

# ***KLEIN BROADCAST ENGINEERING, L.L.C.***

**dedicated to improving the science and technology of radio & television communications**

**FCC FORM 301 APPLICATION  
for  
FM BROADCAST STATION CONSTRUCTION PERMIT**

**(a minor change application)  
(FCC FACILITY ID # 164129)  
LOCALLY OWNED RADIO, L.L.C.  
K I R Q (FM)  
FM CHANNEL 271 C2 / 102.1 MHz.  
KIMBERLY, IDAHO**

**MAY 2010**

**INTRODUCTION and ENGINEERING STATEMENT**

The firm of Klein Broadcast Engineering, L.L.C., has been retained by the applicant, Locally Owned Radio, L.L.C., the licensee of FM Broadcast Station KIRQ at Kimberly, Idaho. The instant application requests a One-Step Upgrade to channel 271 C2, additionally the applicant requests an Effective Radiated Power of 23.0 kilowatts for Station KIRQ in both the Horizontal and Vertical Planes. The application also requests operation with a directional antenna. The directional antenna pattern for Station KIRQ as specified herein. The applicant requests this application be processed under 47 C.F.R. Section 73.215 of the Rules and Regulations of the Federal Communications Commission, a contour protection grant with respect to Station KDBI at Emmett, Idaho and a construction permit for Station KVUW at Wendover, Nevada.

Engineering Exhibit E-1 is a complete FCC FM Channel Spacing Study that shows compliance with 47 C.F.R. Section 73.215 of the Commission's Rules for the proposed transmitter site location coordinates. This study demonstrates the proposed KIRQ main transmission facility is clear to all known stations, allocations and proposed allotments under 47 CFR Section 73.215 of the Rules and Regulations of the Federal Communications Commission with the following exceptions: Station KDBI at Emmett, Idaho, is short-spaced under Section 47 CFR 73.207 but is clear under 47 CFR Section 73.215. Station KVUW at Wendover, Nevada, is short-spaced under 47 CFR Section 73.207 but is also clear under 47 CFR Section 73.215 to the proposed facility for KIRQ.

**INTRODUCTION and ENGINEERING STATEMENT** cont'd page two: KIRQ(FM)

FM Channel 271 C2 has already been allotted the Principal Community of Kimberly, Idaho.

It should be noted this instant application is being filed with the Commission to replace an expired FCC FM Broadcast Station Construction Permit for exactly the same facility as authorized in Construction Permit FCC File Number BMPH-20061102ABF granted by the Commission on May 22, 2007. A copy of this Construction Permit, marker Exhibit E-11, is included herein to aid Commission staff in the processing of this instant application.

Engineering Exhibit E-2 is a contour map prepared to show the proposed computed service contours for the facility specified herein. It clearly shows the predicted 60dBu f(50,50) and 70dBu f(50,50) contours. The City Limit Boundaries of the Principal Community, Kimberly, Idaho, are also clearly marked as determined by the 2000 U.S. Census. This exhibit demonstrates the predicted 70dBu contour encompasses the entire principal community of Kimberly, Idaho. This exhibit was generated using the DMA 3 Arc Second Digitized Terrain Datafile and the FCC Standard Contour Prediction Method f(50,50) with 360 Radials.

In the case of any radial having a negative elevation, that radial was treated as if it had a height of positive 30 meters as allowed for by 47 CFR Section 73.313(e)

**INTRODUCTION and ENGINEERING STATEMENT** cont'd page three: KIRQ(FM)

Exhibit E-3 is a map showing the Interfering and Protected contours of stations KIRQ and KDBI ( as a full Class C facility, 100kW ERP at 600 meters HAAT ) This exhibit clearly shows compliance with the contour protection requirements of 47 C.F.R. Section 73.215 with respect to Station KIRQ at Kimberly, Idaho and Station KDBI(full Class C) at Emmett, Idaho. This map exhibit was prepared using the DMA 3 Arc Second Digitized Terrain Datafile and the FCC Standard Contour Prediction Method, f(50,50) and f(50,10) with 360 Radials. In the case of any radial having a negative elevation, that radial was treated as if it had a height of positive 30 meters as allowed for by 47 CFR Section 73.313(e) The facility used for the analysis of Station KDBI is that of a maximum class C facility, 100.0kW ERP at 600meters HAAT. The first adjacent-channel protection requirement between Station KIRQ and Station KDBI (full Class C) shows no overlap of the interfering 54dBu f(50,10) contours to the protected 60dBu f(50,50) contours of each station.

Exhibit E-4 is a map showing the Interfering and Protected contours of stations KIRQ and the construction permit for Station KVUW ( as a full Class C facility, 100kW ERP at 600 meters HAAT ) This exhibit clearly shows compliance with the contour protection requirements of 47 C.F.R. Section 73.215 with respect to Station KIRQ at Kimberly, Idaho and Station KVUW(full Class C CP) at Wendover, Nevada. This map exhibit was prepared using the DMA 3 Arc Second Digitized Terrain Datafile and the FCC Standard Contour Prediction Method, f(50,50) and f(50,10) with 360 Radials. In the case of any radial having a negative elevation, that radial was treated as if it had a height of positive 30 meters as allowed for by 47 CFR Section 73.313(e) The facility used for the analysis of Station KVUW is that of a maximum class C facility, 100.0kW ERP at 600meters HAAT. The first adjacent-channel protection requirement between Station KIRQ and Station KVUW (full Class C) shows no overlap of the interfering 54dBu f(50,10) contours to the protected 60dBu f(50,50) contours of each station.

**INTRODUCTION and ENGINEERING STATEMENT** cont'd page four: KIRQ(FM)

Exhibit E-5 is a Polar Plot of the proposed directional antenna pattern to be employed at Station KIRQ(FM).

Exhibit E-5A is a Tabulation of the directional antenna pattern proposed herein, calculated every one degree for 360 degrees.

Engineering Exhibit E-10RHS is a complete and comprehensive RF Radiation Hazard Study/Evaluation of the facility proposed in the instant application. Based on the calculations and findings contained therein, the proposed new main transmission facility complies with all of the requirements of the FCC O.S.T. Bulletin #65, Guidelines for Human Exposure to Non-Ionizing Radio Frequency Radiation, as amended to date.

The instant application proposes the following specifications for the new KIRQ main transmission facility:

Transmitter Site Location Coordinates: NL: 42 – 43 – 54 / WL: 114 – 25 – 04 (NAD-27) (No Change)

Ground Level AMSL at proposed site: 1310 meters AMSL

Overall Height Above Ground of Antenna Support Structure: 123 meters AGL

Overall Height Above Mean Sea Level of Antenna Support Structure: 1433 meters AMSL

Antenna Radiation Center Above Ground Level: 82 meters AGL

Antenna Radiation Center Above Mean Sea Level: 1392 meters AMSL

Antenna Support Structure Registration Number: 1041912

HAAT: 220 meters

Effective Radiated Power: 23.0 kW H & V

(All elevations rounded to the nearest meter)

**INTRODUCTION and ENGINEERING STATEMENT** cont'd page five: KIRQ(FM)

An analysis of the engineering data presented herein demonstrates compliance of the proposed facility with all of the applicable Rules and Regulations of the Federal Communications Commission as amended to date. Therefore, the applicant and permittee of FM Broadcast Station KIRQ at Kimberly, Idaho, Locally Owned Radio, L.L.C., requests the Commission consider and GRANT the instant application for the facility requested herein under the Rules and Regulations of the Federal Communications Commission, as amended to date.

Respectfully submitted,

Elliott Kurt Klein, Consulting Broadcast Engineer

For the firm:

KLEIN BROADCAST ENGINEERING, L.L.C.

21 May 2010

Locally Owned Radio, L.L.C.  
FM Broadcast Station K I R Q  
Kimberly, Idaho

Job: KIRQ 20100521.fmj

Master Database: FCC CDBS 2010\_May\_21.fmd

Lat: N42:43:54 Lon: W114:25:04 NAD-27 (Existing & Proposed Transmitter Site Geographic Coordinates)

Channel: 271 Class: C2

Status: Licensed, Construction Permit, Reserved

Channels: Co-Channel, 1st Adj, 2nd Adj, 3rd Adj, IF, TV6

Range: 100 km

Comments: No Comments

Description: EXHIBIT E-1 FCC FM CHANNEL SPACING STUDY KIRQ CLASS C2 20100521

Callsign	City	State	Latitude (NAD27)	Longitude (NAD27)	Servi Channel	Class Status	73 207 Min	73 207 Clear	73 215 Min	73 215 Clear	ERP	HAAT	Adjacency	Distance	Beari
KIRQ	KIMBERLY	ID	N42:43:54	W114:25:04	FM 271 : 102.1 MHz C2	CP	190	-190.00	177	-177.00	23.00	220	Co-Chan	0.00	000
KIRQ	TWIN FALL	ID	N42:43:54	W114:25:04	FM 271 : 102.1 MHz C3	LIC	177	-177.00	166	-166.00	5.20	220	Co-Chan	0.00	000
KDBI	EMMETT	ID	N43:45:18	W116:05:52	FM 270 : 101.9 MHz C	LIC	188	-10.39	176	1.61	57.00	772	1st Adj	177.61	310
KVUW	WENDOVE	NV	N41:07:19	W114:34:02	FM 272 : 102.3 MHz C	CP	188	-8.78	176	3.22	100.00	600	1st Adj	179.22	184
KUMC-LP	RUPERT	ID	N42:37:04	W113:40:41	FM 269 : 101.7 MHz L1	LIC	53	8.95	53	8.95	0.00	24	2nd Adj	61.95	102
KCHQ	DRIGGS	ID	N43:42:42	W111:20:56	FM 271 : 102.1 MHz C1	LIC	224	48.09	211	61.09	0.00	579	Co-Chan	272.09	066
KMGI	POCATELL	ID	N42:51:57	W112:30:46	FM 273 : 102.5 MHz C*	LIC	105	51.56	96	60.56	100.00	312	2nd Adj	156.56	085
KCVI	BLACKFO	ID	N43:30:03	W112:39:43	FM 268 : 101.5 MHz C	LIC	105	61.51	96	70.51	95.00	461	3rd Adj	166.51	059
KQFC	BOISE	ID	N43:45:21	W116:05:54	FM 274 : 102.7 MHz C	CP	105	72.70	96	81.70	48.00	828	3rd Adj	177.70	310
STAT.RSV	BOISE	ID	N43:45:21	W116:05:54	FM 274 : 102.7 MHz C*	RSV	105	72.70	96	81.70	0.00	0	3rd Adj	177.70	310
KBSJ	JACKPOT	NV	N41:47:08	W114:50:22	FM 217 : 91.3 MHz C1	LIC	27	83.70	0	110.70	3.70	751	IF	110.70	198

This FCC FM Channel Spacing Study demonstrates the proposed facility is short to Station KDBI and a CP for Station KVUW under 47 C.F.R. Section 73.207. However as may be seen the proposed facility for Station KIRQ is clear to all know stations, construction permits, vacant channel allotments and proposed allotments under 47 C.F.R. Section 73.207 with the two noted exceptions herein. Station KDBI and the CP for Station KVUW are clear to the proposed facility for Station KIRQ under 47 C.F.R. Section 73.215. The applicant requests processing under 47 C.F.R. Section 73.215 with respect to Station KDBI and the CP for Station KVUW.

# EXHIBIT E-2 Proposed FCC Service Contours KIRQ Class C2

Klein Broadcast Engineering, L.L.C.

Job: KIRQ 20100521.fmj

Master Database: 2010\_May\_21.fmd

Lat: N42:43:54 Lon: W114:25:04 NAD-27(Map Center & Proposed Transmitter Site Location Geographic Coordinates)

Scale: 1:650000

Channel: 271 Class: C2

Status: Licensed, Construction Permit, Vacant/Reserved

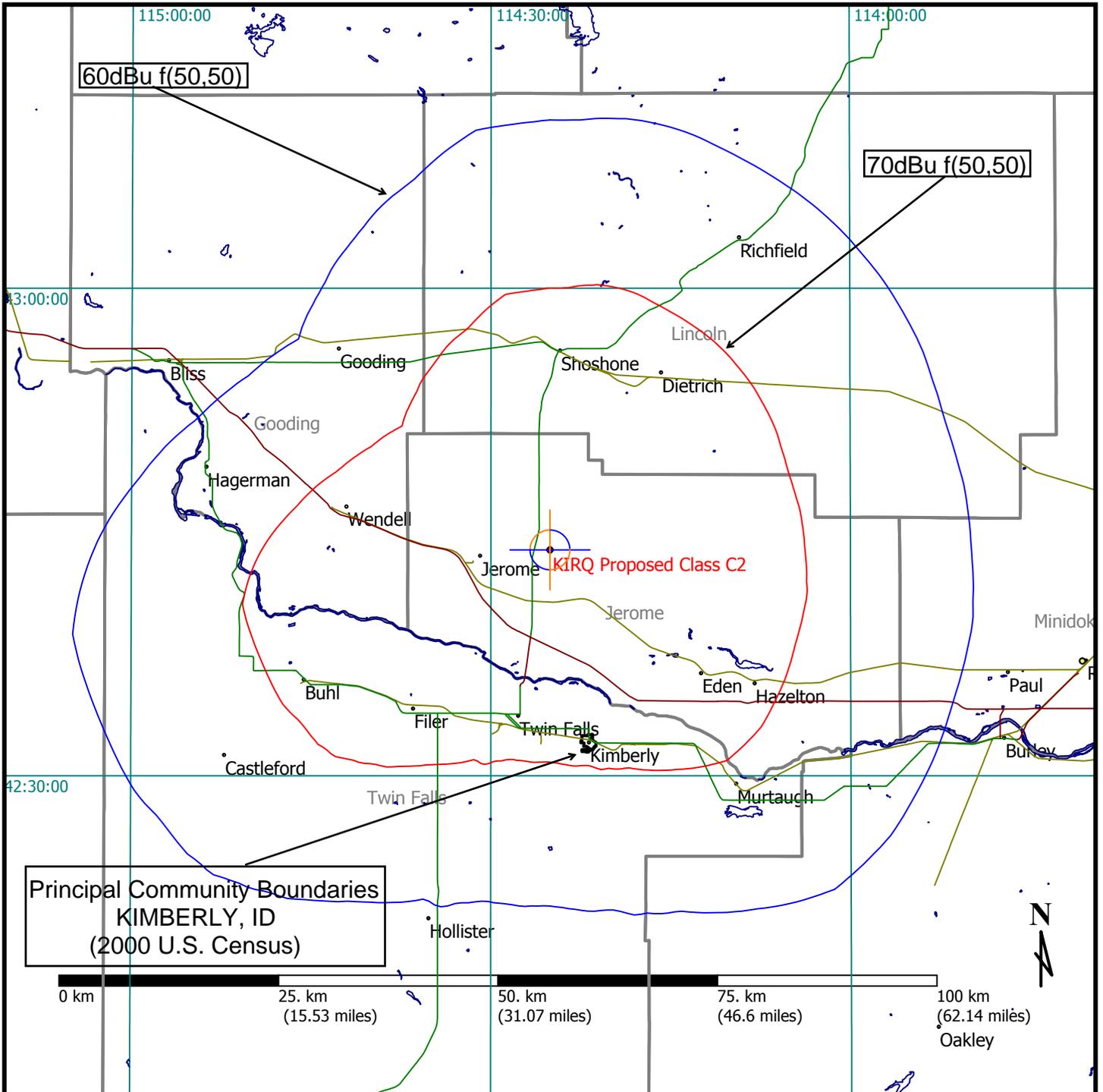
Terrain Database: DMA 3 Arc Second Digitized Terrain Datafile, Conus.

Contour Prediction Method: FCC Standard F(50,50), 360 Radials

Comments: FCC Service Contours of Proposed Class C2 Facility for KIRQ

Description: EXHIBIT E-2 PROPOSED FCC SERVICE CONTOURS KIRQ CLASS C2 20100521

Date: 5/21/2010



**EXHIBIT E-3**

**KIRQ Proposed Interfering & Protected Contours with KDBI**

Klein Broadcast Engineering, L.L.C.

Job: KIRQ 20100521.fmj

Master Database: FCC CDBS 20100521.fmd

Lat: N42:43:54 Lon: W114:25:04 NAD-27

Scale: 1:1000000

Channel: 271 Class: C2

Status: Construction Permit, Application

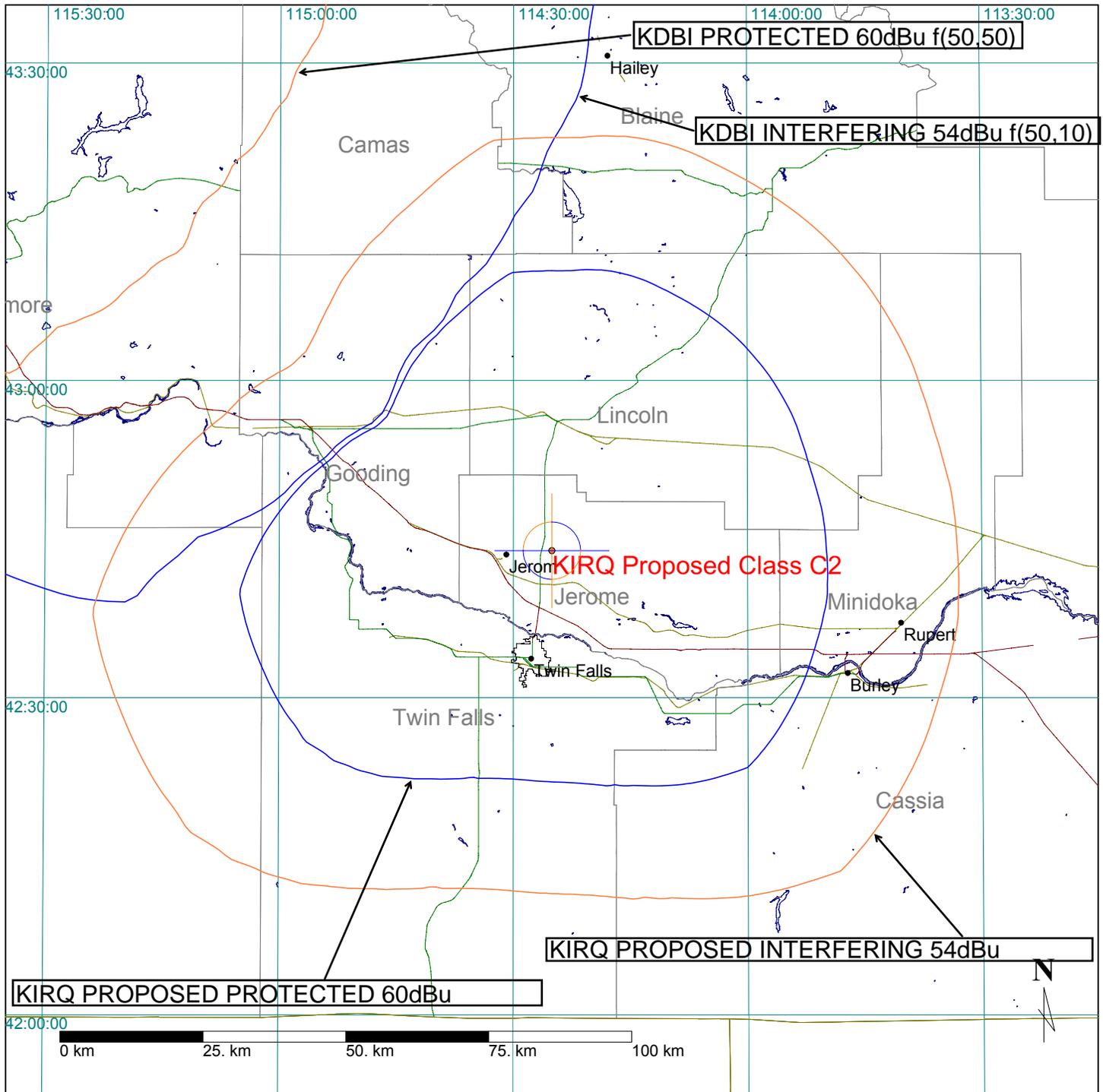
Terrain Database: DMA 3 Arc Second Digitized Terrain Datafile, Conus.

Contour Prediction Method: FCC Standard f(50,10) & f(50,50), 360 Radials

Comments: Analysis of Proposed KIRQ Facility with KDBI as a full Class C (100.0kW ERP at 600 meters HAAT)

Description: EXHIBIT E-3 PROPOSED INTERFERING & PROTECTED CONTOURS with KDBI

Date: 05/21/2010



**EXHIBIT E-4**

**KIRQ Proposed Interfering & Protected Contours with KVUW**

Klein Broadcast Engineering, L.L.C.

Job: KIRQ 20100521.fmj

Master Database: FCC CDBS 20100521.fmd

Date: 11/1/2006

Lat: N42:43:54 Lon: W114:25:04 NAD-27(Existing & Proposed KIRQ Transmitter Site Geographic Coordinates)

Scale: 1:1250000

Channel: 271 Class: C2

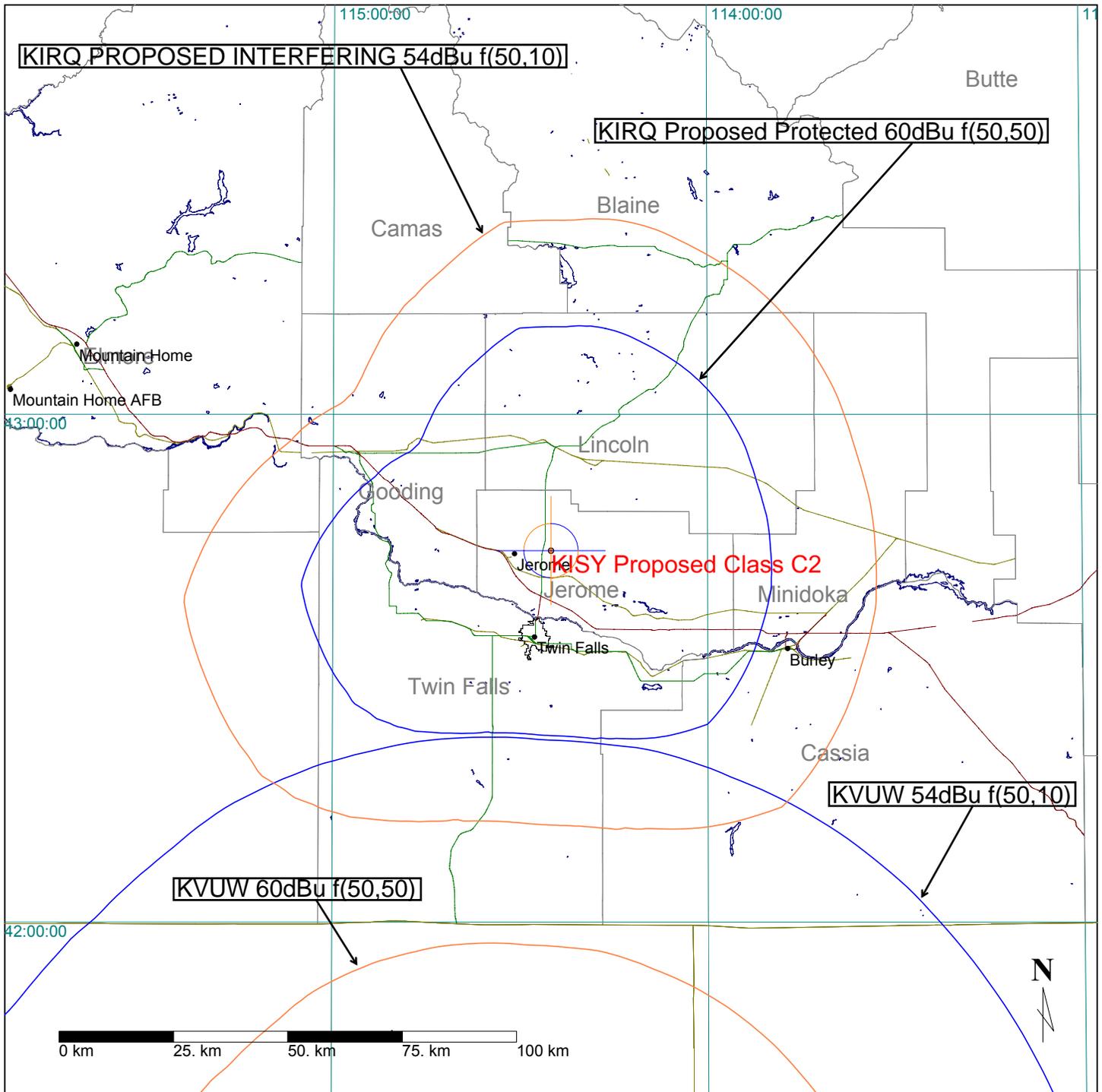
Status: Construction Permit, Application

Terrain Database: DMA 3 Arc Second Digitized Terrain Datafile, Conus.

Contour Prediction Method: FCC Standard f(50,10) & f(50,50), 360 Radials

Comments: Analysis of Proposed KIRQ Facility with KVUW as a maximum Class C Facility (100.0kW ERP at 600 meters HAAT)

Description: EXHIBIT E-4 PROPOSED INTERFERING & PROTECTED CONTOURS with KVUW



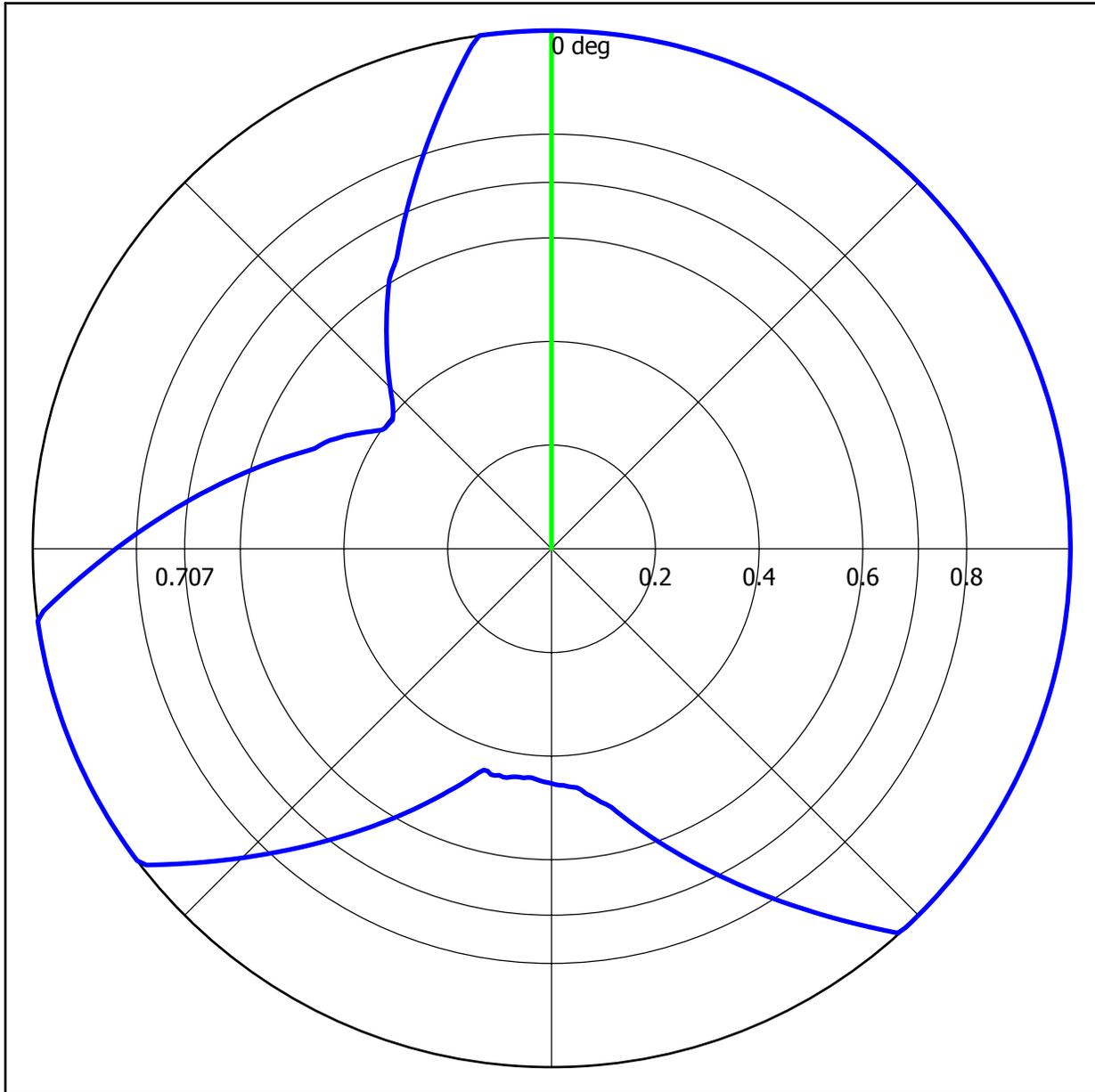
**EXHIBIT E-5**

**Antenna Pattern (Azimuth)**

**Klein Broadcast Engineering, L.L.C.**

Job: KIRQ 20100521.fmj

Description: EXHIBIT E-5 PROPOSED DIRECTIONAL ANTENNA PATTERN KIRO 20100521  
Date: 05/21/2010



Degrees	Field	Degrees	Field	Degrees	Field	Degrees	Field
000	1.000	090	1.000	180	0.453	270	0.840
010	1.000	100	1.000	190	0.447	280	0.667
020	1.000	110	1.000	200	0.475	290	0.530
030	1.000	120	1.000	210	0.597	300	0.442
040	1.000	130	1.000	220	0.752	310	0.399
050	1.000	140	0.953	230	0.946	320	0.493
060	1.000	150	0.757	240	1.000	330	0.617
070	1.000	160	0.601	250	1.000	340	0.763
080	1.000	170	0.490	260	1.000	350	0.961

KISY(FM)  
FM CHANNEL 271 C2  
KIMBERLY, IDAHO

EXHIBIT E-5A  
DIRECTIONAL ANTENNA  
PATTERN TABULATION

DIRECTIONAL ANTENNA  
PATTERN# 20100521A

'Azimuth'	'Field Value'	'dB Gain'
0	1	0
1	1	0
2	1	0
3	1	0
4	1	0
5	1	0
6	1	0
7	1	0
8	1	0
9	1	0
10	1	0
11	1	0
12	1	0
13	1	0
14	1	0
15	1	0
16	1	0
17	1	0
18	1	0
19	1	0
20	1	0
21	1	0
22	1	0
23	1	0
24	1	0
25	1	0
26	1	0
27	1	0
28	1	0
29	1	0
30	1	0
31	1	0
32	1	0
33	1	0
34	1	0
35	1	0
36	1	0
37	1	0
38	1	0
39	1	0
40	1	0
41	1	0
42	1	0
43	1	0
44	1	0
45	1	0
46	1	0
47	1	0
48	1	0
49	1	0

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FM CHANNEL 271 C2  
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EXHIBIT E-5A  
DIRECTIONAL ANTENNA  
PATTERN TABULATION

DIRECTIONAL ANTENNA  
PATTERN# 20010521A

50	1	0
51	1	0
52	1	0
53	1	0
54	1	0
55	1	0
56	1	0
57	1	0
58	1	0
59	1	0
60	1	0
61	1	0
62	1	0
63	1	0
64	1	0
65	1	0
66	1	0
67	1	0
68	1	0
69	1	0
70	1	0
71	1	0
72	1	0
73	1	0
74	1	0
75	1	0
76	1	0
77	1	0
78	1	0
79	1	0
80	1	0
81	1	0
82	1	0
83	1	0
84	1	0
85	1	0
86	1	0
87	1	0
88	1	0
89	1	0
90	1	0
91	1	0
92	1	0
93	1	0
94	1	0
95	1	0
96	1	0
97	1	0
98	1	0
99	1	0
100	1	0

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KIRQ(FM)  
FM CHANNEL 271 C2  
KIMBERLY, IDAHO

EXHIBIT E-5A  
DIRECTIONAL ANTENNA  
PATTERN TABULATION

DIRECTIONAL ANTENNA  
PATTERN# 20100521A

101	1	0
102	1	0
103	1	0
104	1	0
105	1	0
106	1	0
107	1	0
108	1	0
109	1	0
110	1	0
111	1	0
112	1	0
113	1	0
114	1	0
115	1	0
116	1	0
117	1	0
118	1	0
119	1	0
120	1	0
121	1	0
122	1	0
123	1	0
124	1	0
125	1	0
126	1	0
127	1	0
128	1	0
129	1	0
130	1	0
131	1	0
132	1	0
133	1	0
134	1	0
135	1	0
136	1	0
137	1	0
138	0.997509	-2.17E-02
139	0.9748029	-0.2216637
140	0.9526137	-0.4216634
141	0.9309296	-0.6216632
142	0.909739	-0.8216636
143	0.8890309	-1.021663
144	0.868794	-1.221663
145	0.8490179	-1.421664
146	0.8296918	-1.621664
147	0.8108057	-1.821664
148	0.7923496	-2.021663
149	0.7743134	-2.221664
150	0.7566879	-2.421664
151	0.7394636	-2.621664

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KIRQ(FM)  
FM CHANNEL 271 C2  
KIMBERLY, IDAHO

EXHIBIT E-5A  
DIRECTIONAL ANTENNA  
PATTERN TABULATION

DIRECTIONAL ANTENNA  
PATTERN# 20100521A

152	0.7226313	-2.821664
153	0.7061822	-3.021664
154	0.6901076	-3.221664
155	0.6743988	-3.421664
156	0.6590476	-3.621664
157	0.6440459	-3.821664
158	0.6293856	-4.021664
159	0.615059	-4.221664
160	0.6010586	-4.421664
161	0.5873768	-4.621664
162	0.5740065	-4.821664
163	0.5609406	-5.021663
164	0.548172	-5.221663
165	0.5356941	-5.421662
166	0.5235002	-5.621663
167	0.5115839	-5.821662
168	0.5037013	-5.956538
169	0.4975889	-6.062587
170	0.4897124	-6.201179
171	0.4829348	-6.32223
172	0.4768833	-6.431758
173	0.4682285	-6.590843
174	0.4632746	-6.683231
175	0.4616264	-6.714187
176	0.4600072	-6.744708
177	0.4572499	-6.796927
178	0.4566747	-6.80786
179	0.4549595	-6.840545
180	0.452684	-6.884098
181	0.4509915	-6.916633
182	0.4498698	-6.938262
183	0.4476245	-6.981723
184	0.4453874	-7.025241
185	0.4431617	-7.068756
186	0.4437238	-7.057746
187	0.4453986	-7.025023
188	0.4448418	-7.035888
189	0.4453956	-7.025081
190	0.4470654	-6.99258
191	0.4498613	-6.938426
192	0.4502385	-6.931148
193	0.4482991	-6.968642
194	0.450895	-6.918491
195	0.4511932	-6.912749
196	0.446334	-7.006801
197	0.4463261	-7.006954
198	0.4540323	-6.858264
199	0.4646081	-6.658265
200	0.4754302	-6.458265
201	0.4865044	-6.258265
202	0.4974176	-6.065578

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KIRQ(FM)  
FM CHANNEL 271 C2  
KIMBERLY, IDAHO

EXHIBIT E-5A  
DIRECTIONAL ANTENNA  
PATTERN TABULATION

DIRECTIONAL ANTENNA  
PATTERN# 20100521A

203	0.5082092	-5.87915
204	0.5200469	-5.67915
205	0.5321603	-5.47915
206	0.5445559	-5.27915
207	0.5572402	-5.079151
208	0.57022	-4.879151
209	0.5835021	-4.679152
210	0.5970936	-4.479151
211	0.6110017	-4.279151
212	0.6252338	-4.079152
213	0.6397973	-3.879152
214	0.6547001	-3.679152
215	0.6699501	-3.479151
216	0.6855552	-3.279151
217	0.7015238	-3.079151
218	0.7178645	-2.879151
219	0.7345856	-2.679151
220	0.7516963	-2.479151
221	0.7692056	-2.279151
222	0.7871227	-2.079151
223	0.8054572	-1.879151
224	0.8242187	-1.679151
225	0.8434172	-1.479151
226	0.8630629	-1.279151
227	0.8831663	-1.079151
228	0.9037378	-0.8791512
229	0.9247886	-0.6791507
230	0.9463297	-0.479151
231	0.9683725	-0.2791508
232	0.9909288	-7.92E-02
233	1	0
234	1	0
235	1	0
236	1	0
237	1	0
238	1	0
239	1	0
240	1	0
241	1	0
242	1	0
243	1	0
244	1	0
245	1	0
246	1	0
247	1	0
248	1	0
249	1	0
250	1	0
251	1	0
252	1	0
253	1	0

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KIRQ(FM)  
FM CHANNEL 271 C2  
KIMBERLY, IDAHO

EXHIBIT E-5A  
DIRECTIONAL ANTENNA  
PATTERN TABULATION

DIRECTIONAL ANTENNA  
PATTERN# 20100521A

254	1	0
255	1	0
256	1	0
257	1	0
258	1	0
259	1	0
260	1	0
261	1	0
262	1	0
263	0.9866878	-0.116405
264	0.964228	-0.3164049
265	0.9422795	-0.516405
266	0.9208306	-0.7164051
267	0.89987	-0.9164047
268	0.8793864	-1.116405
269	0.8593692	-1.316405
270	0.8398075	-1.516405
271	0.8206912	-1.716405
272	0.8020099	-1.916405
273	0.783754	-2.116405
274	0.7659135	-2.316405
275	0.7484792	-2.516405
276	0.7314418	-2.716404
277	0.7147921	-2.916405
278	0.6985215	-3.116405
279	0.6826212	-3.316405
280	0.6670828	-3.516405
281	0.6518982	-3.716404
282	0.6370592	-3.916404
283	0.622558	-4.116404
284	0.6083869	-4.316403
285	0.5945383	-4.516403
286	0.581005	-4.716403
287	0.5677797	-4.916402
288	0.5548555	-5.116402
289	0.5422253	-5.316404
290	0.5298828	-5.516404
291	0.5178212	-5.716403
292	0.5060341	-5.916404
293	0.4957435	-6.094859
294	0.4895055	-6.204848
295	0.4830809	-6.319602
296	0.4767635	-6.43394
297	0.4673648	-6.60688
298	0.4592673	-6.758689
299	0.4513767	-6.909217
300	0.4415329	-7.100738
301	0.4325757	-7.278758
302	0.4244176	-7.444133
303	0.4155442	-7.627655
304	0.4074847	-7.797774

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KIRQ(FM)  
FM CHANNEL 271 C2  
KIMBERLY, IDAHO

EXHIBIT E-5A  
DIRECTIONAL ANTENNA  
PATTERN TABULATION

DIRECTIONAL ANTENNA  
PATTERN# 20100521A

305	0.3997087	-7.965129
306	0.3964298	-8.036674
307	0.3955599	-8.055755
308	0.3951815	-8.064067
309	0.3943604	-8.082133
310	0.3991063	-7.978229
311	0.404851	-7.854095
312	0.4116384	-7.709682
313	0.420011	-7.534786
314	0.4297943	-7.334786
315	0.4398055	-7.134786
316	0.4500499	-6.934786
317	0.4605329	-6.734787
318	0.4712601	-6.534787
319	0.4822371	-6.334787
320	0.4934699	-6.134787
321	0.5049642	-5.934788
322	0.5167264	-5.734787
323	0.5287625	-5.534788
324	0.5410789	-5.334788
325	0.5536823	-5.134788
326	0.5665792	-4.934788
327	0.5797765	-4.734788
328	0.5932811	-4.534789
329	0.6071005	-4.334788
330	0.6168117	-4.196948
331	0.6255209	-4.075164
332	0.6351497	-3.942478
333	0.6497896	-3.744545
334	0.6649252	-3.544545
335	0.6804133	-3.344544
336	0.6962621	-3.144545
337	0.7124802	-2.944544
338	0.729076	-2.744544
339	0.7460583	-2.544544
340	0.7634363	-2.344544
341	0.781219	-2.144544
342	0.7994159	-1.944544
343	0.8180367	-1.744544
344	0.8370913	-1.544544
345	0.8565896	-1.344544
346	0.8765422	-1.144544
347	0.8969594	-0.9445441
348	0.9178523	-0.7445441
349	0.9392318	-0.5445441
350	0.9611093	-0.3445441
351	0.9834965	-0.1445437
352	1	0
353	1	0
354	1	0
355	1	0

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KIRQ(FM)  
FM CHANNEL 271 C2  
KIMBERLY, IDAHO

356	1	0
357	1	0
358	1	0
359	1	0

EXHIBIT E-5A  
DIRECTIONAL ANTENNA  
PATTERN TABULATION

DIRECTIONAL ANTENNA  
PATTERN# 20100521A

# ***KLEIN BROADCAST ENGINEERING, L.L.C.***

dedicated to improving the science of radio and television communications

MAY 2010

EXHIBIT E-10RHS  
RFR STUDY & ANALYSIS  
LOCALLY OWNED RADIO, L.L.C.  
K I R Q (FM)  
(FCC FACILITY ID# 164129)  
FM CHANNEL 271 C2 / 102.1 MHz.  
KIMBERLY, IDAHO

## RF RADIATION HAZARD COMPLIANCE STATEMENT

The facilities proposed herein by the applicant, permittee or licensee, in this Engineering Exhibit comply with FCC O.S.T. Bulletin #65 and #65A as revised (1997) and the ANSI C-95.1-1982 RF and ANSI C95.1992 and the NCRP exposure guidelines. The interpolation of the figures from the above referenced document, page 18, supplement "A", shows a WORST case requirement of 51.2 meters height above ground level requirement for the radiation center of the proposed four (4) bay 0.5 wave length spaced FM broadcast antenna. A combined vertical and horizontal effective radiated power of 46.0 kilowatts was used for this study and determination (23.0 kW Horiz. & 23.0 kW Vert.) The radiation center of the FM broadcast antenna system is to be located at 82 meters above ground level (AGL), well within the requirement for the antenna as determined from the above referenced documents. The antenna specified for use is an Electronics Research, Inc., model MP-4C-DA-HW, a four (4) section, 0.5 wave length spaced, center fed, circularly polarized antenna. The antenna manufacturer, Electronics Research, Inc., states its antenna meets the BEST case requirements for downward radiation pattern according to the FCC O.S.T. Bulletin #65 Guidelines. The antenna proposed uses no beam tilt and no null fill.

Occupational compliance is certified by the reduction of operating power or the complete cessation of operation during such time maintenance personnel are on the antenna support structure. A transmitter "LOCK OUT" circuit has been installed to prevent accidental turn on of the transmission equipment during the time maintenance personnel are on the antenna support structure. The applicant, permittee or licensee will cooperate with other site users in order to comply with The FCC Guidelines on Human Exposure to Non-Ionizing RF Radiation.

In addition to the preceding the applicant, permittee or licensee, has by computer program, performed additional calculations to predict RF power density at the base of the antenna support structure. This program predicts a maximum power density of 6.0154 microwatts/cm<sup>2</sup> at a distance of 311.5 meters from the base of the antenna support structure at a height of 2.0 meters above ground level. This is less than 3.1 % of the allowable RF power density for Uncontrolled areas under the FCC and ANSI/EPA Guidelines, being limited to: 200.0 microwatts/cm<sup>2</sup> for Uncontrolled areas and 1.00mW/cm<sup>2</sup> or (1,000 microwatts/cm<sup>2</sup>) for Controlled areas (areas within fencing). All other power density was calculated to be below this maximum predicted level for the proposed facility, for a distance of 0 to 1000 meters distance from the base of the antenna support structure at 2.0 meters above ground level.

There are other sources of significant RFR levels at the KIRQ(FM) site but because the contribution of this proposal is far less than 5% of the uncontrolled limit, under the "safe harbor" provision of 47 C.F.R. Section 1.1307(b)(3) no further RFR analysis is required.

The computer program employed for the RFR analysis in this engineering exhibit uses either the Near Field or Far Field method for the calculation of power density and was written by the Commission's O.E.T. staff. In this particular case the Far Field Method was used. The formula used by the computer program was derived from the FCC O.S.T. Bulletin #65, as revised to date.

The formula may be stated in the following manner:

$$E(V/m) = 1.6 * 221.72 * \text{SQRT}(\text{ERP}) * (\text{element pattern factor}) * (\text{array factor}) / \text{DIST}$$

$$H(A/m) = 1.6 * 0.588 * \text{SQRT}(\text{ERP}) * (\text{element pattern factor}) * (\text{array factor}) / \text{DIST}$$

Where:

ERP = effective radiated power in kilowatts, relative to a half wave dipole.

DIST = distance in meters from the antenna radiation center to the observation point in meters.

The 1.6 factor found in the ANSI/EPA formula and used above at the beginning of each equation takes into account possible contributions from ground reflections. The element pattern factor in a linearly interpolated relative field value at the appropriate depression angle below the horizon as taken directly from the EPA data. The array factor is computed at the appropriate depression angle using the number of antenna elements, when normalized to 1.0 in the main lobe. This array factor only applies to antenna arrays of point sources where each source has equal power distribution and phase, and are uniformly spaced. The element patterns themselves can be associated with particular antenna designs. As of May 1986 there were six (6) element types identified for FM antennas as listed in the ANSI/EPA data and FCC Bulletin #65. The "Crossed Ring type" EPA Type #3 element used on the Electronics Research, Inc., model MP-4C-DA-HW is listed in the EPA data and was used for the calculations contained herein. There were two types listed for television, one for VHF and one for UHF.

The General Public will not have access to the antenna support structure base because it is in a sparsely populated, rural area. There is a locked gate and fence around the base of the antenna support structure preventing access to the area surrounding the antenna support structure and the support structure base itself. Only authorized personnel have access to the locked gate. This will prevent General Public access to the actual antenna support structure base and surrounding area.

The applicant, permittee or licensee, will install and post RF Radiation Hazard Warning Signs in and around the site at approximately eye level for additional warning and safety.

A vertical pattern plot of the Electronics Research, Inc., model MP-4C-DA-HW antenna to be employed at KIRQ(FM) is included with this exhibit and is marked Figure 1. This plot clearly shows this antenna has greatly reduced downward radiation and meets the BEST case requirements of FCC Bulletin #65, as amended to date. The plot Exhibit marked Figure 2. is a plot of the actual calculated power density in microwatts/cm<sup>2</sup> vs. distance. This plot shows the calculated maximum predicted power density of 6.0154 uW/cm<sup>2</sup> occurring at 311.5 meters distant from the base of the antenna support structure. It also shows, graphically, that all other calculated power density RFR levels are below this maximum between 0 meters and 1000 meters distant from the base of the antenna support structure.

The preceding assures compliance with the FCC, ANSI and NCRP requirements. Based on the preceding documents, tables, guidelines and calculations, the proposed operation of the main transmission facility for KIRQ FM Broadcast Station at Kimberly, Idaho, is in compliance with the FCC O.S.T. Bulletin #65 and the ANSI C-95.1-1992 and the NCRP RF Exposure Guidelines as amended to date. The applicant, permittee or licensee certifies compliance with the ANSI, NCRP and FCC Human Exposure Guidelines to Non-Ionizing RF Radiation.



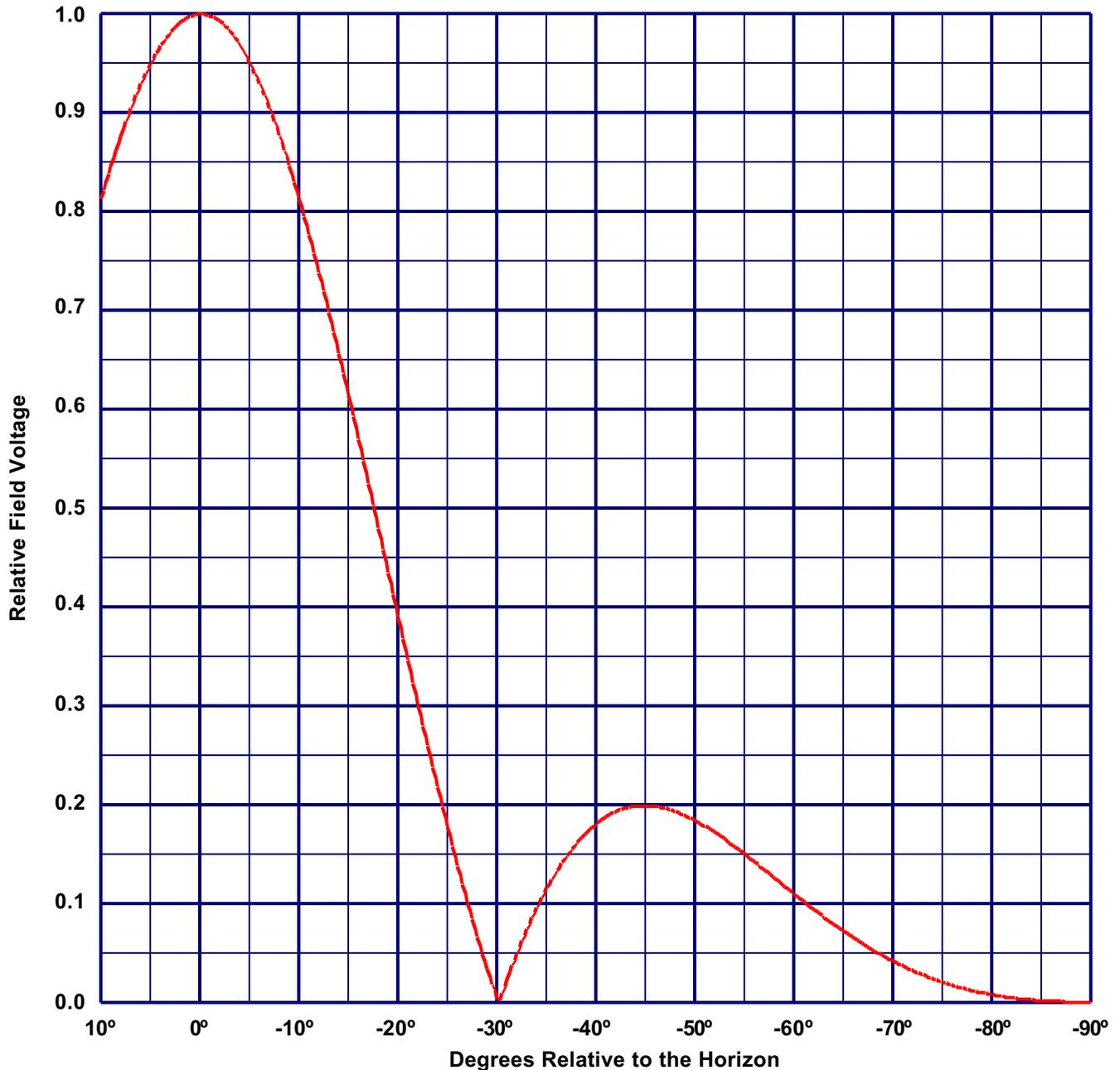
EXHIBIT E-10 FIGURE #1.

# Vertical Plane Relative Field Pattern

ERI TYPE SHP, SHPX, MP, MPX, LP OR LPX ELEMENTS

A 4 level, .5 wave-length spaced antenna

with 0° beam tilt, 0% null fill and a HIV maximum power ratio of 1.000



Vertical Polarization Gain:

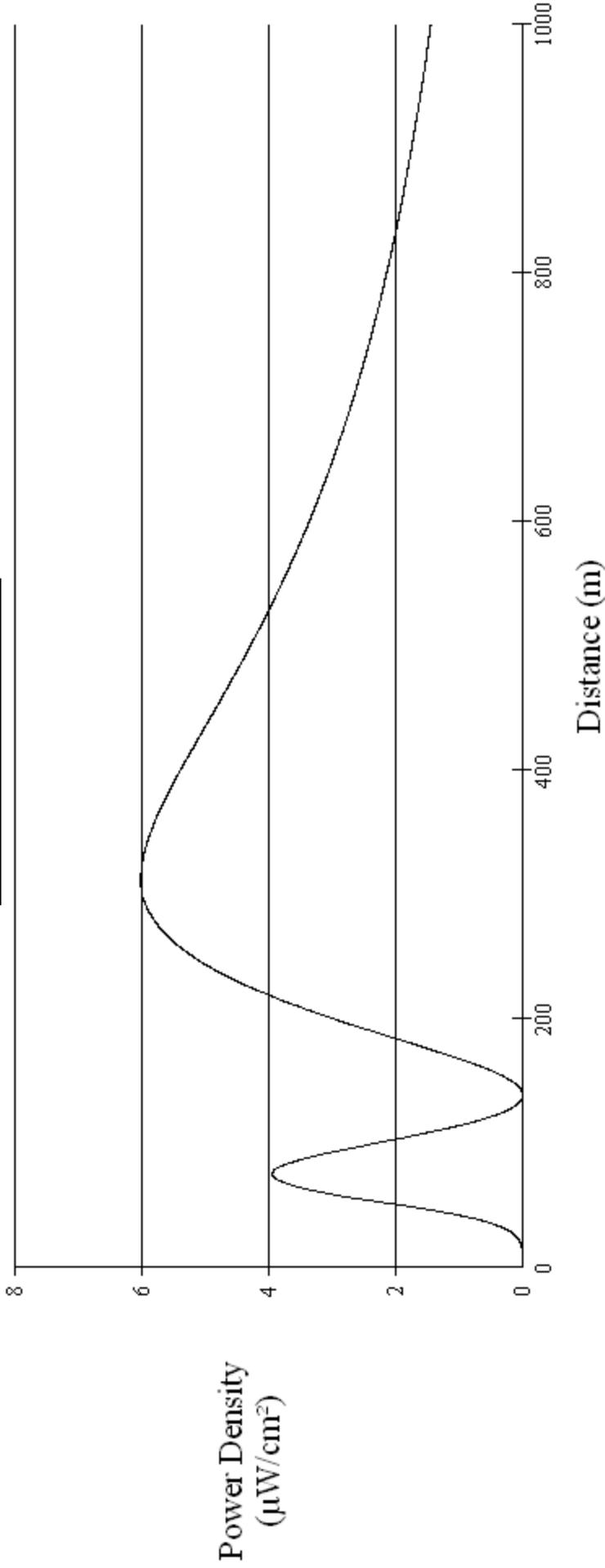
To Be Determined.

Horizontal Polarization Gain:

To Be Determined.

# Power Density vs Distance

EXHIBIT E-10 FIGURE #2.



### Office of Engineering and Technology

Distance (m):	1000	Antenna Type:	ERI or JAMPRO JBCP "Rototiller" (EPA)
Horizontal ERP (W):	23000	Number of Elements:	4
Vertical ERP (W):	23000	Element Spacing:	.5
Antenna Height (m):	82		

MAXIMUM RFR POWER DENSITY = 6.0154uW/cm2 at a distance of 311.5 meters from the base of the antenna support structure, 2 meters above ground level.

Antenna Manufacturer & Model: Electronics Research, Inc. (ERI) MP-4C-DA-HW, a four (4) section, center fed, 0.5 wavelength, directional FM antenna array.

**EXHIBIT E-11**

**United States of America**

**FEDERAL COMMUNICATIONS COMMISSION  
FM BROADCAST STATION CONSTRUCTION PERMIT**

Authorizing Official:

Official Mailing Address:

\_\_\_\_\_  
LOCALLY OWNED RADIO, LLC  
21361 HIGHWAY 30  
TWIN FALLS ID 83301  
\_\_\_\_\_

\_\_\_\_\_  
Rodolfo F. Bonacci  
Assistant Chief  
Audio Division  
Media Bureau  
\_\_\_\_\_

Facility ID: 164129

Grant Date: May 22, 2007

Call Sign: KIRQ

This permit expires 3:00 a.m.  
local time, 36 months after the  
grant date specified above.

Permit File Number: BPH-20061102ABF

Subject to the provisions of the Communications Act of 1934, as amended, subsequent acts and treaties, and all regulations heretofore or hereafter made by this Commission, and further subject to the conditions set forth in this permit, the permittee is hereby authorized to construct the radio transmitting apparatus herein described. Installation and adjustment of equipment not specifically set forth herein shall be in accordance with representations contained in the permittee's application for construction permit except for such modifications as are presently permitted, without application, by the Commission's Rules.

Commission rules which became effective on February 16, 1999, have a bearing on this construction permit. See Report & Order, Streamlining of Mass Media Applications, MM Docket No. 98-43, 13 FCC RCD 23056, Para. 77-90 (November 25, 1998); 63 Fed. Reg. 70039 (December 18, 1998). Pursuant to these rules, this construction permit will be subject to automatic forfeiture unless construction is complete and an application for license to cover is filed prior to expiration. See Section 73.3598.

Equipment and program tests shall be conducted only pursuant to Sections 73.1610 and 73.1620 of the Commission's Rules.

Name of Permittee: LOCALLY OWNED RADIO, LLC

Station Location: ID-KIMBERLY

Frequency (MHz): 102.1

Channel: 271

Class: C2

Hours of Operation: Unlimited

Transmitter: Type Accepted. See Sections 73.1660, 73.1665 and 73.1670 of the Commission's Rules.

Transmitter output power: As required to achieve authorized ERP.

Antenna type: Directional

Antenna Coordinates: North Latitude: 42 deg 43 min 54 sec  
 West Longitude: 114 deg 25 min 04 sec

	Horizontally Polarized Antenna	Vertically Polarized Antenna
Effective radiated power in the Horizontal Plane (kW):	23.0	23.0
Height of radiation center above ground (Meters):	82	82
Height of radiation center above mean sea level (Meters):	1392	1392
Height of radiation center above average terrain (Meters):	220	220

Antenna structure registration number: 1041912

Overall height of antenna structure above ground (including obstruction lighting if any) see the registration for this antenna structure.

Special operating conditions or restrictions:

- 1 The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic fields in excess of FCC guidelines.
  
- 2 FAA INTERFERENCE CONDITION:  
 Upon receipt of notification from the Commission that harmful interference is being caused by the operation of the permittee's/licensee's transmitter, the permittee's/licensee's shall either immediately reduce the power to the point of no interference, cease operation, or take such immediate corrective action as is necessary to eliminate the harmful interference. This condition expires after one year of interference-free operation.
  
- 3 \*\*\*\*\* This is a Section 73.215 contour protection grant \*\*\*\*\*  
 \*\*\*\*\* as requested by this applicant \*\*\*\*\*

## Special operating conditions or restrictions:

- 4 Pursuant to the grant of this construction permit and the authority found in Sections 4(i), 5(c)(1), 303 and 307(b) of the Communications Act of 1934, as amended, and Sections 0.61, 0.204(b), 0.283, 1.420, 73.203(b), and 73.3573 of the Commission's Rules, the FM assignment IS MODIFIED as follows:

Community	Channel No.
Kimberly, ID	Add 271C2
Twin Falls, ID	Delete 271C3

Pursuant to Section 316(a) of the Communication Act of 1934, as amended, construction permit BNPH-20041228ABE IS MODIFIED to specify operation on Channel 271C2 at Kimberly, ID in lieu of Channel 271C3 at Twin Falls, ID.

- 5 Permittee has specified use of the antenna listed below to demonstrate compliance with the FCC radiofrequency electromagnetic field exposure guidelines. If any other type or size of antenna is to be used with the facilities authorized herein, THE AUTOMATIC PROGRAM TEST PROVISIONS OF 47 C.F.R. SECTION 73.1620 WILL NOT APPLY. In this case, a FORMAL REQUEST FOR PROGRAM TEST AUTHORITY must be filed in conjunction with FCC Form 302-FM, application for license, BEFORE program tests will be authorized. The request must include a revised RF field showing to demonstrate continued compliance with the FCC guidelines.

EPA Type 3, 4 sections, 0.5 wavelength spacing

- 6 BEFORE PROGRAM TESTS ARE AUTHORIZED, permittee shall submit the results of a complete proof-of-performance to establish the horizontal plane radiation patterns for both the horizontally and vertically polarized radiation components. This proof-of-performance may be accomplished using the complete full size antenna, or individual bays therefrom, mounted on a supporting structure of identical dimensions and configuration as the proposed structure, including all braces, ladders, conduits, coaxial lines, and other appurtenances; or using a carefully manufactured scale model of the entire antenna, or individual bays therefrom, mounted on an equally scaled model of the proposed supporting structure, including all appurtenances. Engineering exhibits should include a description of the antenna testing facilities and equipment employed, including appropriate photographs or sketches and a description of the testing procedures, including scale factor, measurements frequency, and equipment calibration.
- 7 BEFORE PROGRAM TESTS ARE AUTHORIZED, permittee shall submit an affidavit from a licensed surveyor to establish that the directional antenna has been oriented at the proper azimuth.
- 8 BEFORE PROGRAM TESTS ARE AUTHORIZED, permittee/licensee shall submit an affidavit that the installation of the directional antenna system was overseen by a qualified engineer. This affidavit shall include a certification by the engineer that the antenna was installed pursuant to the manufacturer's instructions and list the qualifications of the certifying engineer.

Special operating conditions or restrictions:

- 9 The relative field strength of neither the measured horizontally nor vertically polarized radiation component shall exceed at any azimuth the value indicated on the composite radiation pattern authorized by this construction permit.

A relative field strength of 1.0 on the composite radiation pattern herein authorized corresponds to the following effective radiated power:

23.0 kilowatts.

Principal minima and their associated field strength limits:

310 degrees True: 3.70 kilowatts

\*\*\* END OF AUTHORIZATION \*\*\*