March 2017
LPFM Station KONR-LP
Anchorage, Alaska Channel 291L1
Allocation Study

LPFM station KONR-LP is presently licensed for operation on Channel 285L1 at Anchorage. Owing to interference received from cochannel station KYKA on Channel 285C1, sited just 28 km to the north, it is necessary for KONR-LP to secure authorization on a new channel in order to provide continued service to the public. KONR-LP can operate on Channel 291L1 without any apparent interference concern.

The attached spacing study shows that the proposed operation meets the co-channel and adjacent channel spacing requirements for Class L1 stations as prescribed in §73.807 of the Commission's Rules, with the exception of short-spacings to the licensed facility of KMVN 289C1 Anchorage and the licensed facility of KWHL 293C1 Anchorage. Waiver of the Commission's Rules is respectfully requested to allow KONR-LP to operate short-spaced to second-adjacent-channel stations KMVN and KWHL.

KMVN 289C1 Anchorage
The proposed LPFM transmitter site is located within the 60 dBu protected contour of second-adjacent channel station KMVN 289C1 Anchorage. The following calculation, performed using the *Living Way* methodology, addresses interference protection to that station.

Protected **Station**	**Distance & Bearing to Proposal**	**Station ERP and HAAT on that azimuth**	**Station Field Strength at Proposal**	**Corresponding Translator Interfering Contour**	**Distance to Translator Interfering Contour**
KMVN 289C1	28.69 km 222 deg True	51 kW 514 meters	83.6 dBu F(50,50)	123.6 dBu	46 meters Free Space

The 146.4 dBu interfering contour from the proposed facility would extend only 0.9 meters[1] from the antenna and would not reach ground level (which is 10 meters below the antenna). There is no population within this contour. Therefore, the proposed facility is believed to satisfy the requirements of §73.807(e)(1) with respect to KMVN.

Given that the transmitting antenna will be installed at a height of 41 meters above ground, and taking into consideration the vertical plane pattern of the Bext TFC1K-1 antenna, the attached Free Space calculations demonstrate that the interference area will not reach ground level. There is no population within this contour. Therefore, the proposed facility satisfies the interference protection waiver requirements with respect to KMVN.

[1] This study assumes a maximum ERP of 100 watts.

KWHL 293C1 Anchorage

The proposed LPFM transmitter site is located within the 60 dBu protected contour of second-adjacent channel station KWHL 293C1 Anchorage. The following calculation, performed using the *Living Way* methodology, addresses interference protection to that station.

Protected **Station**	**Distance & Bearing to Proposal**	**Station ERP and HAAT on that azimuth**	**Station Field Strength at Proposal**	**Corresponding Translator Interfering Contour**	**Distance to Translator Interfering Contour**
KWHL 293C1	3.11 km 21 deg True	100 kW 83 meters	108.8 dBu F(50,50)	148.8 dBu	2.5 meters Free Space

The 148.8 dBu interfering contour from the proposed facility would extend only 2.5 meters[2] from the antenna and would not reach ground level (which is 41 meters below the antenna). There is no population within this contour. Therefore, the proposed facility satisfies the interference protection waiver requirements with respect to KWHL.

[2] This study assumes a maximum ERP of 100 watts.

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SEARCH PARAMETERS FM Database Date: 170303

Channel: 291L1 106.1 MHz

Latitude: 61 8 48

Longitude: 149 52 28

Safety Zone: 32 km

Job Title: KONR-LP 291L1

Call Status	City St FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KMVN LIC	ANCHORAGE AK BLH-10720ABJ	289C1 105.7	51.000 326.0	61-20-11 149-30-48	42.3	28.69 -44.31	73 SHORT
K292FY LIC	ANCHORAGE AK BLFT-10829AAP	292D 106.3	0.035 DA 0.0	61-20-12 149-30-45	42.3	28.74 2.74	26 CLEAR
KWHL LIC	ANCHORAGE AK BLH-30930AXZ	293C1 106.5	100.000 16.0	61-07-14 149-53-42	200.8	3.11 -69.89	73 SHORT

==== END OF FM SPACING STUDY FOR CHANNEL 291 ====

KONR-LP 291L1 Free Space Interference Area Calculator
Interference Area to KMVN 289C1

Antenna Height: 41 meters AGL
Contour Level: 123.6 dBu equals 1.5 V/m
ERP in Watts: 100 Watts

Maximum distance
to interfering contour is: 152.0 feet equals 46.3 meters

Antenna: TFC1K

Depression Angle (degrees)	Bext TFC1K Relative Field	Adjusted ERP (Watts)	Free Space Distance To 123.6 dBu Contour Along the depression angle	Horizontal Distance (meters)	Contour AGL (meters)
-90	0.105	1.1	4.9 meters	0	36.1
-89	0.104	1.1	4.8	0.1	36.2
-88	0.102	1.0	4.7	0.2	36.3
-87	0.100	1.0	4.6	0.2	36.4
-86	0.102	1.0	4.7	0.3	36.3
-85	0.103	1.1	4.8	0.4	36.2
-84	0.105	1.1	4.9	0.5	36.2
-83	0.110	1.2	5.1	0.6	35.9
-82	0.115	1.3	5.3	0.7	35.7
-81	0.120	1.4	5.6	0.9	35.5
-80	0.129	1.7	6.0	1.0	35.1
-79	0.137	1.9	6.3	1.2	34.8
-78	0.145	2.1	6.7	1.4	34.4
-77	0.155	2.4	7.2	1.6	34.0
-76	0.166	2.8	7.7	1.9	33.5
-75	0.176	3.1	8.2	2.1	33.1
-74	0.188	3.5	8.7	2.4	32.6
-73	0.199	4.0	9.2	2.7	32.2
-72	0.211	4.5	9.8	3.0	31.7
-71	0.225	5.1	10.4	3.4	31.1
-70	0.239	5.7	11.1	3.8	30.6
-69	0.253	6.4	11.7	4.2	30.1
-68	0.268	7.2	12.4	4.7	29.5
-67	0.282	8.0	13.1	5.1	29.0
-66	0.297	8.8	13.8	5.6	28.4
-65	0.313	9.8	14.5	6.1	27.9
-64	0.329	10.8	15.2	6.7	27.3
-63	0.345	11.9	16.0	7.3	26.8
-62	0.361	13.0	16.7	7.8	26.2
-61	0.376	14.1	17.4	8.4	25.8
-60	0.391	15.3	18.1	9.1	25.3
-59	0.406	16.5	18.8	9.7	24.9
-58	0.421	17.7	19.5	10.3	24.5
-57	0.436	19.0	20.2	11.0	24.1
-56	0.450	20.3	20.8	11.7	23.7
-55	0.465	21.6	21.5	12.4	23.4
-54	0.479	22.9	22.2	13.0	23.1
-53	0.494	24.4	22.9	13.8	22.7
-52	0.508	25.8	23.5	14.5	22.5
-51	0.523	27.4	24.2	15.2	22.2
-50	0.539	29.1	25.0	16.0	21.9
-49	0.553	30.6	25.6	16.8	21.7

-48	0.568	32.3	26.3	17.6	21.4
-47	0.584	34.1	27.0	18.4	21.2
-46	0.600	36.0	27.8	19.3	21.0
-45	0.616	37.9	28.5	20.2	20.8
-44	0.631	39.8	29.2	21.0	20.7
-43	0.646	41.7	29.9	21.9	20.6
-42	0.661	43.7	30.6	22.8	20.5
-41	0.676	45.7	31.3	23.6	20.5
-40	0.691	47.7	32.0	24.5	20.4
-39	0.706	49.8	32.7	25.4	20.4
-38	0.719	51.7	33.3	26.2	20.5
-37	0.732	53.6	33.9	27.1	20.6
-36	0.745	55.5	34.5	27.9	20.7
-35	0.758	57.5	35.1	28.8	20.9
-34	0.771	59.4	35.7	29.6	21.0
-33	0.783	61.3	36.3	30.4	21.2
-32	0.795	63.2	36.8	31.2	21.5
-31	0.806	65.0	37.3	32.0	21.8
-30	0.818	66.9	37.9	32.8	22.1
-29	0.829	68.7	38.4	33.6	22.4
-28	0.840	70.6	38.9	34.4	22.7
-27	0.852	72.6	39.5	35.2	23.1
-26	0.862	74.3	39.9	35.9	23.5
-25	0.872	76.0	40.4	36.6	23.9
-24	0.881	77.6	40.8	37.3	24.4
-23	0.891	79.4	41.3	38.0	24.9
-22	0.900	81.0	41.7	38.7	25.4
-21	0.910	82.8	42.1	39.3	25.9
-20	0.918	84.3	42.5	40.0	26.5
-19	0.926	85.7	42.9	40.6	27.0
-18	0.934	87.2	43.3	41.1	27.6
-17	0.941	88.5	43.6	41.7	28.3
-16	0.947	89.7	43.9	42.2	28.9
-15	0.954	91.0	44.2	42.7	29.6
-14	0.960	92.2	44.5	43.1	30.2
-13	0.966	93.3	44.7	43.6	30.9
-12	0.972	94.5	45.0	44.0	31.6
-11	0.977	95.5	45.3	44.4	32.4
-10	0.982	96.4	45.5	44.8	33.1
-9	0.987	97.4	45.7	45.2	33.8
-8	0.991	98.2	45.9	45.5	34.6
-7	0.995	99.0	46.1	45.7	35.4
-6	0.999	99.8	46.3	46.0	36.2
-5	0.999	99.8	46.3	46.1	37.0
-4	0.999	99.8	46.3	46.2	37.8
-3	0.999	99.8	46.3	46.2	38.6
-2	1.000	100.0	46.3	46.3	39.4
-1	1.000	100.0	46.3	46.3	40.2
0	1.000	100.0	46.3	46.3	41.0

March 2017
LPFM Station KONR-LP
Anchorage, Alaska Channel 291L1
RF Exposure Study

Facilities Proposed

The proposed operation will be on Channel 291L1 (106.1 MHz) with an effective radiated power of 100 watts. Operation is proposed with an antenna to be mounted on an existing tower, with FCC Antenna Structure Registration Number 1238421.

NIER Calculations

OET Bulletin 65 Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (Edition 97-01) states in part that:

> When performing an evaluation for compliance with the FCC's RF guidelines all significant contributors to the ambient RF environment should be considered. . .For purposes of such consideration, significance can be taken to mean any transmitter producing more than 5% of the applicable exposure limit (in terms of power density or the square of the electric or magnetic field strength) at accessible locations.

As will be demonstrated below, the proposed operation of KONR-LP will produce less than 5% of the applicable exposure limit for both controlled and uncontrolled environments. Thus, the proposed facility is categorically excluded from the requirement of further study. Therefore, pursuant to §1.1307(b)(3) of the Commission's Rules no calculations are required for the other broadcast facilities in the vicinity, and precise calculations are made only with regard to the levels from this proposal.

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\mu W / cm^2) = \frac{33.40981 \times AdjERP(Watts)}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

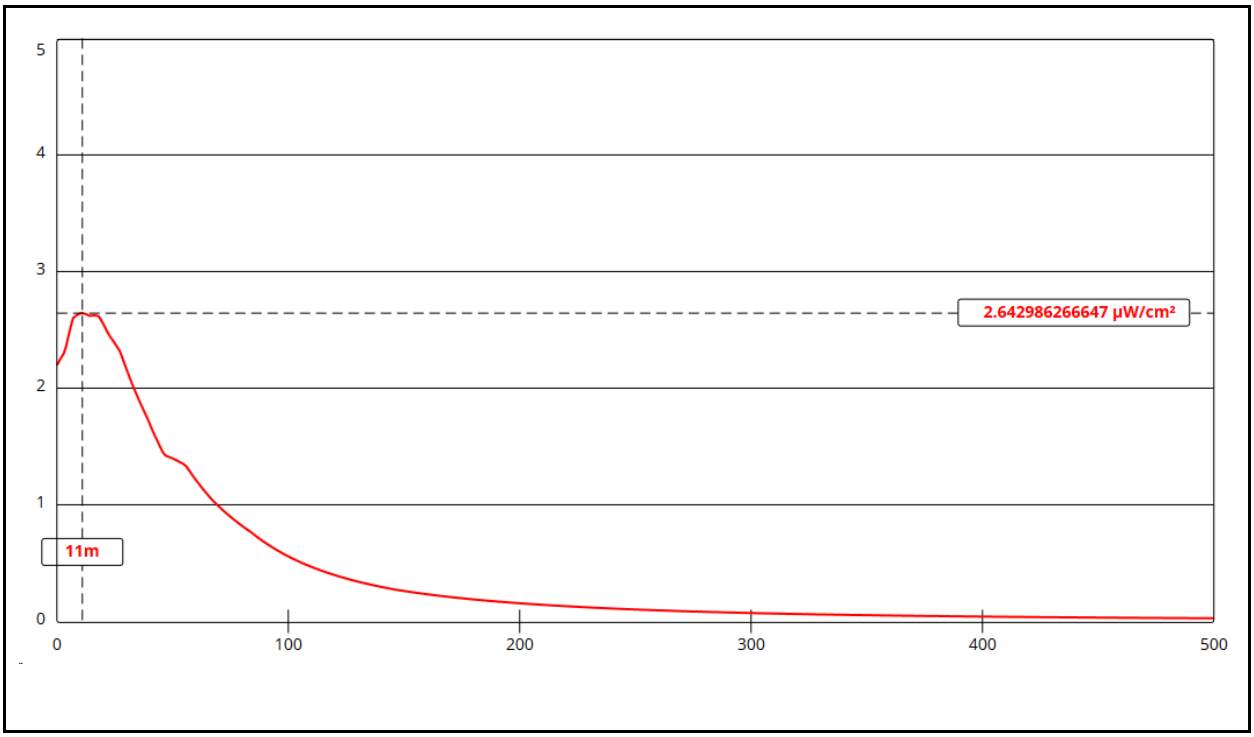
D is the distance in meters from the center of radiation to the calculation point.

Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 500 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the KONR-LP antenna system have been made assuming the “worst case” element pattern for a “ring stub” antenna. Under this worst case assumption, the highest calculated ground level power density from KONR-LP occurs at a distance of 11 meters from the base of the antenna support structure. At this point the power density is calculated to be 2.6 $\mu W/cm^2$, which is 0.3% of 1000 $\mu W/cm^2$ (the FCC standard for controlled environments) and 1.3% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of KONR-LP alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 500 meters from the base of the antenna support structure. Section 1.1307(b)(3) of the Commission's Rules excludes applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicants proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 et seq and no further analysis of RF exposure at this site is required in this application.

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 radiation in excess of FCC guidelines.



Ground-Level RF Exposure **OET FMModel**

KONR-LP 291L1 Anchorage

Antenna Type:	ring-stub assumed for this worst-case study
No. of Elements:	1
Element Spacing:	1.0 wavelength
Distance:	500 meters
Horizontal ERP:	0.1 kW
Vertical ERP:	0.1 kW
Antenna Height:	41 meters AGL

Maximum Calculated Power Density is 2.6 µW/cm^2 at 11 meters from the antenna structure.

March 2017
LPFM Station KONR-LP
Anchorage, Alaska Channel 291L1
Request for Waiver of §73.870

The proposed KONR-LP move is from coordinates of N Latitude 61-06-30.00 x W Longitude 149-44-23.00 (Point 1) to N Latitude 61-08-48.00 x W Longitude 149-52-28.00 (Point 2) which is a distance of 8.4 kilometers.

§73.870 *Processing of LPFM broadcast station applications* states that, "A minor change for an LP100 station authorized under this subpart is limited to transmitter site relocations of 5.6 kilometers or less", which would make this a major change application. The KONR-LP licensee respectfully requests a wavier of §73.870 to allow the slightly greater distance move.

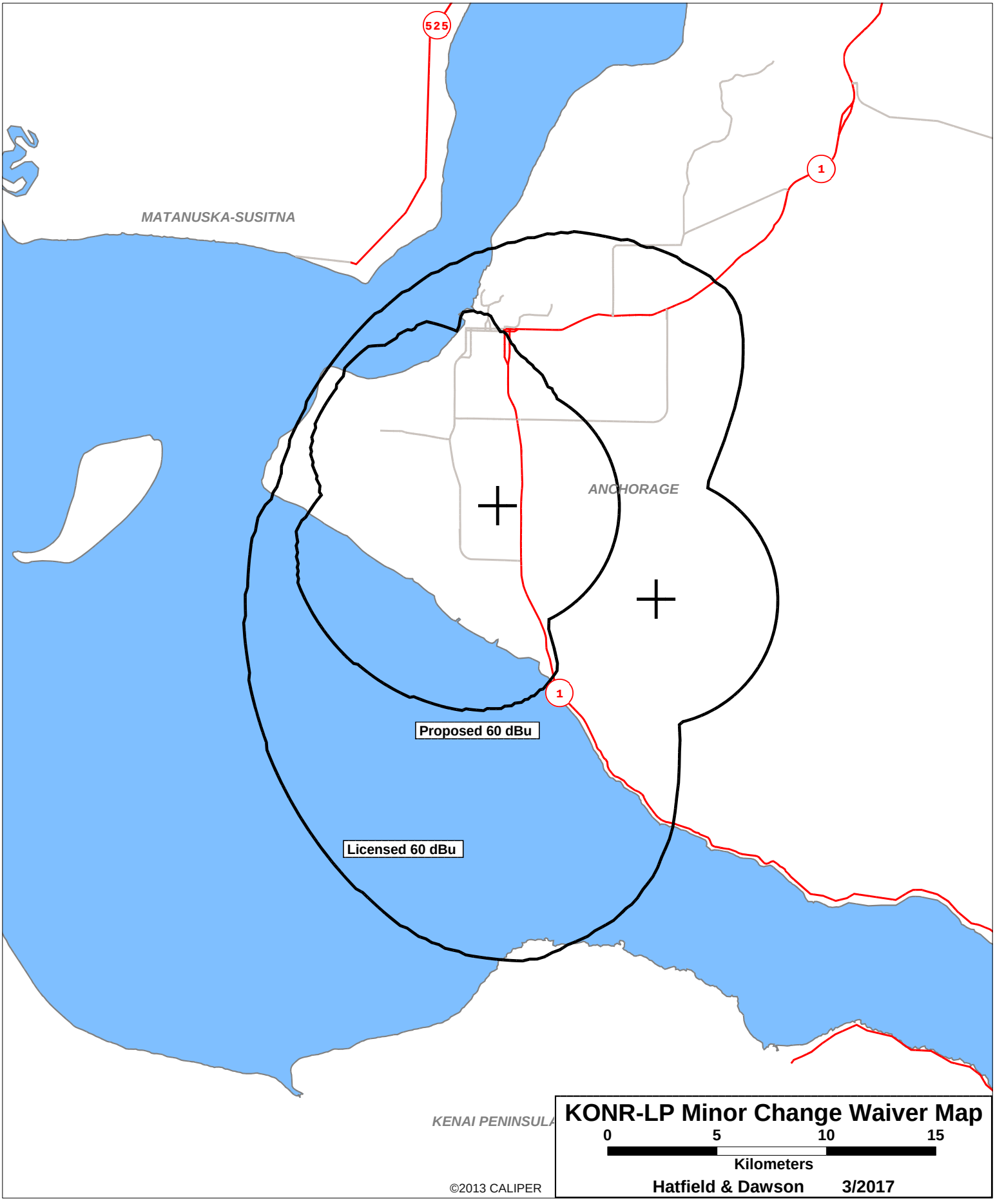
In *Creation of a Low Power FM Radio Service*, Third Report and Order and Second Further Notice of Proposed Rulemaking, MM Docket 99-25, FCC 07-204, released December 11, 2007 (http://www.fcc.gov/fcc-bin/audio/FCC-07-204A1.doc) the Commission said,

> Our experience to date confirms our belief that in most instances the interests of both full-service and LPFM stations can be accommodated. We applaud those full-service stations that have provided technical and/or financial assistance to LPFM stations that have been required to undertake facility modifications to remain on the air. We are particularly appreciative of those broadcasters that have consented to short-spacings to avoid LPFM station displacements. We urge licensees seeking community of license modifications or other changes that could lead to LPFM displacement or signal degradation to continue these cooperative efforts on a going-forward basis. The Media Bureau also has played an important role in crafting technical solutions to preserve LPFM stations potentially at risk from new station and facility modification proposals. It already has taken action on dozens of LPFM modification applications that were filed to eliminate or reduce caused interference t o or received interference from a full-service FM station. We direct the Media Bureau to continue to attempt to resolve conflicts between full-service and LPFM stations in ways that accommodate the interests of both services.

In this instance the licensee of KONR-LP and the licensee of second-adjacent-channel station KWHL (Alpha Radio LLC) have cooperated to ensure that the LPFM station will be able to remain on the air. Indeed, the licensee of KWHL is leasing space on one of its towers to KONR-LP for this facility.

It is further noted that the proposed 60 dBu contour of KONR-LP is entirely contained within the station's licensed 60 dBu contour. Therefore, assuming that the minor change distance limitation codified in §73.870 was adopted in order to prevent LPFM stations from dramatically shifting their service areas, that concern is not present in this particular case.

We therefore believe that the public interest justifies a waiver of §73.870 of the Commission's Rules and that FCC staff has authority to issue a permit to construct on the proposed KONR-LP frequency at the location requested herein.


525
1
MATANUSKA-SUSITNA
ANCHORAGE
1
Proposed 60 dBu
Licensed 60 dBu
KENAI PENINSULA
KONR-LP Minor Change Waiver Map
0
5
10
15
Kilometers
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