

ENGINEERING EXHIBIT

Incentive Auction Channel Reassignment

Application for Modification of Digital Television Station Construction Permit

prepared for

KRCA License LLC
KETD(DT) Castle Rock, CO
Facility ID 37101
Ch. 15 200 kW 315 m

KRCA License LLC (“*KRCA*”) is the licensee of digital television station KETD(DT), Channel 45, Facility ID 37101, Castle Rock, CO. Reassignment of KETD from Channel 45 to Channel 15 was specified in the *Incentive Auction Closing and Channel Reassignment Public Notice* (“*CCRPN*”, DA 17-317, released April 13, 2017). *KRCA* herein proposes modification of the KETD post-auction Channel 15 Construction Permit (“CP” file# 0000028552). This application is intended to be filed during the second filing window.¹ The CP authorizes operation at 56 kW effective radiated power (“ERP”) with a directional antenna at 315 meters height above average terrain. *KRCA* proposes herein to increase the ERP to 200 kW and change the directional antenna pattern.

As with the current authorization, the proposed Channel 15 operation will employ a new antenna system to be side-mounted on the same supporting pole in lieu of the existing Channel 45 antenna at Mount Morrison, a mountaintop transmitting location. The overall height is 11.6 meters AGL. The structure does not have or require an Antenna Structure Registration Number, since its overall height is less than 60 meters and (according to the FCC’s “TOWAIR”) there are no known landing areas within 8 km of the site.

The proposed antenna is an elliptically polarized directional Dielectric model TFU-12DSB-M (43 percent vertical polarization). The maximum horizontally polarized ERP is

¹Public Notice “*Incentive Auction Task Force and Media Bureau Announce the Opening of the Second Filing Window for Eligible Full Power and Class A Television Station—October 3 Through November 2, 2017*” DA 17-911, released September 20, 2017.

200 kW and the maximum vertically polarized ERP is 86 kW. The vertically polarized component will not exceed the horizontally polarized component at any azimuth. The directional antenna's azimuthal patterns are depicted in Figures 1 and 1A for horizontal and vertical polarization, respectively. The antenna's elevation pattern is depicted in Figure 2.

Figure 3 supplies a map that demonstrates compliance with §73.625(a)(1) regarding coverage of the entire principal community. The proposed facility's predicted population exceeds 95 percent of the *CCRPN* baseline facility's population.

Interference study per FCC OET Bulletin 69² shows that the proposal complies with the 0.5 percent limit of new interference caused to pertinent nearby post-auction full service and Class A television stations as required by §73.616. **FCC processing of this proposal is requested using a 1 km cell size.** The interference study output report is provided as Table 1. Expansion and channel change applications filed during the priority (first) filing window are also protected.

The interference analysis results include 0.52 percent interference caused to the *CCRPN* baseline facility for KCEC (Ch. 14, Denver CO), which does not present a conflict for the proposal. KCEC has filed to change to Channel 28 in the first (priority) window (file# 0000029913) which is not affected by the KETD expansion proposal for Channel 15. Pursuant to post-auction application procedures,^{3,4} protection of a baseline facility is not required for stations such as KCEC which have filed an application for CP for their post-auction facility.

²FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 ("OET-69"). This analysis employed the FCC's current "TVStudy" software with the default application processing template settings, 1 km cell size, and 1 km terrain increment. Comparisons of various results of this computer program (run on a Mac processor) to the FCC's implementation of TVStudy show excellent correlation.

³Second filing window Public Notice, DA 17-911, at para. 3 "Applicants in the second filing window must protect the facilities proposed in the first priority filing window, whether those stations' applications have been granted or remain pending. Applicants in the second window must also protect the construction permit facilities of reassigned stations and band changing stations filed in the initial 90-day filing window, whether those stations' applications have been granted or remain pending."

⁴*Incentive Auction Task Force and Media Bureau Announce Procedures for the Post-Incentive Auction Broadcast Transition*, Public Notice, DA 17-106, released January 27, 2017, at para. 35 "All of the applications and amendments filed during the second window must protect the facilities proposed in the first priority window, and

The proposed site is located 49.6 km from the Table Mountain Radio Receiving Zone in Boulder County, Colorado. The proposal's F(50,10) signal level at Table Mountain will be less than the threshold 30 mV/m cited in §73.1030(b), based on the FCC propagation curves (see Figure 4).

The nearest FCC monitoring station is 594 km distant at Grand Island, NE. This exceeds by a large margin the threshold minimum distance specified in §73.1030(c)(3) that would suggest consideration of the monitoring station. There are no authorized AM stations within 3 kilometers of the site. The site location is beyond the border areas requiring international coordination.

Human Exposure to Radiofrequency Electromagnetic Field (Environmental)

The proposed transmitting location is along the Mount Morrison mountain ridge at a developed communications site area containing numerous other transmitting facilities. According to the applicant, access to the Mount Morrison communications facilities is restricted and the site is considered to be a “controlled” area. Access to the site is restricted with warning signs near the site and at the locked gate 2 miles distant at the entrance of the only access road. Further, steep terrain serves to discourage and restrict casual access.

KRCA participates in a radiofrequency (“RF”) electromagnetic field exposure safety program along with other broadcasters and FCC licensees that utilize the Mount Morrison antenna site area. Following construction, *KRCA* shall conduct RF exposure measurements to evaluate the level of RF exposure resulting from the KETD facility. As necessary, based on these results and considering all emitters, appropriate exposure abatement procedures will be established and followed in order to comply with the FCC’s exposure limits. Such abatement procedures may involve the restriction of access to certain areas and/or facility modifications to reduce RF levels. The applicant will coordinate exposure procedures with all pertinent stations

will be entitled to interference protection from subsequently-filed amendments and modification applications filed after the close of the second window. Applicants in the second window must also protect the construction permit facilities of reassigned stations and band changing stations filed in the initial 90-day window if those stations’ applications have been granted or remain pending. Otherwise, applicants in the second window must protect the facilities specified in the Channel and Reassignment Public Notice.”

and will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from RF electromagnetic field exposure in excess of FCC guidelines.

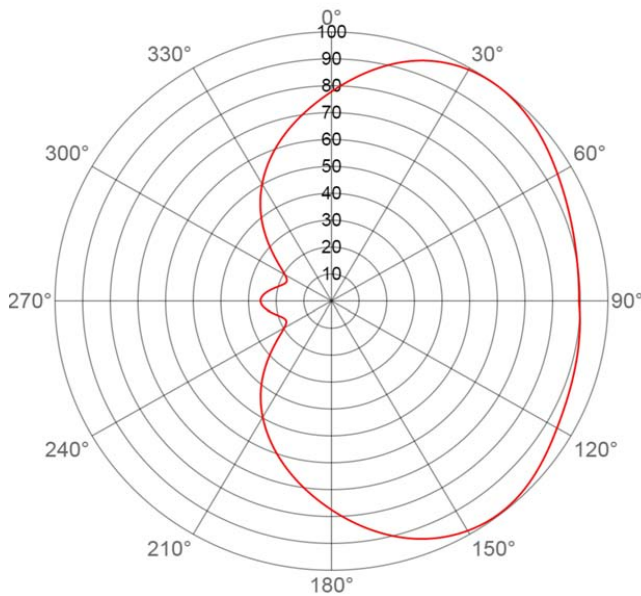
The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. This exhibit is limited to the evaluation of exposure to RF electromagnetic field.

List of Attachments

Figure 1, 1A	Antenna Azimuthal Pattern
Figure 2	Antenna Elevation Pattern
Figure 3	Proposed Coverage Contours
Figure 4	Contour to Table Mountain RRZ
Table 1	OET Bulletin 69 Interference Study
Form 2100	Saved Version of Engineering Sections from FCC Form at Time of Upload

Chesapeake RF Consultants, LLC

Joseph M. Davis, P.E.	October 26, 2017	
207 Old Dominion Road	Yorktown, VA 23692	703-650-9600



Horizontal Polarization AZIMUTH PATTERN

Exhibit No.

Date **11 Oct 2017**

Call Letters **KETD**

Channel **15**

Antenna Type **TFU-12DSB-M**

Location **Denver CO**

Customer **Liberman**

Gain **1.9 (2.79 dB)**

Calculated

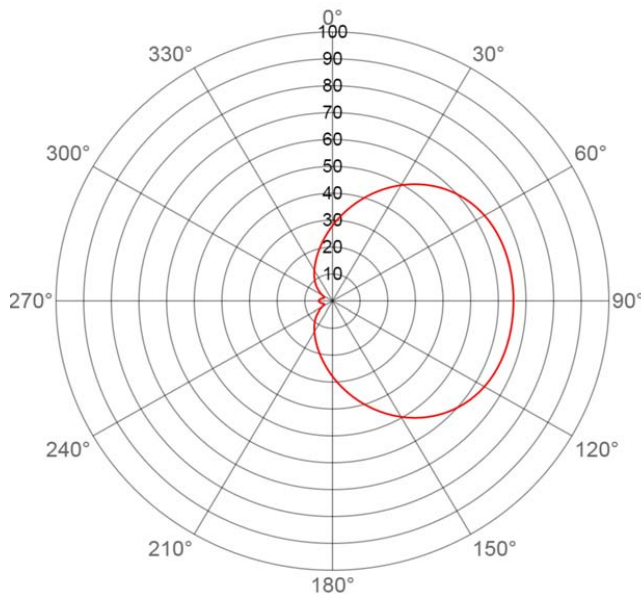
Drawing # **DSB-M**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.778	36	1.000	72	0.914	108	0.918	144	0.996	180	0.775	216	0.436	252	0.190	288	0.190	324	0.438
1	0.788	37	1.000	73	0.912	109	0.920	145	0.995	181	0.766	217	0.425	253	0.194	289	0.186	325	0.449
2	0.797	38	1.000	74	0.910	110	0.921	146	0.993	182	0.757	218	0.414	254	0.198	290	0.183	326	0.460
3	0.807	39	0.999	75	0.908	111	0.923	147	0.992	183	0.748	219	0.403	255	0.202	291	0.181	327	0.470
4	0.816	40	0.998	76	0.907	112	0.925	148	0.990	184	0.739	220	0.392	256	0.207	292	0.179	328	0.481
5	0.826	41	0.997	77	0.905	113	0.926	149	0.988	185	0.730	221	0.381	257	0.211	293	0.178	329	0.491
6	0.835	42	0.996	78	0.904	114	0.928	150	0.985	186	0.720	222	0.370	258	0.216	294	0.178	330	0.502
7	0.845	43	0.994	79	0.903	115	0.930	151	0.982	187	0.711	223	0.358	259	0.221	295	0.178	331	0.512
8	0.854	44	0.992	80	0.901	116	0.932	152	0.979	188	0.702	224	0.347	260	0.226	296	0.180	332	0.522
9	0.863	45	0.990	81	0.900	117	0.935	153	0.975	189	0.693	225	0.335	261	0.231	297	0.182	333	0.532
10	0.873	46	0.987	82	0.899	118	0.937	154	0.971	190	0.684	226	0.324	262	0.235	298	0.185	334	0.542
11	0.882	47	0.985	83	0.899	119	0.940	155	0.967	191	0.675	227	0.313	263	0.240	299	0.189	335	0.552
12	0.890	48	0.982	84	0.898	120	0.942	156	0.962	192	0.666	228	0.302	264	0.244	300	0.194	336	0.561
13	0.899	49	0.979	85	0.897	121	0.945	157	0.957	193	0.657	229	0.291	265	0.247	301	0.200	337	0.571
14	0.907	50	0.976	86	0.897	122	0.948	158	0.952	194	0.648	230	0.280	266	0.250	302	0.206	338	0.580
15	0.916	51	0.973	87	0.896	123	0.951	159	0.946	195	0.639	231	0.270	267	0.253	303	0.214	339	0.590
16	0.923	52	0.970	88	0.896	124	0.954	160	0.940	196	0.630	232	0.260	268	0.255	304	0.221	340	0.599
17	0.931	53	0.967	89	0.896	125	0.958	161	0.934	197	0.620	233	0.250	269	0.256	305	0.229	341	0.608
18	0.938	54	0.964	90	0.895	126	0.961	162	0.927	198	0.611	234	0.241	270	0.257	306	0.238	342	0.617
19	0.945	55	0.960	91	0.897	127	0.964	163	0.920	199	0.602	235	0.232	271	0.256	307	0.248	343	0.626
20	0.951	56	0.957	92	0.898	128	0.967	164	0.913	200	0.593	236	0.224	272	0.255	308	0.257	344	0.635
21	0.957	57	0.954	93	0.900	129	0.971	165	0.906	201	0.583	237	0.216	273	0.253	309	0.267	345	0.644
22	0.963	58	0.951	94	0.901	130	0.974	166	0.898	202	0.574	238	0.209	274	0.251	310	0.278	346	0.653
23	0.968	59	0.947	95	0.902	131	0.977	167	0.890	203	0.565	239	0.203	275	0.248	311	0.289	347	0.662
24	0.972	60	0.944	96	0.904	132	0.980	168	0.882	204	0.555	240	0.197	276	0.245	312	0.300	348	0.671
25	0.977	61	0.941	97	0.905	133	0.983	169	0.874	205	0.546	241	0.192	277	0.241	313	0.311	349	0.680
26	0.981	62	0.938	98	0.906	134	0.985	170	0.865	206	0.536	242	0.188	278	0.236	314	0.322	350	0.688
27	0.984	63	0.935	99	0.907	135	0.988	171	0.857	207	0.527	243	0.184	279	0.232	315	0.334	351	0.697
28	0.987	64	0.933	100	0.908	136	0.990	172	0.848	208	0.517	244	0.182	280	0.227	316	0.346	352	0.706
29	0.990	65	0.930	101	0.910	137	0.992	173	0.839	209	0.507	245	0.180	281	0.222	317	0.357	353	0.715
30	0.993	66	0.927	102	0.911	138	0.993	174	0.830	210	0.497	246	0.179	282	0.217	318	0.369	354	0.724
31	0.995	67	0.925	103	0.912	139	0.994	175	0.821	211	0.487	247	0.179	283	0.212	319	0.381	355	0.733
32	0.996	68	0.922	104	0.913	140	0.995	176	0.812	212	0.477	248	0.180	284	0.207	320	0.393	356	0.742
33	0.998	69	0.920	105	0.914	141	0.996	177	0.803	213	0.467	249	0.182	285	0.202	321	0.404	357	0.751
34	0.999	70	0.918	106	0.916	142	0.996	178	0.794	214	0.457	250	0.184	286	0.198	322	0.415	358	0.760
35	1.000	71	0.916	107	0.917	143	0.996	179	0.784	215	0.446	251	0.187	287	0.194	323	0.427	359	0.769

Figure 1
Antenna Azimuthal Pattern
Horizontal Polarization
KETD(DT) Castle Rock, CO
Facility ID 37101
Ch. 15 200 kW 315 m

prepared for
KRCA License LLC

October, 2017



Vertical Polarization AZIMUTH PATTERN

Exhibit No.
Date **11 Oct 2017**
Call Letters **KETD**
Channel **15**
Antenna Type **TFU-12DSB-M**
Location **Denver CO**
Customer **Liberman**

Gain **1.9 (2.79 dB)**
Calculated
Drawing # **DSB-M**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.279	36	0.536	72	0.651	108	0.650	144	0.535	180	0.279	216	0.111	252	0.034	288	0.034	324	0.111
1	0.286	37	0.542	73	0.651	109	0.650	145	0.529	181	0.272	217	0.108	253	0.035	289	0.033	325	0.115
2	0.293	38	0.548	74	0.652	110	0.649	146	0.522	182	0.266	218	0.105	254	0.036	290	0.033	326	0.118
3	0.300	39	0.553	75	0.652	111	0.648	147	0.516	183	0.259	219	0.102	255	0.037	291	0.032	327	0.121
4	0.307	40	0.559	76	0.653	112	0.647	148	0.509	184	0.253	220	0.099	256	0.038	292	0.032	328	0.124
5	0.314	41	0.564	77	0.653	113	0.646	149	0.503	185	0.247	221	0.096	257	0.039	293	0.033	329	0.127
6	0.321	42	0.570	78	0.653	114	0.644	150	0.496	186	0.241	222	0.093	258	0.041	294	0.033	330	0.131
7	0.328	43	0.575	79	0.654	115	0.643	151	0.489	187	0.235	223	0.090	259	0.042	295	0.034	331	0.134
8	0.335	44	0.580	80	0.654	116	0.642	152	0.482	188	0.229	224	0.087	260	0.043	296	0.035	332	0.138
9	0.343	45	0.584	81	0.654	117	0.640	153	0.475	189	0.223	225	0.084	261	0.044	297	0.037	333	0.141
10	0.350	46	0.589	82	0.654	118	0.638	154	0.468	190	0.218	226	0.081	262	0.045	298	0.039	334	0.145
11	0.357	47	0.593	83	0.654	119	0.636	155	0.461	191	0.212	227	0.078	263	0.046	299	0.041	335	0.149
12	0.365	48	0.598	84	0.654	120	0.634	156	0.454	192	0.207	228	0.076	264	0.047	300	0.043	336	0.153
13	0.372	49	0.602	85	0.655	121	0.632	157	0.446	193	0.202	229	0.073	265	0.048	301	0.045	337	0.156
14	0.380	50	0.606	86	0.655	122	0.630	158	0.439	194	0.197	230	0.070	266	0.048	302	0.048	338	0.161
15	0.387	51	0.609	87	0.655	123	0.627	159	0.431	195	0.192	231	0.067	267	0.049	303	0.050	339	0.165
16	0.395	52	0.613	88	0.655	124	0.625	160	0.424	196	0.187	232	0.064	268	0.049	304	0.053	340	0.169
17	0.402	53	0.616	89	0.655	125	0.622	161	0.416	197	0.182	233	0.061	269	0.050	305	0.056	341	0.173
18	0.410	54	0.619	90	0.655	126	0.619	162	0.409	198	0.177	234	0.058	270	0.050	306	0.058	342	0.178
19	0.417	55	0.622	91	0.655	127	0.616	163	0.401	199	0.173	235	0.055	271	0.050	307	0.061	343	0.182
20	0.425	56	0.625	92	0.655	128	0.612	164	0.394	200	0.169	236	0.053	272	0.049	308	0.064	344	0.187
21	0.432	57	0.628	93	0.655	129	0.609	165	0.386	201	0.164	237	0.050	273	0.049	309	0.067	345	0.192
22	0.440	58	0.630	94	0.654	130	0.605	166	0.379	202	0.160	238	0.047	274	0.049	310	0.070	346	0.197
23	0.447	59	0.633	95	0.654	131	0.601	167	0.372	203	0.156	239	0.045	275	0.048	311	0.073	347	0.202
24	0.454	60	0.635	96	0.654	132	0.597	168	0.364	204	0.152	240	0.043	276	0.047	312	0.076	348	0.207
25	0.462	61	0.637	97	0.654	133	0.593	169	0.357	205	0.148	241	0.040	277	0.046	313	0.079	349	0.213
26	0.469	62	0.639	98	0.654	134	0.588	170	0.349	206	0.145	242	0.039	278	0.045	314	0.082	350	0.218
27	0.476	63	0.641	99	0.654	135	0.584	171	0.342	207	0.141	243	0.037	279	0.044	315	0.085	351	0.224
28	0.483	64	0.642	100	0.654	136	0.579	172	0.335	208	0.137	244	0.035	280	0.043	316	0.087	352	0.230
29	0.490	65	0.644	101	0.653	137	0.574	173	0.327	209	0.134	245	0.034	281	0.042	317	0.090	353	0.235
30	0.497	66	0.645	102	0.653	138	0.569	174	0.320	210	0.131	246	0.033	282	0.041	318	0.093	354	0.241
31	0.504	67	0.646	103	0.653	139	0.564	175	0.313	211	0.127	247	0.032	283	0.039	319	0.096	355	0.247
32	0.510	68	0.647	104	0.652	140	0.558	176	0.306	212	0.124	248	0.032	284	0.038	320	0.099	356	0.254
33	0.517	69	0.648	105	0.652	141	0.553	177	0.299	213	0.121	249	0.032	285	0.037	321	0.102	357	0.260
34	0.523	70	0.649	106	0.651	142	0.547	178	0.292	214	0.117	250	0.032	286	0.036	322	0.105	358	0.266
35	0.530	71	0.650	107	0.651	143	0.541	179	0.286	215	0.114	251	0.033	287	0.035	323	0.108	359	0.273

Figure 1A
Antenna Azimuthal Pattern
Vertical Polarization
KETD(DT) Castle Rock, CO
Facility ID 37101
Ch. 15 200 kW 315 m

prepared for
KRCA License LLC

October, 2017

ELEVATION PATTERN

Exhibit No.

Date **11 Oct 2017**

Call Letters **KETD**

Channel **15**

Antenna Type **TFU-12DSB-M**

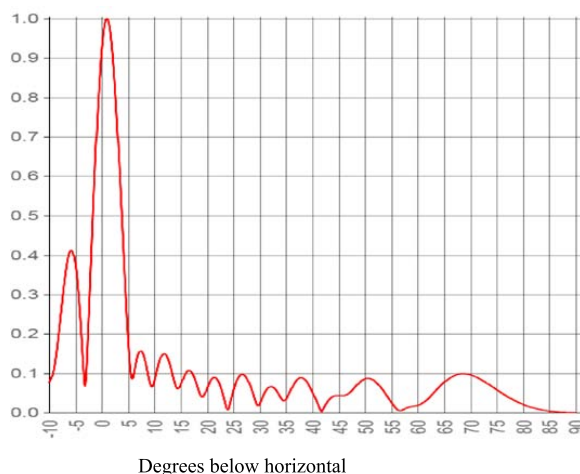
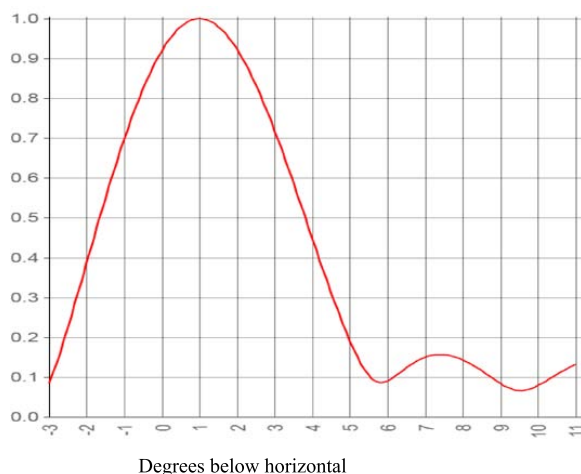
Location **Denver CO**

Customer **Liberman**

RMS Gain at Main Lobe **12.0 (10.79 dB)**

RMS Gain at Horizontal **10.1 (10.06 dB)**
Calculated

Beam Tilt **1 Degrees**

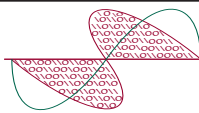
Drawing # **12B120100**


Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10	0.076	10	0.079	30	0.022	50	0.086	70	0.096
-9	0.117	11	0.132	31	0.051	51	0.086	71	0.091
-8	0.221	12	0.149	32	0.066	52	0.078	72	0.084
-7	0.339	13	0.120	33	0.059	53	0.064	73	0.076
-6	0.409	14	0.071	34	0.038	54	0.045	74	0.067
-5	0.379	15	0.070	35	0.034	55	0.026	75	0.058
-4	0.227	16	0.101	36	0.060	56	0.010	76	0.049
-3	0.084	17	0.104	37	0.082	57	0.006	77	0.041
-2	0.385	18	0.074	38	0.089	58	0.013	78	0.034
-1	0.696	19	0.041	39	0.078	59	0.016	79	0.027
0	0.919	20	0.062	40	0.053	60	0.018	80	0.021
1	1.000	21	0.087	41	0.023	61	0.025	81	0.016
2	0.923	22	0.083	42	0.008	62	0.036	82	0.012
3	0.718	23	0.049	43	0.030	63	0.050	83	0.009
4	0.447	24	0.008	44	0.041	64	0.064	84	0.006
5	0.192	25	0.056	45	0.043	65	0.077	85	0.004
6	0.090	26	0.090	46	0.043	66	0.087	86	0.002
7	0.150	27	0.096	47	0.050	67	0.094	87	0.001
8	0.143	28	0.075	48	0.063	68	0.098	88	0.001
9	0.084	29	0.037	49	0.077	69	0.099	89	0.000

Figure 2
Antenna Elevation Pattern
KETD(DT) Castle Rock, CO
Facility ID 37101
Ch. 15 200 kW 315 m

prepared for
KRCA License LLC

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Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

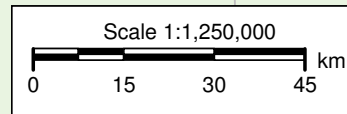
Figure 3
Proposed Coverage Contours
KETD(DT) Castle Rock, CO
Facility ID 37101
Ch. 15 200 kW 315 m

prepared for
KRCA License LLC

October, 2017

Proposed KETD
48 dBμ
(Principal Community)
41 dBμ
(Noise Limited Service Contour)

Proposed Digital Coverage	Area (sq. km)	Population (2010 Census)
Within Noise Limited Service Contour	20,645.0	3,509,872
OET Bulletin 69: TVStudy		
Within noise limited contour	22,750.7	3,552,202
Not affected by terrain losses	21,612.9	3,485,447
Lost to all interference	72.1	1,979
Net Interference-Free Service	21,540.8	3,483,468





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Digital Television and Radio

Figure 4
Contour to Table Mountain RRZ
KETD(DT) Castle Rock, CO
Facility ID 37101
Ch. 15 200 kW 315 m

prepared for
KRCA License LLC

October, 2017

Table Mountain Radio Receiving Zone
Site Corners per §73.1010(b)

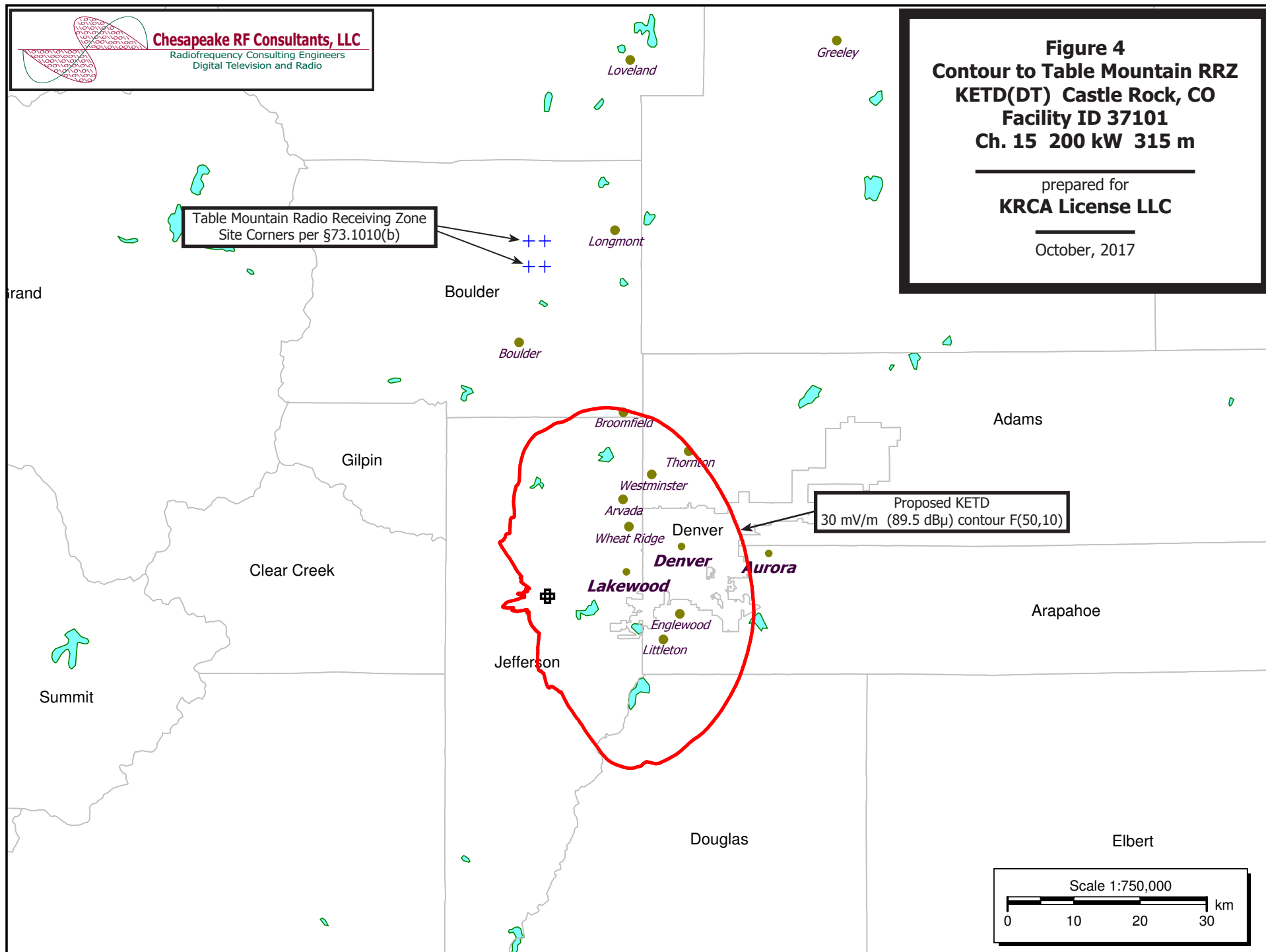
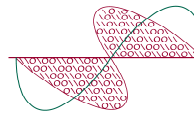


Table 1 KETD(DT) OET Bulletin 69 Interference Study
(page 1 of 2)



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tvstudy v2.2.3 (6K70F1)
Database: localhost, Study: KETD 200kW DSB-M, Model: Longley-Rice
Start: 2017.10.26 19:42:56

Study created: 2017.10.26 19:42:44

Study build station data: LMS TV 2017-10-07 LMSTV

Proposal: KETD D15 DT APP CASTLE ROCK, CO
File number: KETD 200kW DSB-M
Facility ID: 37101
Station data: User record
Record ID: 1424
Country: U.S.

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
Yes	KCEC	D14	DT	BL	DENVER, CO	DTVBL24514	7.0 km
No	KREZ-TV	D15	DT	LIC	DURANGO, CO	BLCDT20030324ADD	355.1
No	KFQX	D15	DT	LIC	GRAND JUNCTION, CO	BLCDT20061020ACO	310.5
Yes	KQDK-CD	D16	DC	CP	DENVER, CO	BLANK0000026838	29.6

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D15
Latitude: 39 40 17.00 N (NAD83)
Longitude: 105 13 8.00 W
Height AMSL: 2358.1 m
HAAT: 314.8 m
Peak ERP: 200 kW
Antenna: DIE DSB-M 90.0 deg
Elev Pattn: Generic
Elec Tilt: 1.00

38.8 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	121 kW	492.8 m	98.7 km
45.0	195	577.0	108.9
90.0	160	647.0	110.5
135.0	194	583.0	109.2
180.0	120	152.0	70.4
225.0	22.6	-16.7	43.1
270.0	13.2	14.9	40.9
315.0	22.5	125.5	60.2

Database HAAT does not agree with computed HAAT
Database HAAT: 315 m Computed HAAT: 322 m

**Proposal service area extends beyond baseline plus 1.0%
Proposal service area population is more than 95.0% of baseline

Distance to Canadian border: 1036.8 km

Distance to Mexican border: 884.6 km

Conditions at FCC monitoring station: Grand Island NE
Bearing: 74.2 degrees Distance: 592.0 km

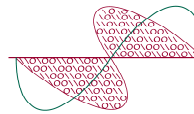
Proposal is not within the West Virginia quiet zone area

**Proposal is within coordination distance of Table Mountain receiving zone
**Proposal exceeds field strength limit at Table Mountain receiving zone

Conditions at Table Mountain receiving zone:
Bearing: 356.6 degrees Distance: 49.7 km
ERP: 112 kW Field strength: 92.2 dBu, 40.8 mV/m

No land mobile station failures found

Table 1 KETD(DT) OET Bulletin 69 Interference Study
(page 2 of 2)



Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

Study cell size: 1.00 km
Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

Interference to DTVBL24514 BL, scenario 1
**IX: 0.52% interference

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KCEC	D14	DT	BL	DENVER, CO	DTVBL24514	
Undesireds:	KETD	D15	DT	BL	CASTLE ROCK, CO	DTVBL37101	7.0 km
	KETD	D15	DT	APP	CASTLE ROCK, CO	KETD 200kW DSB-M	7.0
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
22265.2 3,272,388		20678.0 3,247,022		20581.4 3,241,688		20398.1 3,224,783	0.89 0.52
Undesired		Total IX		Unique IX, before		Unique IX, after	
KETD D15 DT BL		96.6 5,334		96.6 5,334			
KETD D15 DT APP		279.9 22,239				279.9 22,239	

Interference to BLANK0000026838 CP, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KQDK-CD	D16	DC	CP	DENVER, CO	BLANK0000026838	
Undesireds:	KETD	D15	DT	BL	CASTLE ROCK, CO	DTVBL37101	29.6 km
	KETD	D15	DT	APP	CASTLE ROCK, CO	KETD 200kW DSB-M	29.6
	KPJR-TV	D17	DT	CP	GREELEY, CO	BLANK0000026606	47.2
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
1793.6 2,022,155		1761.4 1,991,125		1597.4 1,957,338		1582.3 1,948,246	0.94 0.46
Undesired		Total IX		Unique IX, before		Unique IX, after	
KETD D15 DT BL		45.3 5,118		3.0 297			
KETD D15 DT APP		96.6 21,755				18.1 9,389	
KPJR-TV D17 DT CP		160.9 33,490		118.7 28,669		82.5 21,124	

Interference to proposal, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KETD	D15	DT	APP	CASTLE ROCK, CO	KETD 200kW DSB-M	
Undesireds:	KCEC	D14	DT	BL	DENVER, CO	DTVBL24514	7.0 km
Service area		Terrain-limited		IX-free		Percent IX	
22750.7 3,552,202		21612.9 3,485,447		21540.8 3,483,468		0.33 0.06	
Undesired		Total IX		Unique IX		Prcnt Unique IX	
KCEC D14 DT BL		72.1 1,979		72.1 1,979		0.33 0.06	

**Channel and
Facility
Information**

Section	Question	Response
Proposed Community of License	Facility ID	37101
	State	Colorado
	City	CASTLE ROCK
	DTV Channel	15
Facility Type	Facility Type	Commercial
	Station Type	Main
Zone	Zone	2

**Antenna Location
Data**

Section	Question	Response
Antenna Structure Registration	Do you have an FCC Antenna Structure Registration (ASR) Number?	No
	ASR Number	
Coordinates (NAD83)	Latitude	39° 40' 17.0" N+
	Longitude	105° 13' 08.0" W-
	Structure Type	POLE-Pole used only to mount an antenna
	Overall Structure Height	11.6 meters
	Support Structure Height	11.6 meters
	Ground Elevation (AMSL)	2343 meters
Antenna Data	Height of Radiation Center Above Ground Level	8 meters
	Height of Radiation Center Above Average Terrain	314.8 meters
	Height of Radiation Center Above Mean Sea Level	2351 meters
	Effective Radiated Power	200 kW

Antenna Technical Data

Section	Question	Response
Antenna Type	Antenna Type	Directional Custom
	Do you have an Antenna ID?	No
	Antenna ID	
Antenna Manufacturer and Model	Manufacturer:	DIE
	Model	TFU-12DSB-M
	Rotation	0 degrees
	Electrical Beam Tilt	1.0
	Mechanical Beam Tilt	Not Applicable
	toward azimuth	
	Polarization	Elliptical
DTV and DTS: Elevation Pattern	Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt?	No
	Uploaded file for elevation antenna (or radiation) pattern data	

Directional Antenna Relative Field Values (Pre-rotated Pattern)

Degree	V _A (Authorized Value)	Degree	V _A (Authorized Value)	Degree	V _A (Authorized Value)	Degree	V _A (Authorized Value)
0	0.778	90	0.895	180	0.775	270	0.257
10	0.873	100	0.908	190	0.684	280	0.227
20	0.951	110	0.921	200	0.593	290	0.183
30	0.993	120	0.942	210	0.497	300	0.194
40	0.998	130	0.974	220	0.392	310	0.278
50	0.976	140	0.995	230	0.280	320	0.393
60	0.944	150	0.985	240	0.197	330	0.502
70	0.918	160	0.940	250	0.184	340	0.599
80	0.901	170	0.865	260	0.226	350	0.688

Additional Azimuths

Degree	V _A
37	1.000
142	0.996

**Construction
Permit
Certifications**

Section	Question	Response
Post-Incentive Auction Expedited Processing	It will operate on the DTV channel for this station as established in the post-incentive auction channel reassignment public notice.	Yes
	It will operate post-incentive auction facilities that do not expand the noise-limited service contour in any direction beyond that established by the post-incentive auction channel reassignment public notice.	No
	It will operate post-incentive auction facilities that match or reduce by no more than five percent with respect to predicted population from those defined in the post-incentive auction channel reassignment public notice.	Yes
	The antenna structure to be used by this facility has been registered by the Commission and will not require re-registration to support the proposed antenna, OR the FAA has previously determined that the proposed structure will not adversely affect safety in air navigation and this structure qualifies for later registration under the Commission's phased registration plan, OR the proposed installation on this structure does not require notification to the FAA pursuant to 47 C.F.R. Section 17.7.	Yes
Environmental Effect	Would a Commission grant of Authorization for this location be an action which may have a significant environmental effect? (See Section 1.1306 of 47 C.F.R.)	No
Broadcast Facility	The proposed facility complies with the applicable engineering standards and assignment requirements of 47 C. F.R. Sections 73.616, 73.622(i), 73.623(e), 73.625, 73.1030, and 73.1125.	Yes