

Comprehensive Technical Exhibit
Application for Modification of Construction Permit
KYMA-DT – Yuma, Arizona
Yuma Broadcasting Company
February, 2009

Application for Modification of Construction Permit

The following engineering statement and attached exhibits have been prepared for **Yuma Broadcasting Company** ("Yuma"), licensee of digital television station KYMA-DT at Yuma, Arizona, and are in support of their application for modification of construction permit for the KYMA-DT post transition facilities.¹

KYMA currently operates on channel 11 as an NTSC facility, with pre-transition DTV operations on channel 41. In the post-transition environment, KYMA-DT will operate on channel 11 pursuant to the Commission's DTV Table of Allotments in Appendix B of the *Eighth Report and Order*. Currently Yuma holds a construction permit for post-transition DTV facilities under FCC File No. BPCDT-20080618ABN.

Yuma has determined that more transmitter power will be available for KYMA than originally thought. As a result, it seeks to modify the existing DTV construction permit by increasing the effective radiated power from the currently authorized value of 10.3 kW to the originally allocated value of 22.3 kW. All other parameters of the facility, including height values would remain identical to those under the current DTV construction permit. The facility would continue to utilize the authorized non-directional antenna.

The antenna that would be utilized by the proposed facility is an Harris (HAR) TAB-12H Superturnstile. This is the same antenna that has been in use by the NTSC facility. This antenna is a non-directional antenna with 0.7 degree of electrical beamtilt and no mechanical beamtilt.

¹ The Facility ID for KYMA is 74449.

Items described under Section 73.625(c)(3) of the Commission's Rules have been omitted from this application since the proposed antenna is considered non-directional antenna.

Although the center of radiation above average terrain proposed under this modification application remains unchanged from that authorized under the outstanding construction permit, it is at a greater height than that specified in the Appendix B allocation for KYMA.² The differential in the heights ultimately was the result of confusion during the channel election process. The combination of the allocation effective radiated power at a greater height will result in increased coverage by the facility. Since the facility would serve a larger area, the public interest would be served.

The proposed modification to the authorized construction permit would comply with the interference provisions of the Commission's Rules. Exhibit E-1 depicts the predicted interference from the proposed facility to other pending and approved facilities in the region. A summary of the areas and populations affected by the proposed facility is contained in exhibit E-2. As these two exhibits demonstrate, the predicted interference to relevant facilities is in compliance with the appropriate provisions of the Commission's Rules.

The proposed facility would comply with the principal community coverage requirements of the Commission's Rules. Exhibit E-3 depicts the predicted 43 dBu F(50,90) and 36 dBu F(50,90) contours overlaid on Longley-Rice predicted coverage at the same cutoff levels. As this map demonstrates, the entire community of Yuma would receive a signal of 43 dBu or greater. The

² The Appendix B allocation specifies the KYMA center of radiation above average terrain as 468 meters. BPCDT-20080618ABN authorizes the center of radiation at 493 meters above average terrain.

proposed facility thus would comply with the requirements of Section 73.625 of the Commission's Rules.

The DTV service area for the proposed facility is depicted in Exhibit E-4. In the subsequent Exhibit E-5, a summary of the area and population is provided. The noise limited contour on this map, the boundary of the DTV service area, is based on an 8 radial sample of the terrain in the region.

The requirements of Section 73.1030 of the Commission's Rules are not applicable in this particular case. The proposed facility would not operate in any of the zones described in the referenced section, and is not in close proximity to any of the installations described in that section. The closest two protected FCC field installations to the proposed facility are those at Livermore, California and Douglas, Arizona. The distance to both of these facilities is well in excess of that where specific notification is suggested or required.

The structure utilized for the facilities described in this application has been registered with the Commission. Specifically an Antenna Structure Registration Number of 1002110 has been assigned to the tower.

The tower utilized by the proposed DTV is not utilized by any other authorized facility. In addition, it would not be part of an AM radiation system and is not located in the vicinity of an AM radiation system. The proposed facility therefore complies with Section 73.625(c) of the Commission's Rules.

The proposed KYMA-DT facility would not constitute a substantial environmental impact. The absence of a significant environmental impact by the proposed facility is based on two considerations. The first of these considerations is the fact that the proposed facility would utilize the existing KYMA transmission facility. Since no new excavation or construction would result, no additional environmental impact to the area would ensue.

Secondly, the proposed facility would not constitute an RF exposure hazard to persons at the site. For KYMA-DT a worst case scenario was assumed using the equations contained in OET Bulletin 65. The worst case scenario assumes that all energy radiating from the antenna would be directed at the ground. The worst-case predicted power density for KYMA-DT is determined by the following:

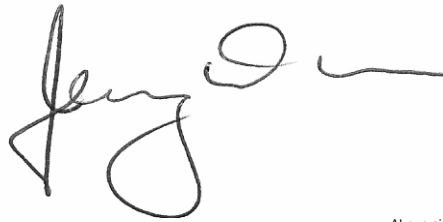
$$S = \frac{33.4(E_{\text{ref}})^2(ERP)}{h^2}$$

Since all radiation is assumed to be directed at the ground, the relative field component for all facilities in both equations is assumed to have 1.0 as a value. The effective radiated power is simply the maximum effective radiated power of the facilities in Watts for KYMA-DT. The denominator term is the height of the center of radiation minus 2 meters to accommodate the average human height. The worst case power density for the facility is therefore predicted to be $13.8 \mu\text{W}/\text{cm}^2$. The upper limit permissible under the uncontrolled environment condition of the applicable safety standard is $200 \mu\text{W}/\text{cm}^2$. The proposed facility would therefore not constitute an RF exposure hazard.

In order to protect workers having access to the site from being exposed to levels of non-ionizing radiation which may exceed the applicable safety standards, the applicant certifies that it will coordinate with other present and future users of the site. Such coordination will include, but is not necessarily limited to, a reduction in transmitter power or cessation of operation.

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
February 18, 2009

KYMA-D.PRO**PROPOSED**

Latitude: 33-03-10 N

Longitude: 114-49-40 W

ERP: 22.30 kW

Channel: 11

Frequency: 201.0 MHz

AMSL Height: 772.7 m

Elevation: 614.7 m

Horiz. Pattern: Omni

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.

- ☒ KYMA-D.PRO
- K52EG-D.A
- KDTP-LP.C
- K11LX
- K11TA
- K11LC
- KDTP-D.A
- 1139039-D.A
- 1169769-D.A
- KTTV-D.C
- KTTV.C
- KTTV-D.A
- K35DG-D.A
- 1167372-D.A
- KLVX-D
- KTTV-D
- KLVX-D

Exhibit E-1

Outgoing Interference Study

KYMA-DT - Yuma, Arizona

Yuma Broadcasting Company

February, 2009

Scale 1:3,000,000

0 40 80 120 km

Exhibit E-2
Outgoing Interference Population Report

KYMA-D.PRO (11) Yuma, AZ - PROPOSED
Broadcast Type: Digital Service: T
Lat: 33-03-10 N Lng: 114-49-40 W ERP: 22.3 kW AMSL: 772.7 m
TV Outgoing Interference Study
Signal Resolution: 2.0 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: 1.0 km
Masked interference points are being
counted as interference.
Pop Centroid DB: 2000 US Census (SF1)

Study Date: 2/17/2009
TV Database Date: 2/14/2009

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
K52EG-D.A (10)	Yuma	AZ	62.3	132.4
KDTP-LP.C (11-)	Phoenix	AZ	259.7	82.4
K11LX (11N)	Bullhead City	AZ	240.9	5.9
K11TA (11N)	Golden Valley	AZ	247.8	13.0
K11LC (11N)	Prescott	AZ	265.3	52.5
KDTP-D.A (11)	Holbrook	AZ	385.0	66.3
1139039-D.A (11)	Indio	CA	154.2	303.0
1169769-D.A (11)	Palm Springs	CA	174.4	301.6
KTTV-D.C (11)	Los Angeles	CA	327.0	294.3
KTTV.C (11)	Los Angeles	CA	327.0	294.3
KTTV-D.A (11)	Los Angeles	CA	327.0	294.3
K35DG-D.A (11)	La Jolla	CA	227.6	264.7
1167372-D.A (12)	Calexico	CA	63.9	260.2
KLVX-D (11)	Las Vegas	NV	328.1	357.2
KTTV-D (11)	LOS ANGELES	CA	327.1	294.3
KLVX-D (11)	LAS VEGAS	NV	328.1	357.2

Call	Area	HUnits	Contour	Masked Ix	Unmasked Ix	%
K52EG-D.A (10)	172.2	0	161,460	0	0	0.0

KDTP-LP.C (11-)	0.0	0	2,074,362	0	0	0.0
K11LX (11N)	0.0	0	1,760	0	0	0.0
K11TA (11N)	0.0	0	1,074	0	0	0.0
K11LC (11N)	0.0	0	39,100	0	0	0.0
KDTP-D.A (11)	8.1	0	640,420	0	0	0.0
1139039-D.A (11)	455.8	3,810	306,403	0	3,994	1.3
1169769-D.A (11)	162.5	1,297	308,381	0	1,425	0.5
KTTV-D.C (11)	28.3	50	16,179,192	0	112	0.0
KTTV.C (11)	0.0	0	13,208,508	0	0	0.0
KTTV-D.A (11)	40.3	0	16,489,295	0	0	0.0
K35DG-D.A (11)	0.0	0	1,960,561	0	0	0.0
1167372-D.A (12)	0.0	0	54,453	0	0	0.0
KLVX-D (11)	107.7	2	1,446,449	0	4	0.0
KTTV-D (11)	32.4	114	16,300,554	0	313	0.0
KLVX-D (11)	107.7	2	1,446,449	0	4	0.0

	Housing Units	Population
Arizona		
Maricopa County		
Total	1,250,231	3,072,149
KDTP-D.A (11)	0	0
Mohave County		
Total	80,062	155,032
KLVX-D (11)	0	0
KLVX-D (11)	0	0
California		
Imperial County		
Total	43,891	142,361
K52EG-D.A (10)	0	0
1139039-D.A (11)	902	1,335
Riverside County		
Total	584,674	1,545,387
1139039-D.A (11)	2,908	2,659
1169769-D.A (11)	1,297	1,425
KTTV-D.C (11)	50	112
KTTV-D.A (11)	0	0
KTTV-D (11)	114	313
San Bernardino County		
Total	601,369	1,709,434
KTTV-D.C (11)	0	0
KTTV-D.A (11)	0	0
KLVX-D (11)	2	4
KTTV-D (11)	0	0
KLVX-D (11)	2	4

KYMA-D.PRO**PROPOSED**

Latitude: 33-03-10 N
Longitude: 114-49-40 W
ERP: 22.30 kW
Channel: 11
Frequency: 201.0 MHz
AMSL Height: 772.7 m
Elevation: 614.7 m
Horiz. Pattern: Omni
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: 90.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast

■ > 43.0 dBu
■ 36.0 - 43.0

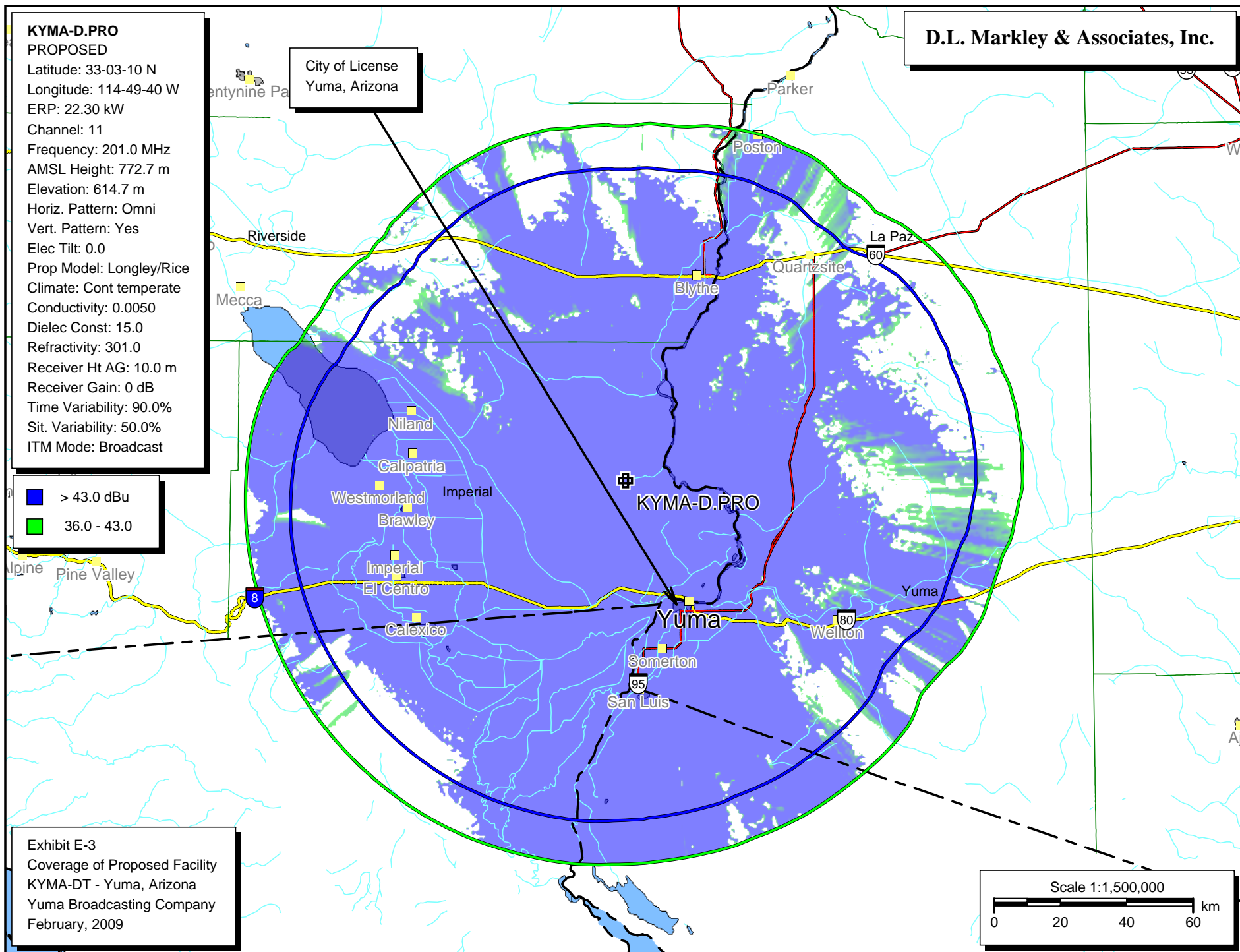
D.L. Markley & Associates, Inc.

Exhibit E-3

Coverage of Proposed Facility

KYMA-DT - Yuma, Arizona

Yuma Broadcasting Company


February, 2009

Scale 1:1,500,000





















0 20 40 60 km

KYMA-D.C.P**PROPOSED**

Latitude: 33-03-10 N
Longitude: 114-49-40 W
ERP: 22.30 kW
Channel: 11
Frequency: 201.0 MHz
AMSL Height: 772.7 m
Horiz. Pattern: Omni
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: 90.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast

 > 36.0 dBu

D.L. Markley & Associates, Inc.

-  KYMA-D.C.P
-  KBBA-LP
-  K52EG-D.A
-  KDTP-LP.C
-  K11LX
-  K11TA
-  K11LC
-  512765.A
-  KDTP-D.A
-  K10OU
-  K11ML
-  1139039-D.A
-  1169769-D.A
-  KTTV-D.C
-  KTTV-D.A
-  K35DG-D.A
-  KYAV-LP
-  1167372-D.A
-  K11JL
-  KLVX-D

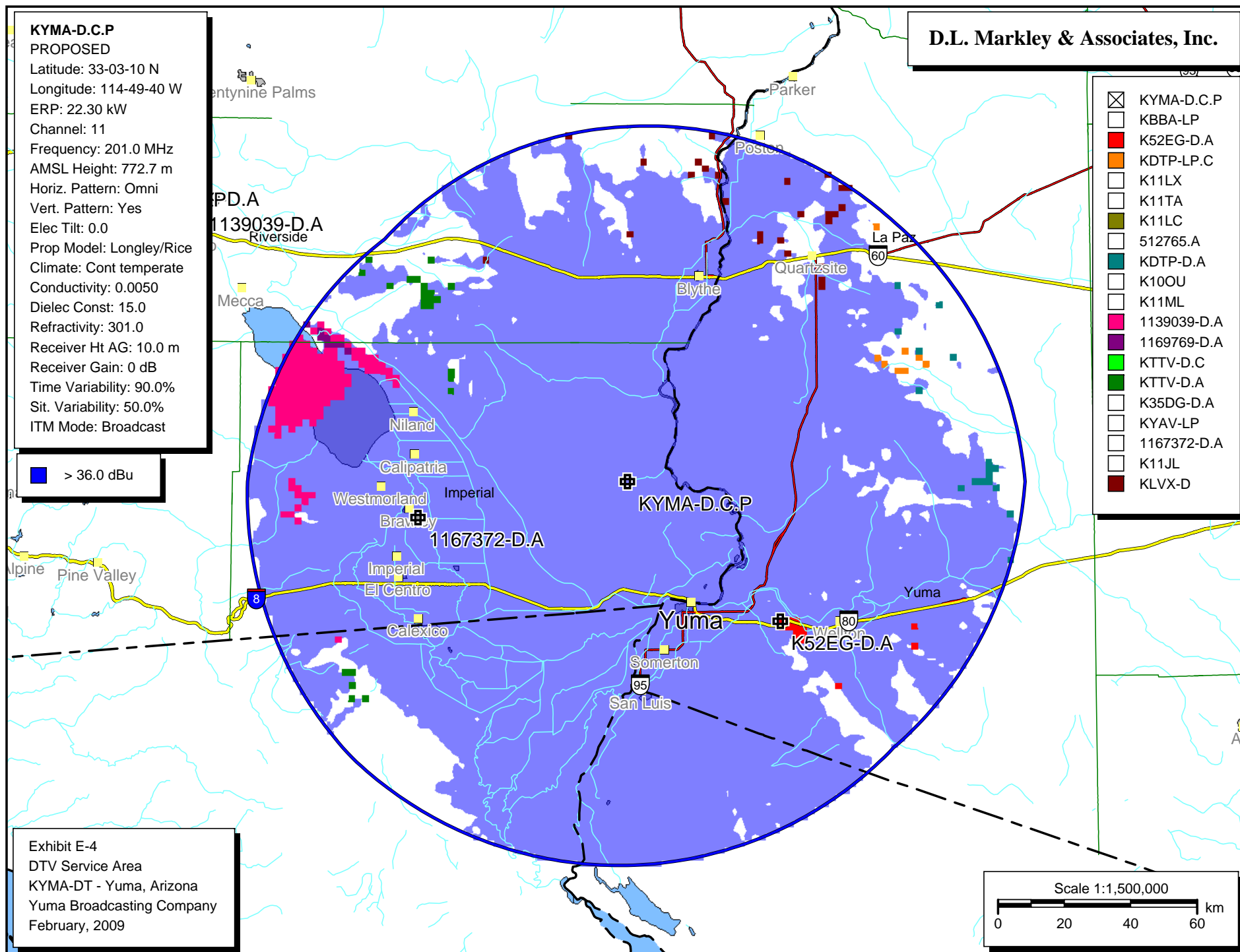


Exhibit E-4

DTV Service Area

KYMA-DT - Yuma, Arizona

Yuma Broadcasting Company

February, 2009

Exhibit E-5
DTV Service Area Summary

KYMA-D.C.P (11) Yuma, AZ - PROPOSED
Broadcast Type: Digital Service: T
Lat: 33-03-10 N Lng: 114-49-40 W ERP: 22.3 kW AMSL: 772.7 m
TV Incoming Interference Study
Interference Considered Within: FCC F(50-90): 36 dBu
Signal Resolution: 2.0 km
LR Profile Spacing Increment: 1.0 km
Consider NTSC Taboo: Yes
KWX error points are considered to
be interference free coverage.
of radials computed for protected contour: 360
Protected contour calculated using 8 radial HAAT.
Threshold for reception: 36.0
Pop Centroid DB: 2000 US Census (SF1)

Study Date: 2/18/2009
TV Database Date: 2/14/2009

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

Population Database: 2000 US Census (SF1)

Percentages calculated using a baseline population of 326,821.

Stations which cause interference:

Call Letters	H Units	Population	%	Area (sq. km)
K52EG-D.A (10)	104	132	0.040	57.55
KDTP-LP.C (11-)	0	0	0.000	44.82
K11LC (11N)	0	0	0.000	4.08
KDTP-D.A (11)	0	0	0.000	81.70
1139039-D.A (11)	601	824	0.252	636.60
1169769-D.A (11)	2	2	0.001	187.50
KTTV-D.C (11)	0	0	0.000	20.34
KTTV-D.A (11)	0	0	0.000	102.01
KL VX-D (11)	0	0	0.000	113.64

Masking Summary:

Call Letters	Total Interference		Unique Interference	
	Population	%	Population	%
K52EG-D.A (10)	132	0.040	132	0.040
KDTP-LP.C (11-)	0	0.000	0	0.000
K11LC (11N)	0	0.000	0	0.000
KDTP-D.A (11)	0	0.000	0	0.000
1139039-D.A (11)	824	0.252	822	0.252
1169769-D.A (11)	2	0.001	0	0.000
KTTV-D.C (11)	0	0.000	0	0.000
KTTV-D.A (11)	0	0.000	0	0.000

KLVS-D (11) 0 0.000 0 0.000

Stations considered which do not cause interference:

KBBA-LP (10Z)
 KDTP-LP.C (11-)
 K11LX (11N)
 K11TA (11N)
 K11LC (11N)
 512765.A (11Z)
 KDTP-D.A (11)
 K10OU (10Z)
 K11ML (11N)
 KTTV-D.C (11)
 KTTV-D.A (11)
 K35DG-D.A (11)
 KYAV-LP (12N)
 1167372-D.A (12)
 K11JL (11N)
 KLVS-D (11)

Call Letters	City	State	Dist	Bear
KBBA-LP (10Z)	Lake Havasu City	AZ	177.0	13.7
K52EG-D.A (10)	Yuma	AZ	62.3	132.4
KDTP-LP.C (11-)	Phoenix	AZ	259.7	82.4
K11LX (11N)	Bullhead City	AZ	240.9	5.9
K11TA (11N)	Golden Valley	AZ	247.8	13.0
K11LC (11N)	Prescott	AZ	265.3	52.5
512765.A (11Z)	Flagstaff	AZ	374.6	49.0
KDTP-D.A (11)	Holbrook	AZ	385.0	66.3
K10OU (10Z)	Palm Springs	CA	192.2	300.6
K11ML (11N)	Ridgecrest, Etc.	CA	385.9	319.4
1139039-D.A (11)	Indio	CA	154.2	303.0
1169769-D.A (11)	Palm Springs	CA	174.4	301.6
KTTV-D.C (11)	Los Angeles	CA	327.0	294.3
KTTV-D.A (11)	Los Angeles	CA	327.0	294.3
K35DG-D.A (11)	La Jolla	CA	227.6	264.7
KYAV-LP (12N)	Palm Springs	CA	174.5	301.6
1167372-D.A (12)	Calexico	CA	63.9	260.2
K11JL (11N)	Overton, Etc.	NV	403.5	3.9
KLVS-D (11)	Las Vegas	NV	328.1	357.2

Totals for KYMA-D.C.P (11)

Calculation Area Population:	330,936	(	39942.8 sq. km)
Not Affected by Terrain Loss:	326,821	(	35562.4 sq. km)
Total NTSC Interference:	0	(	44.8 sq. km)
DTV Only Interference:	956	(	950.7 sq. km)

Total DTV Interference:	956	(	975.2 sq. km)
Interfered Population:	956	(	995.6 sq. km)
Interference Free:	325,865	(	34566.8 sq. km)
Percent Interference:	0.29		
Terrain Blocked Population:	4,115	(	4380.4 sq. km)
Contour Area Population:	331,102		

Interference Free Breakdown:

White:	107,998	(	33.1%)
Black:	11,611	(	3.6%)
Hispanic:	194,328	(	59.6%)
Native American:	3,909	(	1.2%)
Asian:	4,090	(	1.3%)
Pacific Islander:	275	(	0.1%)
Mixed Race:	3,279	(	1.0%)
Other:	375	(	0.1%)
Total:	325,865		

	Housing Units	Population	% of County
Arizona			
La Paz County			
County Pop	15,133	19,715	
KYMA-D.C.P (11)	1,899	2,901	
KDTP-LP.C (11-)	0	0	0.00
KDTP-D.A (11)	0	0	0.00
KL VX-D (11)	0	0	0.00
Ix Free	1,899	2,901	100.00
Yuma County			
County Pop	74,140	160,026	
KYMA-D.C.P (11)	73,707	159,071	
K52EG-D.A (10)	104	132	0.08
KDTP-D.A (11)	0	0	0.00
Ix Free	73,603	158,939	99.92

	Housing Units	Population	% of County
California			
Imperial County			
County Pop	43,891	142,361	
KYMA-D.C.P (11)	41,748	140,080	
1139039-D.A (11)	601	824	0.59
1169769-D.A (11)	2	2	0.00
Ix Free	41,147	139,256	99.41

Riverside County

County Pop	584,674	1,545,387	
KYMA-D.C.P (11)	7,608	24,769	
1139039-D.A (11)	0	0	0.00
1169769-D.A (11)	0	0	0.00
KTTV-D.C (11)	0	0	0.00
KTTV-D.A (11)	0	0	0.00
KLVX-D (11)	0	0	0.00
Ix Free	7,608	24,769	100.00