ENGINEERING STATEMENT
APPLICATION FOR A DTV
CONSTRUCTION PERMIT FOR
AN EXISTING CLASS A STATION
KTMJ-CA, TOPEKA, KANSAS
CHANNEL 43   15 KW MAX DA ERP   496.6 METERS RC/AMSL

AUGUST 2010

COHEN, DIPPELL AND EVERIST, P.C.
CONSULTING ENGINEERS
RADIO AND TELEVISION
WASHINGTON, D.C.

COHEN, DIPPELL AND EVERIST, P. C.

City of Washington)
) ss

District of Columbia)

Ross J. Heide, being duly sworn upon his oath, deposes and states that:

He is a graduate of the Massachusetts Institute of Technology in Operations Research and Management Science, a Registered Professional Engineer in the District of Columbia, and employed by Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1300 L Street, N.W., Suite 1100, Washington, D.C. 20005;

That the attached engineering report was prepared by him or under his supervision and direction and

That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.

   Ross J. Heide
                                       District of Columbia
                                       Professional Engineer
                                       Registration No. PE900748

Subscribed and sworn to before me this 31st day of August, 2010.
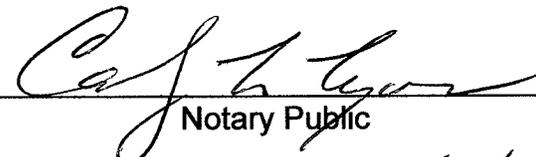
                                       Notary Public

                          My Commission Expires: 2/28/2013
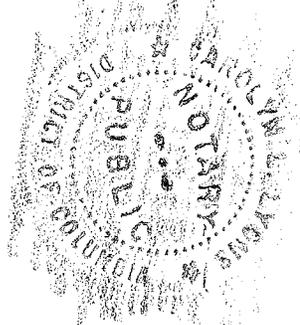
Introduction

This engineering statement has been prepared on behalf of NT Topeka Licensee LLC,

licensee of Class A television station KTMJ-CA, Topeka, Kansas. This statement supports the

licensee's request to convert to DTV operation on the currently licensed analog channel 43,

commonly referred to as "flash-cut" with a DTV effective radiated power ("ERP") of 15 kW

directional at a radiation center above mean sea level ("RCAMSL") of 496.6 meters.

Transmitter Site

A directional antenna will be utilized and no significant alteration of the tower is

proposed. The existing tower is located 301 NW Wanamaker Road, Topeka, Kansas. There is

no change in transmitter site. The geographic coordinates of the site follow below.

North Latitude: 39° 03' 50"

West Longitude: 95° 45' 49"

NAD-27

Equipment Data

Transmitter:	Type-approved
Transmission Line:	ERI, Type HJ7-50A, 1-5/8", flexible coaxial air heliax, 180 meters (590.6 feet) with 47.35% efficiency or equivalent [0.549 dB loss/100 ft on Ch.43]
Antenna:	ERI, Model ALP32L3-HSER-43 with maximum gain of 61.6 (17.90 dB) and 0.75° electrical beam tilt (no mechanical tilt) or equivalent; extended cardioid azimuth pattern, reduced rear, oriented towards N 275° E, true

Power Data

Transmitter Power Output ("TPO"):	0.514 kW	-2.89 dBk
Transmission Line Efficiency/Loss:	47.4%	3.25 dB
Input Into Antenna:	0.243 kW	-6.14 dB
Antenna Gain:	61.62	17.9 dB
ERP:	15.0 kW	11.76 dBk

Elevation Data

Elevation of site above mean sea level	329.0 meters (1079.4 feet)
Center of radiation of antenna above ground level	167.6 meters (549.9 feet)
Center of radiation of antenna above mean sea level	496.6 meters (1629.3 feet)
Overall height above ground of antenna including appurtenances	285.7 meters (937.3 feet)
Overall height above mean sea level of tower including appurtenances	614.7 meters (2016.7 feet)

Slight differences may result due to conversion to metric

The Antenna Structure Registration Number ("ASRN") for the existing tower is

1032651. A tower sketch has been included as Exhibit E-1.

As indicated above, the transmitter with typical power output of 0.514 kW will deliver

0.243 kW to the input of the antenna. The antenna, having a maximum gain of 61.62 and an

electrical beam tilt of $0.75°$, will produce maximum ERP of 15 kW. The antenna elevation

pattern data are included as Exhibit E-2. A coverage map of the proposed facility has been

included as Exhibit E-3 of this report. Table II provides the calculated data.

Other Broadcast Facilities

A brief analysis was completed to determine the presence of stations in the vicinity of the

KTMJ-CA tower using the data contained within the Commission's Consolidated Database

System ("CDBS"). Within 500 meters of the proposed site, there are two authorized FM radio

stations and one authorized DTV television stations and one DTV translator. There is one AM

facilities within 3.2 km of the existing tower. However, the electrical height of the structure will

remain unchanged and no technical effect is anticipated. Although no adverse technical affects

are expected due to the proposed changes, the licensee will take measures to resolve any

problems proven to be related to the changes proposed in this application.

Interference Analysis

A study of predicted interference caused by the proposed KTMJ-CA low power digital

operation has been performed using the Longley-Rice program for which the source data has

been posted by the Commission on its website at http://www.fcc.gov/oet/dtv/dtv_apps.html. The

FCC's FORTRAN-77 code was modified only to the extent necessary (primarily input/output

handling) for the program to run on a Microsoft Windows XP/Intel platform. Comparison of

service/interference areas and population indicates this model closely matches the FCC's digital

low power TV/translator evaluation program. Best efforts have been made to use data and

calculation identical to the FCC's program. The model employs the Longley-Rice propagation

methodology and evaluates in grid cells of approximately 1 sq. km. Using 3-second terrain data

sampled approximately every 1.0 km at one-degree azimuth intervals with 1990 census

centroids, all studies are based upon data in the current CDBS database update of the FCC's

engineering database. A Longley-Rice study was performed with the proposed KTMJ-CA

Class A digital facilities and all relevant stations listed in the FCC data base as of August 30,

2010. The study results and the included stations are listed in Table I.

Other Licensed and Broadcast Facilities

No adverse technical effect is anticipated by the proposed DTV operation to any other

FCC licensed facility. If required, the licensee will install filters or take other measures as

necessary to resolve the problem.

FCC Rule, Section 1.1307

The proposed 15 kW directional operation will utilize a ERI, Type ALP32L3-HSER-43

antenna (or equivalent) described above with a center of radiation above ground of 167.6 meters.

The proposed antenna is side-mounted on a steel lattice tower with an overall height of 285.7

meters above ground.

As previously indicated, there is one AM station located within 3.2 km of the proposed

tower site. Since there will be no change in height, the electrical characteristic at the AM

frequencies will be unchanged. According to the FCC database, there are also two FM, one

DTV station, and one digital low power station located within 500 meters of the KTWU-DT

tower. Access to the tower property is prevented by a security fence with a locked gate.

The proposed operation based upon the current OET Bulletin No. 65, Edition 97-01 dated

August 1997 and Supplement A meets the provisions of the FCC radiofrequency field ("RFF")

guidelines, and thus, complies with Section 1.1307 of the FCC Rules. The elevation pattern for

the ERI, ALP32L3-HSER-43, antenna, Exhibit E-2, shows a maximum relative field of less than

0.27 toward the ground (30° to 90° below the horizontal). Calculation according to OET

Bulletin 65 predicts a maximum RFF power density of less than 1.4 μW/cm^2, 2 meters above

ground or less than 0.32% of the uncontrolled Maximum Permissible Exposure ("MPE")

guideline.

For completeness, the contribution by facilities located within 100 meters to the

electromagnetic field environment is considered herein, as there are multiple emitters in the area.

The RFF study will also consider the following stations:

The RFF contribution of each station will be calculated using the following basic

formula:

$$S = \frac{33.4(F^2)\ \text{Total ERP}}{R^2}$$

where:

> S = power density in μW/cm^2
> F = relative field factor
> Total ERP = ERP Horizontal Polarization + ERP Vertical Polarization
> R = RCAGL - 2 meters
>
> ERP = RMS ERP in watts for DTV Stations

$ERP = [0.4 \, ERP_V + ERP_A]$ for NTSC Stations
ERP_V = peak visual ERP in watts
ERP_A = RMS aural ERP in watts

ERP = ERP (horizontally polarized) + ERP (vertically polarized)

Qualcomm Facility

Channel 55	Freq:	716-722 MHz range (C Block)
	ERP =	25 kW
	Polarization =	Horizontal + Vertical
	RCAGL -2 meters =	235.7 meters

$S = \dfrac{33.4 \, (F^2) \, Tot \, ERP}{R^2}$ Tot ERP = 25 kW (Horizontal and Vertical)
R = 235.7 meters
F = 0.2 (from manufacturer's data)

$S = \, < 2 \, \mu W/cm^2$

Therefore, Qualcomm contributes less than 1.5 $\mu W/cm^2$ at 2 meters above ground.

The limit for a uncontrolled environment for this frequency is 477.3 $\mu W/cm^2$.

Qualcomm contributes less than 0.32% RFF level for a uncontrolled environment two meters above the ground.

KTWU DTV Facility STA

Channel 11	Freq:	198-204 MHz range
	ERP =	76 kW
	Polarization =	Horizontal
	RCAGL -2 meters =	272.6 meters

$S = \dfrac{33.4 \, (F^2) \, Tot \, ERP}{R^2}$ Tot ERP = 76 kW (Horizontal Only)
R = 272.6 meters
F = 0.1 (from manufacturer's data)

$S = \, < 0.34 \, \mu W/cm^2$

Therefore, KTWU-DT contributes less than 0.4 $\mu W/cm^2$ at 2 meters above ground.

The limit for a uncontrolled environment for this frequency is [200] µW/cm².

KTWU-DT contributes less than 0.2% RFF level for a uncontrolled environment two meters above the ground.

KQTP(FM) FM Facility

Channel 275C2   Freq: 102.9 MHz
                       ERP =   30 kW
                       Polarization =   Circular
                       RCAGL -2 meters =   149.5 meters

$S = \dfrac{33.4 \ (F^2) \ \text{Tot ERP}}{R^2}$ Tot ERP = 60 kW (H+V)

R = 149.5 meters

F = 0.3 (assumed value)

$S = \, < 9 \ \mu W/cm^2$

Therefore, KQTP(FM) contributes less than 9 µW/cm^2 at 2 meters above the ground.

The limit for a uncontrolled environment is 200 µW/cm^2 for the FM band range.

KQTP(FM) contributes less than 5% RFF level for a uncontrolled environment two meters above the ground.

KWIC(FM) FM Facility

Channel 257C3   Freq: 99.3 MHz
                       ERP =   6.8 kW
                       Polarization =   Circular
                       RCAGL -2 meters =   134 meters

$S = \dfrac{33.4 \ (F^2) \ \text{Tot ERP}}{R^2}$ Tot ERP = 13.6 kW (Horizontal and Vertical)

R = 134 meters

F = 0.3 (assumed value)

$S = \, < 3 \ \mu W/cm^2$

Therefore, KWIC(FM) contributes less than 3 µW/cm^2 at 2 meters above the ground.

The limit for an uncontrolled environment is 200 $\mu W/cm^2$ for the FM band range.

KWIC(FM) contributes less than 1.5% RFF level for a uncontrolled environment two meters above the ground.

K40IJ-D Digital Low Power

Channel 40   Freq: 626-632 MHz range
                    ERP =   5.0 kW
                    Polarization =   Horizontal
                    RCAGL -2 meters =   188.5 meters

$S = \dfrac{33.4\ (F^2)\ \text{Tot ERP}}{R^2}$ Tot ERP = 5.0 kW (Horizontal Only)
                                 R = 188.5 meters
                                 F = 0.4 (assumed value)

$S = \ < 0.8\ \mu W/cm^2$

Therefore, K40IJ-D contributes less than 0.8 $\mu W/cm^2$ at 2 meters above ground.

The limit for a uncontrolled environment for this frequency is 417.3 $\mu W/cm^2$.

K40IJ-D contributes less than 0.2% RFF level for a uncontrolled environment two meters above the ground.

KTMJ-CA Digital Facility Proposed

Channel 43   Freq: 644-650 MHz range
                    ERP =   15.0 kW
                    Polarization =   Horizontal
                    RCAGL -2 meters =   165.6 meters

$S = \dfrac{33.4\ (F^2)\ \text{Tot ERP}}{R^2}$ Tot ERP = 8.4 kW (Horizontal Only)
                                 R = 165.6 meters
                                 F = 0.27 (manufacturers data)

$S = \ < 1.34\ \mu W/cm^2$

Therefore, KTMJ contributes less than 1.34 $\mu W/cm^2$ at 2 meters above ground.

The limit for a uncontrolled environment for this frequency is 429.3 μW/cm^2.

KTMJ contributes less than 0.32% RFF level for a uncontrolled environment two meters above the ground.

Therefore, the calculated total RFF contribution of the six stations above is less than 7.6% of the uncontrolled MPE. Authorized personnel and rigging contractors will be alerted to the potential zone of high field levels on the tower, and if necessary, the station will operate with reduced power or terminate the operation of the transmitter as appropriate when it is necessary for authorized personnel or contractors to perform work on or near the tower. Workers and the general public, therefore, will not be subjected to RFF levels in excess of the current FCC guidelines.

<u>Environmental Assessment</u>

An environmental assessment ("EA") is categorically excluded under Section 1.1306 of the FCC Rules and Regulations as the tower was constructed prior to the requirements specified in WT Docket No. 03-128 and the licensee indicates:

(a)(1)   The existing tower is not located in an officially designated wilderness area.

(a)(2)   The existing tower is not located in an officially designated wildlife preserve.

(a)(3)   The proposed facilities will not affect any listed threatened or endangered species or habitats.

(a)(3)(ii)   The proposed facilities will not jeopardize the continued existence of any proposed endangered or threatened species or likely to result in the destruction or adverse modification of proposed critical habitats.

(a)(4)   The proposed facilities located on a tower which was built prior to the adoption of WT Docket No. 03-128 and is grandfathered and has not affected any known districts, sites, buildings, structures, or objects significant in American history, architecture, archaeology, engineering, or culture.

(a)(5)   The existing tower is not located near any known Indian religious sites.

(a)(6)   The existing tower is not located in a flood plain.

(a)(7)   The installation of the DTV facilities on an existing guyed tower will not involve a significant change in surface features of the ground in the vicinity of the tower.

(a)(8)   It is not proposed to equip the tower with high intensity white lights unless required by the FAA.

(b)   Workers and the general public will not be subjected to RFF levels in excess of the current FCC guidelines contained in OET Bulletin No. 65, Edition 97-01, dated August 1997 and Supplement A.

ABOVE MEAN SEA LEVEL

ABOVE GROUND

614.7 m (2016.7')

285.7 m (937.3')

C/R 603.4 m (1979.7')

C/R 274.6 m (900.9')

594 m (1948.8')

265 m (869.4')

C/R 496.6 m (1629.3')

C/R 167.6 m (549.9')
PROPOSED KTMJ-CA ANTENNA

ASRN: 1032651

PAINTING AND LIGHTING IN
ACCORDANCE WITH FAA REQUIREMENT

OTHER ANTENNA
LOCATED ON TOWER
ARE NOT SHOWN

329 m (1079.4')

0.0 m
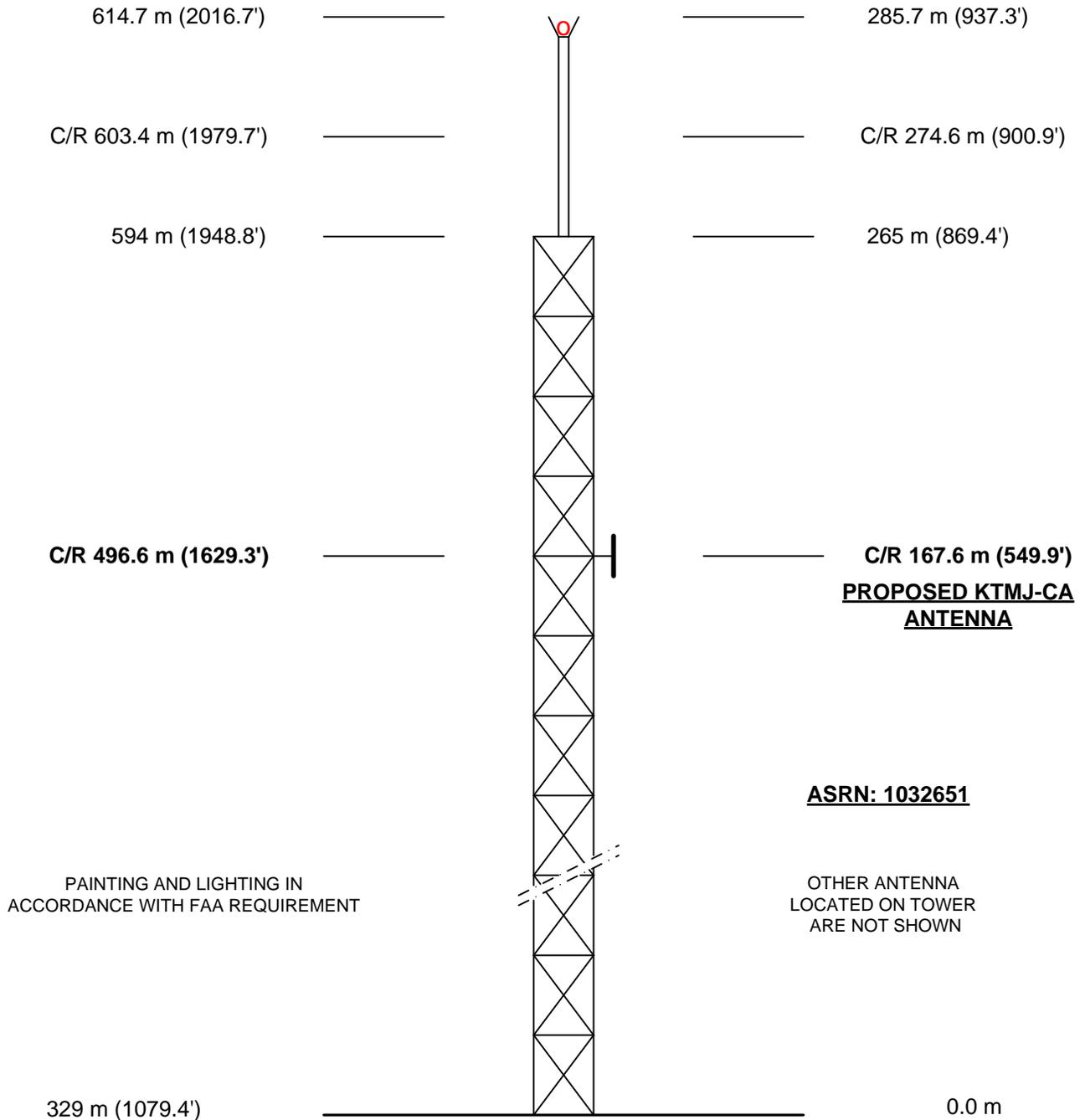
(NOT TO SCALE)

EXHIBIT E - 1
VERTICAL SKETCH
FOR PROPOSED DIGITAL OPERATION BY
KTMJ-CA, TOPEKA, KANSAS
AUGUST 2010

COHEN, DIPPELL and EVERIST, P.C. Consulting Engineers   Washington, D.C.

COHEN, DIPPELL AND EVERIST, P.C.

EXHIBIT E-2

ANTENNA MANUFACTURER DATA

KTMJ-CA, TOPEKA, KANSAS

AZIMUTH PATTERN

Type:	*ALP-ER*		*Channel:*	*43*
	Numeric	*dBd*	*Location:*	*Topeka, KS*
Directivity:	*1.93*	*2.86*	*Polarization:*	*Horizontal*
Peak(s) at:				

Note: Pattern shape and directivity may vary with channel and mouting configuration.

Preliminary, subject to final design and review.

ELECTRONICS RESEARCH, INC.

TABULATED DATA FOR AZIMUTH PATTERN
FCC FILING FORMAT
Type: ALP-ER
PolarizationHorizontal

ANGLE	FIELD	ERP (kW)	ERP (dBk)
0	0.770	8.893	9.491
10	0.675	6.834	8.347
20	0.577	4.994	6.984
30	0.479	3.442	5.368
40	0.361	1.955	2.911
50	0.219	0.719	-1.430
60	0.106	0.169	-7.733
70	0.076	0.087	-10.623
80	0.110	0.181	-7.411
90	0.142	0.302	-5.193
100	0.141	0.298	-5.255
110	0.111	0.185	-7.333
120	0.076	0.087	-10.623
130	0.106	0.169	-7.733
140	0.220	0.726	-1.391
150	0.361	1.955	2.911
160	0.478	3.427	5.349
170	0.576	4.977	6.969
180	0.674	6.814	8.334
190	0.770	8.893	9.491
200	0.850	10.837	10.349
210	0.916	12.586	10.999
220	0.967	14.026	11.469
230	0.994	14.820	11.709
240	1.000	15.000	11.761
250	1.000	15.000	11.761
260	1.000	15.000	11.761
270	1.000	15.000	11.761
280	1.000	15.000	11.761
290	1.000	15.000	11.761
300	1.000	15.000	11.761
310	1.000	15.000	11.761
320	0.994	14.820	11.709
330	0.967	14.026	11.469
340	0.916	12.586	10.999
350	0.851	10.863	10.359

Preliminary, subject to final design and review.

ELEVATION PATTERN

Type:		*ALP32L3*	*Channel:*		*43*
Directivity:	*Numeric*	*dBd*	*Location:*		*Topeka, KS*
Main Lobe:	*31.93*	*15.04*	*Beam Tilt:*		*-0.75*
Horizontal:	*11.15*	*10.47*	*Polarization:*		*Horizontal*
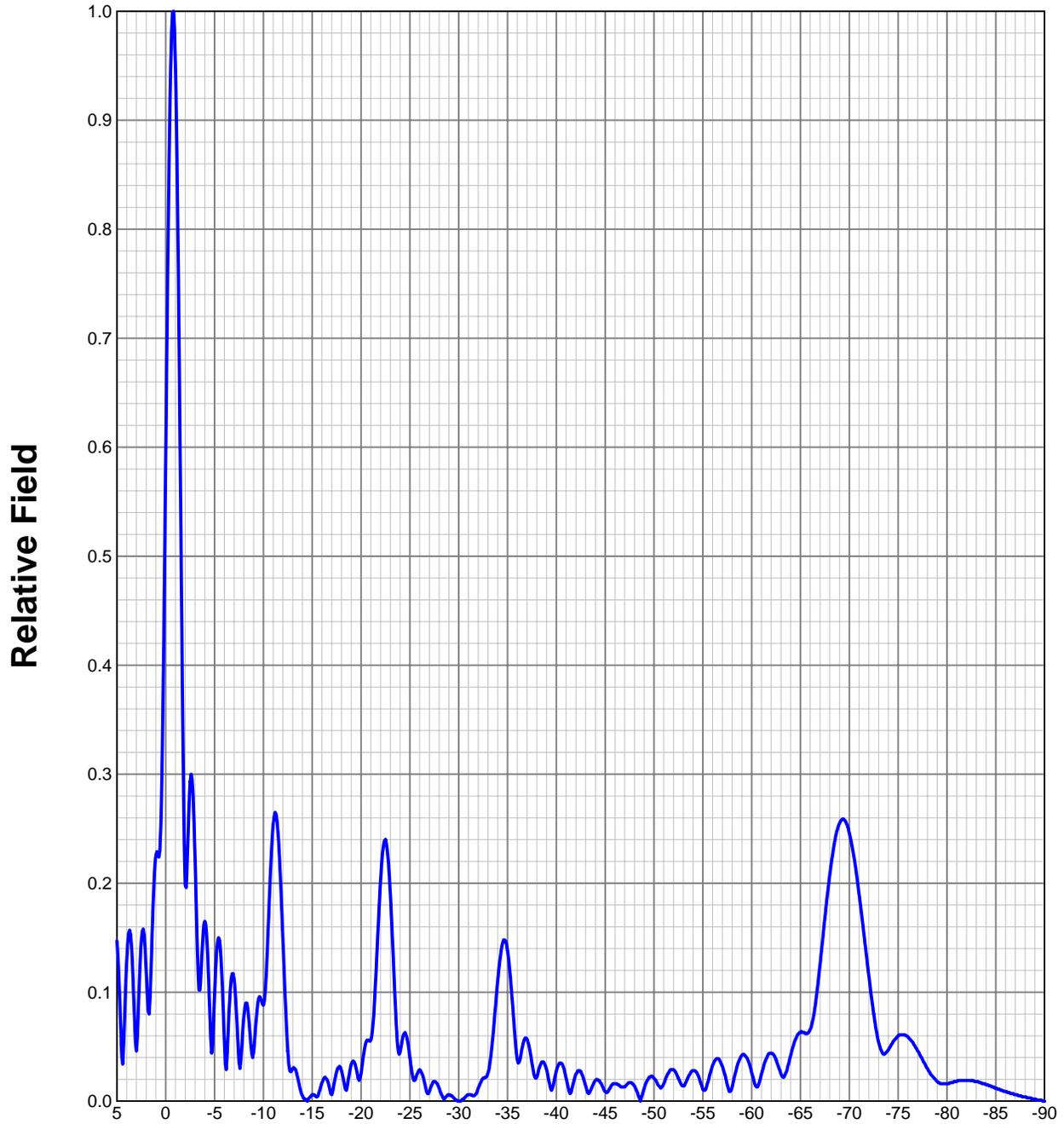
Preliminary, subject to final design and review.

TABULATED DATA FOR ELEVATION PATTERN
Type: ALP32L3
PolarizationHorizontal

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
5.00	0.147	-16.65	-6.75	0.115	-18.82	-27.00	0.009	-40.92	-50.50	0.014	-37.08	-74.00	0.047	-26.56
4.75	0.103	-19.74	-7.00	0.112	-19.02	-27.50	0.018	-34.89	-51.00	0.016	-35.92	-74.50	0.055	-25.19
4.50	0.041	-27.74	-7.25	0.079	-22.10	-28.00	0.012	-38.42	-51.50	0.026	-31.70	-75.00	0.060	-24.44
4.25	0.067	-23.54	-7.50	0.036	-28.87	-28.50	0.002	-53.98	-52.00	0.029	-30.75	-75.50	0.061	-24.29
4.00	0.128	-17.86	-7.75	0.045	-26.94	-29.00	0.006	-44.44	-52.50	0.021	-33.56	-76.00	0.059	-24.58
3.75	0.156	-16.17	-8.00	0.078	-22.16	-29.50	0.003	-50.46	-53.00	0.014	-37.08	-76.50	0.054	-25.35
3.50	0.142	-16.95	-8.25	0.090	-20.92	-30.00	0.000	-40.00	-53.50	0.022	-33.15	-77.00	0.046	-26.74
3.25	0.089	-21.06	-8.50	0.076	-22.38	-30.50	0.002	-53.98	-54.00	0.028	-31.06	-77.50	0.038	-28.40
3.00	0.046	-26.74	-8.75	0.049	-26.20	-31.00	0.006	-44.44	-54.50	0.024	-32.40	-78.00	0.030	-30.46
2.75	0.098	-20.22	-9.00	0.045	-26.94	-31.50	0.005	-46.02	-55.00	0.011	-39.17	-78.50	0.023	-32.77
2.50	0.147	-16.65	-9.25	0.074	-22.67	-32.00	0.012	-38.42	-55.50	0.017	-35.39	-79.00	0.018	-34.89
2.25	0.155	-16.19	-9.50	0.094	-20.54	-32.50	0.021	-33.56	-56.00	0.033	-29.63	-79.50	0.016	-35.92
2.00	0.120	-18.42	-9.75	0.094	-20.58	-33.00	0.026	-31.70	-56.50	0.039	-28.18	-80.00	0.016	-35.92
1.75	0.082	-21.78	-10.00	0.088	-21.11	-33.50	0.059	-24.58	-57.00	0.032	-29.90	-80.50	0.017	-35.39
1.50	0.121	-18.34	-10.50	0.161	-15.86	-34.00	0.111	-19.09	-57.50	0.015	-36.48	-81.00	0.018	-34.89
1.25	0.190	-14.45	-11.00	0.254	-11.90	-34.50	0.145	-16.77	-58.00	0.013	-37.72	-81.50	0.019	-34.42
1.00	0.226	-12.92	-11.50	0.246	-12.18	-35.00	0.138	-17.20	-58.50	0.032	-29.90	-82.00	0.019	-34.42
0.75	0.225	-12.96	-12.00	0.148	-16.59	-35.50	0.091	-20.82	-59.00	0.042	-27.54	-82.50	0.019	-34.42
0.50	0.252	-11.97	-12.50	0.046	-26.74	-36.00	0.038	-28.40	-59.50	0.040	-27.96	-83.00	0.018	-34.89
0.25	0.388	-8.22	-13.00	0.030	-30.46	-36.50	0.049	-26.20	-60.00	0.026	-31.70	-83.50	0.017	-35.39
0.00	0.591	-4.57	-13.50	0.022	-33.15	-37.00	0.057	-24.88	-60.50	0.013	-37.72	-84.00	0.015	-36.48
-0.25	0.795	-1.99	-14.00	0.005	-46.02	-37.50	0.035	-29.12	-61.00	0.025	-32.04	-84.50	0.014	-37.08
-0.50	0.946	-0.48	-14.50	0.000	-40.00	-38.00	0.022	-33.15	-61.50	0.039	-28.18	-85.00	0.012	-38.42
-0.75	1.000	0.00	-15.00	0.006	-44.44	-38.50	0.036	-28.87	-62.00	0.044	-27.13	-85.50	0.010	-40.00
-1.00	0.949	-0.45	-15.50	0.004	-47.96	-39.00	0.029	-30.75	-62.50	0.038	-28.40	-86.00	0.009	-40.92
-1.25	0.794	-2.01	-16.00	0.017	-35.39	-39.50	0.010	-40.00	-63.00	0.025	-32.04	-86.50	0.007	-43.10
-1.50	0.574	-4.82	-16.50	0.020	-33.98	-40.00	0.028	-31.06	-63.50	0.026	-31.70	-87.00	0.006	-44.44
-1.75	0.343	-9.29	-17.00	0.006	-44.44	-40.50	0.035	-29.12	-64.00	0.042	-27.54	-87.50	0.005	-46.02
-2.00	0.198	-14.07	-17.50	0.027	-31.37	-41.00	0.021	-33.56	-64.50	0.057	-24.88	-88.00	0.004	-47.96
-2.25	0.234	-12.62	-18.00	0.028	-31.06	-41.50	0.008	-41.94	-65.00	0.063	-24.01	-88.50	0.003	-50.46
-2.50	0.293	-10.66	-18.50	0.010	-40.00	-42.00	0.025	-32.04	-65.50	0.062	-24.15	-89.00	0.002	-53.98
-2.75	0.287	-10.83	-19.00	0.034	-29.37	-42.50	0.027	-31.37	-66.00	0.066	-23.61	-89.50	0.001	-60.00
-3.00	0.224	-13.00	-19.50	0.030	-30.46	-43.00	0.014	-37.08	-66.50	0.087	-21.21	-90.00	0.000	-40.00
-3.25	0.137	-17.30	-20.00	0.025	-32.04	-43.50	0.010	-40.00	-67.00	0.125	-18.06			
-3.50	0.102	-19.83	-20.50	0.054	-25.35	-44.00	0.019	-34.42	-67.50	0.168	-15.49			
-3.75	0.142	-16.95	-21.00	0.056	-25.04	-44.50	0.017	-35.39	-68.00	0.208	-13.64			
-4.00	0.165	-15.65	-21.50	0.112	-19.02	-45.00	0.009	-40.92	-68.50	0.238	-12.47			
-4.25	0.142	-16.95	-22.00	0.203	-13.85	-45.50	0.012	-38.42	-69.00	0.255	-11.87			
-4.50	0.084	-21.51	-22.50	0.240	-12.40	-46.00	0.016	-35.92	-69.50	0.258	-11.77			
-4.75	0.048	-26.38	-23.00	0.190	-14.42	-46.50	0.014	-37.08	-70.00	0.246	-12.18			
-5.00	0.098	-20.18	-23.50	0.090	-20.92	-47.00	0.013	-37.72	-70.50	0.223	-13.03			
-5.25	0.141	-17.02	-24.00	0.045	-26.94	-47.50	0.017	-35.39	-71.00	0.190	-14.42			
-5.50	0.148	-16.59	-24.50	0.063	-24.01	-48.00	0.014	-37.08	-71.50	0.153	-16.31			
-5.75	0.114	-18.86	-25.00	0.040	-27.96	-48.50	0.003	-50.46	-72.00	0.115	-18.79			
-6.00	0.056	-25.04	-25.50	0.019	-34.42	-49.00	0.012	-38.42	-72.50	0.080	-21.94			
-6.25	0.037	-28.64	-26.00	0.029	-30.75	-49.50	0.022	-33.15	-73.00	0.054	-25.35			
-6.50	0.086	-21.31	-26.50	0.017	-35.39	-50.00	0.021	-33.56	-73.50	0.043	-27.33			

Preliminary, subject to final design and review.

ELECTRONICS RESEARCH, INC. ERI

COHEN, DIPPELL AND EVERIST, P.C.

TABLE I
LONGLEY-RICE INTERFERENCE
FOR THE OPERATION FOR
KTMJ-CA, TOPEKA, KANSAS
CHANNEL 43   15 KW MAX ERP   496.6 METERS RCAMSL
AUGUST 2010

Channel	Call	City/State	Dist(km)	Status	FCC File No.	Result
35	K38GZ	MANHATTAN KS	52.1	LIC	BLTTL-20060911AAW	No interference
35	KCDN-LP	KANSAS CITY MO	110.3	LIC	BLTTL-19970905JE	0.00%
39	K65GA	TOPEKA KS	3.7	APP	BPTTL-20020815AAM	0.00%
42	K42JH-D	ENTERPRISE KS	118.6	CP	BNPDTL-20090825BNL	0.00%
42	KSHB-DT	KANSAS CITY MO	100.8	PLN	DTVPLN-DTVP1137	0.17%
42	KSHB-TV	KANSAS CITY MO	106.6	CP	BPCDT-20080619ADC	1.56%
42	KSHB-TV	KANSAS CITY MO	106.6	APP	BMPCDT-20100802AUG	0.81%
42	KSHB-TV	KANSAS CITY MO	106.6	LIC	BLCDT-20030902ABH	0.17%
43	KRPG-LP	DES MOINES IA	338.1	LIC	BLTTL-19980717JB	No interference
43	NEW	WAKEENEY KS	354.5	APP	BNPDTL-20100514AGX	0.00%
43	KCTU-LD	WICHITA KS	205.7	APP	BSTA-20081223AAR	No interference
43	KCTU-LD	WICHITA KS	205.7	LIC	BLDTL-20091207ADJ	No interference
43	NEW	COLUMBIA MO	301.8	APP	BNPDTL-20100423ACD	No interference
43	KODE-DT	JOPLIN MO	245.6	PLN	DTVPLN-DTVP1168	0.01%
43	KODE-TV	JOPLIN MO	245.5	CP MO	BMPCDT-20070125ACU	0.00%
43	KCDN-LP	KANSAS CITY MO	108	CP	BDISTTL-20080703ABI	0.03%
43	K43ML-D	KIRKSVILLE MO	299.5	CP	BNPDTL-20090825BQZ	No interference
43	KPTM	OMAHA NE	226.5	LIC	BLCDT-20051107AFO	0.01%
43	KPTM	OMAHA NE	226.5	APP	BMPCDT-20040609AAB	0.02%
43	KPTM-DT	OMAHA NE	226.5	PLN	DTVPLN-DTVP1171	0.00%
43	KAZS-LD	SOUTH SIOUX CITY NE	382.9	CP	BDCCDTL-20061030ASP	0.00%
44	WIBW-DT	TOPEKA KS	25.5	PLN	DTVPLN-DTVP1199	0.07%
44	WIBW-TV	TOPEKA KS	25.5	LIC	BLCDT-20051221ALU	0.69%
44	WIBW-TV	TOPEKA KS	25.5	CP	BDRTCDT-20091208AAW	8.41%
45	K45IO	KANSAS CITY MO	108	LIC	BLTT-20060130AXH	0.00%
46	K53FC	ST. JOSEPH MO	115.2	APP	BPTTL-20020819ABP	0.00%
51	K52HZ	MANHATTAN KS	75.7	CP	BDISTTL-20071126AAP	0.00%

COHEN, DIPPELL, AND EVERIST, P.C.

TABLE II
DTV COVERAGE DATA
FOR PROPOSED OPERATION OF
KTMJ-CA, TOPEKA, KANSAS
CHANNEL 43   15 KW ERP   496.6 METERS RCAMSL
AUGUST 2010

Radial Bearing (N ° E, T)	Average* Elevation 3.2 to 16.1 km meters	Effective Height meters	Depression Angle degrees	ERP At Radio Horizon kW	Distance to Contour F(50/90) 41 dBu km	F(50/90) 51 dBu km
0	294.2	202.4	0.394	8.894	59.0	47.3
10	307.0	189.6	0.381	6.834	56.9	45.2
20	293.4	203.2	0.395	4.994	56.1	44.4
30	293.5	203.1	0.395	3.442	54.2	42.4
40	289.1	207.5	0.399	1.955	51.6	39.8
50	285.6	211.0	0.402	0.719	46.7	34.7
60	281.7	214.9	0.406	0.169	39.4	27.2
66	280.4	216.2	0.407	0.071	35.0	22.9
70	276.4	220.2	0.411	0.087	36.2	24.1
80	264.2	232.4	0.422	0.182	40.7	28.5
90	267.7	228.9	0.419	0.302	43.2	31.1
95	270.8	225.8	0.416	0.32	43.3	31.2
100	278.4	218.2	0.409	0.298	42.5	30.4
110	289.9	206.7	0.398	0.185	39.4	27.3
120	296.7	199.9	0.392	0.087	35.1	23.1
124	297.6	199.0	0.391	0.071	34.0	22.1
130	303.0	193.6	0.385	0.169	38.2	26.1
140	304.8	191.8	0.384	0.726	45.6	33.7
150	304.2	192.4	0.384	1.955	50.7	38.9
160	312.8	183.8	0.376	3.427	53.1	41.4
170	323.9	172.7	0.364	4.977	54.2	42.6
180	327.0	169.6	0.361	6.814	55.6	44.0
190	324.8	171.9	0.363	8.894	57.0	45.5
200	328.3	168.3	0.359	10.838	57.8	46.3
210	335.6	161.0	0.351	12.586	58.0	46.6
220	344.0	152.6	0.342	14.026	57.9	46.5
230	330.7	165.9	0.357	14.821	59.1	47.7
240	305.4	191.2	0.383	15.0	60.8	49.3

COHEN, DIPPELL, AND EVERIST, P.C.

TABLE II
DTV COVERAGE DATA
FOR PROPOSED OPERATION OF
KTMJ-CA, TOPEKA, KANSAS
CHANNEL 43   15 KW ERP   496.6 METERS RCAMSL
AUGUST 2010

Radial Bearing (N ° E, T)	Average* Elevation 3.2 to 16.1 km meters	Effective Height meters	Depression Angle degrees	ERP At Radio Horizon kW	Distance to Contour	
					F(50/90) 41 dBu km	F(50/90) 51 dBu km
250	313.2	183.4	0.375	15.0	60.3	48.8
260	299.6	197.0	0.389	15.0	61.2	49.6
270	290.5	206.2	0.398	15.0	61.7	50.1
280	279.2	217.4	0.408	15.0	62.5	50.8
290	276.9	219.7	0.411	15.0	62.6	50.9
300	281.5	215.1	0.406	15.0	62.3	50.7
310	297.9	198.7	0.390	15.0	61.3	49.7
320	297.4	199.2	0.391	14.821	61.2	49.7
330	291.4	205.2	0.397	14.026	61.4	49.7
340	288.7	207.9	0.399	12.586	61.0	49.3
350	289.6	207.0	0.399	10.863	60.3	48.5

* Based on data from FCC 3-second database

DTV Channel 43 (644-650 MHz)
Average Elevation 3.2 to 16.1 km 299.1 meters AMSL
Center of Radiation 496.6 meters AMSL
Antenna Height Above Average Terrain 194.84 meters
Effective Radiated Power 15 kW (11.76 dBk) Max.

North Latitude: 39˚ 03' 50"
West Longitude: 95˚ 45' 49"

(NAD-27)
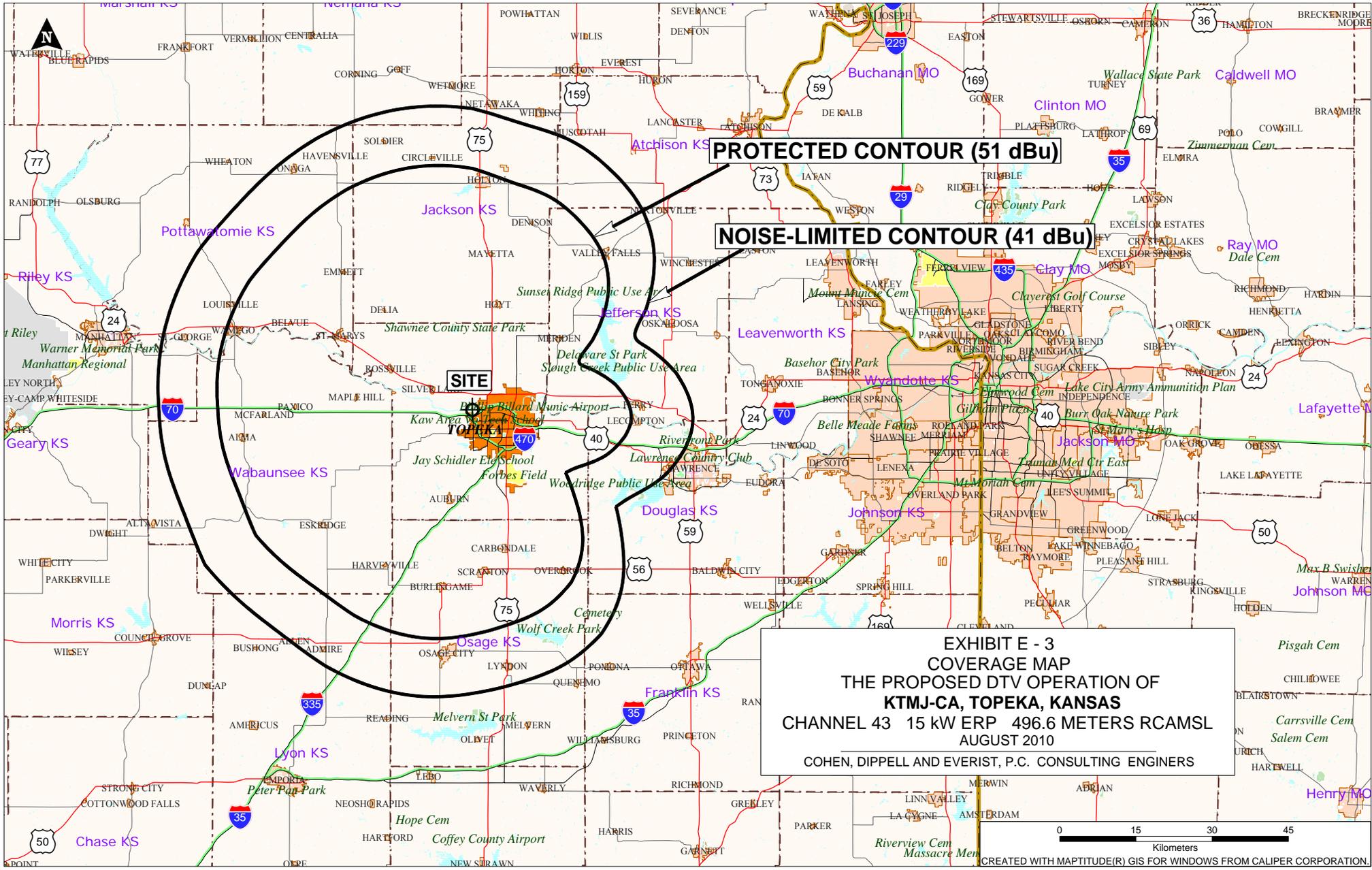
PROTECTED CONTOUR (51 dBu)

NOISE-LIMITED CONTOUR (41 dBu)

SITE

EXHIBIT E - 3
COVERAGE MAP
THE PROPOSED DTV OPERATION OF
KTMJ-CA, TOPEKA, KANSAS
CHANNEL 43   15 kW ERP   496.6 METERS RCAMSL
AUGUST 2010

COHEN, DIPPELL AND EVERIST, P.C. CONSULTING ENGINERS

Kilometers

0   15   30   45

Section III - Engineering (Digital)

TECHNICAL SPECIFICATIONS

Ensure that the specifications below are accurate.   All items must be completed. The response "on file" is not acceptable.

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.

TECH BOX

1.   Channel: _____

2.   Antenna Location Coordinates: (NAD 27)

    _____ ° _____ ' _____ " ☐ N   ☐ S Latitude

    _____ ° _____ ' _____ " ☐ E   ☐ W Longitude

3.   Antenna Structure Registration Number: _____

    ☐   Not applicable | See Explanation in Exhibit No. | ☐   FAA Notification Filed with FAA

4.   Antenna Location Site Elevation Above Mean Sea Level: _____ meters

5.   Overall Tower Height Above Ground Level: _____ meters

6.   Height of Radiation Center Above Ground Level: _____ meters

7.   Maximum Effective Radiated Power (ERP):   _____ kW

8.   Transmitter Output Power: _____ kW

9.   a.   Transmitting Antenna: ☐ Nondirectional   ☐ Directional "Off-the-shelf"   ☐ Directional composite

Manufacturer	Model

b. Electrical Beam Tilt: _____ degrees   ☐   Not applicable

c. Directional Antenna Relative Field Values:

    Rotation: _____ °   ☐ No rotation   ☐ N/A (Nondirectional)

Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value
0		60		120		180		240		300	
10		70		130		190		250		310	
20		80		140		200		260		320	
30		90		150		210		270		330	
40		100		160		220		280		340	
50		110		170		230		290		350	
Additional Azimuths											

10.   Out-of-channel Emission Mask: Simple ☐   Stringent ☐

CERTIFICATION

11. **Interference.** The proposed facility complies with all of the following applicable rule sections. 47 C.F.R. Sections 73.6016. 73.6017, 73.6018, 73.6019, 73.6020, 73.6027 and 74.794(b).

[X] Yes [ ] No | See Explanation in Exhibit No. **E**

12. **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.**

[X] Yes [ ] No | See Explanation in Exhibit No. **E**

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.

Exhibit No.

13. **Channels 52-59.** If the proposed channel is within channels 52-59, the applicant certifies compliance with the following requirements, as applicable:

[ ] Yes [ ] No | See Explanation in Exhibit No.

[ ] The applicant is applying for a digital companion channel for which no suitable channel from channel 2-51 is available.

[ ] Pursuant to Section 74.786(d), the applicant has notified, within 30 days of filing this application, all commercial wireless licensees of the spectrum comprising the proposed TV channel and the first adjacent channels thereto, for which the proposed digital LPTV or TV translator antenna site lies inside the licensed geographic boundaries of the wireless licensees or within 75 miles and 50 miles, respectively, of the geographic boundaries of co-channel and adjacent-channel wireless licensees.

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.
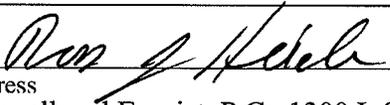
Name Ross J. Heide	Relationship to Applicant (e.g., Consulting Engineer) Consulting Engineer	
Signature	Date August 31, 2010	
Mailing Address Cohen, Dippell and Everist, P.C., 1300 L Street, NW, Suite 1100		
City Washington	State or Country (if foreign address) DC	ZIP Code 20005
Telephone Number (include area code) (202) 898-0111	E-Mail Address (if available) cde@attglobal.net	