

ENGINEERING STATEMENT RE
DTV DISPLACEMENT
FOR AN EXISTING TELEVISION TRANSLATOR
K58IH, COLSTRIP, ETC., MONTANA
CHANNEL 20 2.84 KW MAX ERP 1468.7 METERS RC/AMSL

AUGUST 2011

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)

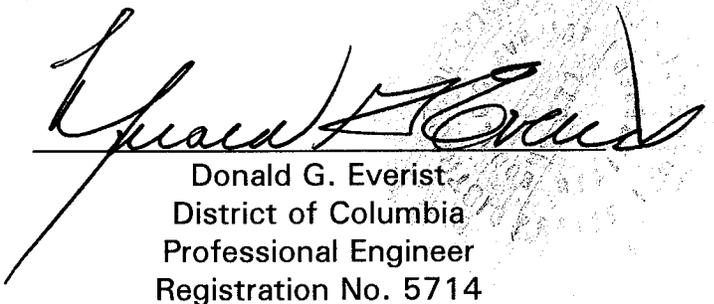
Donald G. Everist, being duly sworn upon his oath, deposes and states that:

He is a graduate electrical engineer, a Registered Professional Engineer in the District of Columbia, and is President, Secretary and Treasurer of Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1420 N Street, N.W., Suite One, Washington, D.C. 20005;

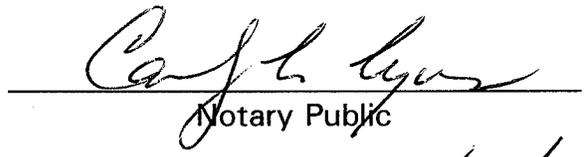
That his qualifications are a matter of record in the Federal Communications Commission;

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

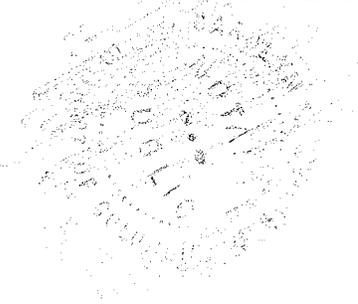
That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.


Donald G. Everist
District of Columbia
Professional Engineer
Registration No. 5714

Subscribed and sworn to before me this 20th day of August, 2011.


Notary Public

My Commission Expires: 2/28/2013



INTRODUCTION

This engineering statement has been prepared on behalf of Nexstar Broadcasting, Inc., licensee of TV translator K58IH, Colstrip, Etc., Montana. This statement supports the licensee's request for displacement to convert to DTV operation on a new Channel 20 with a DTV effective radiated power ("ERP") of 2.84 kW at a radiation center above mean sea level ("RCAMSL") of 1468.7 meters.

K58IH TRANSMITTER SITE

The existing antenna site will be utilized and no significant alteration of the tower is proposed. There is no change in transmitter site. The geographic coordinates of the site follow below.

North Latitude: 45° 50' 20"

West Longitude: 106° 54' 17"

NAD-27

ELEVATION DATA

Elevation of site above mean sea level	1458 meters (4783.5 feet)
Center of radiation of antenna above ground level	10.7 meters (35.0 feet)
Center of radiation of antenna above mean sea level	1468.7 meters (4818.5 feet)
Overall height of tower above ground	12.2 meters (40 feet)

The existing tower does not require antenna structure registration. The existing structure is less than 200 feet and Towair indicates registration is not required. There are no airports within 8 kilometers (5 miles) of the existing site.

EQUIPMENT DATA

Transmitter:	Type-approved
Transmission Line:	Dielectric Flexline, 1-5/8" air dielectric, 15 meters with 94.6% efficiency [1.62 dB loss/100 m]
Antenna:	ERI, AL8N-205 (or equivalent) diplexed with maximum gain of 32.51 (15.12 dB) and 2.0° electrical beam tilt oriented at N 30°ET. See Exhibit E-1 for the manufacturer antenna data.

POWER DATA

Transmitter:	0.100 KW	-10 dBk
Combiner Efficiency/Loss	92.3%	-0.35 dB
Transmission Line Efficiency/Loss:	94.6%	-0.243 dB
Input Into Antenna:	.0873 kW	-10.59 dBk
Antenna Gain:	32.51	15.12 dB
ERP:	2.84	4.53 dBk

As indicated above, the transmitter with typical power output of 100 watts will deliver 87.3 watts to the input of the antenna. The diplexed antenna, having a maximum gain of 32.51

and an electrical beam tilt of 2.0°, will produce maximum ERP of 2.84 kilowatts. A map providing the normally protected contour of the proposed facility compared to the currently licensed operation of K58IH has been included as Exhibit E-2 of this report. The antenna elevation pattern and associated tabulation and the horizontal pattern and accompanying tabulation are on file at the Commission as this antenna's make and model have been designated as "Off-the-Shelf".

OTHER BROADCAST FACILITIES

A brief analysis was completed to determine the presence of stations in the vicinity of the K58IH tower using the August 15, 2011, data contained within the Commission's Consolidated Database System ("CDBS"). Within 100 meters of the proposed site, there is one authorized FM radio station, KYPC(FM), no authorized full service DTV television stations were identified, and one other low-power analog television or television translator stations aside from K58IH was also found within 100 meters. There are no AM facilities within 3.22 km of the existing tower. 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 K58IH operating on Ch. 20 digital translator 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 2000 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 assuming 15 kW non-directional with the proposed K58IH Ch. 20 digital translator facilities and all relevant stations listed in the FCC database as of August 24, 2011. The study results and the included stations are listed in Table I. It is noted that while the Longley-Rice study was performed at 15 kW non-directional, a 2.84 kW directional operation is specified herein.

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 2.84 kW directional operation will utilize an ERI, Type AL8N-205 antenna (or equivalent) described above with a center of radiation above ground of 10.7 meters. The

proposed antenna is side-mounted on a steel lattice tower with an overall height of 12.2 meters above ground.

As previously indicated, there are no AM stations located within 3.2 km of the proposed tower site. According to the FCC database, there are also is one FM station, no full-service television stations, and one other low-power analog television or television translator stations aside from K58IH located within 100 meters of the proposed tower. Access to the tower property is prevented by a security fence with a locked gate.

The proposed 2.84 kW ERP operation of K58IH at 10.7 meters radiation center above ground on Channel 20 using the currently licensed Andrew, Type AL8N-205 (or equivalent) (assumed 0.2 downward relative field value) (15° to 90°) based on calculations from the current OET Bulletin No. 65, Edition 97-01 dated August 1997 and Supplement A produces less than 51 $\mu\text{W}/\text{cm}^2$ RFF which is less than 18% of the Maximum Permissible Exposure (“MPE”) limit for an uncontrolled environment two meters above ground in the vicinity of the K58IH tower site. From the proposed antenna, a second similar operation will be requested for Channel 24. In addition, within 0.1 km of the site is station KYPC(FM) Channel 210 operating with 3.5 kW H&V. The licensee of KYPC(FM) states its antenna is a 3-bay half wave antenna (ERI LPX3-E). It application, BMPED-20090925ADA, which authorized KYPC(FM), indicates the highest calculated RFF value is 25% for the uncontrolled environmental limit 2 meters above ground. This proposal complies with the FCC radiofrequency field ("RFF") guidelines and the RFF element of Section 1.1307 of the FCC Rules.

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.

Environmental Assessment

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 applicant 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 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.

COHEN, DIPPELL AND EVERIST, P.C.

EXHIBIT E-1

ANTENNA MANUFACTURER DATA

K58IH, COLSTRIP, ETC., MONTANA

**PRELIMINARY SPECIFICATION FOR
DUAL CHANNEL AL8 HORIZONTALLY POLARIZED
COAXIAL SLOTTED ARRAY ANTENNA**

*Prepared for
Nexstar Broadcasting Channel 20 and 24
August 15, 2011*

**ANTENNA TYPE:
AL8N-205**

**SPECIFICATION NO :
WAH-2011081501**



PRELIMINARY SPECIFICATION FOR DUAL CHANNEL AL8 HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

ELECTRICAL CHARACTERISTICS:

CHANNEL :		20 24
FREQUENCY RANGE :	CH20 CH24	506 - 512 MHz 530 - 536 MHz
AZIMUTH PATTERN NUMBER :		ALP-N
ELEVATION PATTERN NUMBER :	CH20 CH24	AL8L8H AL8L7H
AZIMUTH DIRECTIVITY :	CH20 CH24	3.78 (5.77 dBd) 3.78 (5.77 dBd)
ELEVATION DIRECTIVITY :	CH20 CH24	8.60 (9.34 dBd) 8.60 (9.34 dBd)
PEAK POWER GAIN :	CH20 CH24	32.51 (15.12 dBd) 32.51 (15.12 dBd)
GAIN AT HORIZONTAL :	CH20 CH24	25.81 (14.12 dBd) 27.34 (14.37 dBd)
ELECTRICAL BEAM TILT :	CH20 CH24	2.00 Degrees 1.75 Degrees
INPUT POWER REQUIRED :	CH20 CH24	0.09 kW (-10.59 dBk) 0.09 kW (-10.59 dBk)
INPUT TYPE :		7/8-50 Ohm
INPUT POWER MAXIMUM :		2 kW, Average, 8VSB Digital
ANTENNA VSWR (MAXIMUM) :		1.35 Over each 6MHz Channel

PRELIMINARY SPECIFICATION FOR DUAL CHANNEL AL8 HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

MECHANICAL CHARACTERISTICS:

MOUNTING CONFIGURATION:

Side Mount*

*(Tower Interface supplied and installed by others)

HEIGHT OF ANTENNA :		19.18 feet	5.85 meters
HEIGHT OF CENTER OF RADIATION:		9.59 feet	2.92 meters
OVERALL HEIGHT:		19.18 feet	5.85 meters
DEICING :		Unpressurized Radome Slot Covers	
DIAMETER (O.D.):		3.5 inches	9 centimeters
SLOT COVER COLOR :		GRAY	
CLIMBING DEVICE :		Not Applicable	
CALCULATED WEIGHT :		127 Pounds	57.7 kilograms
CaAc ² :	Normal Exposure	15.22 sq ft	1.41 sq mtr
	Transverse Exposure	11.56 sq ft	1.07 sq mtr

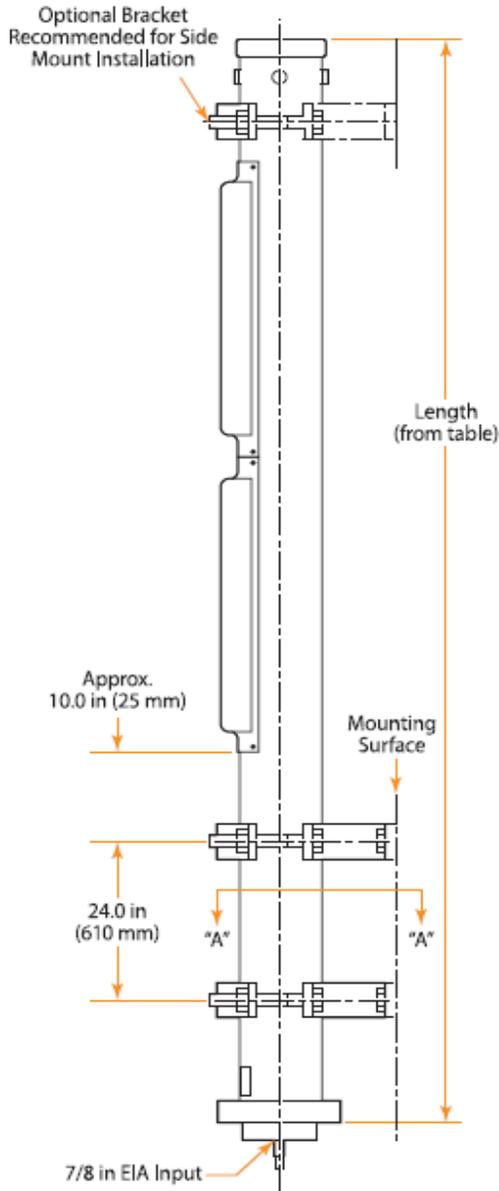
This antenna is designed to be supported by a structure that can resist the antenna base reactions and which provides a support that is rigid in the three translational and three rotational degrees of freedom.

1 Calculated weight is based on the **PRELIMINARY** design of the antenna. The actual weight of the antenna will be within $\pm 10\%$ of the calculated weight. The actual weight will be given in the technical manual that accompanies the antenna. This figure is for the antenna only and does not include the antenna input section.

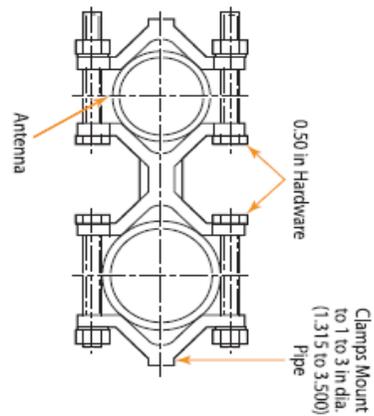
2 Loads are calculated in accordance with EIA/TIA-222-G standards. Listed areas include preliminary design of all aperture components including antenna modules, feed harness and basic mounting brackets.

NOTE: Localized conditions may require higher wind speed specifications than TIA/EIA specifications. Check with local authorities to verify wind speed requirements.

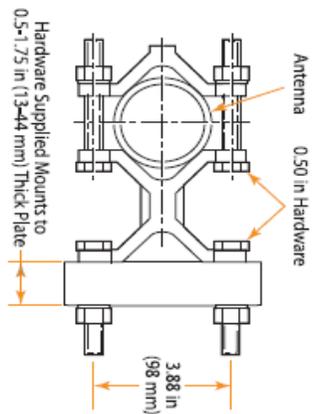
TYPICAL MOUNTING CONFIGURATION SHOWN. ACTUAL CONFIGURATION MAY VARY.
DUAL CHANNEL AL8 HORIZONTALLY POLARIZED



Section "A-A" Circular Mounting



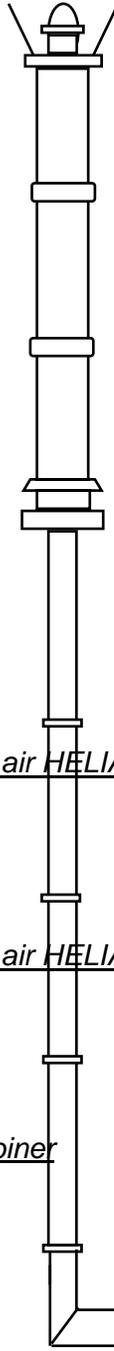
Section "A-A" Flush Mounting



Broadcast Antenna System

Power Analysis

Channel 20



ANTENNA PARAMETERS :

Azimuth Directivity :

Hor. Pol : 3.78
dBd : 5.77

Elevation Directivity :

Hor. Pol : 8.60
dBd : 9.34

ERP :

kW : 2.84
dBk : 4.53

POWER GAIN :

Ratio : 32.51
dBd : 15.12

TRANSMISSION LINE :

VERTICAL RUN :

Type: 1-5/8-inch air HELIAX
Length, mtr. : 13
Attenuation , dB/100 mtr: 1.58

HORIZONTAL RUN :

Type: 1-5/8-inch air HELIAX
Length, mtr: 2
Attenuation , dB/100 mtr: 1.58

ANTENNA INPUT :

kW : 0.09
dBk : -10.59

SYSTEM LOSS :

kW : 0.01
dB : 0.59

COMBINER LOSSES:

Type: TEE Combiner
Loss, dB: 0.35

System Efficiency : 87.36%

TRANSMITTER POWER :

kW : 0.10
dBk : -10.00

Broadcast Antenna System

Power Analysis

Channel 24

ANTENNA PARAMETERS :

Azimuth Directivity :

Hor. Pol : 3.78
dBd : 5.77

Elevation Directivity :

Hor. Pol : 8.60
dBd : 9.34

TRANSMISSION LINE :

VERTICAL RUN :

Type: 1-5/8-inch air HELIAX
Length, mtr. : 13
Attenuation , dB/100 mtr: 1.62

HORIZONTAL RUN :

Type: 1-5/8-inch air HELIAX
Length, mtr. : 2
Attenuation , dB/100 m: 1.62

COMBINER LOSSES:

Type: TEE Combiner
Loss, dB: 0.35

System Efficiency : 87.24%

ERP :

kW : 2.84
dBk : 4.53

POWER GAIN :

Ratio : 32.51
dBd : 15.12

ANTENNA INPUT :

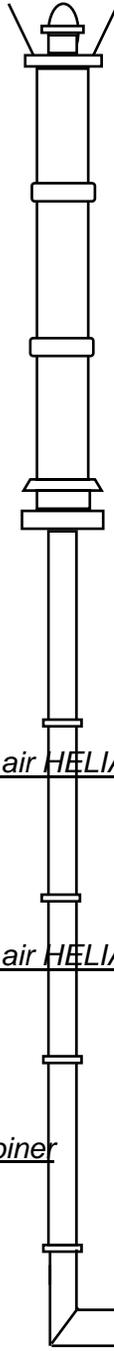
kW : 0.09
dBk : -10.59

SYSTEM LOSS :

kW : 0.01
dB : 0.59

TRANSMITTER POWER :

kW : 0.10
dBk : -10.00

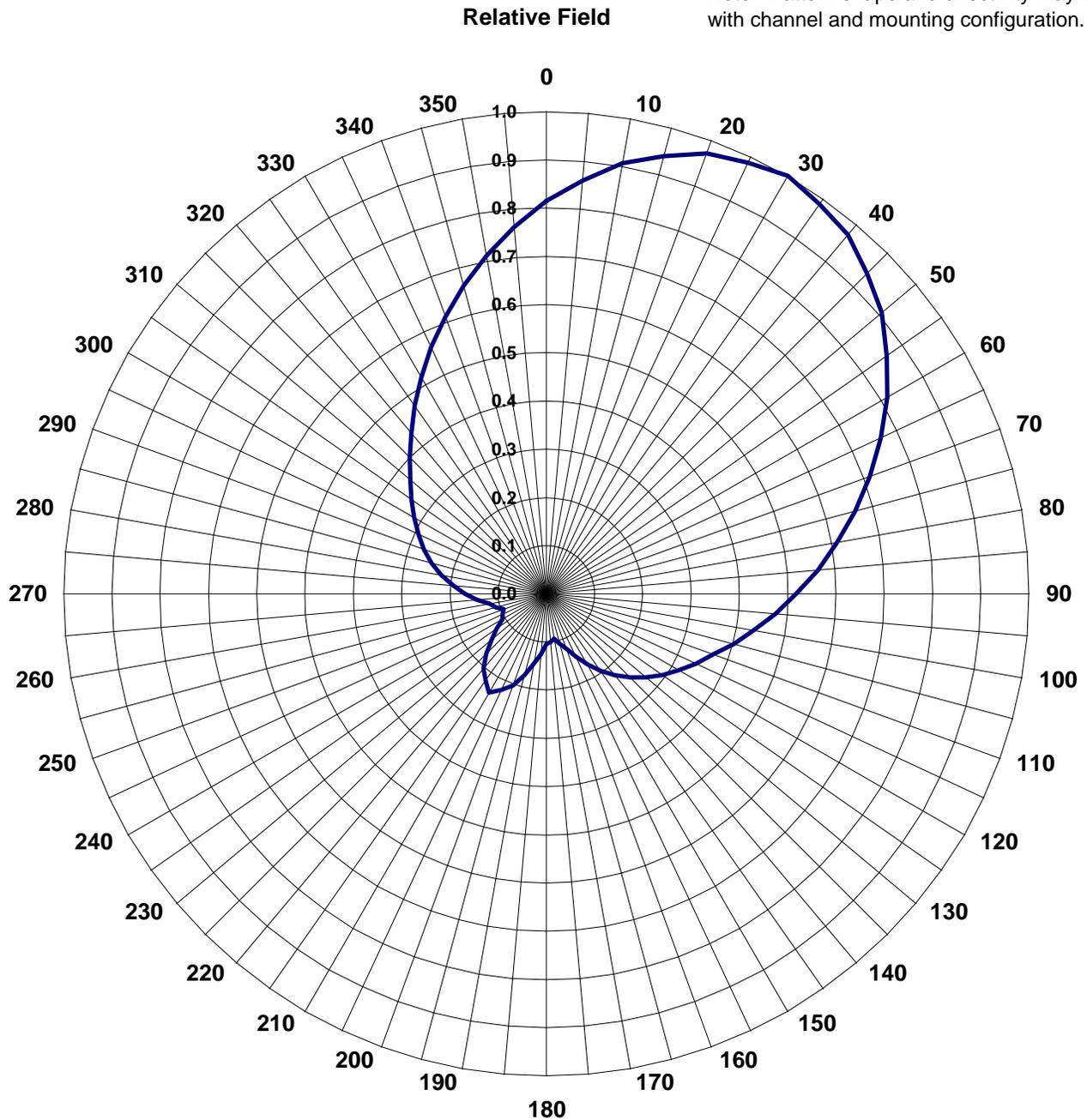


AZIMUTH PATTERN

Peak Gain: 32.51 (15.12 dBd)

TYPE:	AL8-N	
Directivity:	Numeric	dB
Peak(s) at:	3.78	(5.77)
Polarization:	Horizontal	
Channel:	20	
Location:		

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



TABULATED DATA FOR AZIMUTH PATTERN

TYPE: **AL8-N**

Channel 20

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
0	0.815	-0.89	92	0.501	-3.00	184	0.121	-9.17	276	0.200	-6.99
2	0.833	-0.79	94	0.484	-3.15	186	0.130	-8.86	278	0.210	-6.78
4	0.851	-0.70	96	0.468	-3.30	188	0.138	-8.60	280	0.221	-6.56
6	0.870	-0.60	98	0.451	-3.46	190	0.147	-8.33	282	0.231	-6.36
8	0.888	-0.52	100	0.435	-3.62	192	0.158	-8.01	284	0.240	-6.20
10	0.906	-0.43	102	0.422	-3.75	194	0.169	-7.72	286	0.250	-6.02
12	0.919	-0.37	104	0.408	-3.89	196	0.180	-7.45	288	0.259	-5.87
14	0.932	-0.31	106	0.395	-4.03	198	0.191	-7.19	290	0.269	-5.70
16	0.946	-0.24	108	0.381	-4.19	200	0.202	-6.95	292	0.278	-5.56
18	0.959	-0.18	110	0.368	-4.34	202	0.209	-6.80	294	0.288	-5.41
20	0.972	-0.12	112	0.358	-4.46	204	0.216	-6.66	296	0.297	-5.27
22	0.978	-0.10	114	0.347	-4.60	206	0.222	-6.54	298	0.307	-5.13
24	0.983	-0.07	116	0.337	-4.72	208	0.229	-6.40	300	0.316	-5.00
26	0.989	-0.05	118	0.326	-4.87	210	0.236	-6.27	302	0.326	-4.87
28	0.994	-0.03	120	0.316	-5.00	212	0.229	-6.40	304	0.337	-4.72
30	1.000	0.00	122	0.307	-5.13	214	0.222	-6.54	306	0.347	-4.60
32	0.994	-0.03	124	0.297	-5.27	216	0.216	-6.66	308	0.358	-4.46
34	0.989	-0.05	126	0.288	-5.41	218	0.209	-6.80	310	0.368	-4.34
36	0.983	-0.07	128	0.278	-5.56	220	0.202	-6.95	312	0.381	-4.19
38	0.978	-0.10	130	0.269	-5.70	222	0.191	-7.19	314	0.395	-4.03
40	0.972	-0.12	132	0.259	-5.87	224	0.180	-7.45	316	0.408	-3.89
42	0.959	-0.18	134	0.250	-6.02	226	0.169	-7.72	318	0.422	-3.75
44	0.946	-0.24	136	0.240	-6.20	228	0.158	-8.01	320	0.435	-3.62
46	0.932	-0.31	138	0.231	-6.36	230	0.147	-8.33	322	0.451	-3.46
48	0.919	-0.37	140	0.221	-6.56	232	0.138	-8.60	324	0.468	-3.30
50	0.906	-0.43	142	0.210	-6.78	234	0.130	-8.86	326	0.484	-3.15
52	0.888	-0.52	144	0.200	-6.99	236	0.121	-9.17	328	0.501	-3.00
54	0.870	-0.60	146	0.189	-7.24	238	0.113	-9.47	330	0.517	-2.87
56	0.851	-0.70	148	0.179	-7.47	240	0.104	-9.83	332	0.536	-2.71
58	0.833	-0.79	150	0.168	-7.75	242	0.102	-9.91	334	0.555	-2.56
60	0.815	-0.89	152	0.158	-8.01	244	0.100	-10.00	336	0.573	-2.42
62	0.795	-1.00	154	0.149	-8.27	246	0.098	-10.09	338	0.592	-2.28
64	0.774	-1.11	156	0.139	-8.57	248	0.096	-10.18	340	0.611	-2.14
66	0.754	-1.23	158	0.130	-8.86	250	0.094	-10.27	342	0.631	-2.00
68	0.733	-1.35	160	0.120	-9.21	252	0.099	-10.04	344	0.652	-1.86
70	0.713	-1.47	162	0.115	-9.39	254	0.104	-9.83	346	0.672	-1.73
72	0.693	-1.59	164	0.110	-9.59	256	0.110	-9.59	348	0.693	-1.59
74	0.672	-1.73	166	0.104	-9.83	258	0.115	-9.39	350	0.713	-1.47
76	0.652	-1.86	168	0.099	-10.04	260	0.120	-9.21	352	0.733	-1.35
78	0.631	-2.00	170	0.094	-10.27	262	0.130	-8.86	354	0.754	-1.23
80	0.611	-2.14	172	0.096	-10.18	264	0.139	-8.57	356	0.774	-1.11
82	0.592	-2.28	174	0.098	-10.09	266	0.149	-8.27	358	0.795	-1.00
84	0.573	-2.42	176	0.100	-10.00	268	0.158	-8.01	360	0.815	-0.89
86	0.555	-2.56	178	0.102	-9.91	270	0.168	-7.75			
88	0.536	-2.71	180	0.104	-9.83	272	0.179	-7.47			
90	0.517	-2.87	182	0.113	-9.47	274	0.189	-7.24			

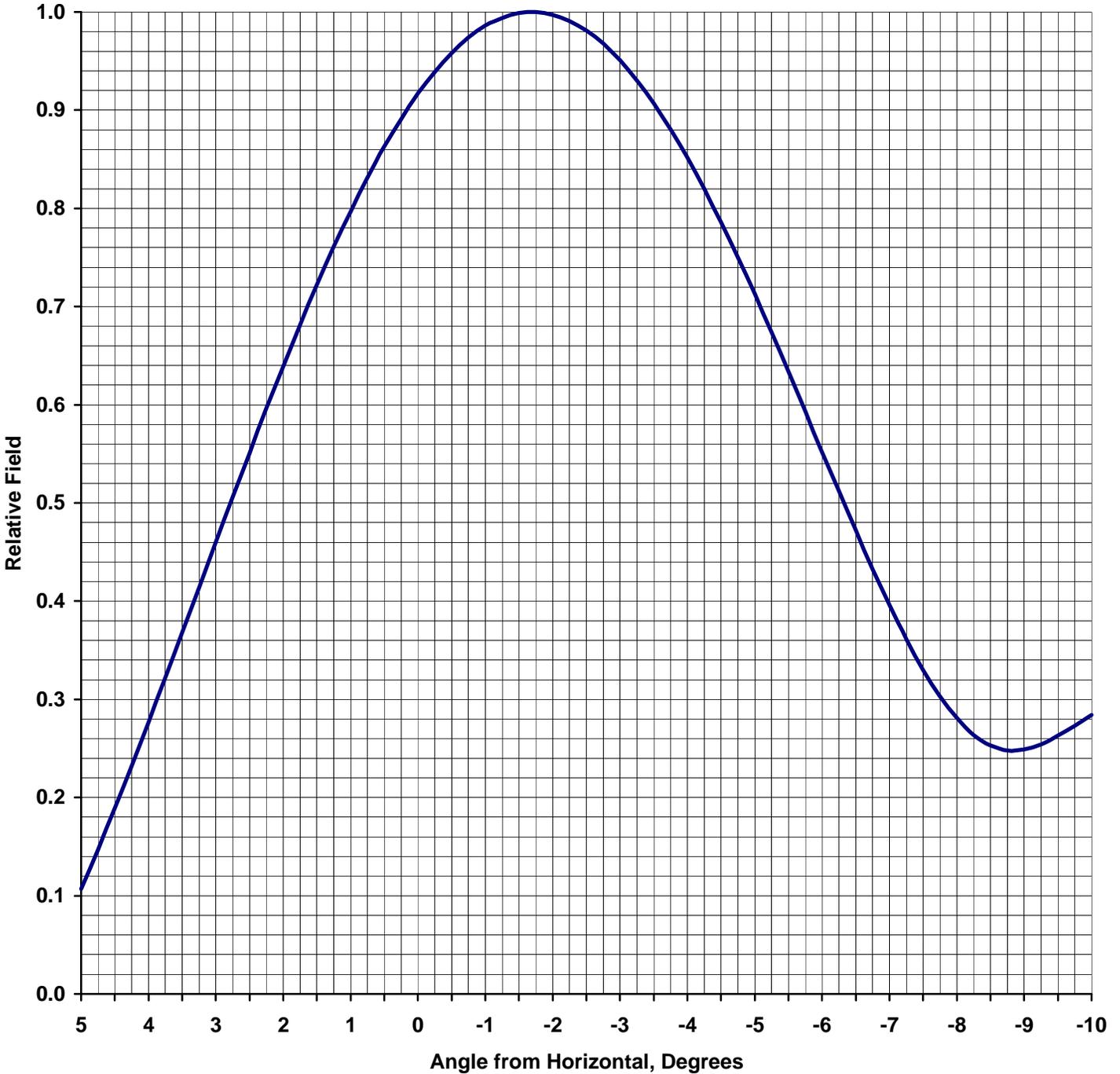
7777 Gardner Road
Chandler, IN 47610-9219
USA



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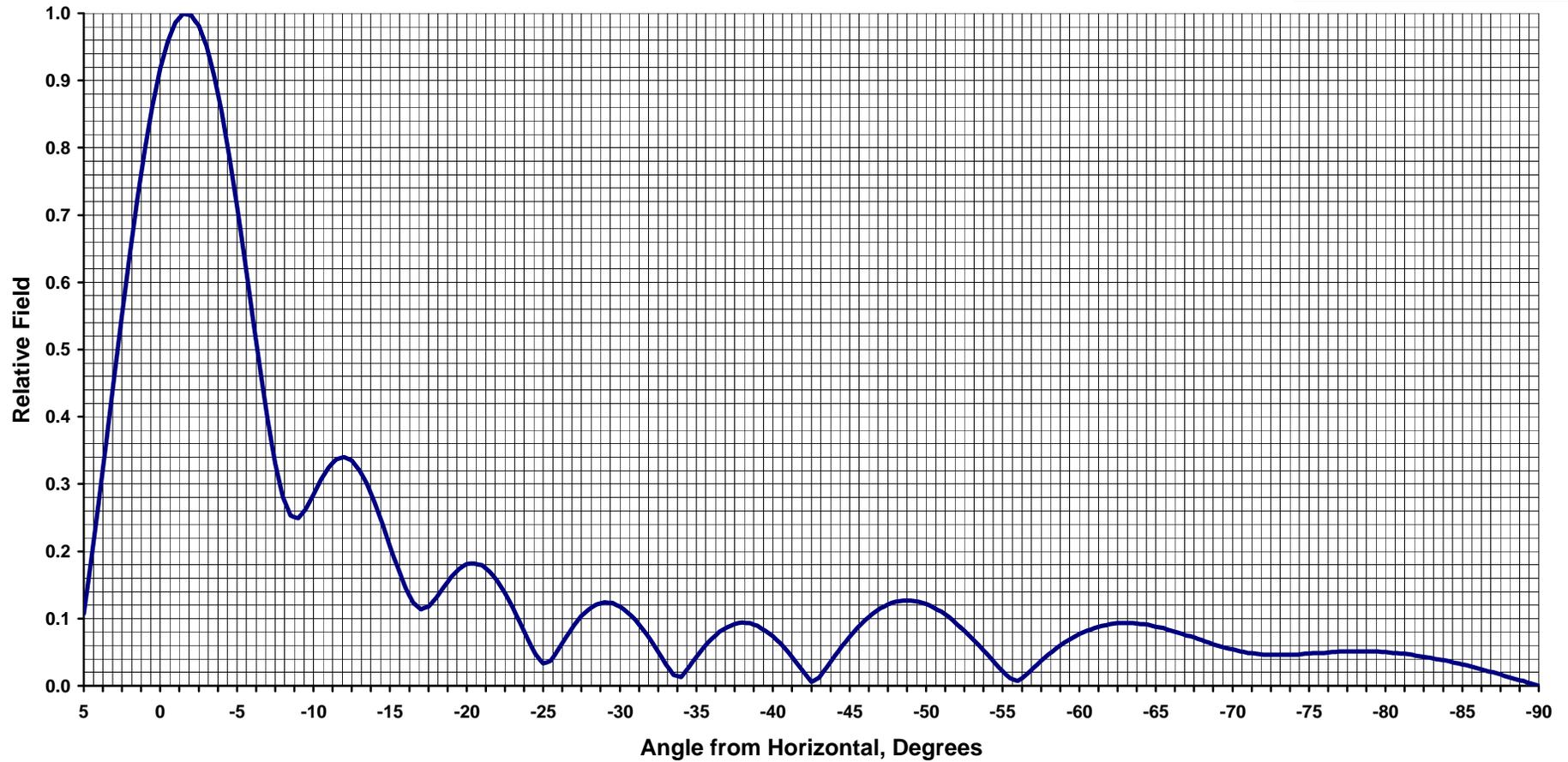
ELEVATION PATTERN

TYPE:	AL8	
Directivity:	Numeric	dBd
Main Lobe:	8.68	(9.39)
Horizontal:	6.83	(8.34)
Beam Tilt:	-2.00	
Polarization:	Horizontal	
Channel:	Channel 20	
Location:		



ELEVATION PATTERN

TYPE:	AL8	
Directivity:	Numeric	dBd
Main Lobe:	8.68	(9.39)
Horizontal:	6.83	(8.34)
Beam Tilt:	-2.00	
Polarization:	Horizontal	
Frequency:		
Location:		



TABULATED DATA FOR ELEVATION PATTERN

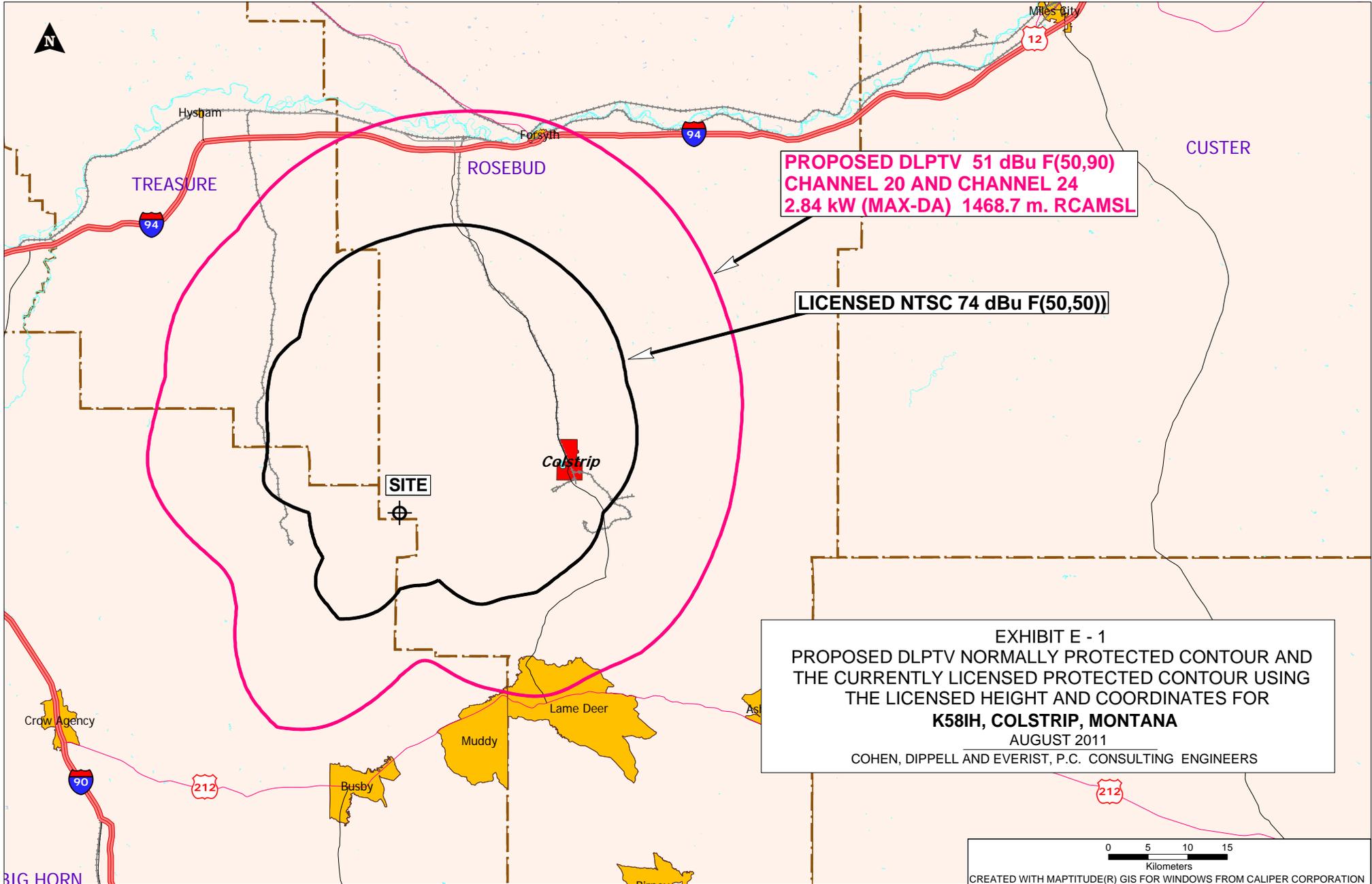
TYPE: AL8

-5 to 10 degrees in 0.25 increments

10 to 90 degrees in 0.50 increments

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
5.00	0.060	-24.44	-6.75	0.472	-6.52	-27.00	0.072	-22.85	-50.50	0.122	-18.27	-74.00	0.046	-26.74
4.75	0.107	-19.41	-7.00	0.433	-7.27	-27.50	0.089	-21.01	-51.00	0.116	-18.71	-74.50	0.046	-26.74
4.50	0.147	-16.65	-7.25	0.396	-8.05	-28.00	0.104	-19.66	-51.50	0.110	-19.17	-75.00	0.047	-26.56
4.25	0.189	-14.47	-7.50	0.361	-8.85	-28.50	0.114	-18.86	-52.00	0.102	-19.83	-75.50	0.048	-26.38
4.00	0.232	-12.69	-7.75	0.330	-9.63	-29.00	0.121	-18.34	-52.50	0.092	-20.72	-76.00	0.049	-26.20
3.75	0.277	-11.15	-8.00	0.303	-10.37	-29.50	0.124	-18.13	-53.00	0.082	-21.72	-76.50	0.049	-26.20
3.50	0.322	-9.84	-8.25	0.281	-11.03	-30.00	0.123	-18.20	-53.50	0.071	-22.97	-77.00	0.050	-26.02
3.25	0.368	-8.68	-8.50	0.264	-11.57	-30.50	0.118	-18.56	-54.00	0.059	-24.58	-77.50	0.051	-25.85
3.00	0.414	-7.66	-8.75	0.253	-11.94	-31.00	0.109	-19.25	-54.50	0.047	-26.56	-78.00	0.051	-25.85
2.75	0.460	-6.74	-9.00	0.248	-12.11	-31.50	0.098	-20.18	-55.00	0.034	-29.37	-78.50	0.051	-25.85
2.50	0.506	-5.92	-9.25	0.249	-12.08	-32.00	0.084	-21.51	-55.50	0.022	-33.15	-79.00	0.051	-25.85
2.25	0.551	-5.18	-9.50	0.254	-11.90	-32.50	0.068	-23.35	-56.00	0.011	-39.17	-79.50	0.051	-25.85
2.00	0.596	-4.50	-9.75	0.263	-11.60	-33.00	0.050	-26.02	-56.50	0.007	-43.10	-80.00	0.051	-25.85
1.75	0.639	-3.89	-10.00	0.273	-11.28	-33.50	0.032	-29.90	-57.00	0.016	-35.92	-80.50	0.050	-26.02
1.50	0.682	-3.32	-10.50	0.284	-10.93	-34.00	0.016	-35.92	-57.50	0.027	-31.37	-81.00	0.049	-26.20
1.25	0.722	-2.83	-11.00	0.307	-10.26	-34.50	0.013	-37.72	-58.00	0.037	-28.64	-81.50	0.048	-26.38
1.00	0.761	-2.37	-11.50	0.325	-9.76	-35.00	0.028	-31.06	-58.50	0.047	-26.56	-82.00	0.047	-26.56
0.75	0.797	-1.97	-12.00	0.337	-9.45	-35.50	0.043	-27.33	-59.00	0.056	-25.04	-82.50	0.045	-26.94
0.50	0.831	-1.61	-12.50	0.340	-9.37	-36.00	0.058	-24.73	-59.50	0.064	-23.88	-83.00	0.043	-27.33
0.25	0.863	-1.28	-13.00	0.335	-9.50	-36.50	0.070	-23.10	-60.00	0.071	-22.97	-83.50	0.041	-27.74
0.00	0.891	-1.00	-13.50	0.321	-9.87	-37.00	0.080	-21.94	-60.50	0.077	-22.27	-84.00	0.039	-28.18
-0.25	0.917	-0.75	-14.00	0.300	-10.46	-37.50	0.087	-21.21	-61.00	0.082	-21.72	-84.50	0.037	-28.64
-0.50	0.939	-0.55	-14.50	0.273	-11.28	-38.00	0.092	-20.72	-61.50	0.086	-21.31	-85.00	0.034	-29.37
-0.75	0.958	-0.37	-15.00	0.242	-12.32	-38.50	0.094	-20.54	-62.00	0.089	-21.01	-85.50	0.032	-29.90
-1.00	0.974	-0.23	-15.50	0.208	-13.64	-39.00	0.093	-20.63	-62.50	0.092	-20.72	-86.00	0.029	-30.75
-1.25	0.986	-0.12	-16.00	0.175	-15.14	-39.50	0.089	-21.01	-63.00	0.093	-20.63	-86.50	0.026	-31.70
-1.50	0.994	-0.05	-16.50	0.145	-16.77	-40.00	0.082	-21.72	-63.50	0.093	-20.63	-87.00	0.023	-32.77
-1.75	0.999	-0.01	-17.00	0.123	-18.20	-40.50	0.074	-22.62	-64.00	0.093	-20.63	-87.50	0.020	-33.98
-2.00	1.000	0.00	-17.50	0.114	-18.86	-41.00	0.063	-24.01	-64.50	0.092	-20.72	-88.00	0.017	-35.39
-2.25	0.997	-0.03	-18.00	0.118	-18.56	-41.50	0.050	-26.02	-65.00	0.091	-20.82	-88.50	0.013	-37.72
-2.50	0.991	-0.08	-18.50	0.131	-17.65	-42.00	0.036	-28.87	-65.50	0.088	-21.11	-89.00	0.010	-40.00
-2.75	0.981	-0.17	-19.00	0.147	-16.65	-42.50	0.021	-33.56	-66.00	0.086	-21.31	-89.50	0.007	-43.10
-3.00	0.968	-0.28	-19.50	0.162	-15.81	-43.00	0.006	-44.44	-66.50	0.082	-21.72	-90.00	0.003	-50.46
-3.25	0.951	-0.44	-20.00	0.174	-15.19	-43.50	0.012	-38.42	-67.00	0.079	-22.05			
-3.50	0.930	-0.63	-20.50	0.181	-14.85	-44.00	0.028	-31.06	-67.50	0.075	-22.50			
-3.75	0.907	-0.85	-21.00	0.182	-14.80	-44.50	0.044	-27.13	-68.00	0.072	-22.85			
-4.00	0.881	-1.10	-21.50	0.179	-14.94	-45.00	0.059	-24.58	-68.50	0.068	-23.35			
-4.25	0.852	-1.39	-22.00	0.170	-15.39	-45.50	0.073	-22.73	-69.00	0.064	-23.88			
-4.50	0.820	-1.72	-22.50	0.156	-16.14	-46.00	0.086	-21.31	-69.50	0.060	-24.44			
-4.75	0.786	-2.09	-23.00	0.138	-17.20	-46.50	0.097	-20.26	-70.00	0.057	-24.88			
-5.00	0.750	-2.50	-23.50	0.117	-18.64	-47.00	0.107	-19.41	-70.50	0.054	-25.35			
-5.25	0.713	-2.94	-24.00	0.093	-20.63	-47.50	0.115	-18.79	-71.00	0.051	-25.85			
-5.50	0.674	-3.43	-24.50	0.069	-23.22	-48.00	0.121	-18.34	-71.50	0.049	-26.20			
-5.75	0.634	-3.96	-25.00	0.047	-26.56	-48.50	0.125	-18.06	-72.00	0.048	-26.38			
-6.00	0.593	-4.54	-25.50	0.033	-29.63	-49.00	0.127	-17.92	-72.50	0.046	-26.74			
-6.25	0.552	-5.16	-26.00	0.037	-28.64	-49.50	0.127	-17.92	-73.00	0.046	-26.74			
-6.50	0.512	-5.81	-26.50	0.054	-25.35	-50.00	0.125	-18.06	-73.50	0.046	-26.74			

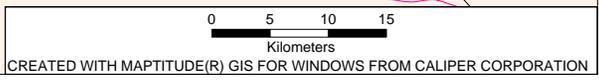




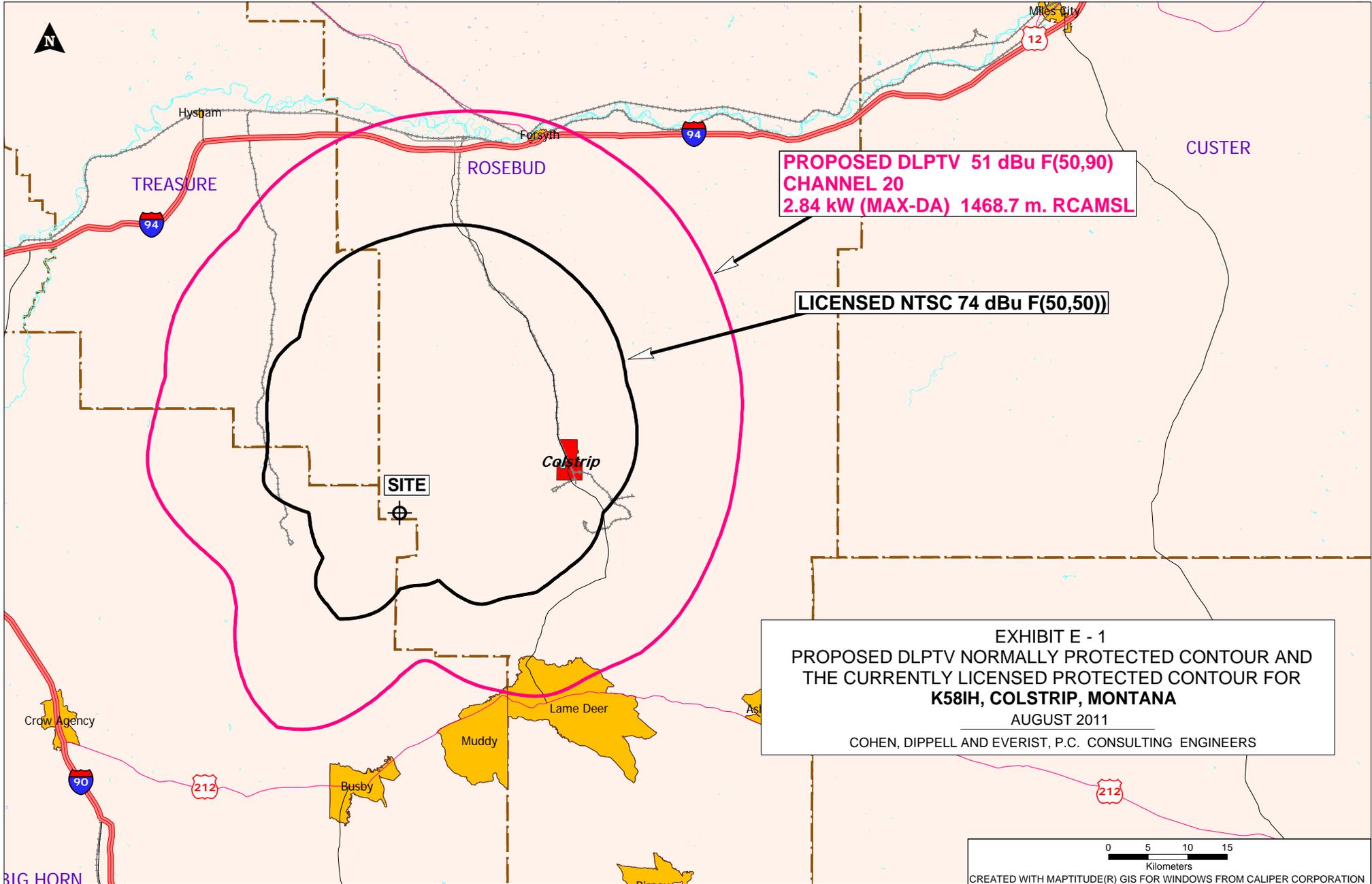
**PROPOSED DLPTV 51 dBu F(50,90)
CHANNEL 20 AND CHANNEL 24
2.84 kW (MAX-DA) 1468.7 m. RCAMSL**

LICENSED NTSC 74 dBu F(50,50))

EXHIBIT E - 1
PROPOSED DLPTV NORMALLY PROTECTED CONTOUR AND
THE CURRENTLY LICENSED PROTECTED CONTOUR USING
THE LICENSED HEIGHT AND COORDINATES FOR
K58IH, COLSTRIP, MONTANA
 AUGUST 2011
 COHEN, DIPPELL AND EVERIST, P.C. CONSULTING ENGINEERS



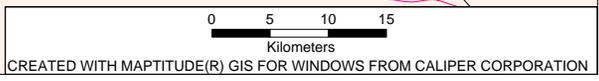
BIG HORN



**PROPOSED DLPTV 51 dBu F(50,90)
CHANNEL 20
2.84 kW (MAX-DA) 1468.7 m. RCAMSL**

LICENSED NTSC 74 dBu F(50,50))

EXHIBIT E - 1
PROPOSED DLPTV NORMALLY PROTECTED CONTOUR AND
THE CURRENTLY LICENSED PROTECTED CONTOUR FOR
K58IH, COLSTRIP, MONTANA
 AUGUST 2011
 COHEN, DIPPELL AND EVERIST, P.C. CONSULTING ENGINEERS



COHEN, DIPPELL AND EVERIST, P.C.

TABLE I
LONGLEY-RICE INTERFERENCE
FOR THE OPERATION FOR
K58IH, COLSTRIP, ETC., MONTANA
CHANNEL 20 15 KW ERP 1468 METERS RCAMSL
AUGUST 2011

N 45° 50' 20"
W 106° 54' 17"

Simple Mask

<u>Channel</u>	<u>Call</u>	<u>City/State</u>	<u>Dist(km)</u>	<u>Status</u>	<u>FCC File No.</u>	<u>Result</u>
16	K16DZ	HARDIN MT	50	LIC	BLTT-19950515IC	0.00%
16	K16DH	MILES CITY MT	105	LIC	BLTT-20040930APV	0.00%
19	K19JF-D	FORSYTH MT	50.5	CP	BNPDTL-20100506AET	No interference
19	K19FF	MILES CITY MT	105	LIC	BLTT-20030121ACC	No interference
19	K19HP	GILLETTE WY	205.4	CP	BNPTTL-20000830BBH	0.00%
20	K20DY	BELGRADE, ETC. MT	339.1	CP	BDFCDTT-20061207ACC	0.00%
20	K20DY	BELGRADE, ETC. MT	339.1	LIC	BLTT-20050505ABO	0.00%
20	K20HB	BILLINGS MT	120.6	CP	BDFCDTT-20061207ACB	0.20%
20	K20HB	BILLINGS MT	120.6	LIC	BLTT-20041123AKE	0.00%
20	K20JS-D	GLASGOW MT	263.9	LIC	BLDTT-20110705ABR	No interference
20	K20JS-D	GLASGOW MT	263.8	CP	BNPTT-20000815ADF	No interference
20	K20KQ-D	LIVINGSTON, ETC. MT	283.8	CP	BDCCDTL-20100813CAG	No interference
20	K20BP	PHILLIPS COUNTY MT	265.2	CP	BDFCDTT-20101108ADJ	No interference
20	K20BP	PHILLIPS COUNTY MT	264.6	LIC	BLTT-19890313IR	No interference
20	K20KI-D	RAPID CITY SD	346.9	CP	BNPDTL-20090825AUY	No interference
20	KFNB	CASPER WY	347.1	CP	BPCDT-20100929AEK	No interference
20	KFNB	CASPER WY	347.1	LIC	BLCDDT-20090225AAN	No interference
21	K21LJ-D	WORDON MT	85.9	CP	BNPDTL-20100510ABS	0.85%
21	K21LM-D	SHERIDAN WY	117	CP	BNPDTL-20100505AHL	No interference
23	K23HI	BILLINGS MT	116.2	CP	BPTTL-20090824AEC	0.00%
23	K23HI	BILLINGS MT	126.9	LIC	BLTTL-20070809ABT	0.00%
27	K27IM	BILLINGS MT	120.5	LIC	BLTT-20060711ABH	0.00%

Section III - Engineering (Digital)

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: _____
- 2. Translator Input Channel No. _____
- 3. Station proposed to be rebroadcast:

Call Sign	City	State	Channel
-----------	------	-------	---------

- 4. Antenna Location Coordinates: (NAD 27)
_____ ° _____ ' _____ " N S Latitude
_____ ° _____ ' _____ " E W Longitude

- 5. Antenna Structure Registration Number: _____
 Not applicable See Explanation in Exhibit No. FAA Notification Filed with FAA

- 6. Antenna Location Site Elevation Above Mean Sea Level: _____ meters
- 7. Overall Tower Height Above Ground Level: _____ meters
- 8. Height of Radiation Center Above Ground Level: _____ meters
- 9. Maximum Effective Radiated Power (ERP): _____ kW
- 10. Transmitter Output Power: _____ kW

- 11. a. Transmitting Antenna: Nondirectional Directional 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											

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.

12. **Out-of-Channel Emission Mask:** Simple Stringent

CERTIFICATION

13. **Interference.** The proposed facility complies with all of the following applicable rule sections. 47 C.F.R. Sections 74.709, 74.793(e), 74.793(f), 74.793(g), 74.793(h), 74.794(b) and 73.1030. Yes No See Explanation in Exhibit No.

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.** Yes No See Explanation in Exhibit No.

Exhibit No.

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.

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

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

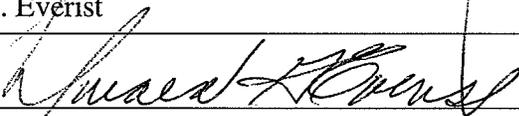
Pursuant to Section 74.786(d), the applicant has notified, within 30 days of filing this application, all commercial wireless licensees of the spectrum comprising the proposed TV channel and the first adjacent channels thereto, for which the proposed digital LPTV or TV translator antenna site lies inside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

PREPARER'S CERTIFICATION ON PAGE 8 MUST BE COMPLETED AND SIGNED.

16. **Channels 60-69.** If the proposed channel is within channels 60-69, the applicant certifies compliance with the following requirements, as applicable:

- Pursuant to Section 74.786(e), 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,
- Pursuant to Section 74.786(e), the applicant proposing operation on channel 63, 64, 68 and 69 ("public safety channels") has secured a coordinated spectrum use agreement(s) with 700 MHz public safety regional planning committee(s) and state frequency administrator(s) of the region(s) and state(s) within which the antenna site of the digital LPTV or TV translator station is proposed to locate, and those adjoining regions and states with boundaries within 75 miles of the proposed station location.
- Pursuant to Section 74.786(e), an applicant for a channel adjacent to channel 63, 64, 68 or 69 has notified, within 30 days of filing this application, the 700 MHz public safety regional planning committee(s) and state administrator(s) of the region and state containing the proposed digital LPTV or TV translator antenna site and regions and states whose geographic boundaries lie within 50 miles of the proposed LPTV or TV translator antenna site.

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 Donald G. Everist		Relationship to Applicant (e.g., Consulting Engineer) Consulting Engineer	
Signature 		Date August 26, 2011	
Mailing Address Cohen, Dippell and Everist, P.C., 1420 N Street, NW, Suite One			
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	

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).