



ENGINEERING STUDY

Minor License Modification

K271BP Translator for KRML (AM), Monterey, CA

TECHNICAL STATEMENT

This technical statement and attached exhibits were prepared on behalf of KRML Radio LLC. ("KRML"). This application seeks to relocate K271BP to the current K234DH CP location. K271BP will continue to be used as a fill-in service for Station KRML(AM), 1410 kHz, Carmel. Ca Facility ID #73064.

Facilities Proposed

Location (NAD27)	36° 29' 37" N Latitude, 121° 54' 15" W Longitude
Location (NAD83)	36° 29' 37" N Latitude, 121° 54' 18.8" W Longitude
Channel	271D (102.1MHz)
Tower Overall AGL Height-	26m
Tower ASR	N/A Existing tower under 100ft- FAA DNH, Exhibit I
Proposed Antenna	Dual CL-FM- 45deg rotation
Antenna AGL Height-	24m
Site AMSL Height-	573m
ERP	250Watts- DIRECTIONAL (Exhibit A)

COMPLIANCE WITH 74.1204(a) [contour overlap]

The proposed K271BP facility will be fully compliant with 74.1204(a). A table showing the allocation is attached as Exhibit B and a map depicting the closest pertinent facilities is attached as Exhibit C.

COMPLIANCE WITH 74.1204(d) [2nd & 3rd Adjacent Interference]

The proposed translator will be located within the protected contour of 2nd Adjacent KCDU (269A) and KDON (273B). A study was undertaken to determine compliance with 74.1204(d). As shown in Exhibits E, F, and G the proposed translator will be compliant.

KCDU is the facility of greatest concern. As shown in Exhibit E the interfering contour (40dBu above KCDU) falls about 130m from the proposed tower. As shown on the map (Exhibit F), there are no residences within 136m from the tower even assuming a worst-case non-directional antenna. The only structure shown on the Google Earth map is an unoccupied out-building. Exhibit G indicates the interfering contour to KDON is 120m from the tower.

COMPLIANCE WITH 74.1201(g) [AM fill-in]

Exhibit D demonstrates that the proposed translator will be entirely contained within the 2mV/m contour from the licensed KRML facility as well as within 25 miles from KRML.

The proposed facility is not within 320km of the common border between the US and Canada.

COMPLIANCE WITH 74.1232(b) [Areas Served]

The proposed K271BP will essentially be swapping locations with K234DH (these applications are being simultaneously filed). Because of slightly different allocations and antenna patterns, and using strictly FCC 60dBu f50,50 contours, while less than 50% of the proposed K271BP will be duplicated by K234DH, the proposed K234DH will overlap slightly more than 50% of the proposed K271BP. That map is shown in Exhibit J1.

As is shown in Exhibit J2 and J3 it is demonstrated (using Longley-Rice with 3" terrain and appropriate Land-Use clutter) that these two translators clearly cover two very distinct areas which are separated by significant terrain shielding. The proposed K234DH will cover the northern and western communities around Monterey, CA and the proposed K271BP will cover the communities of Carmel (KRML's community of license) and Pebble Beach which will not be served by the proposed K234DH. Based upon the statement and exhibits referenced above, KRML believes that this proposal satisfies the requirement in 74.1232(b) that the proposed K271BP and K234DH will serve substantially different areas.

COMPLIANCE WITH 74.1233 [Minor Change]

Exhibit D demonstrates that the 60dBu contour of the proposed K271BP overlaps some portion of the licensed facility.

ENVIRONMENTAL EXHIBIT

The proposed translator facility will utilize a directional antenna located on an existing tower. The attachment of the proposed translator antenna will not alter the existing tower structure for purposes of the Nationwide Programmatic Agreement and the NHPA Section 106.

The proposed 234D facility will utilize a 2-bay Kathrein/ Scala CL-FM antenna with skewed elements at 45deg and 0.94 wavelength spacing (Option 94), located at 24m AGL. The FCC "FM Model for Windows"¹ output is shown as in Exhibit H, the proposed K271BP operation will produce 11.7 $\mu\text{W}/\text{cm}^2$ at a distance of 4.2m from the base of the tower at ground level or 5.9% of the MPE level.

There are no non-excluded facilities operating on the proposed tower, therefore, it is calculated that the facility will be in compliance with FCC guidelines and is excluded from further Environmental Assessment under 47CFR 1.1306 and 1.1307.

The proposed new FM translator along with other users at the site will maintain an occupational safety policy and agrees to reduce power or cease operation during periods of maintenance to avoid potentially harmful exposure of personnel to non-ionizing RF radiation.

Respectfully Submitted



Bert Goldman

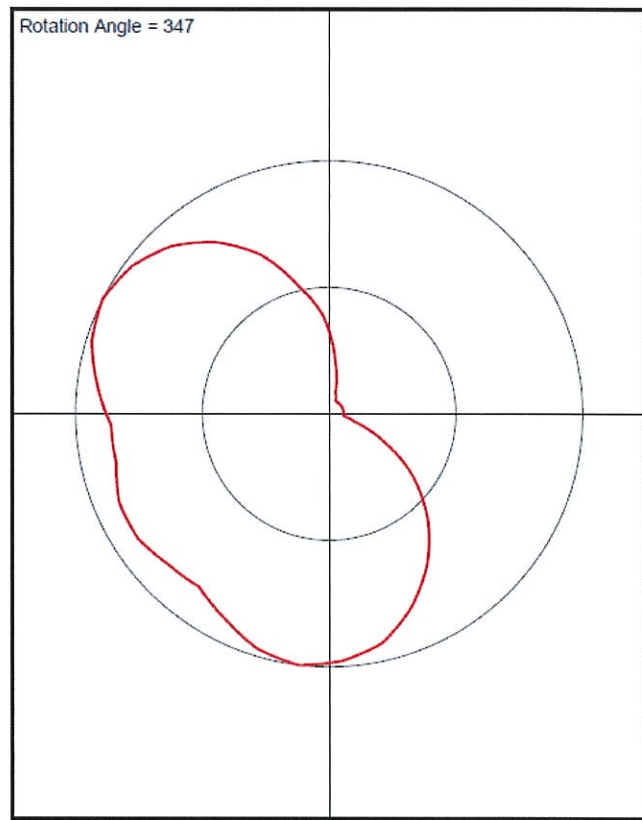
Technical Consultant

¹ <https://www.fcc.gov/general/fm-model>

EXHIBIT A- ANTENNA PATTERN

K271BP PROP Antenna Pattern
Post-Rotation Antenna Pattern....

Azimuth (deg)	Relative Field
0.0	0.3322
5.0	0.2442
10.0	0.173
15.0	0.113
20.0	0.0797
25.0	0.0642
30.0	0.058
35.0	0.058
40.0	0.058
45.0	0.058
50.0	0.058
55.0	0.058
60.0	0.058
65.0	0.058
70.0	0.058
75.0	0.058
80.0	0.058
85.0	0.058
90.0	0.058
95.0	0.058
100.0	0.0718
105.0	0.0948
110.0	0.1466
115.0	0.2176
120.0	0.2976
125.0	0.3836
130.0	0.4636
135.0	0.5396
140.0	0.612
145.0	0.682
150.0	0.746
155.0	0.806
160.0	0.86
165.0	0.91
170.0	0.9444
175.0	0.9684
180.0	0.9846
185.0	0.9956
190.0	0.991
195.0	0.976
200.0	0.9511
205.0	0.9196
210.0	0.8911
215.0	0.8646
220.0	0.8588
225.0	0.8668
230.0	0.879
235.0	0.894
240.0	0.8994
245.0	0.8984
250.0	0.8866
255.0	0.8676
260.0	0.86
265.0	0.86
270.0	0.878
275.0	0.908
280.0	0.9374
285.0	0.9664
290.0	0.9846
295.0	0.9956
300.0	0.991
305.0	0.976
310.0	0.9511
315.0	0.9196



320.0	0.8773
325.0	0.8278
330.0	0.7702
335.0	0.7072
340.0	0.6316
345.0	0.5476
350.0	0.4753
355.0	0.4108

EXHIBIT B- ALLOCATION STUDY

ComStudy 2.2 search of channel 271 (102.1 MHz Class D) at 36-29-37.0 N, 121-54-15.0 W.

CALL	CITY	ST CHN CL	DIST	SEP	BRNG	CLEARANCE	
KDON-FM	SALINAS	CA 273 B	46.35	0.00	50.8	-21.06 dB	Exhibit G
KCDU	CARMEL	CA 269 A	12.28	0.00	57.7	-17.83 dB	Exhibit E
KRKC-FM	KING CITY	CA 271 B	101.10	0.00	126.4	-4.01 dB	Exhibit C
KXWS-LP	WATSONVILLE	CA 271 LP100	49.62	24.00	8.9	-1.71 dB	Exhibit C
KRBQ	SAN FRANCISCO	CA 271 B	159.57	0.00	341.0	0.51 dB	Exhibit C
KYTH-LP	SANTA CRUZ	CA 270 LP100	59.01	13.00	345.3	9.24 dB	
K217EK	PALO COLORADO CANYON	CA 217 D	11.10	0.00	165.8	11.1	
KZBV	CARMEL VALLEY	CA 217 A	21.63	10.00	108.7	11.6	
KRBQ-FM2	SAN FRANCISCO	CA 271 D	154.05	0.00	359.5	12.07 dB	
KHGE	FRESNO	CA 274 B	217.16	0.00	79.7	36.10 dB	
KNTY	SHINGLE SPRINGS	CA 270 B	275.38	0.00	17.6	38.63 dB	
KAMB	MERCED	CA 268 B	202.87	0.00	54.6	39.93 dB	

EXHIBIT C Pertinent Protection Contours, 74.1204(a) Compliance

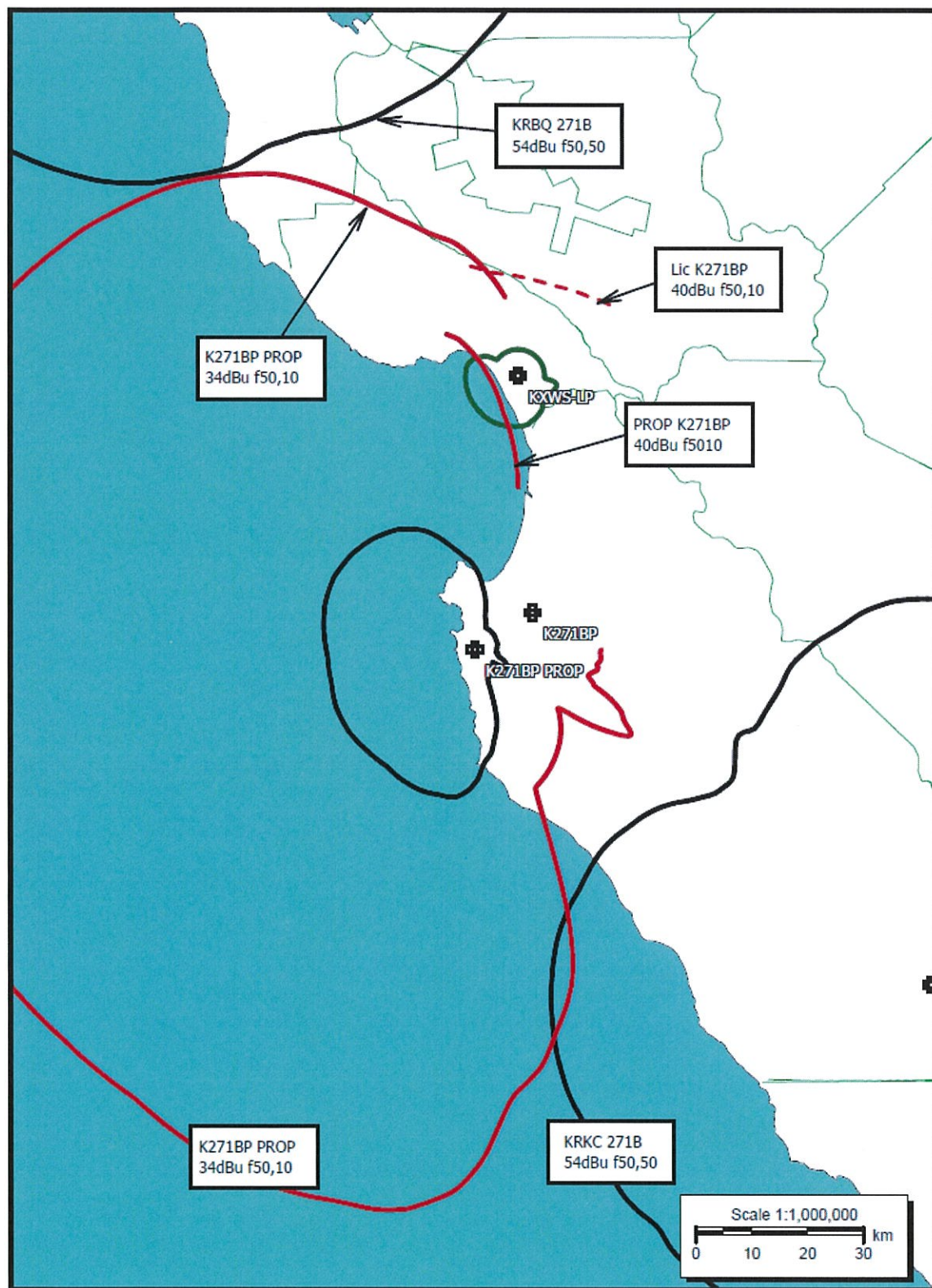


EXHIBIT D- 74.1201(g), 74.1233 Compliance

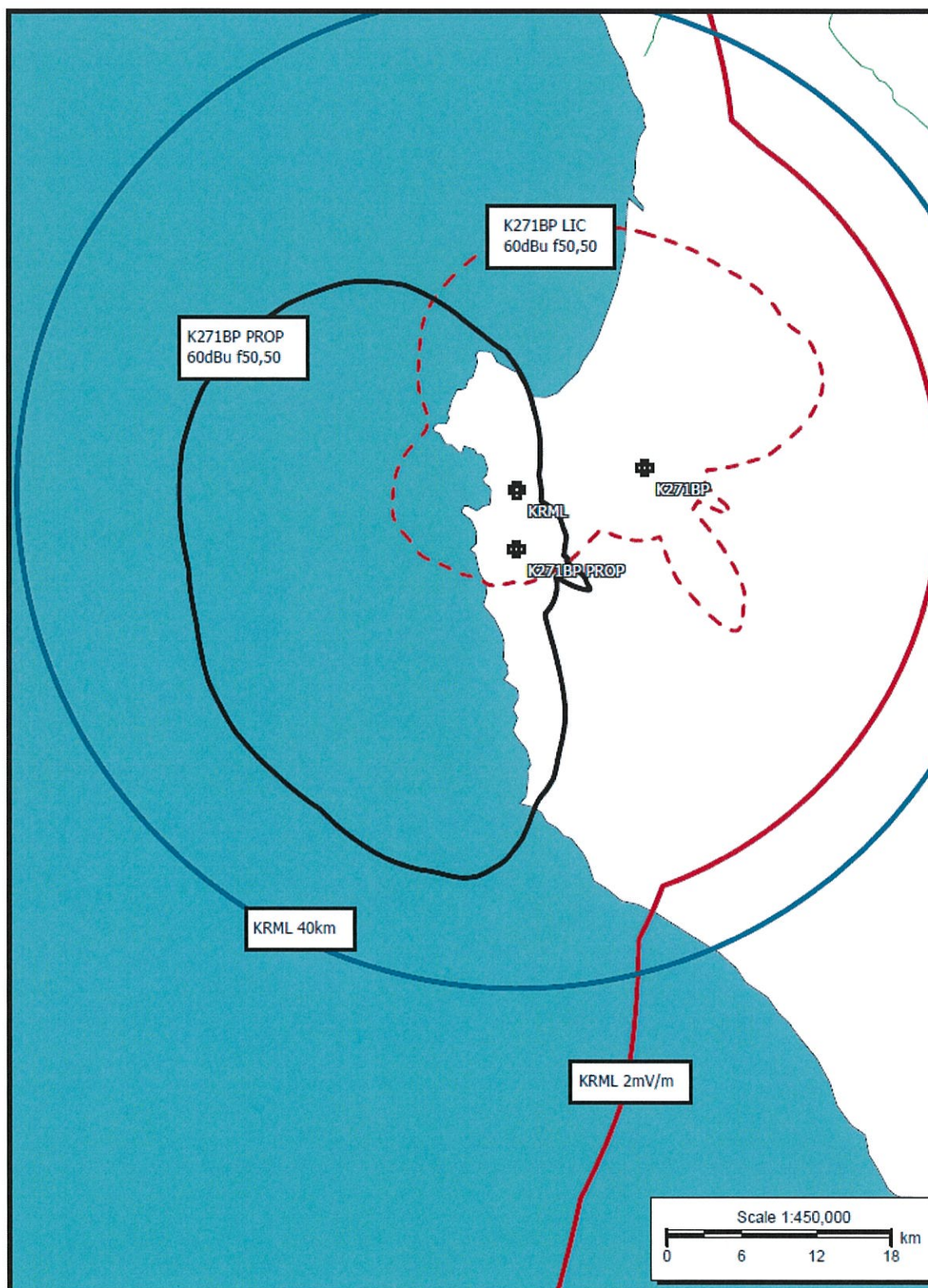


EXHIBIT E- 74.1204d Compliance (2nd & 3rd Adj Protection), KCDU 269A

K271BP PROP Monterey, CA, Showing Protection to KCDU, Channel: 269

Geographic Coordinates: N. 36 29 36.8 W. 121 54 19.0

74.1204(d) Study - Using NED 03 SEC Terrain Database

Translator or LPFM Maximum Licensed ERP = 0.15 kW, Channel: 271

Translator or LPFM Antenna Height AG = 24 meters

K234DH.C Antenna Model = 2-CL-FM V STACK 0PT94 WL SPC

Protected Station's Contour = 74.83186 dBu

Translator's or LPFM's full Interference contour 114.83186

Review Azimuth = 0 Degrees True (Non-Directional Evaluated)

Horizontal Relative Field at Review Azimuth = 1.000

Translator/LPFM ERP on the horizontal at Review Azimuth = 0.15 kW

Distance between stations = 12.3 km

Protected Station= KCDU, 2.35 kW, 387 M meters COR AMSL

Depression Angle From Degree(Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle(m)	Dist to IX Contour From Tower Base(m)	Height IX Above Ground (m)
00.00	1.0	1.0	0.1500	155.7588	155.7588	024.000
01.00	0.983	1.0	0.1449	153.0798	153.0564	021.328
02.00	0.966	1.0	0.1399	150.4007	150.3091	018.751
03.00	0.948	1.0	0.1349	147.7217	147.5192	016.269
04.00	0.931	1.0	0.1301	145.0426	144.6893	013.882
05.00	0.914	1.0	0.1253	142.3636	141.8218	011.592
06.00	0.897	1.0	0.1206	139.6845	138.9193	009.399
07.00	0.88	1.0	0.1161	137.0055	135.9842	007.303
08.00	0.862	1.0	0.1116	134.3264	133.0191	005.305
09.00	0.845	1.0	0.1072	131.6473	130.0266	003.406
10.00	0.828	1.0	0.1028	128.9683	127.0090	001.605
11.00	0.789	1.0	0.0933	122.8626	120.6052	000.557
12.00	0.75	1.0	0.0843	116.7568	114.2054	-000.275
13.00	0.71	1.0	0.0757	110.6511	107.8151	-000.891
14.00	0.671	1.0	0.0676	104.5453	101.4399	-001.292
15.00	0.632	1.0	0.0599	098.4396	095.0853	-001.478
16.00	0.593	1.0	0.0527	092.3338	088.7570	-001.451
17.00	0.554	1.0	0.0460	086.2281	082.4603	-001.211
18.00	0.514	1.0	0.0397	080.1223	076.2009	-000.759
19.00	0.475	1.0	0.0339	074.0166	069.9841	-000.097
20.00	0.436	1.0	0.0285	067.9108	063.8153	000.773
21.00	0.399	1.0	0.0238	062.0699	057.9472	001.756
22.00	0.361	1.0	0.0195	056.2289	052.1346	002.936
23.00	0.324	1.0	0.0157	050.3880	046.3824	004.312
24.00	0.286	1.0	0.0123	044.5470	040.6957	005.881
25.00	0.249	1.0	0.0093	038.7061	035.0796	007.642
26.00	0.211	1.0	0.0067	032.8651	029.5390	009.593
27.00	0.174	1.0	0.0045	027.0242	024.0787	011.731
28.00	0.136	1.0	0.0028	021.1832	018.7037	014.055
29.00	0.099	1.0	0.0015	015.3422	013.4186	016.562
30.00	0.061	1.0	0.0006	009.5013	008.2284	019.249
31.00	0.036	1.0	0.0002	005.5294	004.7397	021.152
32.00	0.01	1.0	0.0000	001.5576	001.3209	023.175
33.00	0.028	1.0	0.0001	004.2834	003.5923	021.667
34.00	0.045	1.0	0.0003	007.0091	005.8108	020.081
35.00	0.063	1.0	0.0006	009.7349	007.9744	018.416
36.00	0.08	1.0	0.0010	012.4607	010.0809	016.676
37.00	0.098	1.0	0.0014	015.1865	012.1285	014.861
38.00	0.115	1.0	0.0020	017.9123	014.1151	012.972

39.00	0.133	1.0	0.0026	020.6380	016.0388	011.012
40.00	0.15	1.0	0.0034	023.3638	017.8977	008.982
41.00	0.156	1.0	0.0036	024.2361	018.2912	008.100
42.00	0.161	1.0	0.0039	025.1083	018.6591	007.199
43.00	0.167	1.0	0.0042	025.9806	019.0010	006.281
44.00	0.172	1.0	0.0045	026.8528	019.3163	005.346
45.00	0.178	1.0	0.0048	027.7251	019.6046	004.395
46.00	0.174	1.0	0.0046	027.1332	018.8483	004.482
47.00	0.17	1.0	0.0044	026.5413	018.1011	004.589
48.00	0.167	1.0	0.0042	025.9494	017.3636	004.716
49.00	0.163	1.0	0.0040	025.3575	016.6360	004.862
50.00	0.159	1.0	0.0038	024.7657	015.9191	005.028
51.00	0.15	1.0	0.0034	023.4261	014.7425	005.794
52.00	0.142	1.0	0.0030	022.0866	013.5979	006.596
53.00	0.133	1.0	0.0027	020.7471	012.4859	007.431
54.00	0.125	1.0	0.0023	019.4075	011.4075	008.299
55.00	0.116	1.0	0.0020	018.0680	010.3634	009.200
56.00	0.107	1.0	0.0017	016.6662	009.3196	010.183
57.00	0.098	1.0	0.0014	015.2644	008.3136	011.198
58.00	0.089	1.0	0.0012	013.8625	007.3460	012.244
59.00	0.08	1.0	0.0010	012.4607	006.4177	013.319
60.00	0.071	1.0	0.0008	011.0589	005.5294	014.423
61.00	0.066	1.0	0.0006	010.2489	004.9688	015.036
62.00	0.061	1.0	0.0006	009.4390	004.4313	015.666
63.00	0.055	1.0	0.0005	008.6290	003.9175	016.311
64.00	0.05	1.0	0.0004	007.8191	003.4277	016.972
65.00	0.045	1.0	0.0003	007.0091	002.9622	017.648
66.00	0.04	1.0	0.0002	006.1992	002.5214	018.337
67.00	0.035	1.0	0.0002	005.3893	002.1057	019.039
68.00	0.029	1.0	0.0001	004.5793	001.7154	019.754
69.00	0.024	1.0	0.0001	003.7694	001.3508	020.481
70.00	0.019	1.0	0.0001	002.9594	001.0122	021.219
71.00	0.018	1.0	0.0000	002.8192	000.9179	021.334

EXHIBIT F- Map Showing Compliance to KCDU (2nd Adj)

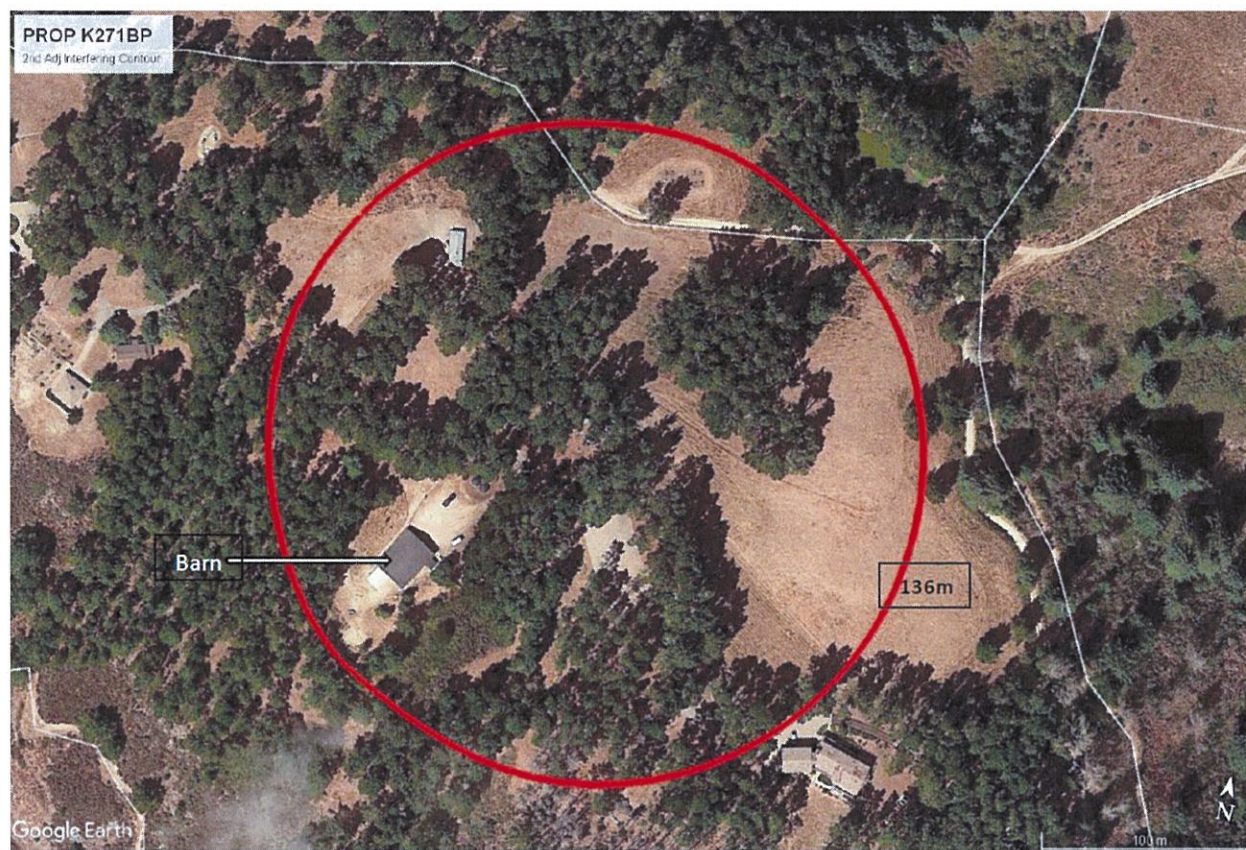


EXHIBIT G- 74.1204d Compliance (2nd & 3rd Adj Protection) KDON 273B

K234DH.C Monterey, CA, Showing Protection to KDON-FM, Channel: 273
Geographic Coordinates: N. 36 29 36.8 W. 121 54 19.0
74.1204(d) Study - Using NED 03 SEC Terrain Database
Translator or LPFM Maximum Licensed ERP = 0.15 kW, Channel: 271
Translator or LPFM Antenna Height AG = 24 meters
K234DH.C Antenna Model = 2-CL-FM V STACK 0PT94 WL SPC

Protected Station's Contour = 75.1743 dBu
Translator's or LPFM's full Interference contour 115.1743

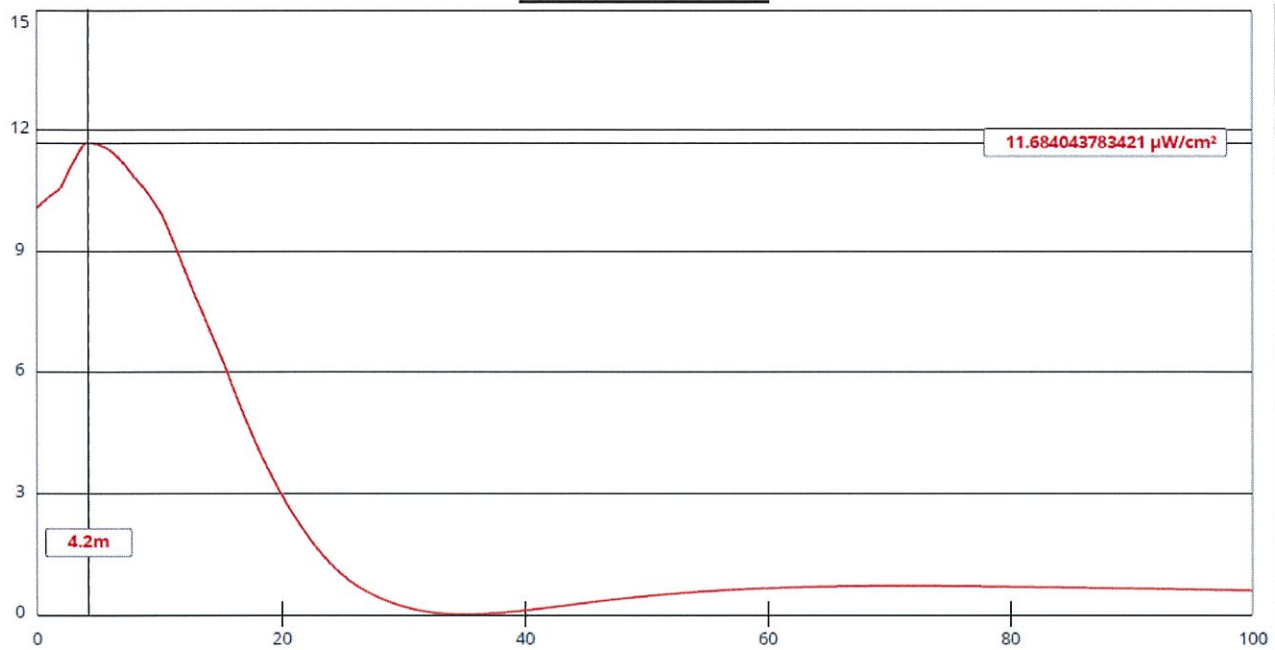
Review Azimuth = 0 Degrees True
Horizontal Relative Field at Review Azimuth = 1.000
Translator/LPFM ERP on the horizontal at Review Azimuth = 0.15 kW
Distance between stations = 46.3 km
Protected Station= KDON-FM, 15 kW, 1018 M meters COR AMSL

Depression Angle From Degree(Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle(m)	Dist to IX Contour From Tower Base(m)	Height IX Above Ground (m)
00.00	1.0	1.0	0.1500	149.7375	149.7375	024.000
01.00	0.983	1.0	0.1449	147.1620	147.1396	021.432
02.00	0.966	1.0	0.1399	144.5865	144.4985	018.954
03.00	0.948	1.0	0.1349	142.0111	141.8164	016.568
04.00	0.931	1.0	0.1301	139.4356	139.0959	014.273
05.00	0.914	1.0	0.1253	136.8601	136.3393	012.072
06.00	0.897	1.0	0.1206	134.2846	133.5490	009.963
07.00	0.88	1.0	0.1161	131.7091	130.7274	007.949
08.00	0.862	1.0	0.1116	129.1336	127.8769	006.028
09.00	0.845	1.0	0.1072	126.5582	125.0000	004.202
10.00	0.828	1.0	0.1028	123.9827	122.0991	002.471
11.00	0.789	1.0	0.0933	118.1130	115.9429	001.463
12.00	0.75	1.0	0.0843	112.2432	109.7905	000.663
13.00	0.71	1.0	0.0757	106.3735	103.6472	000.071
14.00	0.671	1.0	0.0676	100.5038	097.5184	-000.314
15.00	0.632	1.0	0.0599	094.6341	091.4095	-000.493
16.00	0.593	1.0	0.0527	088.7644	085.3258	-000.467
17.00	0.554	1.0	0.0460	082.8947	079.2726	-000.236
18.00	0.514	1.0	0.0397	077.0250	073.2551	000.198
19.00	0.475	1.0	0.0339	071.1553	067.2786	000.834
20.00	0.436	1.0	0.0285	065.2856	061.3484	001.671
21.00	0.399	1.0	0.0238	059.6704	055.7071	002.616
22.00	0.361	1.0	0.0195	054.0552	050.1191	003.751
23.00	0.324	1.0	0.0157	048.4401	044.5893	005.073
24.00	0.286	1.0	0.0123	042.8249	039.1225	006.582
25.00	0.249	1.0	0.0093	037.2098	033.7235	008.274
26.00	0.211	1.0	0.0067	031.5946	028.3971	010.150
27.00	0.174	1.0	0.0045	025.9795	023.1479	012.206
28.00	0.136	1.0	0.0028	020.3643	017.9806	014.440
29.00	0.099	1.0	0.0015	014.7491	012.8999	016.849
30.00	0.061	1.0	0.0006	009.1340	007.9103	019.433
31.00	0.036	1.0	0.0002	005.3157	004.5564	021.262
32.00	0.01	1.0	0.0000	001.4974	001.2698	023.207
33.00	0.028	1.0	0.0001	004.1178	003.4535	021.757
34.00	0.045	1.0	0.0003	006.7382	005.5862	020.232
35.00	0.063	1.0	0.0006	009.3586	007.6661	018.632
36.00	0.08	1.0	0.0010	011.9790	009.6912	016.959
37.00	0.098	1.0	0.0014	014.5994	011.6596	015.214
38.00	0.115	1.0	0.0020	017.2198	013.5694	013.398

39.00	0.133	1.0	0.0026	019.8402	015.4187	011.514
40.00	0.15	1.0	0.0034	022.4606	017.2058	009.563
41.00	0.156	1.0	0.0036	023.2992	017.5841	008.714
42.00	0.161	1.0	0.0039	024.1377	017.9378	007.849
43.00	0.167	1.0	0.0042	024.9762	018.2665	006.966
44.00	0.172	1.0	0.0045	025.8147	018.5696	006.068
45.00	0.178	1.0	0.0048	026.6533	018.8467	005.153
46.00	0.174	1.0	0.0046	026.0843	018.1197	005.237
47.00	0.17	1.0	0.0044	025.5153	017.4014	005.339
48.00	0.167	1.0	0.0042	024.9463	016.6923	005.461
49.00	0.163	1.0	0.0040	024.3773	015.9929	005.602
50.00	0.159	1.0	0.0038	023.8083	015.3037	005.762
51.00	0.15	1.0	0.0034	022.5205	014.1726	006.498
52.00	0.142	1.0	0.0030	021.2328	013.0722	007.268
53.00	0.133	1.0	0.0027	019.9450	012.0032	008.071
54.00	0.125	1.0	0.0023	018.6573	010.9665	008.906
55.00	0.116	1.0	0.0020	017.3696	009.9628	009.772
56.00	0.107	1.0	0.0017	016.0219	008.9593	010.717
57.00	0.098	1.0	0.0014	014.6743	007.9922	011.693
58.00	0.089	1.0	0.0012	013.3266	007.0620	012.698
59.00	0.08	1.0	0.0010	011.9790	006.1696	013.732
60.00	0.071	1.0	0.0008	010.6314	005.3157	014.793
61.00	0.066	1.0	0.0006	009.8527	004.7767	015.383
62.00	0.061	1.0	0.0006	009.0741	004.2600	015.988
63.00	0.055	1.0	0.0005	008.2955	003.7661	016.609
64.00	0.05	1.0	0.0004	007.5168	003.2952	017.244
65.00	0.045	1.0	0.0003	006.7382	002.8477	017.893
66.00	0.04	1.0	0.0002	005.9596	002.4240	018.556
67.00	0.035	1.0	0.0002	005.1809	002.0243	019.231
68.00	0.029	1.0	0.0001	004.4023	001.6491	019.918
69.00	0.024	1.0	0.0001	003.6236	001.2986	020.617
70.00	0.019	1.0	0.0001	002.8450	000.9731	021.327

EXHIBIT H- FCC "FM Model" RFR Calculation

GROUND LEVEL



[View Tabular Results +](#)

Channel Selection	Channel 271 (102.1 MHz) ▼		
Antenna Type +	EPA Type 1: Ring-and-Stub or "Other" ▼		
Height (m)	<input type="text" value="24"/>	Distance (m)	<input type="text" value="100"/>
ERP-H (W)	<input type="text" value="150"/>	ERP-V (W)	<input type="text" value="150"/>
Num of Elements	<input type="text" value="2"/>	Element Spacing (λ)	<input type="text" value="0.94"/>
Num of Points	<input type="text" value="500"/>	Apply	

EXHIBIT I – FAA Determination- Existing Tower



Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2007-AWP-2842-OE

Issued Date: 05/31/2007

Sean Brandel
American Tower, Bellevue
4122 Factoria Blvd. S.E. Ste.405
Bellevue, WA 98006

Carmel- #301087

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Antenna Tower Carmel #301087
Location:	Carmel-by-the-Sea, CA
Latitude:	36-29-36.96 N NAD 83
Longitude:	121-54-18.84 W
Heights:	86 feet above ground level (AGL) 1966 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking and/or lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Communications Commission if the structure is subject to their licensing authority.

EXHIBIT J1 – K271BP, K234DH Proposed FCC f50,50 60dBu Overlap

K271BP Proposed, K234DH Proposed 60dBu f50,50 Overlap

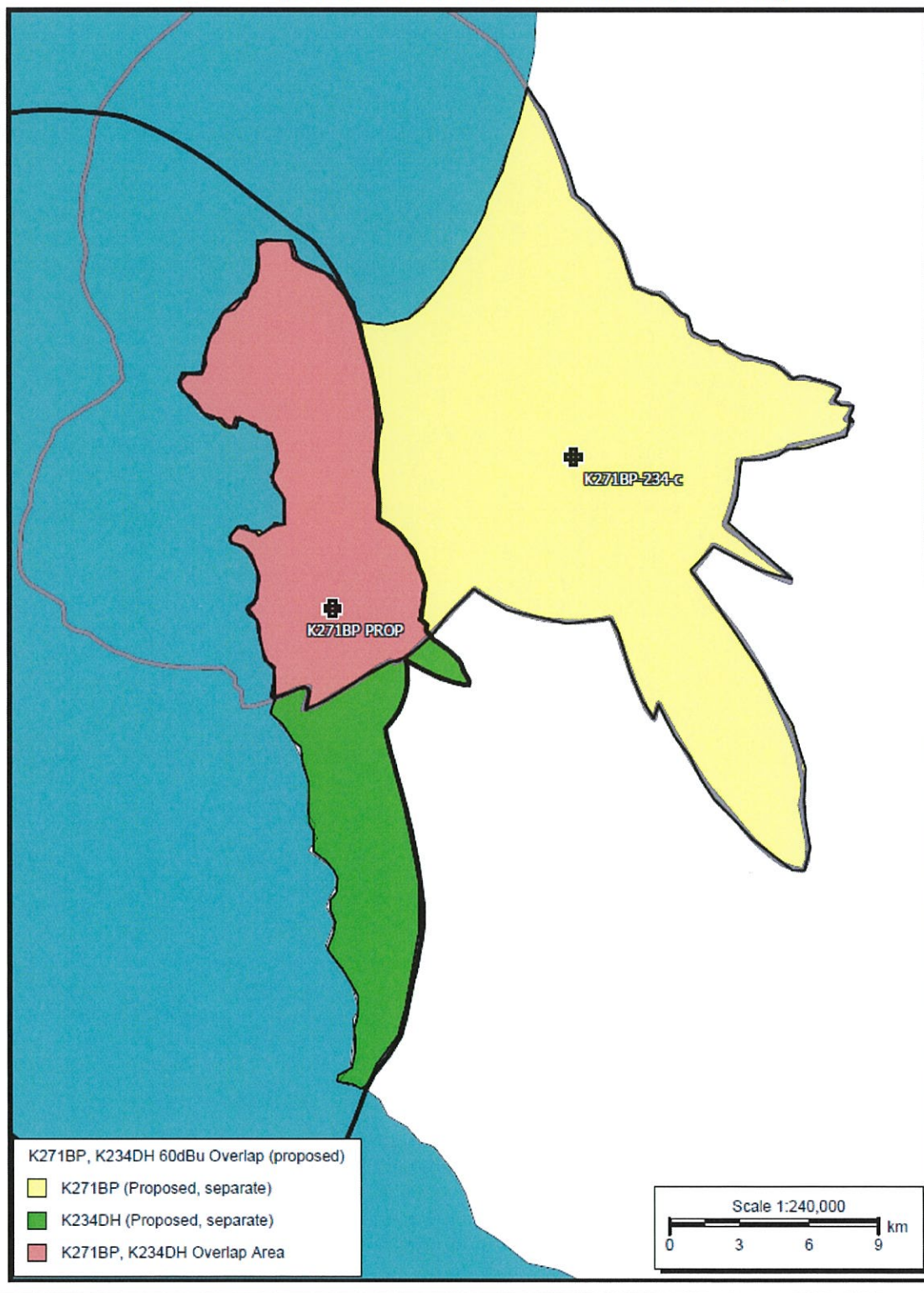


EXHIBIT J2 – K234DH Proposed Longley-Rice Coverage

K234DH Proposed- Longley-Rice

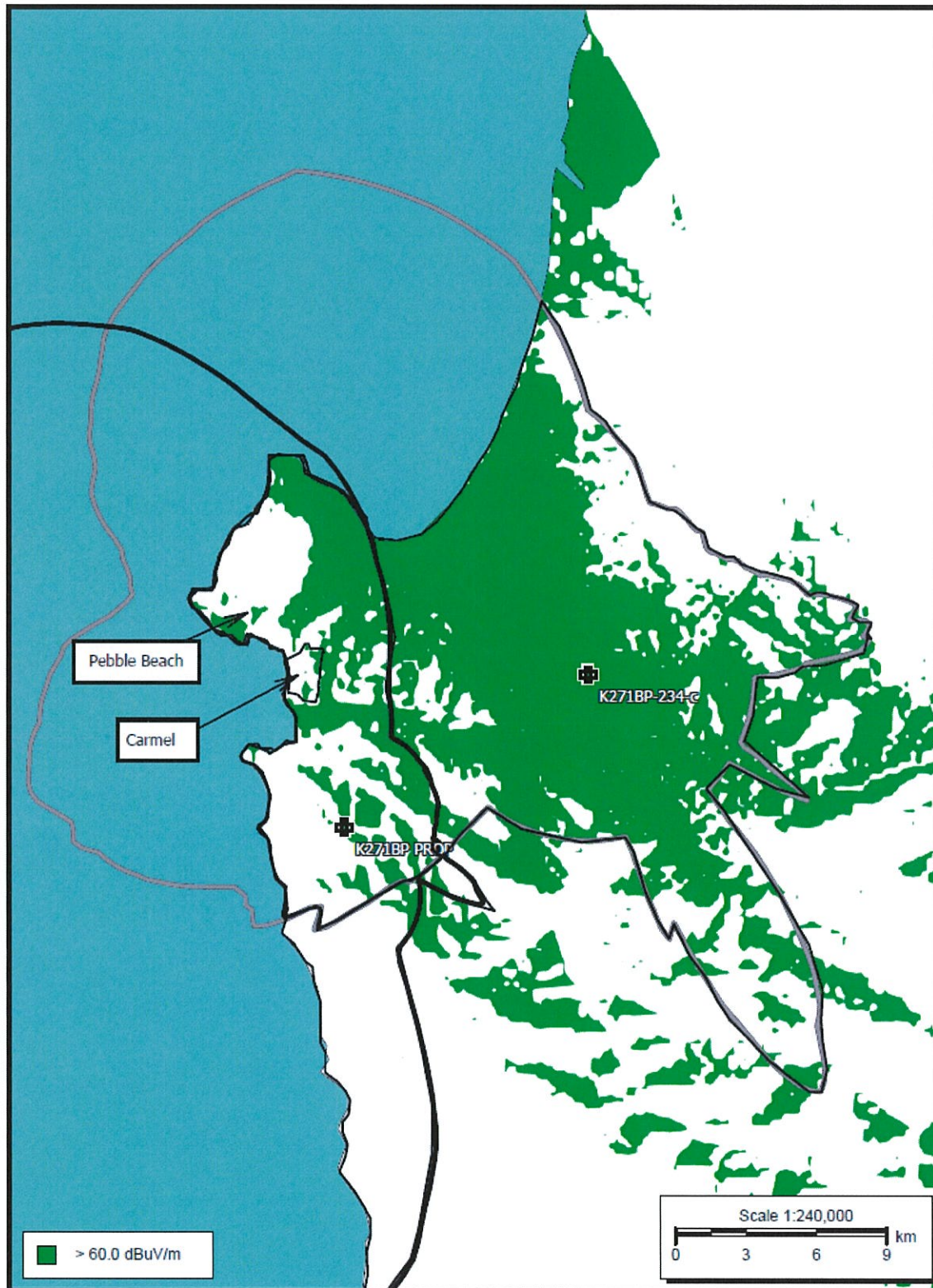


EXHIBIT J3 – K271BP Proposed Longley-Rice Coverage

K271BP Proposed- Longley-Rice

