

ENGINEERING STATEMENT
AMENDMENT TO PENDING FLASHCUT APPLICATION FOR DTV
CONSTRUCTION PERMIT
FCC FILE NO. BDFCDTL-20090630AGS
FOR DIGITAL OPERATION OF
K24GD-D, HARDIN, MONTANA
CHANNEL 24 0.322 KW DA ERP 1010.3 METERS RC/AMSL

SEPTEMBER 2009

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)

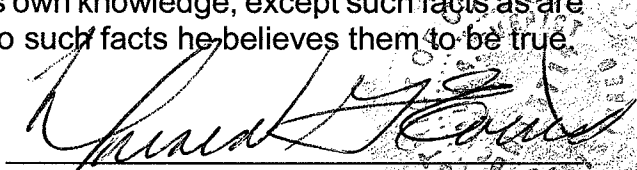
Donald G. Everist, being duly sworn upon his oath, deposes and states that:

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 1300 L Street, N.W., Suite 1100, 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

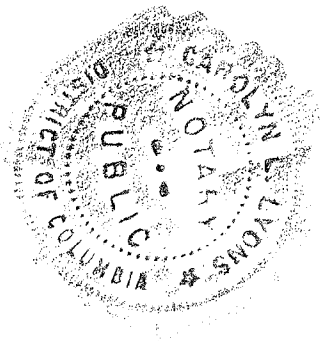
That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.


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

Subscribed and sworn to before me this 30th day of September, 2009.


Notary Public

My Commission Expires: 2/28/2013



Introduction

This engineering statement has been prepared on behalf of KTVQ Communications, Inc. (“KTVQ”), licensee of television translator station K24GD, Hardin, Montana. This statement is in support of the licensee’s request to flashcut for digital operation. KTVQ hereby requests digital low-power translator facilities on Channel 24 with a maximum effective radiated power (“ERP”) of 0.322 kW at a radiation center above mean sea level (“RCAMSL”) of 1016.3 meters.

Transmitter Site

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

North Latitude: 45° 44' 44"

West Longitude: 107° 32' 11"

NAD-27

Equipment Data

Transmitter:	Type-approved–LARCAN
Transmission Line:	Andrew, Type LDF5-50 7/8", 9.75 meters (32 feet) (100 feet) with 77.9% efficiency
Antenna:	Kathrein Scala, SL8 with maximum gain of 11.4 dB and 1.75° electrical beam tilt

Power Data

Transmitter:	0.030 kW	-15.23 dBk
Transmission Line Loss:	77.9%	- 1.08 dB
Input Into Antenna:	0.023 kW	-16.3 dBk
Antenna Gain:	13.8	11.4 dB
ERP:	0.322 kW	- 4.90 dBk
Emission Mask:	Simple	

Elevation Data

Elevation of site above mean sea level	993.3 meters (3258.9 feet)
Center of radiation of antenna above ground level	17 meters (55.8 feet)
Center of radiation of antenna above mean sea level	1010.3 meters (3314.6 feet)
Overall tower height above ground level	18.9 meters (62.0 feet)

The Antenna Structure Registration Number ("ASRN") for the existing tower is 1062459.

As indicated above, the transmitter with typical power output of 0.030 kW will deliver 0.023 kW to the input of the antenna. The antenna, having a maximum gain of 11.4 dB will produce a maximum ERP of 0.322 kW. A coverage map providing the protected contour of the proposed digital facility relative to the authorized analog operation of K24GD has been included as Exhibit E-2 of this report.

Other Broadcast Facilities

A brief analysis was completed to determine the presence of stations in the vicinity of the K24GD tower using the data contained within the Commission's Consolidated Database System ("CDBS"). Within 0.5 km of the proposed site, there are is one FM translator [FM radio station] no DTV and NTSC television stations, and one low-power analog television translator station other than the licensed K24GD operation. 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 K24GD digital translator Channel 24 operation has been performed using the Longley-Rice program for which the source data has been posted by the Commission on its website at 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 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. A Longley-Rice

study was performed with the proposed K24GD digital television translator facilities and all potentially affected stations listed in the FCC database. The results of the study are included as Table I.

FCC Rule, Section 1.1307

The proposed 0.322 kW directional operation will utilize a Kathrein Scala, Type SL8 antenna (or equivalent) described above with a center of radiation above ground of 17 meters. The antenna will be side-mounted on an existing tower with an overall height of 18.9 meters above ground. The proposed digital operation of K24GD will create a radio frequency field level of $4.3 \mu\text{W}/\text{cm}^2$ at the base of the tower. This level is less than 2% of the Maximum Permissible Exposure (“MPE”) level for the general population and uncontrolled environment.

Authorized personnel and rigging contractors will be alerted to the potential zone of high radio frequency 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 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 will be located on a tower which was built prior to the adoption of WT Docket No. 03-128 and will not affect 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.

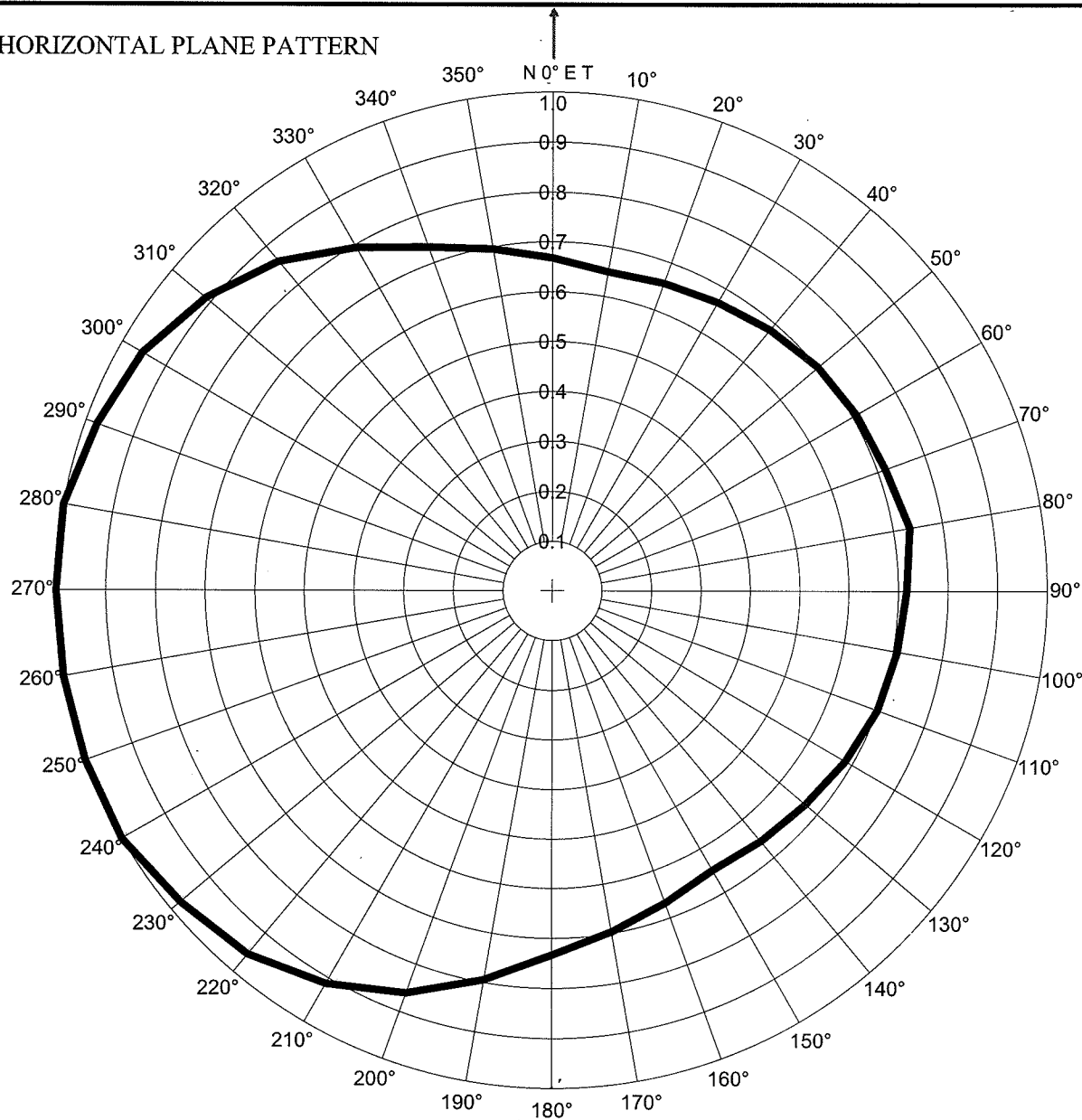
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EXHIBIT E-1

ANTENNA MANUFACTURER DATA

K24GD, HARDIN, MONTANA

HORIZONTAL PLANE PATTERN



0	0.668
10	0.649
20	0.657
30	0.668
40	0.684
50	0.7
60	0.708
70	0.716
80	0.733
90	0.716
100	0.708
110	0.7
120	0.684
130	0.668
140	0.657
150	0.649
160	0.668
170	0.696
180	0.733
190	0.794
200	0.861
210	0.912
220	0.955
230	0.977
240	1
250	1
260	1
270	1
280	1
290	0.977
300	0.955
310	0.912
320	0.861
330	0.794
340	0.733
350	0.696

Relative Intensity

COHEN, DIPPELL AND EVERIST, P.C.
Consulting Engineers



SL-8 Paraslot

Ch-24

Maximum gain: 11.4 dBd

Horizontal polarization

Horizontal radiation pattern

1.75 degree electrical downtilt

(Azimuth pattern at horizon)

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	1.000	0.00	10.60	11.48	45	0.933	-0.60	10.00	9.99
1	1.000	0.00	10.60	11.48	46	0.929	-0.64	9.96	9.90
2	1.000	0.00	10.60	11.48	47	0.925	-0.68	9.92	9.82
3	1.000	0.00	10.60	11.48	48	0.920	-0.72	9.88	9.73
4	1.000	0.00	10.60	11.48	49	0.916	-0.76	9.84	9.64
5	1.000	0.00	10.60	11.48	50	0.912	-0.80	9.80	9.55
6	1.000	0.00	10.60	11.48	51	0.908	-0.84	9.76	9.46
7	1.000	0.00	10.60	11.48	52	0.904	-0.88	9.72	9.37
8	1.000	0.00	10.60	11.48	53	0.899	-0.92	9.68	9.29
9	1.000	0.00	10.60	11.48	54	0.895	-0.96	9.64	9.20
10	1.000	0.00	10.60	11.48	55	0.891	-1.00	9.60	9.11
11	1.000	0.00	10.60	11.48	56	0.885	-1.06	9.54	8.99
12	1.000	0.00	10.60	11.48	57	0.879	-1.12	9.48	8.87
13	1.000	0.00	10.60	11.48	58	0.873	-1.18	9.42	8.75
14	1.000	0.00	10.60	11.48	59	0.867	-1.24	9.36	8.63
15	1.000	0.00	10.60	11.48	60	0.861	-1.30	9.30	8.51
16	1.000	0.00	10.60	11.48	61	0.853	-1.38	9.22	8.36
17	1.000	0.00	10.60	11.48	62	0.845	-1.46	9.14	8.21
18	1.000	0.00	10.60	11.48	63	0.838	-1.54	9.06	8.06
19	1.000	0.00	10.60	11.48	64	0.830	-1.62	8.98	7.91
20	1.000	0.00	10.60	11.48	65	0.822	-1.70	8.90	7.76
21	0.998	-0.02	10.58	11.43	66	0.816	-1.76	8.84	7.65
22	0.996	-0.04	10.56	11.38	67	0.811	-1.82	8.78	7.55
23	0.993	-0.06	10.54	11.33	68	0.805	-1.88	8.72	7.44
24	0.991	-0.08	10.52	11.28	69	0.800	-1.94	8.66	7.34
25	0.989	-0.10	10.50	11.23	70	0.794	-2.00	8.60	7.24
26	0.987	-0.12	10.48	11.18	71	0.789	-2.06	8.54	7.14
27	0.984	-0.14	10.46	11.12	72	0.783	-2.12	8.48	7.04
28	0.982	-0.16	10.44	11.07	73	0.778	-2.18	8.42	6.95
29	0.979	-0.18	10.42	11.01	74	0.772	-2.24	8.36	6.85
30	0.977	-0.20	10.40	10.96	75	0.767	-2.30	8.30	6.75
31	0.975	-0.22	10.38	10.91	76	0.760	-2.38	8.22	6.64
32	0.973	-0.24	10.36	10.86	77	0.753	-2.46	8.14	6.52
33	0.970	-0.26	10.34	10.81	78	0.747	-2.54	8.06	6.40
34	0.968	-0.28	10.32	10.76	79	0.740	-2.62	7.98	6.28
35	0.966	-0.30	10.30	10.71	80	0.733	-2.70	7.90	6.17
36	0.964	-0.32	10.28	10.67	81	0.730	-2.74	7.86	6.11
37	0.962	-0.34	10.26	10.62	82	0.726	-2.78	7.82	6.05
38	0.959	-0.36	10.24	10.57	83	0.723	-2.82	7.78	6.00
39	0.957	-0.38	10.22	10.52	84	0.719	-2.86	7.74	5.94
40	0.955	-0.40	10.20	10.47	85	0.716	-2.90	7.70	5.89
41	0.951	-0.44	10.16	10.38	86	0.712	-2.95	7.65	5.82
42	0.946	-0.48	10.12	10.28	87	0.708	-3.00	7.60	5.76
43	0.942	-0.52	10.08	10.18	88	0.704	-3.05	7.55	5.69
44	0.937	-0.56	10.04	10.09	89	0.700	-3.10	7.50	5.63



SL-8 Paraslot

Ch-24

Maximum gain: 11.4 dBd

Horizontal polarization

Horizontal radiation pattern

1.75 degree electrical downtilt

(Azimuth pattern at horizon)

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
90	0.696	-3.15	7.45	5.56	135	0.672	-3.45	7.15	5.18
91	0.694	-3.18	7.42	5.52	136	0.674	-3.42	7.18	5.22
92	0.691	-3.21	7.39	5.49	137	0.677	-3.39	7.21	5.26
93	0.689	-3.24	7.36	5.45	138	0.679	-3.36	7.24	5.30
94	0.686	-3.27	7.33	5.41	139	0.682	-3.33	7.27	5.33
95	0.684	-3.30	7.30	5.37	140	0.684	-3.30	7.30	5.37
96	0.681	-3.34	7.26	5.32	141	0.686	-3.28	7.32	5.40
97	0.678	-3.38	7.22	5.27	142	0.687	-3.26	7.34	5.42
98	0.674	-3.42	7.18	5.22	143	0.689	-3.24	7.36	5.45
99	0.671	-3.46	7.14	5.17	144	0.690	-3.22	7.38	5.47
100	0.668	-3.50	7.10	5.12	145	0.692	-3.20	7.40	5.50
101	0.665	-3.54	7.06	5.08	146	0.694	-3.18	7.42	5.52
102	0.662	-3.58	7.02	5.03	147	0.695	-3.16	7.44	5.55
103	0.659	-3.62	6.98	4.99	148	0.697	-3.14	7.46	5.57
104	0.656	-3.66	6.94	4.94	149	0.698	-3.12	7.48	5.60
105	0.653	-3.70	6.90	4.90	150	0.700	-3.10	7.50	5.63
106	0.652	-3.71	6.89	4.88	151	0.701	-3.09	7.51	5.64
107	0.651	-3.72	6.88	4.87	152	0.702	-3.08	7.52	5.65
108	0.651	-3.73	6.87	4.86	153	0.702	-3.07	7.53	5.66
109	0.650	-3.74	6.86	4.85	154	0.703	-3.06	7.54	5.68
110	0.649	-3.76	6.84	4.84	155	0.704	-3.05	7.55	5.69
111	0.649	-3.76	6.84	4.84	156	0.705	-3.04	7.56	5.70
112	0.649	-3.76	6.84	4.84	157	0.706	-3.03	7.57	5.72
113	0.649	-3.76	6.84	4.84	158	0.706	-3.02	7.58	5.73
114	0.649	-3.76	6.84	4.84	159	0.707	-3.01	7.59	5.74
115	0.649	-3.76	6.84	4.84	160	0.708	-3.00	7.60	5.76
116	0.651	-3.73	6.87	4.86	161	0.709	-2.99	7.61	5.77
117	0.652	-3.71	6.89	4.88	162	0.710	-2.98	7.62	5.78
118	0.654	-3.69	6.91	4.91	163	0.710	-2.97	7.63	5.79
119	0.655	-3.67	6.93	4.93	164	0.711	-2.96	7.64	5.81
120	0.657	-3.65	6.95	4.96	165	0.712	-2.95	7.65	5.82
121	0.659	-3.63	6.97	4.98	166	0.713	-2.94	7.66	5.83
122	0.660	-3.61	6.99	5.00	167	0.714	-2.93	7.67	5.85
123	0.662	-3.59	7.01	5.03	168	0.714	-2.92	7.68	5.86
124	0.663	-3.56	7.04	5.05	169	0.715	-2.91	7.69	5.87
125	0.665	-3.54	7.06	5.08	170	0.716	-2.90	7.70	5.89
126	0.666	-3.54	7.06	5.09	171	0.718	-2.88	7.72	5.91
127	0.666	-3.53	7.07	5.10	172	0.719	-2.86	7.74	5.94
128	0.667	-3.52	7.08	5.10	173	0.721	-2.84	7.76	5.97
129	0.667	-3.51	7.09	5.11	174	0.722	-2.82	7.78	5.99
130	0.668	-3.50	7.10	5.12	175	0.724	-2.81	7.79	6.02
131	0.669	-3.49	7.11	5.14	176	0.726	-2.78	7.82	6.05
132	0.670	-3.48	7.12	5.15	177	0.728	-2.76	7.84	6.08
133	0.670	-3.47	7.13	5.16	178	0.729	-2.74	7.86	6.11
134	0.671	-3.46	7.14	5.17	179	0.731	-2.72	7.88	6.14



SL-8 Paraslot

Ch-24

Maximum gain: 11.4 dBd

Horizontal polarization

Horizontal radiation pattern

1.75 degree electrical downtilt

(Azimuth pattern at horizon)

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
180	0.733	-2.70	7.90	6.17	225	0.672	-3.45	7.15	5.18
181	0.731	-2.72	7.88	6.14	226	0.671	-3.46	7.14	5.17
182	0.729	-2.74	7.86	6.11	227	0.670	-3.47	7.13	5.16
183	0.728	-2.76	7.84	6.08	228	0.670	-3.48	7.12	5.15
184	0.726	-2.78	7.82	6.05	229	0.669	-3.49	7.11	5.14
185	0.724	-2.81	7.79	6.02	230	0.668	-3.50	7.10	5.12
186	0.722	-2.82	7.78	5.99	231	0.667	-3.51	7.09	5.11
187	0.721	-2.84	7.76	5.97	232	0.667	-3.52	7.08	5.10
188	0.719	-2.86	7.74	5.94	233	0.666	-3.53	7.07	5.10
189	0.718	-2.88	7.72	5.91	234	0.666	-3.54	7.06	5.09
190	0.716	-2.90	7.70	5.89	235	0.665	-3.54	7.06	5.08
191	0.715	-2.91	7.69	5.87	236	0.663	-3.56	7.04	5.05
192	0.714	-2.92	7.68	5.86	237	0.662	-3.59	7.01	5.03
193	0.714	-2.93	7.67	5.85	238	0.660	-3.61	6.99	5.00
194	0.713	-2.94	7.66	5.83	239	0.659	-3.63	6.97	4.98
195	0.712	-2.95	7.65	5.82	240	0.657	-3.65	6.95	4.96
196	0.711	-2.96	7.64	5.81	241	0.655	-3.67	6.93	4.93
197	0.710	-2.97	7.63	5.79	242	0.654	-3.69	6.91	4.91
198	0.710	-2.98	7.62	5.78	243	0.652	-3.71	6.89	4.88
199	0.709	-2.99	7.61	5.77	244	0.651	-3.73	6.87	4.86
200	0.708	-3.00	7.60	5.76	245	0.649	-3.76	6.84	4.84
201	0.707	-3.01	7.59	5.74	246	0.649	-3.76	6.84	4.84
202	0.706	-3.02	7.58	5.73	247	0.649	-3.76	6.84	4.84
203	0.706	-3.03	7.57	5.72	248	0.649	-3.76	6.84	4.84
204	0.705	-3.04	7.56	5.70	249	0.649	-3.76	6.84	4.84
205	0.704	-3.05	7.55	5.69	250	0.649	-3.76	6.84	4.84
206	0.703	-3.06	7.54	5.68	251	0.650	-3.74	6.86	4.85
207	0.702	-3.07	7.53	5.66	252	0.651	-3.73	6.87	4.86
208	0.702	-3.08	7.52	5.65	253	0.651	-3.72	6.88	4.87
209	0.701	-3.09	7.51	5.64	254	0.652	-3.71	6.89	4.88
210	0.700	-3.10	7.50	5.63	255	0.653	-3.70	6.90	4.90
211	0.698	-3.12	7.48	5.60	256	0.656	-3.66	6.94	4.94
212	0.697	-3.14	7.46	5.57	257	0.659	-3.62	6.98	4.99
213	0.695	-3.16	7.44	5.55	258	0.662	-3.58	7.02	5.03
214	0.694	-3.18	7.42	5.52	259	0.665	-3.54	7.06	5.08
215	0.692	-3.20	7.40	5.50	260	0.668	-3.50	7.10	5.12
216	0.690	-3.22	7.38	5.47	261	0.671	-3.46	7.14	5.17
217	0.689	-3.24	7.36	5.45	262	0.674	-3.42	7.18	5.22
218	0.687	-3.26	7.34	5.42	263	0.678	-3.38	7.22	5.27
219	0.686	-3.28	7.32	5.40	264	0.681	-3.34	7.26	5.32
220	0.684	-3.30	7.30	5.37	265	0.684	-3.30	7.30	5.37
221	0.682	-3.33	7.27	5.33	266	0.686	-3.27	7.33	5.41
222	0.679	-3.36	7.24	5.30	267	0.689	-3.24	7.36	5.45
223	0.677	-3.39	7.21	5.26	268	0.691	-3.21	7.39	5.49
224	0.674	-3.42	7.18	5.22	269	0.694	-3.18	7.42	5.52



SL-8 Paraslot

Ch-24

Maximum gain: 11.4 dBd

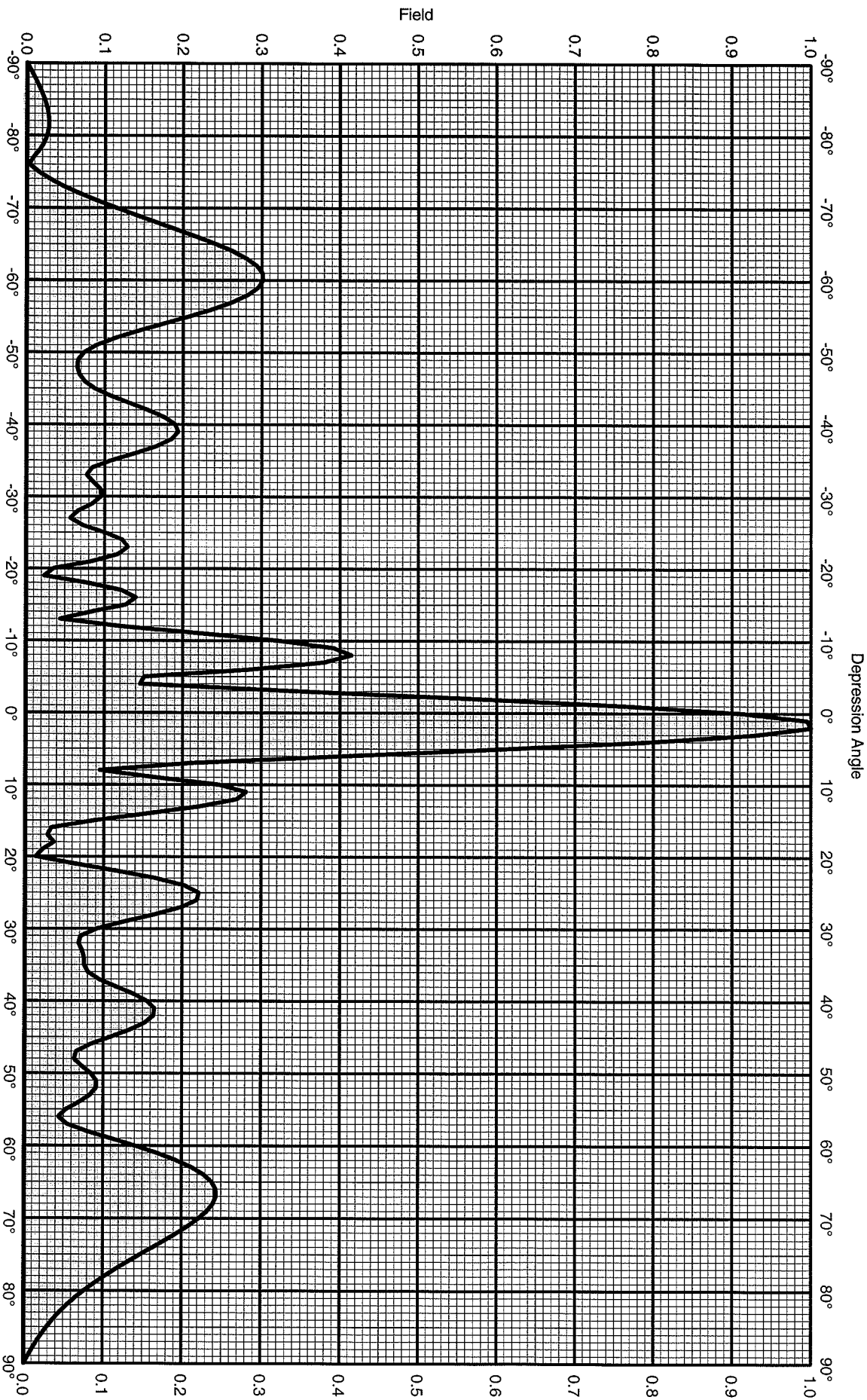
Horizontal polarization

Horizontal radiation pattern

1.75 degree electrical downtilt

(Azimuth pattern at horizon)

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
270	0.696	-3.15	7.45	5.56	315	0.933	-0.60	10.00	9.99
271	0.700	-3.10	7.50	5.63	316	0.937	-0.56	10.04	10.09
272	0.704	-3.05	7.55	5.69	317	0.942	-0.52	10.08	10.18
273	0.708	-3.00	7.60	5.76	318	0.946	-0.48	10.12	10.28
274	0.712	-2.95	7.65	5.82	319	0.951	-0.44	10.16	10.38
275	0.716	-2.90	7.70	5.89	320	0.955	-0.40	10.20	10.47
276	0.719	-2.86	7.74	5.94	321	0.957	-0.38	10.22	10.52
277	0.723	-2.82	7.78	6.00	322	0.959	-0.36	10.24	10.57
278	0.726	-2.78	7.82	6.05	323	0.962	-0.34	10.26	10.62
279	0.730	-2.74	7.86	6.11	324	0.964	-0.32	10.28	10.67
280	0.733	-2.70	7.90	6.17	325	0.966	-0.30	10.30	10.71
281	0.740	-2.62	7.98	6.28	326	0.968	-0.28	10.32	10.76
282	0.747	-2.54	8.06	6.40	327	0.970	-0.26	10.34	10.81
283	0.753	-2.46	8.14	6.52	328	0.973	-0.24	10.36	10.86
284	0.760	-2.38	8.22	6.64	329	0.975	-0.22	10.38	10.91
285	0.767	-2.30	8.30	6.75	330	0.977	-0.20	10.40	10.96
286	0.772	-2.24	8.36	6.85	331	0.979	-0.18	10.42	11.01
287	0.778	-2.18	8.42	6.95	332	0.982	-0.16	10.44	11.07
288	0.783	-2.12	8.48	7.04	333	0.984	-0.14	10.46	11.12
289	0.789	-2.06	8.54	7.14	334	0.987	-0.12	10.48	11.18
290	0.794	-2.00	8.60	7.24	335	0.989	-0.10	10.50	11.23
291	0.800	-1.94	8.66	7.34	336	0.991	-0.08	10.52	11.28
292	0.805	-1.88	8.72	7.44	337	0.993	-0.06	10.54	11.33
293	0.811	-1.82	8.78	7.55	338	0.996	-0.04	10.56	11.38
294	0.816	-1.76	8.84	7.65	339	0.998	-0.02	10.58	11.43
295	0.822	-1.70	8.90	7.76	340	1.000	0.00	10.60	11.48
296	0.830	-1.62	8.98	7.91	341	1.000	0.00	10.60	11.48
297	0.838	-1.54	9.06	8.06	342	1.000	0.00	10.60	11.48
298	0.845	-1.46	9.14	8.21	343	1.000	0.00	10.60	11.48
299	0.853	-1.38	9.22	8.36	344	1.000	0.00	10.60	11.48
300	0.861	-1.30	9.30	8.51	345	1.000	0.00	10.60	11.48
301	0.867	-1.24	9.36	8.63	346	1.000	0.00	10.60	11.48
302	0.873	-1.18	9.42	8.75	347	1.000	0.00	10.60	11.48
303	0.879	-1.12	9.48	8.87	348	1.000	0.00	10.60	11.48
304	0.885	-1.06	9.54	8.99	349	1.000	0.00	10.60	11.48
305	0.891	-1.00	9.60	9.11	350	1.000	0.00	10.60	11.48
306	0.895	-0.96	9.64	9.20	351	1.000	0.00	10.60	11.48
307	0.899	-0.92	9.68	9.29	352	1.000	0.00	10.60	11.48
308	0.904	-0.88	9.72	9.37	353	1.000	0.00	10.60	11.48
309	0.908	-0.84	9.76	9.46	354	1.000	0.00	10.60	11.48
310	0.912	-0.80	9.80	9.55	355	1.000	0.00	10.60	11.48
311	0.916	-0.76	9.84	9.64	356	1.000	0.00	10.60	11.48
312	0.920	-0.72	9.88	9.73	357	1.000	0.00	10.60	11.48
313	0.925	-0.68	9.92	9.82	358	1.000	0.00	10.60	11.48
314	0.929	-0.64	9.96	9.90	359	1.000	0.00	10.60	11.48



SL-8 Paraslot

Ch-24

Maximum gain: 11.4 dBd

Horizontal polarization



KATHREIN
SCALA DIVISION

Post Office Box 4580
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Fax: (541) 779-3991
<http://www.kathrein-scala.com>



SL-8 Paraslot

Ch-24

Maximum gain: 11.4 dBd

Horizontal polarization

Vertical radiation pattern

1.75 degree electrical downtilt

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
-90	0.010	-40.00	-28.60	0.00	-45	0.087	-21.23	-9.83	0.10
-89	0.010	-40.00	-28.60	0.00	-44	0.106	-19.47	-8.07	0.16
-88	0.010	-39.82	-28.42	0.00	-43	0.130	-17.70	-6.30	0.23
-87	0.015	-36.49	-25.09	0.00	-42	0.155	-16.19	-4.79	0.33
-86	0.019	-34.29	-22.89	0.01	-41	0.176	-15.08	-3.68	0.43
-85	0.023	-32.75	-21.35	0.01	-40	0.190	-14.42	-3.02	0.50
-84	0.026	-31.71	-20.31	0.01	-39	0.194	-14.25	-2.85	0.52
-83	0.028	-31.07	-19.67	0.01	-38	0.186	-14.62	-3.22	0.48
-82	0.029	-30.81	-19.41	0.01	-37	0.167	-15.56	-4.16	0.38
-81	0.028	-30.98	-19.58	0.01	-36	0.139	-17.14	-5.74	0.27
-80	0.026	-31.65	-20.25	0.01	-35	0.108	-19.31	-7.91	0.16
-79	0.022	-33.04	-21.64	0.01	-34	0.084	-21.52	-10.12	0.10
-78	0.016	-35.66	-24.26	0.00	-33	0.077	-22.25	-10.85	0.08
-77	0.010	-40.00	-28.60	0.00	-32	0.086	-21.35	-9.95	0.10
-76	0.010	-40.00	-28.60	0.00	-31	0.095	-20.45	-9.05	0.12
-75	0.015	-36.63	-25.23	0.00	-30	0.095	-20.41	-9.01	0.13
-74	0.030	-30.49	-19.09	0.01	-29	0.084	-21.48	-10.08	0.10
-73	0.048	-26.46	-15.06	0.03	-28	0.066	-23.59	-12.19	0.06
-72	0.068	-23.41	-12.01	0.06	-27	0.057	-24.94	-13.54	0.04
-71	0.090	-20.94	-9.54	0.11	-26	0.072	-22.82	-11.42	0.07
-70	0.114	-18.88	-7.48	0.18	-25	0.100	-19.99	-8.59	0.14
-69	0.139	-17.12	-5.72	0.27	-24	0.122	-18.24	-6.84	0.21
-68	0.166	-15.62	-4.22	0.38	-23	0.130	-17.75	-6.35	0.23
-67	0.192	-14.33	-2.93	0.51	-22	0.117	-18.64	-7.24	0.19
-66	0.218	-13.24	-1.84	0.65	-21	0.084	-21.50	-10.10	0.10
-65	0.242	-12.34	-0.94	0.81	-20	0.035	-29.03	-17.63	0.02
-64	0.263	-11.60	-0.20	0.95	-19	0.023	-32.62	-21.22	0.01
-63	0.281	-11.04	0.36	1.09	-18	0.079	-22.07	-10.67	0.09
-62	0.293	-10.65	0.75	1.19	-17	0.121	-18.33	-6.93	0.20
-61	0.301	-10.44	0.96	1.25	-16	0.140	-17.09	-5.69	0.27
-60	0.301	-10.42	0.98	1.25	-15	0.127	-17.90	-6.50	0.22
-59	0.295	-10.59	0.81	1.21	-14	0.084	-21.56	-10.16	0.10
-58	0.282	-10.98	0.42	1.10	-13	0.044	-27.11	-15.71	0.03
-57	0.263	-11.60	-0.20	0.95	-12	0.119	-18.48	-7.08	0.20
-56	0.238	-12.47	-1.07	0.78	-11	0.225	-12.95	-1.55	0.70
-55	0.208	-13.63	-2.23	0.60	-10	0.323	-9.82	1.58	1.44
-54	0.176	-15.09	-3.69	0.43	-9	0.392	-8.14	3.26	2.12
-53	0.144	-16.86	-5.46	0.28	-8	0.414	-7.65	3.75	2.37
-52	0.114	-18.89	-7.49	0.18	-7	0.380	-8.41	2.99	1.99
-51	0.089	-20.97	-9.57	0.11	-6	0.285	-10.89	0.51	1.12
-50	0.074	-22.67	-11.27	0.07	-5	0.151	-16.41	-5.01	0.32
-49	0.066	-23.57	-12.17	0.06	-4	0.146	-16.73	-5.33	0.29
-48	0.065	-23.72	-12.32	0.06	-3	0.344	-9.27	2.13	1.63
-47	0.068	-23.40	-12.00	0.06	-2	0.565	-4.96	6.44	4.41
-46	0.074	-22.60	-11.20	0.08	-1	0.764	-2.34	9.06	8.05
					0	0.913	-0.79	10.61	11.51



SL-8 Paraslot

Ch-24

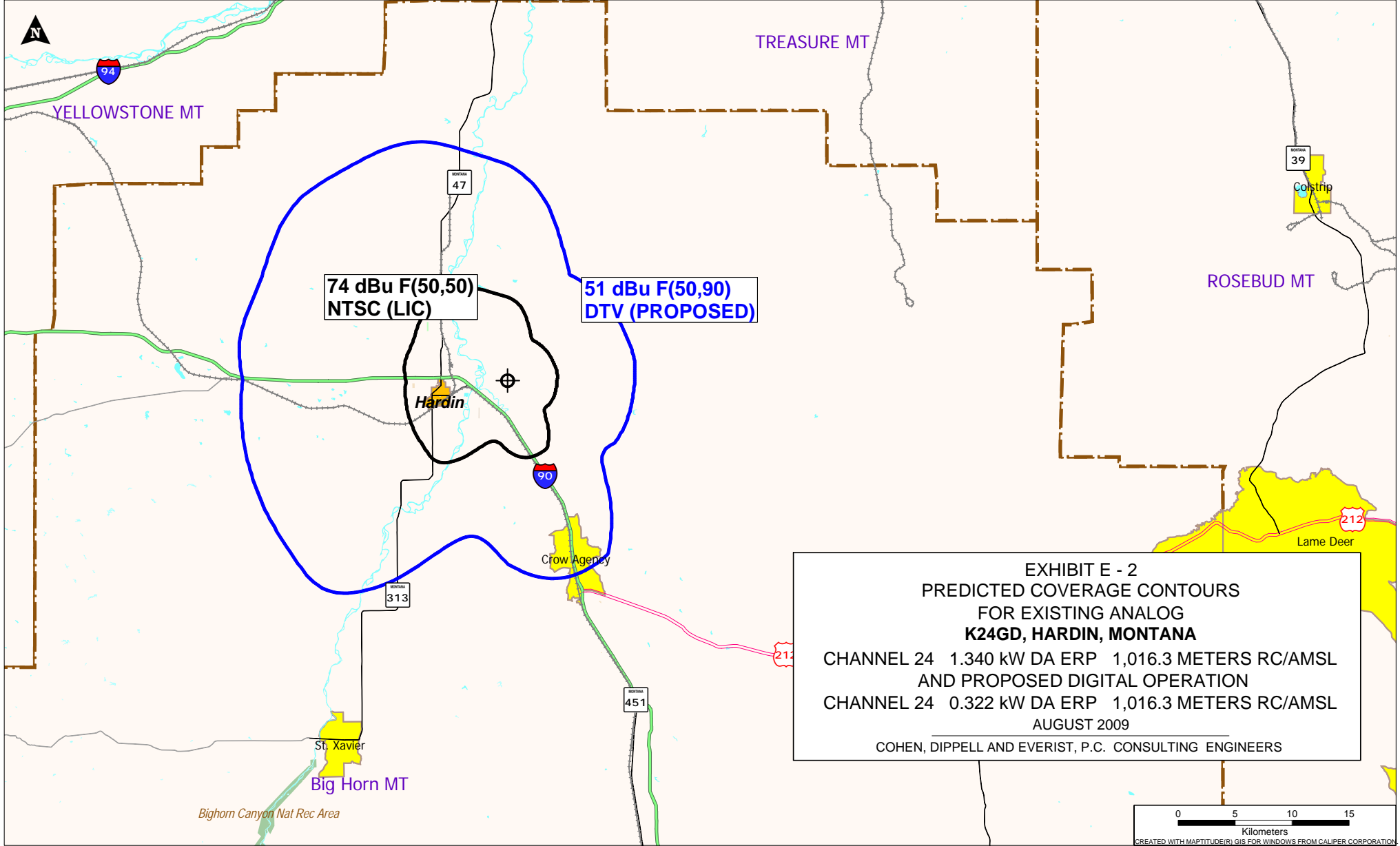
Maximum gain: 11.4 dBd

Horizontal polarization

Vertical radiation pattern

1.75 degree electrical downtilt

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	0.913	-0.79	10.61	11.51	45	0.108	-19.30	-7.90	0.16
1	0.995	-0.04	11.36	13.68	46	0.083	-21.58	-10.18	0.10
2	1.000	0.00	11.40	13.80	47	0.066	-23.63	-12.23	0.06
3	0.929	-0.64	10.76	11.91	48	0.063	-23.98	-12.58	0.06
4	0.793	-2.01	9.39	8.69	49	0.073	-22.77	-11.37	0.07
5	0.611	-4.28	7.12	5.15	50	0.084	-21.50	-10.10	0.10
6	0.407	-7.81	3.59	2.29	51	0.091	-20.81	-9.41	0.11
7	0.211	-13.51	-2.11	0.62	52	0.091	-20.82	-9.42	0.11
8	0.095	-20.48	-9.08	0.12	53	0.083	-21.58	-10.18	0.10
9	0.166	-15.59	-4.19	0.38	54	0.070	-23.16	-11.76	0.07
10	0.246	-12.18	-0.78	0.84	55	0.053	-25.52	-14.12	0.04
11	0.281	-11.04	0.36	1.09	56	0.044	-27.23	-15.83	0.03
12	0.269	-11.40	0.00	1.00	57	0.054	-25.36	-13.96	0.04
13	0.223	-13.04	-1.64	0.69	58	0.079	-22.01	-10.61	0.09
14	0.157	-16.10	-4.70	0.34	59	0.110	-19.19	-7.79	0.17
15	0.087	-21.19	-9.79	0.10	60	0.140	-17.07	-5.67	0.27
16	0.033	-29.58	-18.18	0.02	61	0.168	-15.47	-4.07	0.39
17	0.029	-30.84	-19.44	0.01	62	0.193	-14.29	-2.89	0.51
18	0.037	-28.69	-17.29	0.02	63	0.213	-13.43	-2.03	0.63
19	0.022	-33.04	-21.64	0.01	64	0.228	-12.83	-1.43	0.72
20	0.014	-37.29	-25.89	0.00	65	0.238	-12.46	-1.06	0.78
21	0.064	-23.94	-12.54	0.06	66	0.243	-12.28	-0.88	0.82
22	0.118	-18.58	-7.18	0.19	67	0.244	-12.27	-0.87	0.82
23	0.167	-15.55	-4.15	0.38	68	0.240	-12.41	-1.01	0.79
24	0.203	-13.85	-2.45	0.57	69	0.232	-12.68	-1.28	0.74
25	0.221	-13.12	-1.72	0.67	70	0.222	-13.08	-1.68	0.68
26	0.219	-13.20	-1.80	0.66	71	0.209	-13.59	-2.19	0.60
27	0.199	-14.04	-2.64	0.54	72	0.195	-14.20	-2.80	0.52
28	0.165	-15.63	-4.23	0.38	73	0.179	-14.92	-3.52	0.44
29	0.126	-17.96	-6.56	0.22	74	0.163	-15.73	-4.33	0.37
30	0.091	-20.78	-9.38	0.12	75	0.147	-16.63	-5.23	0.30
31	0.071	-22.97	-11.57	0.07	76	0.132	-17.61	-6.21	0.24
32	0.068	-23.29	-11.89	0.06	77	0.116	-18.68	-7.28	0.19
33	0.073	-22.74	-11.34	0.07	78	0.102	-19.83	-8.43	0.14
34	0.075	-22.46	-11.06	0.08	79	0.088	-21.07	-9.67	0.11
35	0.076	-22.42	-11.02	0.08	80	0.076	-22.39	-10.99	0.08
36	0.080	-21.89	-10.49	0.09	81	0.065	-23.80	-12.40	0.06
37	0.094	-20.50	-9.10	0.12	82	0.054	-25.32	-13.92	0.04
38	0.116	-18.74	-7.34	0.18	83	0.045	-26.96	-15.56	0.03
39	0.138	-17.22	-5.82	0.26	84	0.037	-28.75	-17.35	0.02
40	0.155	-16.17	-4.77	0.33	85	0.029	-30.74	-19.34	0.01
41	0.165	-15.67	-4.27	0.37	86	0.022	-33.03	-21.63	0.01
42	0.164	-15.72	-4.32	0.37	87	0.016	-35.83	-24.43	0.00
43	0.153	-16.32	-4.92	0.32	88	0.010	-39.58	-28.18	0.00
44	0.133	-17.51	-6.11	0.24	89	0.010	-40.00	-28.60	0.00
					90	0.010	-40.00	-28.60	0.00



COHEN, DIPPELL AND EVERIST, P.C.

TABLE I
INTERFERENCE ANALYSIS
FOR THE DIGITAL OPERATION OF
K24GD, HARDIN, MONTANA
CHANNEL 24 0.322 KW MAX ERP 1010.3 METERS AMSL
SEPTEMBER 2009

<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	0	LIC	BLTT-19950515IC	No interference
20	K20HB	BILLINGS MT	71.5	LIC	BLTT-20041123AKE	0.00%
23	K23HI	BILLINGS MT	78.2	LIC	BLTTL-20070809ABT	No interference
23	NEW	CLARK, ETC. WY	152.5	CP	BDCCDTT-20061020ADJ	0.00%
23	NEW	SHERIDAN WY	129	APP	BNPTTL-20000829AKD	No interference
24	KBTZ	BUTTE MT	380.7	CP	BPCDT-20080516AAC	No interference
24	KBTZ	BUTTE MT	380.7	LIC	BLCT-20030502ABB	0.00%
24	K24FL	COLUMBUS MT	134.5	LIC	BLTT-20040930ANI	No interference
24	K24FL	COLUMBUS MT	134.5	CP	BDFCDTT-20060331BOC	No interference
24	K24DD	PLEVNA MT	244.4	LIC	BLTTL-19930111IL	No interference
24	K24DA	BIG PINEY, ETC. WY	400.4	LIC	BLTT-19920825JD	0.00%
24	NEW	CASPER WY	339.1	CP	BNPTTL-20000830BBP	0.00%
24		SHERIDAN WY	135	APP	BNPTTL-20000828AGW	No interference
24	NEW	SHERIDAN WY	135	APP	BNPTTL-20000828BAH	No interference
24	NEW	SHERIDAN WY	118	APP	BNPTTL-20000817AFE	No interference
24	NEW	SOUTH FORK, ETC. WY	228.8	CP	BDCCDTT-20061023AGL	No interference
25	K25BP	BILLINGS MT	71.5	CP	BDFCDTT-20060403AKQ	No interference
25	K25BP	BILLINGS MT	71.5	LIC	BLTTL-19990723JD	No interference
26	K26GL	COLUMBUS MT	134.5	LIC	BLTT-20040929AFE	0.00%
26	K26BE	SHERIDAN WY	135.5	LIC	BLTTL-19910919JS	0.00%
27	K27IM	BILLINGS MT	71.5	LIC	BLTT-20060711ABH	0.00%
31	NEW	BILLINGS MT	71.5	APP	BNPTTL-20000829AJW	0.00%
31	NEW	BILLINGS MT	71.5	APP	BNPTTL-20000828AFG	0.00%
31	NEW	BILLINGS MT	75.3	APP	BNPTTL-20000828AXA	0.00%
31		SHERIDAN WY	135	APP	BNPTTL-20000828AEX	0.00%
31		SHERIDAN WY	132.9	APP	BNPTTL-20000802ADF	0.00%
31	NEW	SHERIDAN WY	135	APP	BNPTTL-20000828BAI	0.00%
31	NEW	SHERIDAN WY	129	APP	BNPTTL-20000830AKC	0.00%
32		BILLINGS MT	71.1	APP	BNPTTL-20000823ABU	0.00%
32	NEW	SHERIDAN WY	129	APP	BNPTTL-20000829AIF	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.

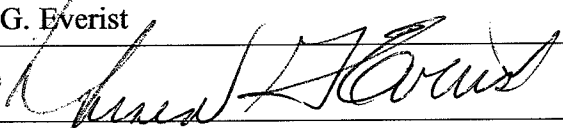
☐ Pursuant to Section 74.786(d), the applicant has notified, within 30 days of filing this application, all commercial wireless licensees of the spectrum comprising the proposed TV channel and the first adjacent channels thereto, for which the proposed digital LPTV or TV translator antenna site lies 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 September 30, 2009	
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	

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).