

Comprehensive Technical Exhibit

Application for Construction Permit - Flash-Cut to Digital
KXTU-LP - Colorado Springs, Colorado
Barrington Colorado Springs License LLC
October, 2009

Application for Construction Permit

The following engineering statement and attached exhibits have been prepared for **Barrington Colorado Springs License LLC** ("Barrington"), licensee of low-power television station KXTU-LP at Colorado Springs, Colorado, and are in support of their application for construction permit. This application is being submitted to flash-cut KXTU-LP from analog to digital operations.

Currently KXTU-LP is licensed to operate on channel 57Z with a maximum effective radiated power of 142.4 kW at any angle and a maximum effective radiated power of 135 kW towards the radio horizon utilizing a directional antenna. The proposed flash-cut facility would operate on channel 57 with a maximum effective radiated power of 0.89 kW with no changes to the antenna.

The antenna utilized by the facility was manufactured by Dielectric Communications, and is a model TLP-26J/VP. This antenna is directional utilizing the "J" pattern for horizontal polarization, and has a vertically polarized component as well. The antenna was constructed with 2.05 degrees of electrical beamtilt. In addition 1 degree of mechanical beamtilt at 60 degrees true is employed by the facility.

Although Barrington seeks to flash-cut to an out of core channel, the requested change is not intended to be a permanent solution for the facility. The onset of winter in the mountains of Colorado has precluded the ability of Barrington to accomplish any significant construction beyond a transmitter swap, which is all the change from the licensed to the proposed facilities will require. Subsequent to a grant of this application, and the actual flash-cutting of the facility, Barrington will

diligently endeavor to find a permanent in core channel for the long term operation of the facility. Timing of this would be such that construction of the facility on the final channel would occur in more hospitable conditions.

The proposed facility would comply with the applicable interference provisions of the Commission's Rules. Exhibits E-1 and E-2 contain an outgoing interference study based on the use of a simple emission mask by the proposed facility. These two exhibits demonstrate that no population served by any relevant facility in the region is predicted to receive interference from the proposed facility. This study was performed using a 1.0 kilometer cell resolution with terrain sampling performed at 0.1 kilometer intervals.

The proposed facility is exempt from environmental processing as it would not have a significant environmental impact. As previously stated, the proposed change to the facility involves only a swap of the transmitter utilized by the facility. No excavation or construction external to the transmitter building would be required. No additional environmental impact to the area would result from the proposed facility.

The proposed facility would also not constitute an RF exposure hazard to persons at the site. Assuming a worst case scenario in which all radiation from the antenna is directed at the ground, the OET Bulletin 65 equations determine the maximum power density to be $190 \mu\text{W}/\text{cm}^2$. Under the uncontrolled environment condition of the applicable safety standard, a maximum permissible power density of $485 \text{ mW}/\text{cm}^2$ is calculated.¹ Clearly the proposed facility by itself

¹ Maximum power density at this frequency is a function of frequency and is equivalent to $f/1500$. The lower edge of the channel at 728 MHz was utilized as the "f" term in order to provide a worst case scenario.

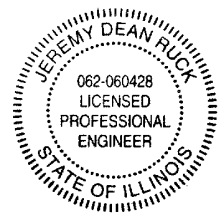
results in a power density at 2 meters above ground level, which is considerably less than permissible under the applicable condition of the safety standard.

The site on which this tower is located is a multi-user site. The applicant certifies that it will coordinate with all present and future users of the site during such periods when work is performed at the site in order to protect personnel from levels of radiofrequency radiation in excess of applicable standards. Such coordination will include, but is not necessarily limited to, a reduction in transmitter power or cessation of operation.

Following Exhibit E-2 is information pertaining to the directional antenna system in use by the facility. The data previously accepted by the Commission as to the directional pattern has been carried over into this application. The relative field values listed in the Tech-Box are those that result from the application of the electrical and mechanical beamtilt.

Affidavit

The preceding statement and attached exhibits have been prepared by me, or under my direction, and are true and accurate to the best of my belief and knowledge.



Above signature is digitized copy of actual signature
License Expires November 30, 2009

Jeremy D. Ruck, PE
October 20, 2009

KXTU-LP

PROPOSED

Latitude: 38-44-43 N

Longitude: 104-51-40 W

ERP: 0.89 kW

Channel: 57

Frequency: 731.0 MHz

AMSL Height: 2882.5 m

Elevation: 2868.0 m

Horiz. Pattern: Directional

Vert. Pattern: Yes

Elec Tilt: 0.0

Prop Model: Longley/Rice

Climate: Cont temperate

Conductivity: 0.0050

Dielec Const: 15.0

Refractivity: 301.0

Receiver Ht AG: 10.0 m

Receiver Gain: 0 dB

Time Variability: 10.0%

Sit. Variability: 50.0%

ITM Mode: Broadcast

D.L. Markley & Associates, Inc.

- ☒ KXTU-LP
- ☐ DK57CY
- ☐ K42CX
- ☐ K43CG
- ☐ K56JK-D.C
- ☐ K57AF
- ☐ K57AG
- ☐ K57AM
- ☐ K57BT
- ☐ K57BW
- ☐ K57CB
- ☐ K57CR
- ☐ K57CS
- ☐ K57IL
- ☐ K58IY-D.C
- ☐ KTLO-LP

K58IY-D.C

K57BT

K57IL

K42CX KTLO-LP

K57CS

DK57CY

K57BW

K57AG

Exhibit E-1

Outgoing Interference Study

KXTU-LP - Colorado Springs, CO

Barrington Colorado Springs License LLC

October, 2009

Scale 1:2,000,000

0 20 40 60 km

Exhibit E-2
 Outgoing Interference Population Report

KXTU-LP (57) Colorado Springs, CO - PROPOSED
 Broadcast Type: Digital Service: G [Simple Emission Mask]
 Lat: 38-44-43 N Lng: 104-51-40 W ERP: 0.89 kW AMSL: 2882.5 m
 TV Outgoing Interference Study
 Signal Resolution: 1.0 km
 Consider NTSC Taboo: Yes
 KWX error points are considered to
 be interference free coverage.
 Default # of radials computed for contours: 72
 Contours calculated using 8 radial HAAT.
 LR Profile Spacing Increment: 0.1 km
 Masked interference points are being
 counted as interference.
 Using LPTV/translator D/U rules.
 Pop Centroid DB: 2000 US Census (SF1)

Study Date: 10/20/2009
 TV Database Date: 10/20/2009

Primary Terrain: V-Soft 3 Second US Terrain
 Secondary Terrain: V-Soft 30 Second US Database

Population Database: 2000 US Census (SF1)

 Stations Considered:

Call Letters	City	State	Dist	Bear
DK57CY (57N)	Cotopaxi, Etc.	CO	83.8	240.9
K42CX (42N)	Cripple Creek	CO	29.0	271.1
K43CG (43Z)	Colorado Springs	CO	0.0	270.0
K56JK-D.C (56)	Denver	CO	136.2	339.5
K57AF (57N)	Laramie	WY	281.5	349.7
K57AG (57N)	Lamar	CO	226.0	109.7
K57AM (57N)	Bethune,burlington	CO	221.2	73.9
K57BT (57+)	Denver	CO	114.3	343.7
K57BW (57N)	South Fork, Etc.	CO	196.3	233.7
K57CB (57N)	Romeo, Etc.	CO	233.1	206.3
K57CR (57N)	Rifle, Etc.	CO	281.0	289.2
K57CS (57N)	Sargents	CO	130.3	258.3
K57IL (57N)	Anton	CO	179.7	46.3
K58IY-D.C (58)	Denver	CO	136.2	339.5
KTLO-LP (49+)	Colorado Springs	CO	0.1	0.0

Call	Area	HUnits	Contour	Masked Ix	Unmasked Ix	%
DK57CY (57N)	0.0	0	3	0	0	0.0
K42CX (42N)	0.0	0	1,127	0	0	0.0
K43CG (43Z)	0.0	0	482,377	0	0	0.0
K56JK-D.C (56)	0.0	0	1,913,669	0	0	0.0
K57AF (57N)	0.0	0	6,180	0	0	0.0

K57AG (57N)	0.0	0	167	0	0	0.0
K57AM (57N)	0.0	0	431	0	0	0.0
K57BT (57+)	0.0	0	961,558	0	0	0.0
K57BW (57N)	0.0	0	368	0	0	0.0
K57CB (57N)	0.0	0	2,292	0	0	0.0
K57CR (57N)	0.0	0	10,391	0	0	0.0
K57CS (57N)	0.0	0	2	0	0	0.0
K57IL (57N)	0.0	0	42	0	0	0.0
K58IY-D.C (58)	0.0	0	1,468,562	0	0	0.0
KTLO-LP (49+)	0.0	0	467,899	0	0	0.0

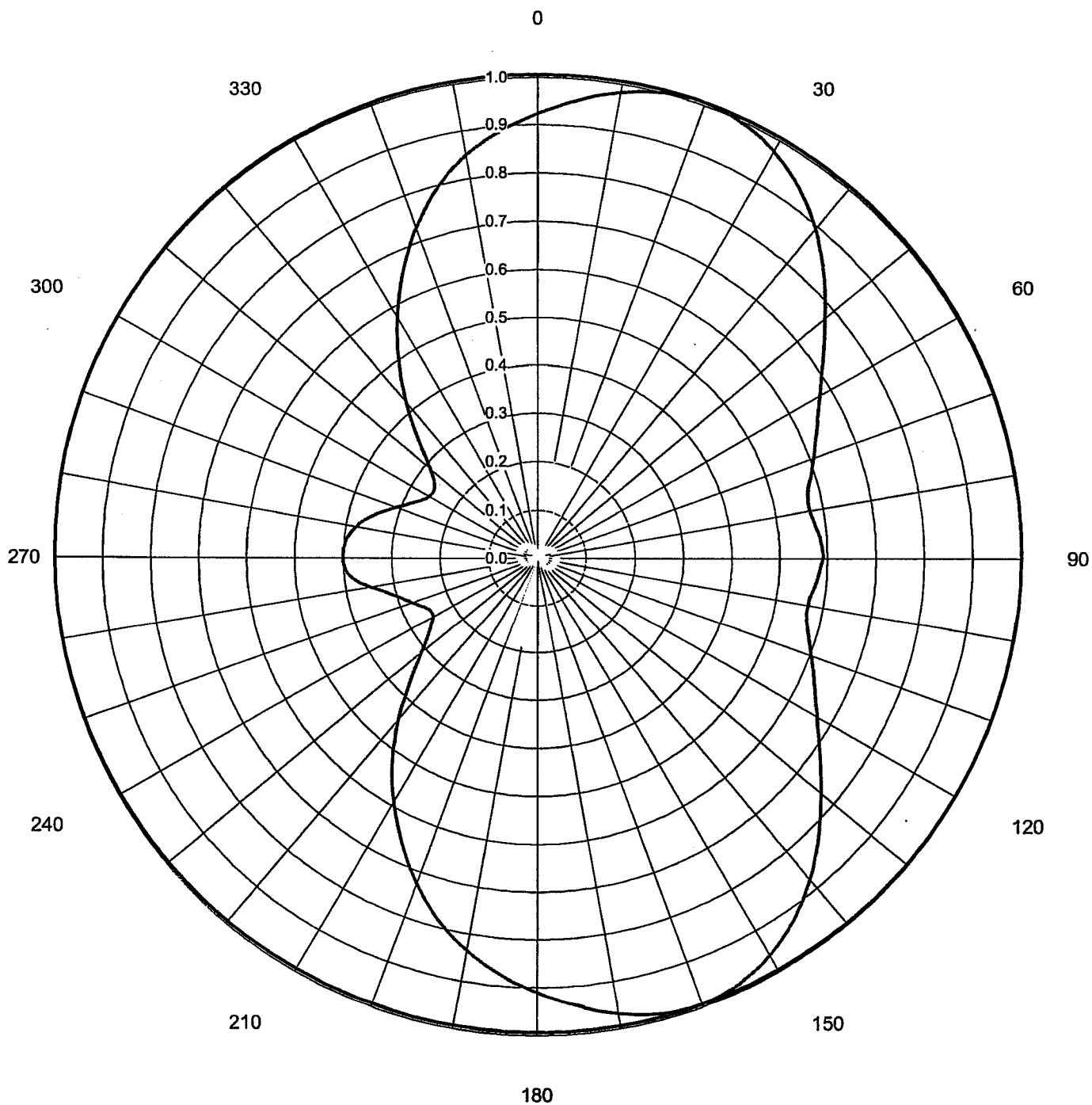
Housing Units Population

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

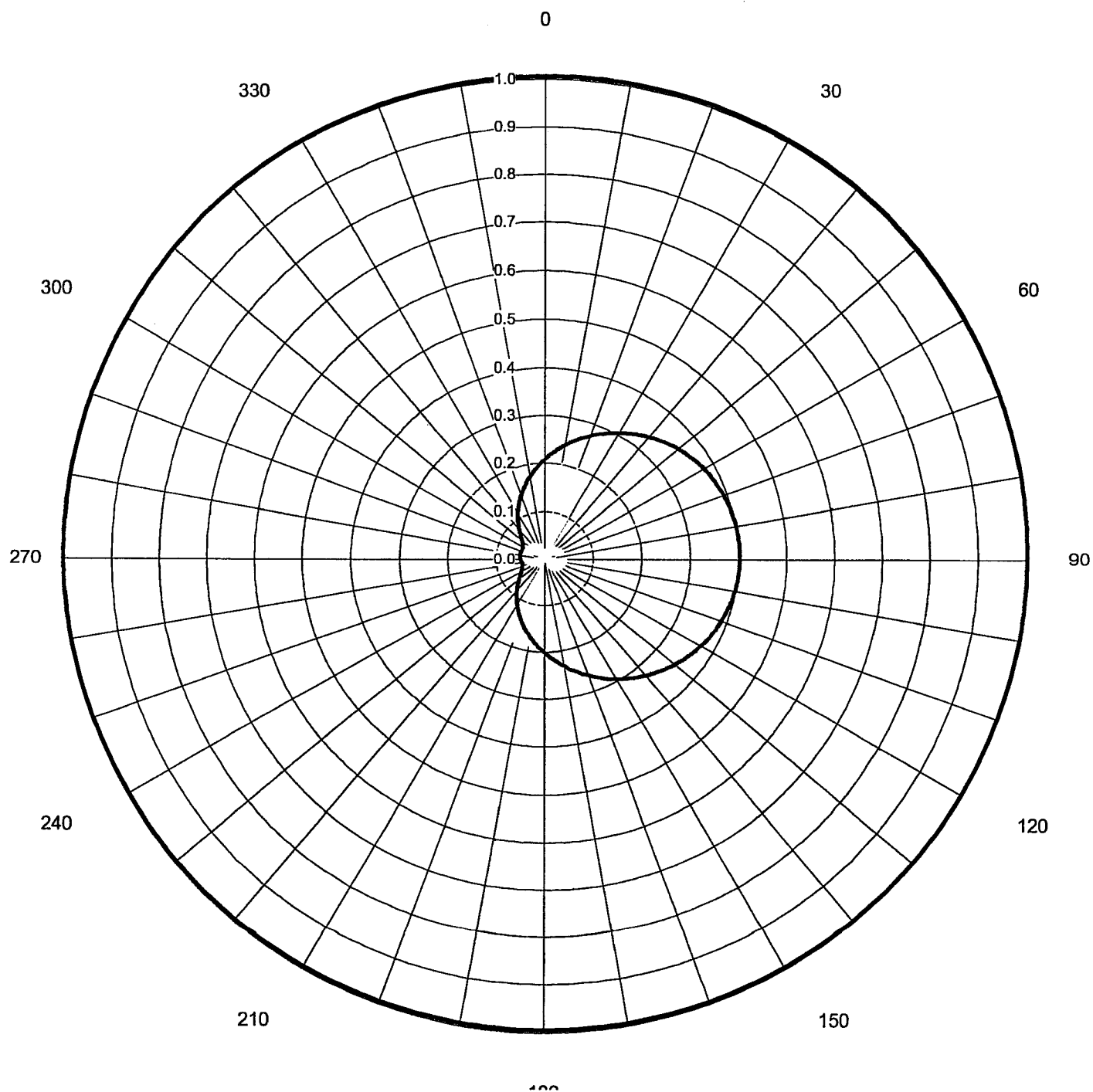


Proposal Number	DCA-8229	1
Date	8-Apr-99	36391
Call Letters	KXRM	Channel 57
Location	Colorado Springs, CO	
Customer		
Antenna Type	TLP-26J/VP (C)	

AZIMUTH PATTERN/VERTICAL POLARIZATION

Gain **2.60** (**4.15 dB**)
Calculated / Measured **Calculated**

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



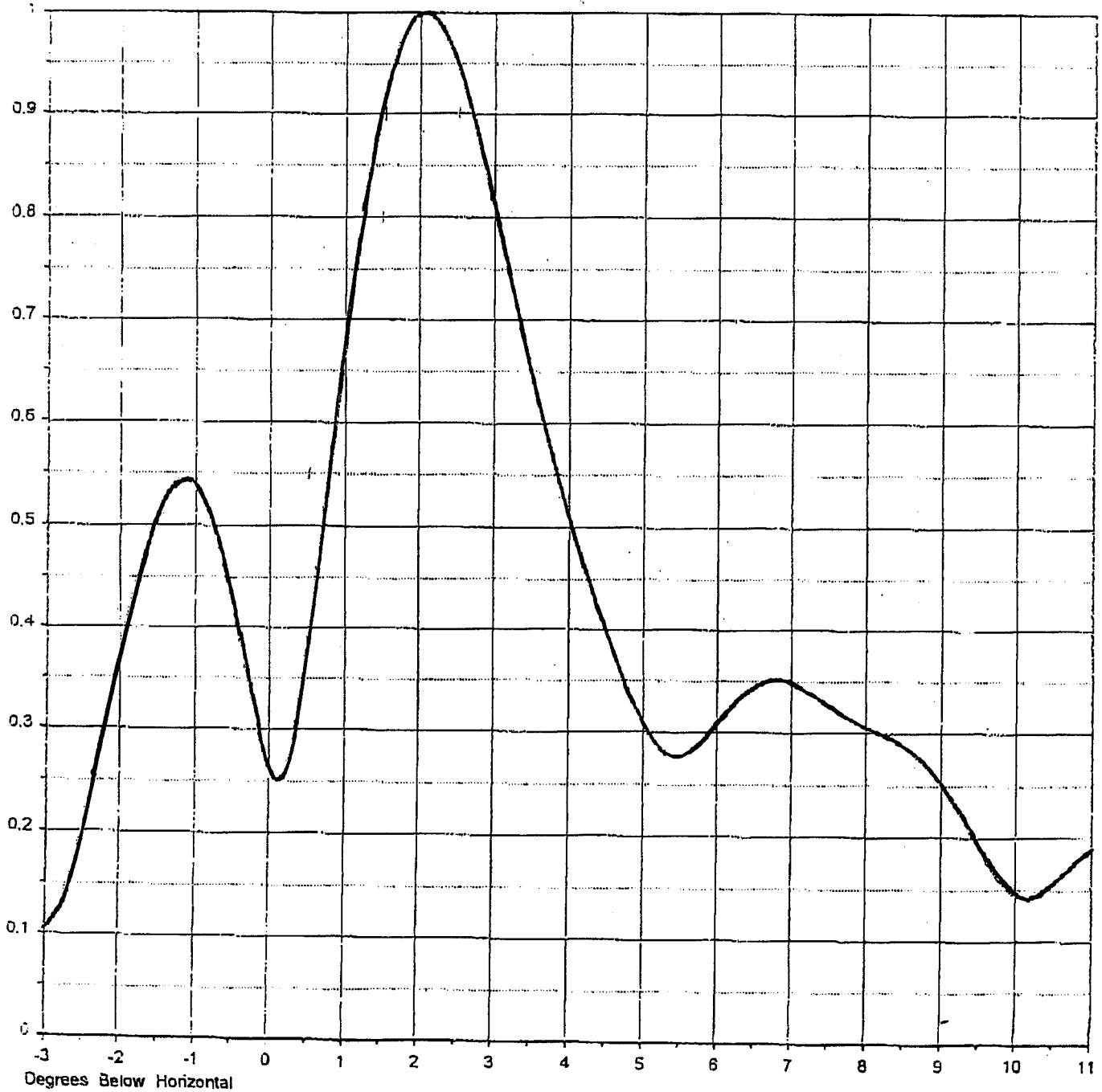
Dielectric

Figure 4

Date	4-Oct-99		
Call Letters	KXRM	Channel	57
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



HPOL Pattern at Horizon - Considering beamtilt
Pre-Rotation Antenna Pattern....

Azimuth (deg)	Effective Field
0.0	0.329
10.0	0.500
20.0	0.554
30.0	0.537
40.0	0.466
50.0	0.389
60.0	0.331
70.0	0.306
80.0	0.298
90.0	0.327
100.0	0.309
110.0	0.308
120.0	0.239
130.0	0.196
140.0	0.315
150.0	0.603
160.0	0.841
170.0	1.000
180.0	0.942
190.0	0.864
200.0	0.750
210.0	0.524
220.0	0.455
230.0	0.317
240.0	0.228
250.0	0.291
260.0	0.370
270.0	0.412
280.0	0.338
290.0	0.236
300.0	0.163
310.0	0.228
320.0	0.245
330.0	0.273
340.0	0.217
350.0	0.234

Rotation Angle = 0

