

## TECHNICAL EXHIBIT

### DIGITAL FLASH-CUT APPLICATION FOR LPTV STATION KWHS-LP (FACILITY ID 74501) COLORADO SPRINGS, COLORADO CH 51 15 KW (MAX-DA)

#### Technical Narrative

This technical exhibit supports a modification of Construction Permit BDFCDTL-20090626AAE, which specifies digital operation on Channel 51 from the licensed KWHS-LP site. In this proposal we seek to change the antenna, but with no significant change in directional pattern. The effective antenna height will decrease by 6.9 meters. No change to site location is proposed herein.

#### Proposed Facilities

It is proposed to utilize an ERI model ETU-4U6-HSP2C3-51 directional antenna mounted at the 42.06-meter level on an existing tower. The FCC Tower registration is 1257453.

Figure 1 is a map showing the licensed and authorized 74 dBu (analog) and proposed 51 dBu (digital) coverage contours. As can be seen on the map, the 51 dBu contour will encompass the 74 dBu contour of the licensed KWHS-LP facility.

#### Allocation Considerations

A study has been conducted to assure that the proposal will not create prohibited interference with other licensed, authorized or pending analog or digital TV, LPTV/translator and Class A TV stations. Using the procedures outlined in the FCC's OET-69 Bulletin, a 1 kilometer cell size resolution and 2000 U.S. Census, the proposal complies with the current FCC interference criteria.

The applicant recognizes the proposal is secondary to authorized full-service DTV operations. The applicant understands that it must correct and/or eliminate prohibited interference that may result from its proposed operation.

## Radiofrequency Electromagnetic Field Exposure

The proposed KWHS-LP facilities were evaluated in terms of potential radio frequency (RF) energy exposure at ground level to workers and the general public. The radiation center for the proposed DTV antenna is located 42.06 meters above the ground level. The proposed maximum ERP is 15 kW (horizontal polarization). A conservative vertical plane relative field value of 0.13 (for angles below 60 degrees downward) is assumed for the antenna's downward radiation. The calculated power density at a point 2 meters above ground level is  $0.005 \text{ mW/cm}^2$ . This is approximately 0.2% of the FCC's recommended limit of  $2.32 \text{ mW/cm}^2$  for channel 51 for a "controlled" environment. Thus, it is believed that the KWHS-LP facility complies with the FCC's RF emission rules.

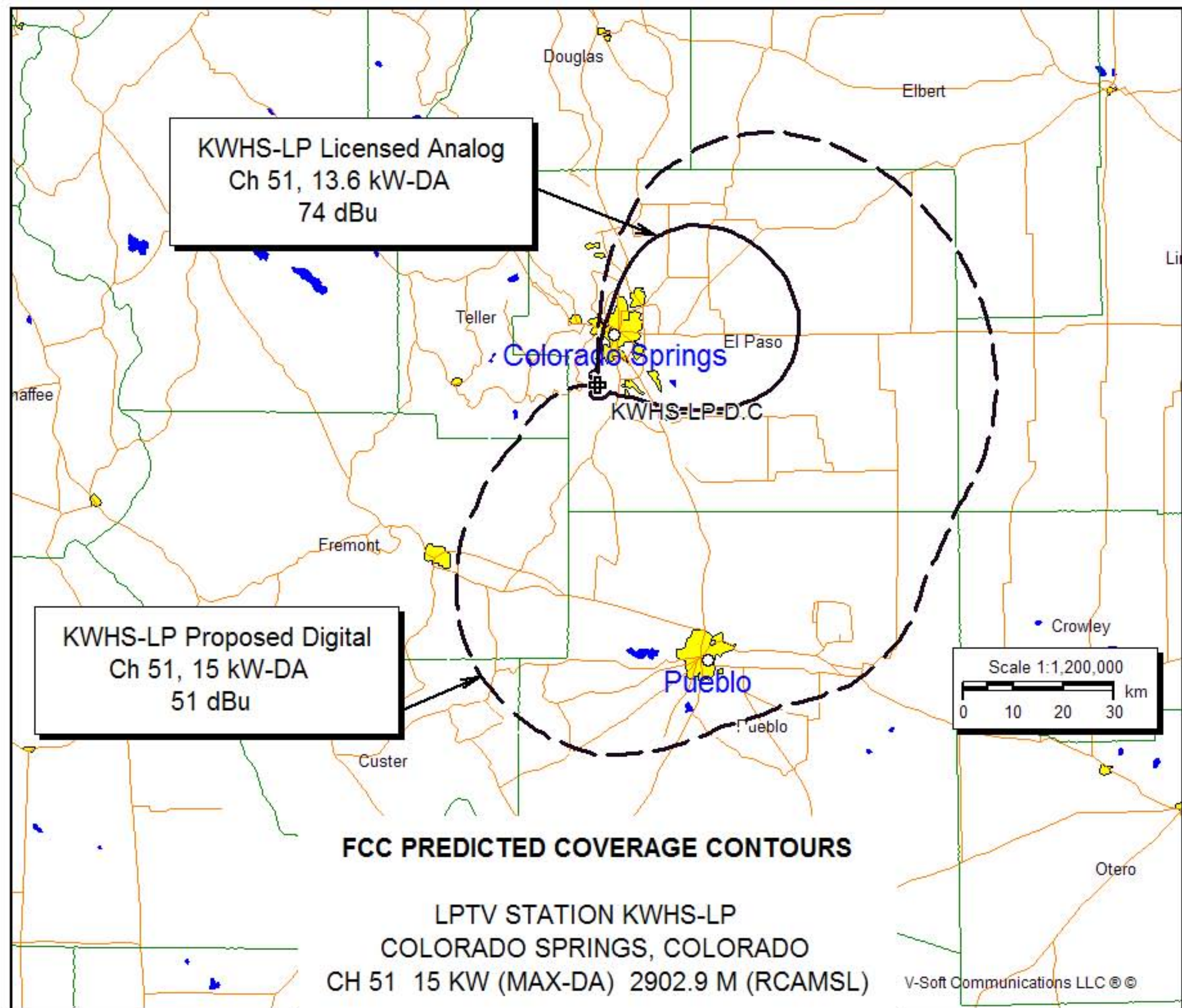
Access to tower site will be restricted and appropriately marked with RFR warning signs. Furthermore, in the event that workers or other authorized personnel enter the restricted area or climb the tower, to ensure that appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure.

Finally, it is noted that this technical exhibit only addresses the potential for radio frequency electromagnetic field exposure. All other aspects of the environmental processing analysis will be or already has been provided to the FCC by the tower owner as part of the tower registration process.

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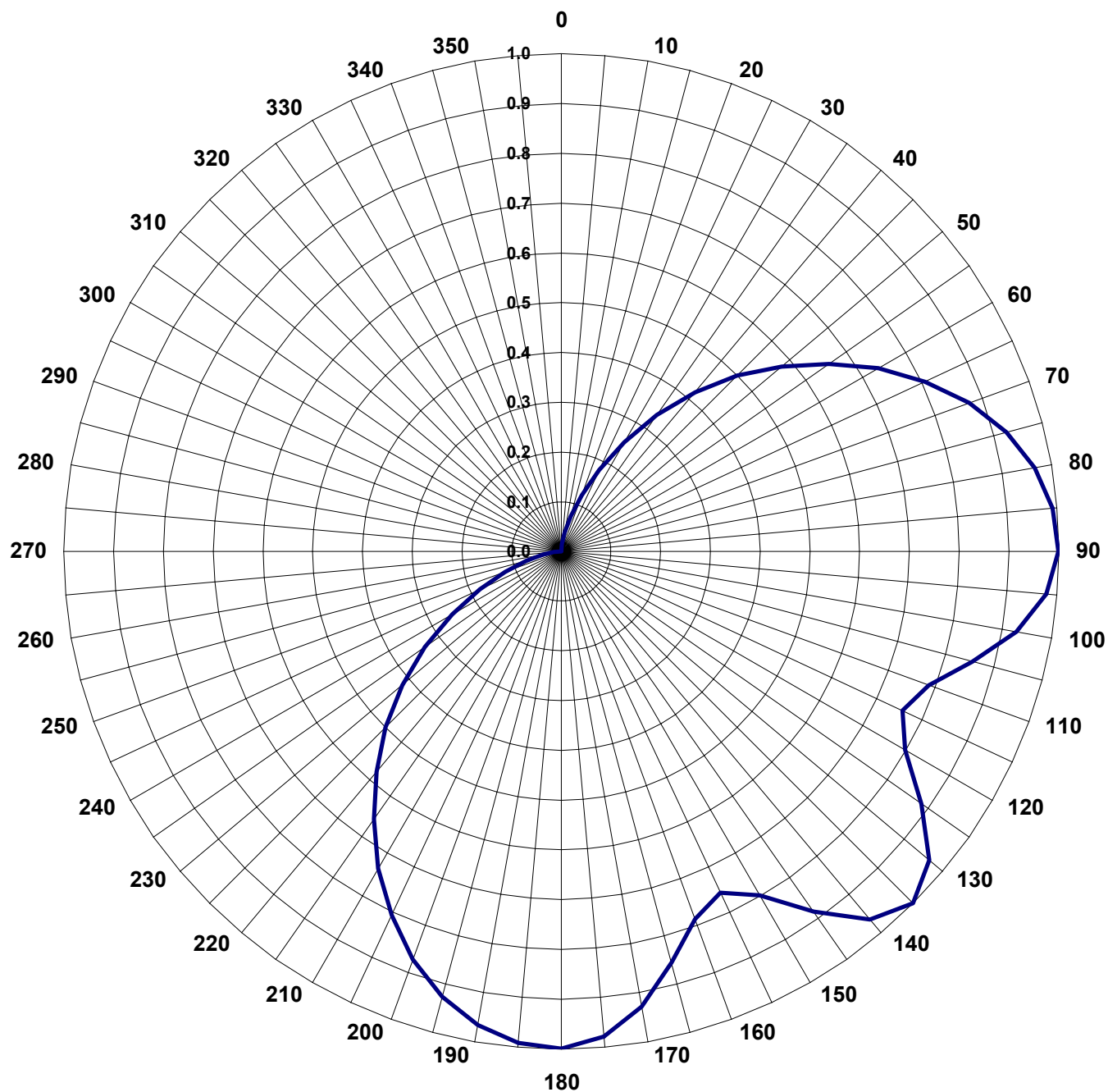
April 18, 2011



## AZIMUTH PATTERN

**TYPE:****CH51HAZ-C3****Frequency:****51 (DTV)****Numeric****dB****Location:****Colorado Springs, CO****Directivity:****2.62****4.18****Polarization:****Horizontal****Peak(s) at:**

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



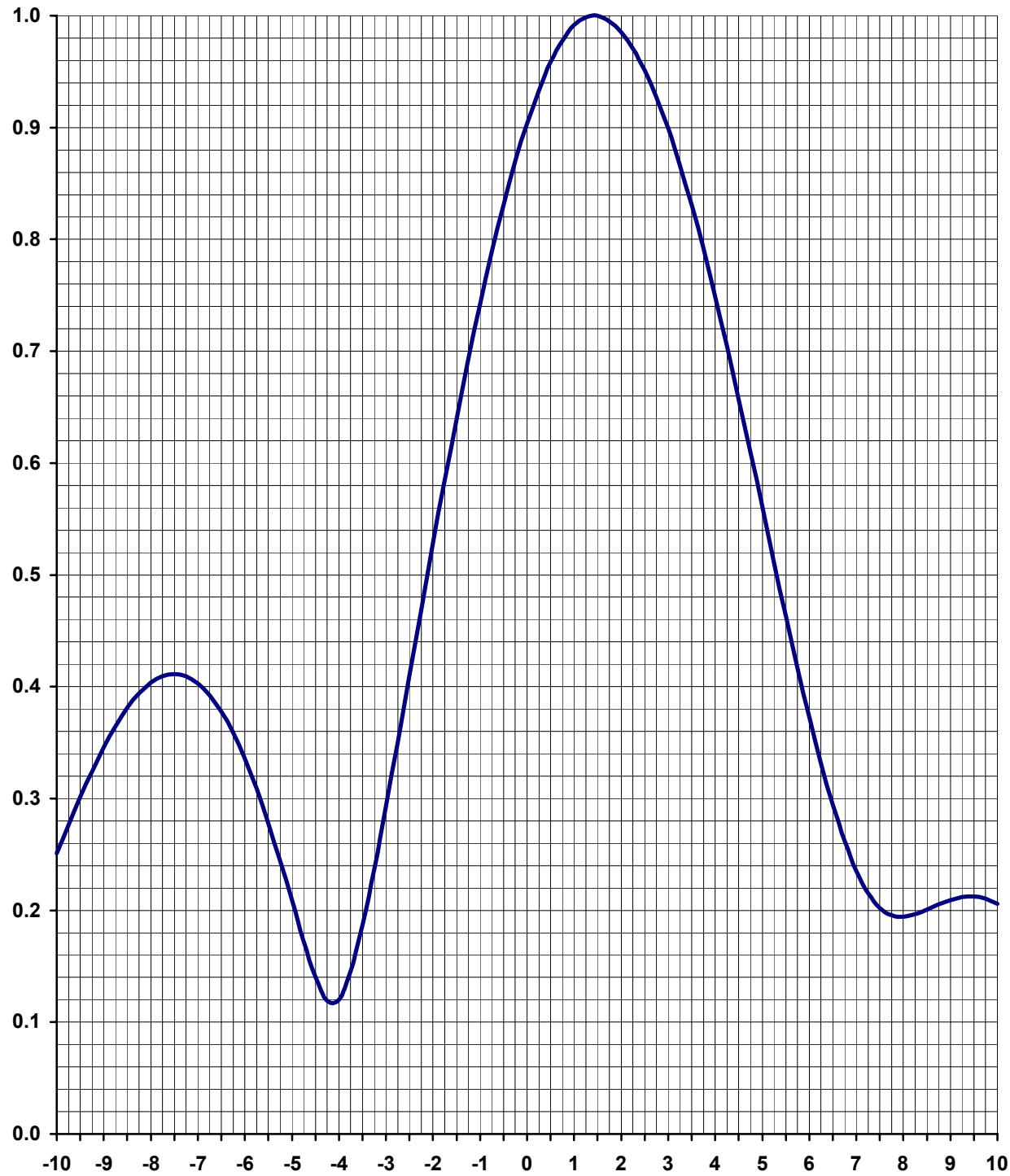


**TABULATED DATA FOR AZIMUTH PATTERN****TYPE: CH51HAZ-C3**

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
0	0.001	-60.00	92	0.995	-0.04	184	0.994	-0.05	276	0.000	---
2	0.005	-46.02	94	0.985	-0.13	186	0.987	-0.11	278	0.000	---
4	0.011	-39.17	96	0.971	-0.26	188	0.978	-0.19	280	0.000	---
6	0.019	-34.42	98	0.952	-0.43	190	0.966	-0.30	282	0.000	---
8	0.028	-31.06	100	0.928	-0.65	192	0.952	-0.43	284	0.000	---
10	0.038	-28.40	102	0.901	-0.91	194	0.935	-0.58	286	0.000	---
12	0.051	-25.85	104	0.871	-1.20	196	0.916	-0.76	288	0.000	---
14	0.065	-23.74	106	0.840	-1.51	198	0.895	-0.96	290	0.000	---
16	0.082	-21.72	108	0.811	-1.82	200	0.872	-1.19	292	0.000	---
18	0.100	-20.00	110	0.786	-2.09	202	0.847	-1.44	294	0.000	---
20	0.120	-18.42	112	0.767	-2.30	204	0.821	-1.71	296	0.000	---
22	0.143	-16.89	114	0.758	-2.41	206	0.793	-2.01	298	0.000	---
24	0.168	-15.49	116	0.760	-2.38	208	0.765	-2.33	300	0.000	---
26	0.194	-14.24	118	0.773	-2.24	210	0.735	-2.67	302	0.000	---
28	0.223	-13.03	120	0.797	-1.97	212	0.704	-3.05	304	0.000	---
30	0.253	-11.94	122	0.829	-1.63	214	0.673	-3.44	306	0.000	---
32	0.284	-10.93	124	0.865	-1.26	216	0.642	-3.85	308	0.000	---
34	0.317	-9.98	126	0.902	-0.90	218	0.610	-4.29	310	0.000	---
36	0.351	-9.09	128	0.937	-0.57	220	0.578	-4.76	312	0.000	---
38	0.385	-8.29	130	0.965	-0.31	222	0.547	-5.24	314	0.000	---
40	0.418	-7.58	132	0.986	-0.12	224	0.516	-5.75	316	0.000	---
42	0.452	-6.90	134	0.997	-0.03	226	0.484	-6.30	318	0.000	---
44	0.484	-6.30	136	0.997	-0.03	228	0.452	-6.90	320	0.000	---
46	0.516	-5.75	138	0.986	-0.12	230	0.418	-7.58	322	0.000	---
48	0.547	-5.24	140	0.965	-0.31	232	0.385	-8.29	324	0.000	---
50	0.578	-4.76	142	0.937	-0.57	234	0.351	-9.09	326	0.000	---
52	0.610	-4.29	144	0.902	-0.90	236	0.317	-9.98	328	0.000	---
54	0.642	-3.85	146	0.865	-1.26	238	0.284	-10.93	330	0.000	---
56	0.673	-3.44	148	0.829	-1.63	240	0.253	-11.94	332	0.000	---
58	0.704	-3.05	150	0.797	-1.97	242	0.223	-13.03	334	0.000	---
60	0.735	-2.67	152	0.773	-2.24	244	0.194	-14.24	336	0.000	---
62	0.765	-2.33	154	0.760	-2.38	246	0.168	-15.49	338	0.000	---
64	0.793	-2.01	156	0.758	-2.41	248	0.143	-16.89	340	0.000	---
66	0.821	-1.71	158	0.767	-2.30	250	0.120	-18.42	342	0.000	---
68	0.847	-1.44	160	0.786	-2.09	252	0.100	-20.00	344	0.000	---
70	0.872	-1.19	162	0.811	-1.82	254	0.082	-21.72	346	0.000	---
72	0.895	-0.96	164	0.840	-1.51	256	0.065	-23.74	348	0.000	---
74	0.916	-0.76	166	0.871	-1.20	258	0.051	-25.85	350	0.000	---
76	0.935	-0.58	168	0.901	-0.91	260	0.038	-28.40	352	0.000	---
78	0.952	-0.43	170	0.928	-0.65	262	0.028	-31.06	354	0.000	---
80	0.966	-0.30	172	0.952	-0.43	264	0.019	-34.42	356	0.000	---
82	0.978	-0.19	174	0.971	-0.26	266	0.011	-39.17	358	0.000	---
84	0.987	-0.11	176	0.985	-0.13	268	0.005	-46.02	360	0.000	---
86	0.994	-0.05	178	0.995	-0.04	270	0.001	-60.00			
88	0.998	-0.02	180	0.999	-0.01	272	0.000	---			
90	0.999	-0.01	182	0.998	-0.02	274	0.000	---			

ELEVATION PATTERN

TYPE:	ETU-4U6		Frequency:	51 (DTV)
Directivity:	Numeric	dBd	Location:	Colorado Springs, CO
Main Lobe:	10.40	10.17	Beam Tilt:	1.50
Horizontal:	8.49	9.29	Polarization:	Horizontal



**TABULATED DATA FOR ELEVATION PATTERN****ETU-4U6****-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
-10.00	0.251	-12.00	2.00	0.985	-0.13	18.00	0.216	-13.33	42.00	0.054	-25.38	66.00	0.088	-21.14
-9.75	0.277	-11.16	2.25	0.971	-0.26	18.50	0.186	-14.60	42.50	0.063	-23.97	66.50	0.083	-21.64
-9.50	0.301	-10.42	2.50	0.951	-0.43	19.00	0.152	-16.35	43.00	0.072	-22.84	67.00	0.078	-22.18
-9.25	0.324	-9.78	2.75	0.927	-0.65	19.50	0.116	-18.75	43.50	0.080	-21.96	67.50	0.073	-22.76
-9.00	0.346	-9.23	3.00	0.899	-0.92	20.00	0.079	-22.01	44.00	0.086	-21.31	68.00	0.068	-23.35
-8.75	0.365	-8.76	3.25	0.867	-1.24	20.50	0.051	-25.83	44.50	0.091	-20.86	68.50	0.063	-23.97
-8.50	0.381	-8.38	3.50	0.831	-1.61	21.00	0.048	-26.30	45.00	0.093	-20.60	69.00	0.059	-24.63
-8.25	0.394	-8.09	3.75	0.791	-2.03	21.50	0.071	-22.95	45.50	0.094	-20.52	69.50	0.054	-25.30
-8.00	0.404	-7.88	4.00	0.749	-2.51	22.00	0.100	-20.00	46.00	0.093	-20.61	70.00	0.050	-25.99
-7.75	0.409	-7.76	4.25	0.704	-3.05	22.50	0.127	-17.90	46.50	0.090	-20.89	70.50	0.046	-26.71
-7.50	0.411	-7.71	4.50	0.657	-3.64	23.00	0.151	-16.43	47.00	0.086	-21.35	71.00	0.043	-27.43
-7.25	0.409	-7.76	4.75	0.609	-4.31	23.50	0.169	-15.43	47.50	0.079	-22.00	71.50	0.039	-28.16
-7.00	0.403	-7.90	5.00	0.560	-5.03	24.00	0.182	-14.80	48.00	0.072	-22.89	72.00	0.036	-28.87
-6.75	0.393	-8.12	5.25	0.511	-5.83	24.50	0.189	-14.46	48.50	0.063	-24.05	72.50	0.033	-29.60
-6.50	0.378	-8.45	5.50	0.463	-6.69	25.00	0.192	-14.34	49.00	0.053	-25.53	73.00	0.031	-30.31
-6.25	0.359	-8.90	5.75	0.417	-7.60	25.50	0.190	-14.42	49.50	0.043	-27.41	73.50	0.028	-30.96
-6.00	0.336	-9.48	6.00	0.373	-8.58	26.00	0.185	-14.67	50.00	0.033	-29.74	74.00	0.026	-31.60
-5.75	0.309	-10.21	6.25	0.332	-9.59	26.50	0.176	-15.08	50.50	0.024	-32.25	74.50	0.025	-32.18
-5.50	0.278	-11.12	6.50	0.294	-10.62	27.00	0.166	-15.62	51.00	0.021	-33.39	75.00	0.023	-32.69
-5.25	0.244	-12.25	6.75	0.262	-11.64	27.50	0.153	-16.28	51.50	0.026	-31.84	75.50	0.022	-33.11
-5.00	0.209	-13.62	7.00	0.235	-12.57	28.00	0.141	-17.04	52.00	0.035	-29.24	76.00	0.021	-33.47
-4.75	0.172	-15.27	7.25	0.215	-13.35	28.50	0.128	-17.86	52.50	0.045	-26.94	76.50	0.021	-33.72
-4.50	0.140	-17.06	7.50	0.202	-13.89	29.00	0.116	-18.72	53.00	0.056	-25.05	77.00	0.020	-33.94
-4.25	0.119	-18.46	7.75	0.195	-14.18	29.50	0.104	-19.63	53.50	0.067	-23.54	77.50	0.020	-34.07
-4.00	0.120	-18.39	8.00	0.194	-14.24	30.00	0.093	-20.61	54.00	0.077	-22.32	78.00	0.020	-34.15
-3.75	0.146	-16.74	8.25	0.196	-14.14	30.50	0.082	-21.68	54.50	0.086	-21.30	78.50	0.020	-34.20
-3.50	0.187	-14.57	8.50	0.201	-13.95	31.00	0.072	-22.83	55.00	0.095	-20.46	79.00	0.020	-34.20
-3.25	0.238	-12.49	8.75	0.205	-13.75	31.50	0.062	-24.11	55.50	0.103	-19.79	79.50	0.020	-34.20
-3.00	0.293	-10.67	9.00	0.209	-13.59	32.00	0.053	-25.50	56.00	0.109	-19.24	80.00	0.020	-34.15
-2.75	0.351	-9.10	9.25	0.212	-13.49	32.50	0.045	-26.94	56.50	0.115	-18.79	80.50	0.020	-34.15
-2.50	0.410	-7.74	9.50	0.212	-13.47	33.00	0.039	-28.27	57.00	0.120	-18.43	81.00	0.020	-34.11
-2.25	0.469	-6.57	9.75	0.210	-13.54	33.50	0.035	-29.22	57.50	0.124	-18.17	81.50	0.020	-34.11
-2.00	0.528	-5.55	10.00	0.206	-13.73	34.00	0.034	-29.50	58.00	0.126	-17.97	82.00	0.020	-34.11
-1.75	0.585	-4.66	10.50	0.189	-14.46	34.50	0.035	-29.17	58.50	0.128	-17.83	82.50	0.020	-34.11
-1.50	0.640	-3.88	11.00	0.164	-15.72	35.00	0.038	-28.50	59.00	0.130	-17.74	83.00	0.020	-34.15
-1.25	0.693	-3.19	11.50	0.133	-17.54	35.50	0.041	-27.81	59.50	0.130	-17.71	83.50	0.020	-34.15
-1.00	0.742	-2.59	12.00	0.103	-19.76	36.00	0.043	-27.31	60.00	0.130	-17.73	84.00	0.020	-34.20
-0.75	0.789	-2.06	12.50	0.086	-21.35	36.50	0.044	-27.07	60.50	0.129	-17.80	84.50	0.019	-34.29
-0.50	0.831	-1.61	13.00	0.094	-20.51	37.00	0.044	-27.15	61.00	0.127	-17.92	85.00	0.019	-34.38
-0.25	0.870	-1.21	13.50	0.123	-18.17	37.50	0.042	-27.58	61.50	0.125	-18.07	85.50	0.019	-34.42
0.00	0.904	-0.88	14.00	0.159	-15.97	38.00	0.038	-28.34	62.00	0.122	-18.27	86.00	0.019	-34.56
0.25	0.934	-0.60	14.50	0.193	-14.28	38.50	0.034	-29.50	62.50	0.119	-18.50	86.50	0.018	-34.70
0.50	0.959	-0.37	15.00	0.222	-13.07	39.00	0.028	-30.93	63.00	0.115	-18.78	87.00	0.018	-34.85
0.75	0.978	-0.19	15.50	0.244	-12.27	39.50	0.024	-32.32	63.50	0.111	-19.09	87.50	0.018	-34.99
1.00	0.992	-0.07	16.00	0.256	-11.83	40.00	0.023	-32.65	64.00	0.107	-19.43	88.00	0.017	-35.19
1.25	0.998	-0.01	16.50	0.259	-11.72	40.50	0.027	-31.31	64.50	0.102	-19.80	88.50	0.017	-35.39
1.50	1.000	0.00	17.00	0.253	-11.93	41.00	0.035	-29.19	65.00	0.098	-20.22	89.00	0.017	-35.60
1.75	0.995	-0.04	17.50	0.238	-12.46	41.50	0.044	-27.13	65.50	0.093	-20.66	89.50	0.016	-35.86
												90.00	0.016	-36.14