ATV	0	0.0
lost to all IX	15	59.9

Potential Interfering Stations Included in above Scenario 2

57N CO ESTES PARK BLTT 1485 LIC

After Analysis

Results for: 57N CO ANTON	BLTT	20020717AAN	LIC
	POPULATION	AREA (sq km)	
within Noise Limited Contour	36	151.8	
not affected by terrain losses	36	151.8	
lost to NTSC IX	15	67.9	
lost to additional IX by ATV	0	0.0	
lost to all IX	15	67.9	

Potential Interfering Stations Included in above Scenario 2

57N CO ESTES PARK BLTT 1485 LIC
57N CO COLORADO SPRINGS USERRECORD01 APP

NO CHANGE IN CURRENT INTERFERENCE

Analysis of Interference to Affected Station 2

Analysis of current record

Channel	Call	City/State	Application Ref. No.
57	K57CY	COTOPAXI, ETC. CO	BLTT -19860218ID

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
57	K57BY	CRIPPLE CREEK, ETC. CO	61.3	LIC	BLTT -19850722IF
57	K57BT	DENVER CO	156.1	LIC	BLTTTL -19950209IB
57	K57CB	ROMEO, ETC. CO	171.1	LIC	BLTT -19810226IY
57	K57CS	SARGENTS CO	56.1	LIC	BLTT -19890227ID
57	K57BW	SOUTH FORK, ETC. CO	113.5	LIC	BLTT -19870511ID
57	K57AB	COLFAX NM	206.6	LIC	BLTT -19971223JF
57	KXTU-LP	COLORADO SPRINGS CO	83.7	APP	USERRECORD-01

Proposal causes no interference

Analysis of Interference to Affected Station 3

Analysis of current record

Channel	Call	City/State	Application Ref. No.
57	K57BY	CRIPPLE CREEK, ETC. CO	BLTT -19850722IF

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
50	KCEC	DENVER CO	109.7	CP	BPCT -20010116AHO
57	K57CY	COTOPAXI, ETC. CO	61.3	LIC	BLTT -19860218ID
57	K57BT	DENVER CO	109.7	LIC	BLTTTL -19950209IB
57	K57AA	ESTES PARK CO	187.4	LIC	BLTT -1485
57	K57CB	ROMEO, ETC. CO	222.7	LIC	BLTT -19810226IY
57	K57CS	SARGENTS CO	103.3	LIC	BLTT -19890227ID
57	KXTU-LP	COLORADO SPRINGS CO	27.5	APP	USERRECORD-01

Proposal causes no interference

Analysis of Interference to Affected Station 4

Analysis of current record

Channel	Call	City/State	Application Ref. No.
57	K57BT	DENVER CO	BLTTL -19950209IB

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
50	KCEC	DENVER CO	0.0	CP	BPCT -20010116AHO
57	K57BY	CRIPPLE CREEK, ETC. CO	109.7	LIC	BLTT -19850722IF
57	K57AA	ESTES PARK CO	78.4	LIC	BLTT -1485
57	K57CS	SARGENTS CO	166.2	LIC	BLTT -19890227ID
57	K57AF	LARAMIE WY	168.4	LIC	BLTTL -1627
57	KXTU-LP	COLORADO SPRINGS CO	114.4	APP	USERRECORD-01

Proposal causes no interference

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Analysis of Interference to Affected Station 5

Analysis of current record

Channel	Call	City/State	Application Ref. No.
57	K57AA	ESTES PARK CO	BLTT -1485

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
50	KCEC	DENVER CO	78.4	CP	BPCT -20010116AHO
56	K35EQ	FORT COLLINS CO	36.7	CP	BPTT -20021217ABE
57	K57BT	DENVER CO	78.4	LIC	BLTTL -19950209IB
57	K57AF	LARAMIE WY	90.9	LIC	BLTTL -1627
57	KXTU-LP	COLORADO SPRINGS CO	192.8	APP	USERRECORD-01

Proposal causes no interference

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Analysis of Interference to Affected Station 6

Analysis of current record

Channel	Call	City/State	Application Ref. No.
57	K57CB	ROMEO, ETC. CO	BLTT -19810226IY

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
57	K57EX	CORTEZ, ETC. CO	196.7	LIC	BLTT -19910306IH
57	K57CS	SARGENTS CO	184.5	LIC	BLTT -19890227ID
57	K57BW	SOUTH FORK, ETC. CO	107.9	LIC	BLTT -19870511ID
57	K57AB	COLFAX NM	80.6	LIC	BLTT -19971223JF
57	KXTU-LP	COLORADO SPRINGS CO	233.3	APP	USERRECORD-01

Proposal causes no interference

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Analysis of Interference to Affected Station 7

Analysis of current record

Channel	Call	City/State	Application Ref. No.
57	K57AB	COLFAX NM	BLTT -19971223JF

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
57	K57CB	ROMEO, ETC. CO	80.6	LIC	BLTT -19810226IY
58	K58DW	TAOS NM	36.0	LIC	BLTT -19911204IN
57	KXTU-LP	COLORADO SPRINGS CO	244.7	APP	USERRECORD-01

Proposal causes no interference

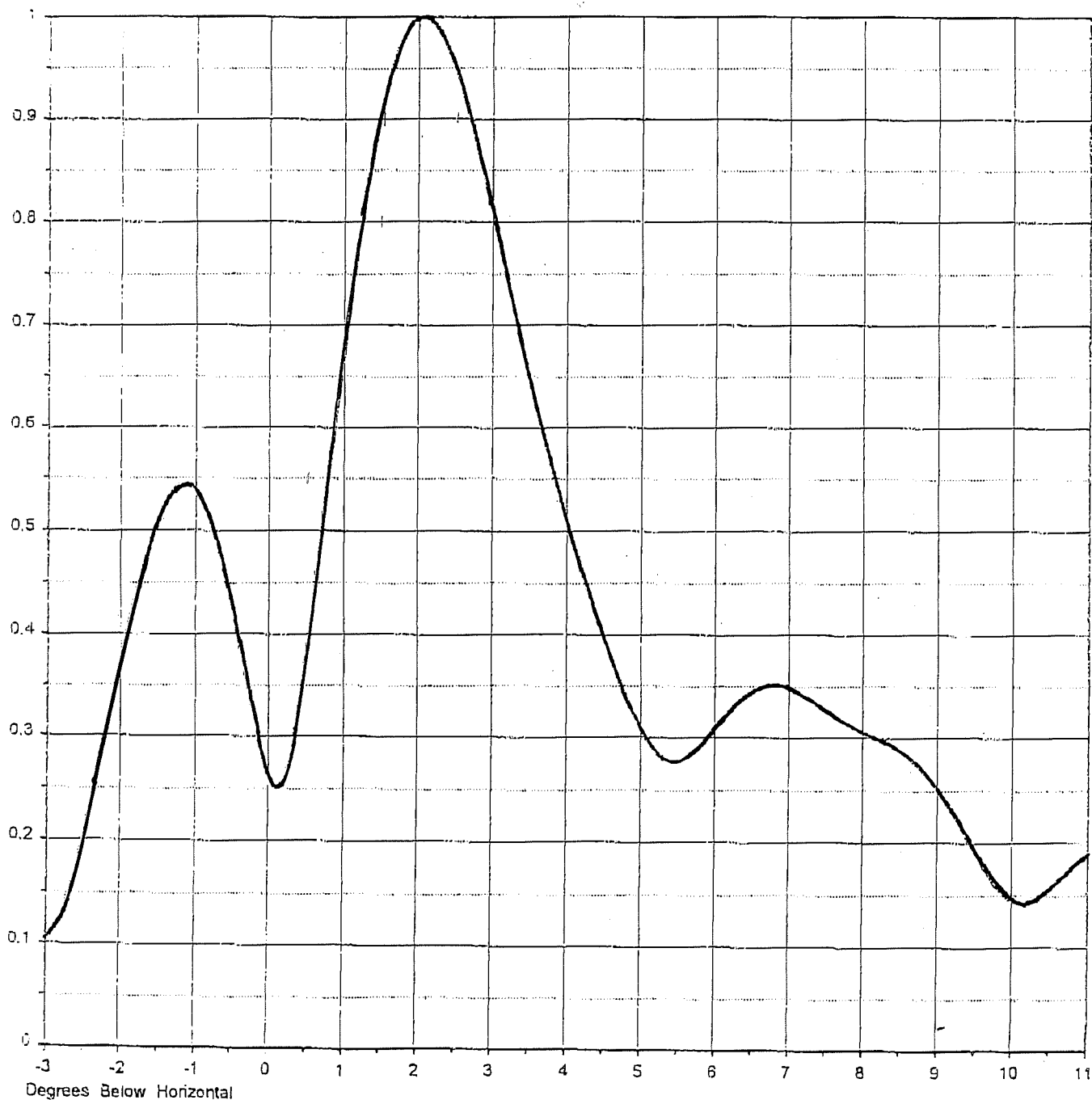
Figure 4

Dielectric

Date	4-Oct-99	Channel	57
Call Letters	KXRM		
Location	Colorado Springs, Colorado		
Customer	Fox, UPN		
Antenna Type	TLP-26J/VP (Custom)		

MEASURED ELEVATION PATTERN

RMS Gain at Main Lobe	17.50 (12.43 dB)	Beam Tilt	2.05 deg
		Frequency	731.00 MHz
		Plane	Typical



SECTION III - ENGINEERING DATA**TECHNICAL SPECIFICATIONS**

Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.

TECH BOX

1.	Channel Number: 57																																																																																																
2.	Frequency Offset: <input type="radio"/> No offset <input checked="" type="radio"/> Zero offset <input type="radio"/> Plus offset <input type="radio"/> Minus offset																																																																																																
3.	Translator Input Channel No. :																																																																																																
4.	Primary station proposed to be rebroadcast: <table border="1" style="width:100%; border-collapse: collapse;"><tr><td style="width:25%;">Call Sign</td><td style="width:40%;">City</td><td style="width:15%;">State</td><td style="width:20%;">Channel</td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr></table>	Call Sign	City	State	Channel																																																																																												
Call Sign	City	State	Channel																																																																																														
5.	Antenna Location Coordinates: (NAD 27) Latitude: Degrees 38 Minutes 44 Seconds 43 <input checked="" type="radio"/> North <input type="radio"/> South Longitude: Degrees 104 Minutes 51 Seconds 40 <input checked="" type="radio"/> West <input type="radio"/> East																																																																																																
6.	Antenna Structure Registration Number: <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Notification filed with FAA																																																																																																
7.	Antenna Location Site Elevation Above Mean Sea Level: 2868 meters																																																																																																
8.	Overall Tower Height Above Ground Level: 50 meters																																																																																																
9.	Height of Radiation Center Above Ground Level: 14.5 meters																																																																																																
10.	Maximum Effective Radiated Power (ERP) Towards Radio Horizon: 83 kW																																																																																																
11.	Maximum ERP in any Horizontal and Vertical Angle: 142.4 kW																																																																																																
12.	Transmitting Antenna: Before selecting Directional "Off-the-Shelf", refer to "Search for Antenna Information" under CDBS Public Access (http://svartifoss2.fcc.gov/prod/cdbs/pubacc/prod/cdbs_pa.htm). Make sure that the Standard Pattern is marked Yes and that the relative field values shown match your values. Enter the Manufacturer (Make) and Model exactly as displayed in the Antenna Search. <input type="radio"/> Nondirectional <input checked="" type="radio"/> Directional "Off-the-shelf" <input checked="" type="radio"/> Directional composite Manufacturer DIE Model TLP-26J/VP																																																																																																
	Directional Antenna Relative Field Values: <input type="checkbox"/> N/A (Nondirectional or Directional "Off-the-shelf") Rotation (Degrees): <input checked="" type="checkbox"/> No Rotation <table border="1" style="width:100%; border-collapse: collapse;"><thead><tr><th>Degrees</th><th>Value</th><th>Degrees</th><th>Value</th><th>Degrees</th><th>Value</th><th>Degrees</th><th>Value</th><th>Degrees</th><th>Value</th><th>Degrees</th><th>Value</th></tr></thead><tbody><tr><td>0</td><td>0.373</td><td>10</td><td>0.333</td><td>20</td><td>0.328</td><td>30</td><td>0.331</td><td>40</td><td>0.327</td><td>50</td><td>0.295</td></tr><tr><td>60</td><td>0.265</td><td>70</td><td>0.231</td><td>80</td><td>0.202</td><td>90</td><td>0.198</td><td>100</td><td>0.186</td><td>110</td><td>0.229</td></tr><tr><td>120</td><td>0.28</td><td>130</td><td>0.441</td><td>140</td><td>0.588</td><td>150</td><td>0.772</td><td>160</td><td>0.919</td><td>170</td><td>0.947</td></tr><tr><td>180</td><td>1</td><td>190</td><td>0.939</td><td>200</td><td>0.854</td><td>210</td><td>0.78</td><td>220</td><td>0.478</td><td>230</td><td>0.32</td></tr><tr><td>240</td><td>0.262</td><td>250</td><td>0.261</td><td>260</td><td>0.355</td><td>270</td><td>0.422</td><td>280</td><td>0.398</td><td>290</td><td>0.275</td></tr><tr><td>300</td><td>0.193</td><td>310</td><td>0.175</td><td>320</td><td>0.224</td><td>330</td><td>0.365</td><td>340</td><td>0.43</td><td>350</td><td>0.388</td></tr><tr><td>Additional Azimuths</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table>	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	0	0.373	10	0.333	20	0.328	30	0.331	40	0.327	50	0.295	60	0.265	70	0.231	80	0.202	90	0.198	100	0.186	110	0.229	120	0.28	130	0.441	140	0.588	150	0.772	160	0.919	170	0.947	180	1	190	0.939	200	0.854	210	0.78	220	0.478	230	0.32	240	0.262	250	0.261	260	0.355	270	0.422	280	0.398	290	0.275	300	0.193	310	0.175	320	0.224	330	0.365	340	0.43	350	0.388	Additional Azimuths											
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Additional Azimuths																																																																																																	

[Relative Field Polar Plot](#)

NOTE: In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a "No" response is provided.

CERTIFICATION

13.	Interference : The proposed facility complies with all of the following applicable rule sections. Check all those that apply. TV broadcast analog system protection.	<input checked="" type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 6]
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	a. <input checked="" type="checkbox"/> 47 C.F.R. Section 74.705 Digital TV station protection. b. <input checked="" type="checkbox"/> 47 C.F.R. Section 74.706 Low Power TV and TV translator station protection. c. <input checked="" type="checkbox"/> 47 C.F.R. Section 74.707	[Exhibit 6]
14.	Environmental Protection Act. The proposed facility is excluded from environmental processing under 47. C.F.R. Section 1.1306 (i.e., The facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine RF compliance, an Exhibit is required. By checking "Yes" above, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.	<input checked="" type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 7]
PREPARERS CERTIFICATION ON PAGE 3 MUST BE COMPLETED AND SIGNED.		

Exhibits

Exhibit 6

Description: WAIVER REQUESTED FOR USE OF OET-69

FOR PROTECTION TO STATIONS K57IL, K57CY, K57BY, K57BT, K57AA, K57CB, K57AB

Exhibit 7

Description: COMPREHENSIVE TECHNICAL EXHIBIT

TECHNICAL NARRATIVE

FIGURE 1 - AZIMUTH PATTERN WITHOUT BEAM TILT

FIGURE 2 - AZIMUTH PATTERN WITH BEAM TILT

FIGURE 3 - OET-69 RESULTS

FIGURE 4 - VERTICAL ANTENNA PATTERN

Attachment 7

Description
<u>COMPREHENSIVE TECHNICAL EXHIBIT</u>

SECTION III PREPARER'S CERTIFICATION

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name JONATHAN N. EDWARDS	Relationship to Applicant (e.g., Consulting Engineer) TECHNICAL CONSULTANT	
Signature	Date 6/12/2003	
Mailing Address DU TREIL, LUNDIN & RACKLEY, INC. 201 FLETCHER AVENUE		
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