

## **Non-Interference Compliance using Longley Rice Contours**

Regarding Facility id 53154

Channel 230

### **Description of Exhibit 12A Contents**

The purpose of this exhibit is to request a terrain waiver based on Longley Rice contours and to demonstrate that this proposal will not cause interference to K230AG, Redstone, CO (FIN: 77363).

Page 2 of this exhibit (Exhibit 2A) consists of a shaded elevation map showing the protected contours of K230AG and the interfering contours of proposed K228DD. The proposed transmit site of K228DD is 37km from the transmit site for K230AG. There are mountains in excess of 3,000m elevation separating these two sites. This map is a visual demonstration that the signal of K230AG does not reach Glenwood Springs and that the signal from K228DD will not interfere with K230AG.

Page 3 of this exhibit (Exhibit 2B) is a plot of the 60dB $\mu$  F(50,50) and 40dB $\mu$  F(50,10) contours of proposed K228DD and K230AG. Note that there is prohibitive overlap on radials 160° through 170° from the transmit site of K228DD. The 40dB $\mu$  Longley Rice contour for K228DD is also plotted on this map. Note that the Longley Rice contour does not intersect the protected 60dB $\mu$  F(50,50) contour of K230AG; therefore, this application is in full compliance with the provisions of 74 C.F.R § 74.1204(d) which states *"...an application otherwise precluded by this section will be accepted if it can be demonstrated that no actual interference will occur due to intervening terrain..."*.

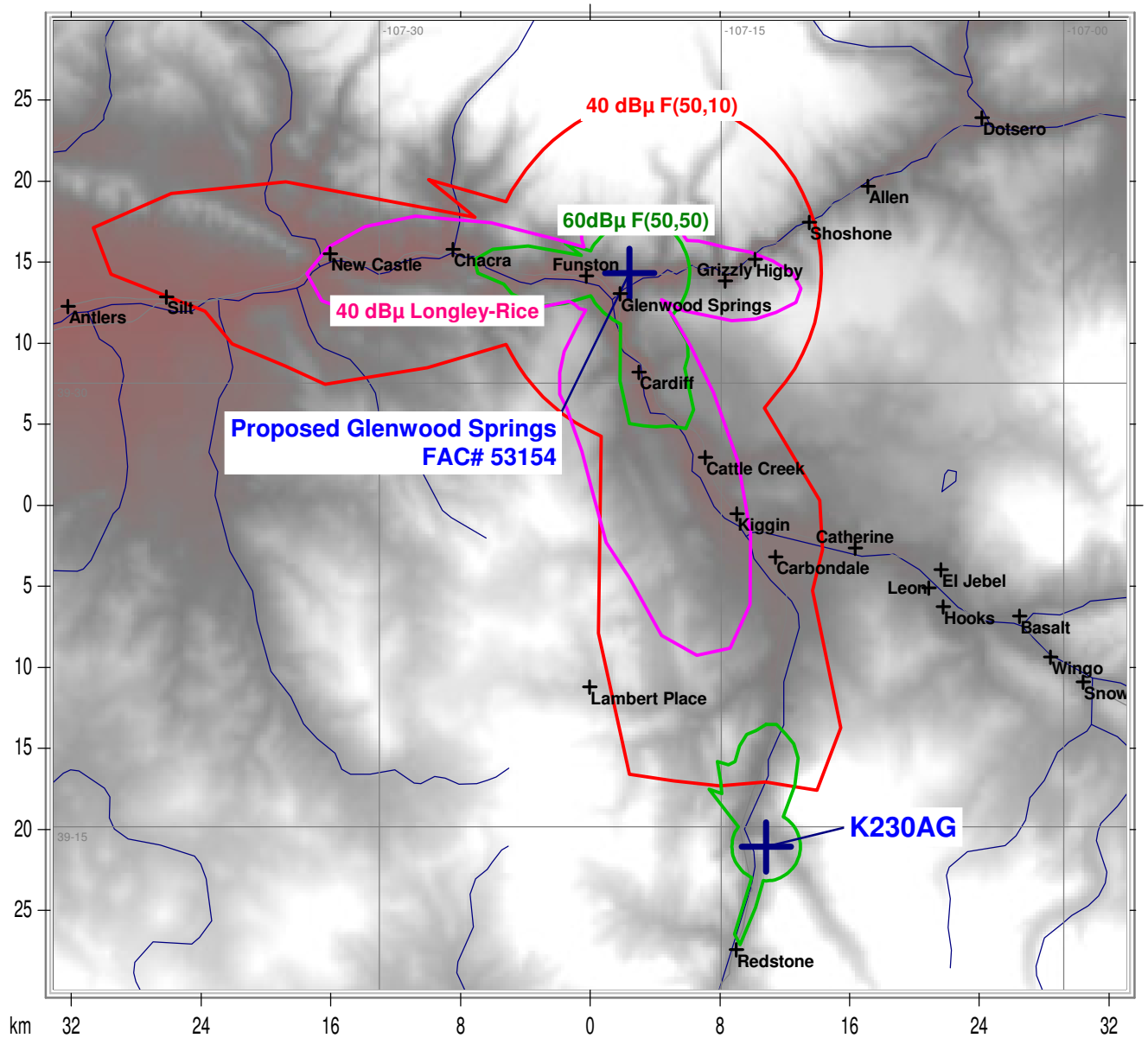
Pages 4 and 5 of this exhibit (Table 1) consist of tabular data showing the ERP, HAAT,  $\Delta H$ , and the distance from the transmit site of K228DD to the 40 dB $\mu$  Longley Rice contour. Table 1 has been included in this exhibit to tabulate the  $\Delta H$  values, as calculated by ComStudy Version 2.2, on 72 radials emanating from the proposed transmit site. According to the OET guidelines, "Where the  $\Delta H$  is used as the sole determinant that the terrain along a radial widely departs from the 50 meter standard, a  $\Delta H$  of 20m or less, or 100m or more" must be demonstrated. Of the 72  $\Delta H$  values calculated and tabulated in Table 1, 72 or 100% of the total are 100m or more, indicating that the terrain surrounding the transmit site "departs widely" from the 50m standard. The bearings from the transmit site to the prohibited overlap with K230AG lie over an arc between 160° and 170°. The  $\Delta H$  for radials 160°, 165° and 170° are 1520m, 1660m and 730m respectively. (These  $\Delta H$  value indicate that the terrain in the direction of this overlap "departs widely" from the 50m standard and therefore the use of Longley Rice contours is justified.

The 1997 OET guidelines were developed to quantitatively determine when Longley Rice contours could be used to substitute for the standard FCC contours. Applicant acknowledges that these guidelines were primarily developed for full service broadcast facilities, but these principles apply to translators as well.

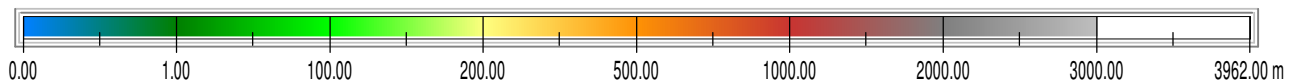
Page 6 of this exhibit consists of a table listing all ComStudy 2.2 settings used to generate the Longley Rice 40dB $\mu$  contours.

**This application clearly demonstrates that the proposed K228DD will not cause any interference to K230AG. The use of Longley Rice 40dB $\mu$  contours has been justified by the  $\Delta H$  values. All values and assumptions used to generate these Longley Rice contours have been identified. This application clearly demonstrates that this proposal will not cause any interference to K230AG due to intervening terrain, and is therefore in compliance with 47 C.F.R § 74.1204(d).**

## Exhibit 12A Elevation Map Proposed Glenwood Springs &amp; K230AG



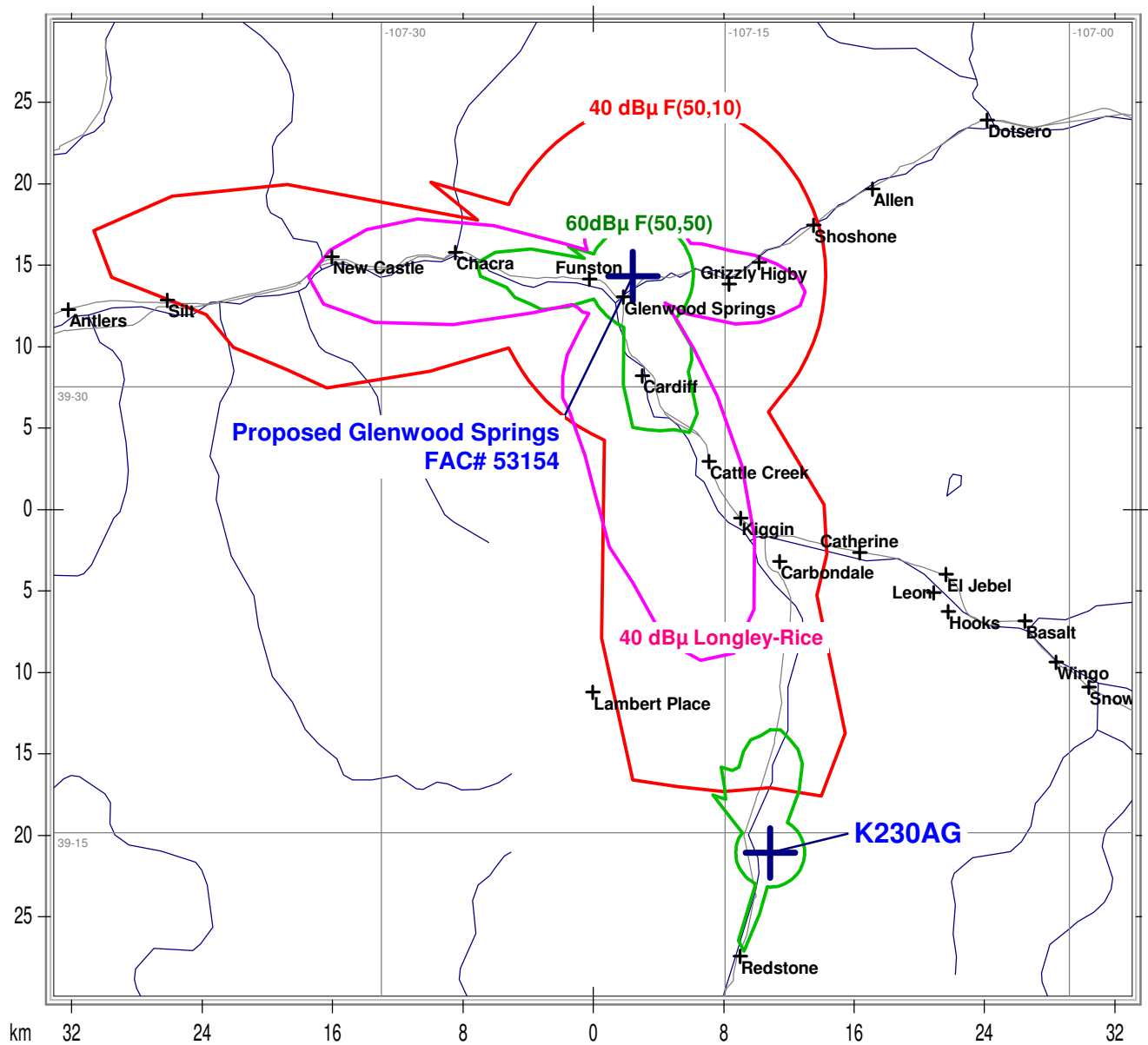
ASR# 1237713, 9m, 19W, channel 230, SCA FMV2



State Borders    Highways    Water Features    Lat/Lon Grid

Map Scale: 1:403021    1 cm = 4.03 km    VEH Size: 59.77 x 66.14 km

## Exhibit 12B Longley-Rice Contour Protection Map



Glenwood Springs, CO FAC# 53154 ASR# 1237713, 9m, 19W, channel 230, SCA FMV2

State Borders    Highways    Water Features    Lat/Lon Grid

Map Scale: 1:403021    1 cm = 4.03 km    V/H Size: 59.77 x 66.14 km

**Table 1. Longley Rice Data**  
**Proposed K228DD, Glenwood Springs, CO FAC# 53154**  
**10/1/2008**

**Site: K228DD**

**Coordinates: 39-33-43.0 N, 107-19-01.0 W**

**Freq: 93.90000 MHz**

**ERP: 20.00 W**

<b>Bearing</b>	<b>ERP W</b>	<b>HAAT</b>	<b>DH</b>	<b>Distance</b>	<b>Lat</b>	<b>Lon</b>
0	12.55	-914	470	3.46	39-35-35.1 N	107-19-01.0 W
5	13.38	-889	270	4.01	39-35-52.3 N	107-18-46.3 W
10	14.28	-821	430	4.18	39-35-56.4 N	107-18-30.4 W
15	15.1	-790	610	3.64	39-35-36.8 N	107-18-21.4 W
20	15.95	-714	670	3.37	39-35-25.4 N	107-18-12.5 W
25	16.6	-659	780	4.15	39-35-44.8 N	107-17-47.2 W
30	17.3	-601	600	4.2	39-35-40.8 N	107-17-32.6 W
35	17.78	-482	560	4.33	39-35-37.7 N	107-17-16.7 W
40	18.32	-592	760	4.5	39-35-34.6 N	107-16-59.3 W
45	18.66	-527	850	4.59	39-35-28.1 N	107-16-44.4 W
50	19.01	-511	920	4.53	39-35-17.2 N	107-16-35.2 W
55	19.25	-405	890	4.14	39-34-59.9 N	107-16-38.3 W
60	19.48	-324	940	4.14	39-34-49.9 N	107-16-30.4 W
65	19.64	-156	650	4.76	39-34-48.1 N	107-15-59.6 W
70	19.8	-81	610	5.4	39-34-42.7 N	107-15-27.6 W
75	19.88	10	480	6.26	39-34-35.4 N	107-14-46.8 W
80	19.96	15	420	7.65	39-34-25.9 N	107-13-44.4 W
85	19.96	-64	520	8.99	39-34-08.1 N	107-12-44.8 W
90	19.96	-175	630	10.2	39-33-42.7 N	107-11-52.6 W
95	19.96	-232	600	10.77	39-33-12.3 N	107-11-30.5 W
100	19.92	-327	550	10.57	39-32-43.3 N	107-11-43.9 W
105	19.84	-335	670	9.51	39-32-23.1 N	107-12-35.5 W
110	19.72	-323	1040	8.38	39-32-10.0 N	107-13-30.3 W
115	19.56	-265	510	7.04	39-32-06.5 N	107-14-33.0 W
120	19.37	-191	730	5.08	39-32-20.7 N	107-15-56.3 W
125	19.13	-106	610	4.11	39-32-26.6 N	107-16-39.7 W
130	18.86	-41	230	2.6	39-32-48.8 N	107-17-37.3 W
135	18.47	31	510	3.9	39-32-13.6 N	107-17-05.1 W
140	18.05	70	580	5.91	39-31-16.4 N	107-16-21.6 W
145	17.52	90	910	9.14	39-29-40.5 N	107-15-21.0 W
150	16.96	106	1180	13.6	39-27-21.5 N	107-14-15.8 W
155	16.27	202	1440	17.96	39-24-55.7 N	107-13-42.8 W
160	15.52	247	1520	22.07	39-22-31.4 N	107-13-44.8 W
165	14.69	232	1660	24.31	39-21-02.4 N	107-14-37.5 W
170	13.84	233	730	24.31	39-20-47.8 N	107-16-04.2 W
175	12.96	231	640	22.79	39-21-27.7 N	107-17-37.8 W
180	12.07	231	930	19.1	39-23-24.5 N	107-19-01.0 W
185	11.19	126	930	16.92	39-24-37.1 N	107-20-02.8 W

190	10.37	-38	890	13.76	39-26-24.0 N	107-20-41.2 W
195	9.55	-137	640	11.53	39-27-42.3 N	107-21-06.1 W
200	8.84	-222	400	10.31	39-28-29.3 N	107-21-28.8 W
205	8.19	-290	660	9.34	39-29-08.7 N	107-21-46.6 W
210	7.64	-291	340	8.76	39-29-37.2 N	107-22-04.8 W
215	7.18	-274	420	7.62	39-30-20.7 N	107-22-04.5 W
220	6.8	-253	540	6.41	39-31-04.0 N	107-21-53.8 W
225	6.5	-161	340	4.68	39-31-55.8 N	107-21-19.8 W
230	6.27	-123	310	3.58	39-32-28.4 N	107-20-56.2 W
235	6.07	-27	540	3.87	39-32-31.1 N	107-21-14.1 W
240	5.94	8	850	3.94	39-32-39.1 N	107-21-24.2 W
245	5.85	77	860	4.17	39-32-45.9 N	107-21-39.6 W
250	5.79	144	830	6.7	39-32-28.6 N	107-23-25.4 W
255	5.72	171	480	11.6	39-32-05.5 N	107-26-51.3 W
260	5.7	221	360	16.38	39-32-10.3 N	107-30-18.3 W
265	5.7	249	460	19.36	39-32-47.5 N	107-32-30.8 W
270	5.7	363	260	20.21	39-33-42.1 N	107-33-09.7 W
275	5.7	386	460	18.94	39-34-35.7 N	107-32-13.6 W
280	5.75	299	480	16.83	39-35-17.0 N	107-30-37.5 W
285	5.81	170	290	13.89	39-35-39.0 N	107-28-24.8 W
290	5.9	41	520	9.22	39-35-24.9 N	107-25-04.8 W
295	6.01	76	680	4.91	39-34-50.1 N	107-22-07.8 W
300	6.18	1	730	3.29	39-34-36.3 N	107-21-00.8 W
305	6.36	-133	610	3.65	39-34-50.7 N	107-21-06.5 W
310	6.66	-324	510	3.96	39-35-05.5 N	107-21-08.6 W
315	6.96	-447	460	3.86	39-35-11.2 N	107-20-55.5 W
320	7.42	-597	690	3.72	39-35-15.2 N	107-20-41.4 W
325	7.89	-654	610	3.66	39-35-20.1 N	107-20-29.3 W
330	8.5	-677	720	3.67	39-35-25.9 N	107-20-18.1 W
335	9.17	-768	870	4.07	39-35-42.5 N	107-20-13.3 W
340	9.94	-835	380	3.6	39-35-32.6 N	107-19-52.7 W
345	10.78	-872	480	3.2	39-35-22.9 N	107-19-35.7 W
350	11.64	-889	710	3.43	39-35-32.5 N	107-19-26.0 W
355	12.55	-909	420	4	39-35-52.1 N	107-19-15.6 W

**Table 2.**  
**ComStudy Settings Used to Generate 40 dBμ Longley- Rice Contour**  
**Proposed K228DD, Glenwood Springs, CO FAC# 53154**  
**10/1/2008**

**Field Strength Site Matrix Setup**

Propagation Model:	Longley-Rice
Confidence:	50%
Resolution:	15" ~ 500 m
Receiver height:	2.0 m
Mobile Tx Power:	10.0 w
Mobile Tx Gain:	0.0 dB
Terrain Spacing:	.20 km
Radio Earth Curvature k	1.333
Land use attenuation:	Yes
Talk out matrix:	Yes
Time:	50%
Location:	50%
Conductivity (S/m):	.0050
Dielectric Constant:	15.000
Climate Zone:	Continental Temperate
Service Application:	Broadcast

**Contour Setup**

Contour:	Matrix Based 40 dBμ
Matrix Type:	Talk Out
Contour Type:	Median
Radials:	72 @ 5°
Interpolation:	None