TECHNICAL SUMMARY
APPLICATION FOR CONSTRUCTION PERMIT
FM TRANSLATOR STATION K246BR
HONOLULU, HAWAII
CHANNEL 246 (97.1 MHZ) 0.099 KW (ND)

1. *Application Purpose*: It is proposed to change the K246BR transmitter site and modify its licensed facilities. Specifically, it is proposed to side-mount a SIRA model FMC-01/04/LB, 4-bay nondirectional (ND) antenna at the 23.5 meter level on an existing 29 meter tower and operate with a maximum ND ERP of 0.099 kW. [1]

2. *Contingent Application*: As detailed in paragraph 4 below, the instant K246BR application is contingent on an application being concurrently filed by K244EO on channel 244 which proposes to co-locate with K246BR, share the SIRA model FMC-01/04/LB DA and operate with a ND ERP of 0.25 kW.

3. *Fill-in Translator/Minor Change Compliance*: K246BR will be a fill-in translator for FM station KORL-FM on channel 266C at Waianae, Hawaii (Facility ID 36242). Figure 1 is a map demonstrating that K246BR's proposed 60 dBu contour is entirely within the KORL-FM 60 dBu contour as required for fill-in compliance. In addition, as also shown on Figure 1, the licensed and proposed K246BR 60 dBu contours overlap which complies with the FCC's minor change rules.

4. *Section 74.1204 Compliance*: Figure 2 is an allocation study for channel 246 based on Section 74.1204. Figure 2 lists the results of a numerical analysis of the potential for contour overlap to all nearby co-channel, first, second and third-adjacent channel facilities as well as IF related stations. For the purposes of the numerical study, the maximum HAAT (850 meters) and ERP (0.099 Watts) values were used in determining the maximum distance in any direction to the predicted coverage and interfering contours. As indicated on Figure 2, the proposal complies with the contour overlap provisions of Section 73.1204 of the FCC rules, except with respect to the licensed and authorized (CP) operations of KHCM-FM and the licensed operation of K244EO discussed below.

Specifically, the proposal does not comply with the contour overlap provisions of Section 73.1204 of the FCC rules with respect to licensed (BMLH-20050719AHM) and CP (0000193177) operations of 2nd upper adjacent channel station KHCM-FM (Ch. 248C1/97.5 MHz, Honolulu, HI) and the licensed (BLFT-20180417AAT) operation of 2nd lower adjacent channel station K244EO (Ch. 244/96.7 MHz, Honolulu, HI). With respect to the KHCM-FM operations, based on the undesired-to-desired (U/D) signal strength interference ratio methodology, which is permitted by the FCC (per *Living Way Ministries, Inc.*), it has been determined that no actual interference would occur due to lack of population under Section 74.1204(d). Specifically, the calculated KHCM-FM F(50,50) licensed field strength at the

[1] Per the FCC's TOWAIR program, the 29 meter tower does not require registration (see attached TOWAIR search results).

proposed site is 73.2 dBu. Using the 40 dB U/D ratio contained in Section 74.1204 of the FCC rules, the proposed F(50,10) interfering signal is 113.2 dBu. In addition, the calculated KHCM-FM F(50,50) CP field strength at the proposed site is 73.3 dBu. Using the 40 dB U/D ratio contained in Section 74.1204 of the FCC rules, the proposed F(50,10) interfering signal is 113.3 dBu. As the 113.2 dBu interfering signal to KHCM-FM's licensed operation is the lowest it is the most critical. Figure 3 is Google Earth map depicting the interfering 113.2 dBu contour. As indicated on Figure 3, there are no occupied buildings or major roads within the interfering 113.2 dBu contour. Therefore, the proposal complies with the lack of population criteria under Section 74.1204(d).

With respect to K244EO, the instant K246BR application is contingent on an application being concurrently filed by K244EO which proposes to co-locate with K246BR, share the SIRA model FMC-01/04/LB antenna and operate with a ND ERP of 0.25 kW. As K246BR will operate with a ND ERP of 99 Watts, there will only be a 4 dB difference in the K246BR and K244EO ERP levels. Therefore, it is apparent that there would be no location where the proposed K246BR operation would cause predicted interference to the proposed K244EO operation based on the 40 dB U/D ratio contained in Section 74.1204 of the FCC rules.

5. *RFR Compliance*: The proposed facilities were evaluated in terms of potential radiofrequency radiation (RFR) exposure at ground level to workers and the general public. The radiation center for the proposed SIRA model FMC-01/04/LB, 4-bay 1-wavelength spaced ND antenna will be located 23.5 meters above ground level. The total ERP is 0.198 kW (horizontal and vertical polarization). Figure 4 depicts the output of the FCC's FM Model program. As indicated, a maximum power density of 1.93 uW/cm$^2$ will occur at a point located 8 meters from the tower. This is only 0.96% of the FCC's recommended limit of 200 uW/cm$^2$ for FM frequencies for an uncontrolled environment and only 0.193% of the FCC's recommended limit of 1000 uW/cm$^2$ for FM frequencies for a controlled environment. Therefore, it is believed that the proposed operation is in full compliance with the FCC's requirements with regard to RFR exposure.

The transmitting site will be appropriately marked with RFR warning signs. Furthermore, as this will be a multi-user site, a formal RFR protection protocol will be in effect in the event that workers or other authorized personnel enter the restricted area or climb the tower to ensure that appropriate measure will be taken to assure worker safety with respect to RFR exposure. Such measures include limiting the exposure time, wearing protective clothing, reducing power to an acceptable level or termination of transmitter output power all together until workers leave the restricted area.

# TOWAIR Determination Results

## *** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

**DETERMINATION Results**

**Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.**

**Your Specifications**

**NAD83 Coordinates**

| | |
|---|---|
| Latitude | 21-24-10.6 north |
| Longitude | 158-05-52.0 west |

**Measurements (Meters)**

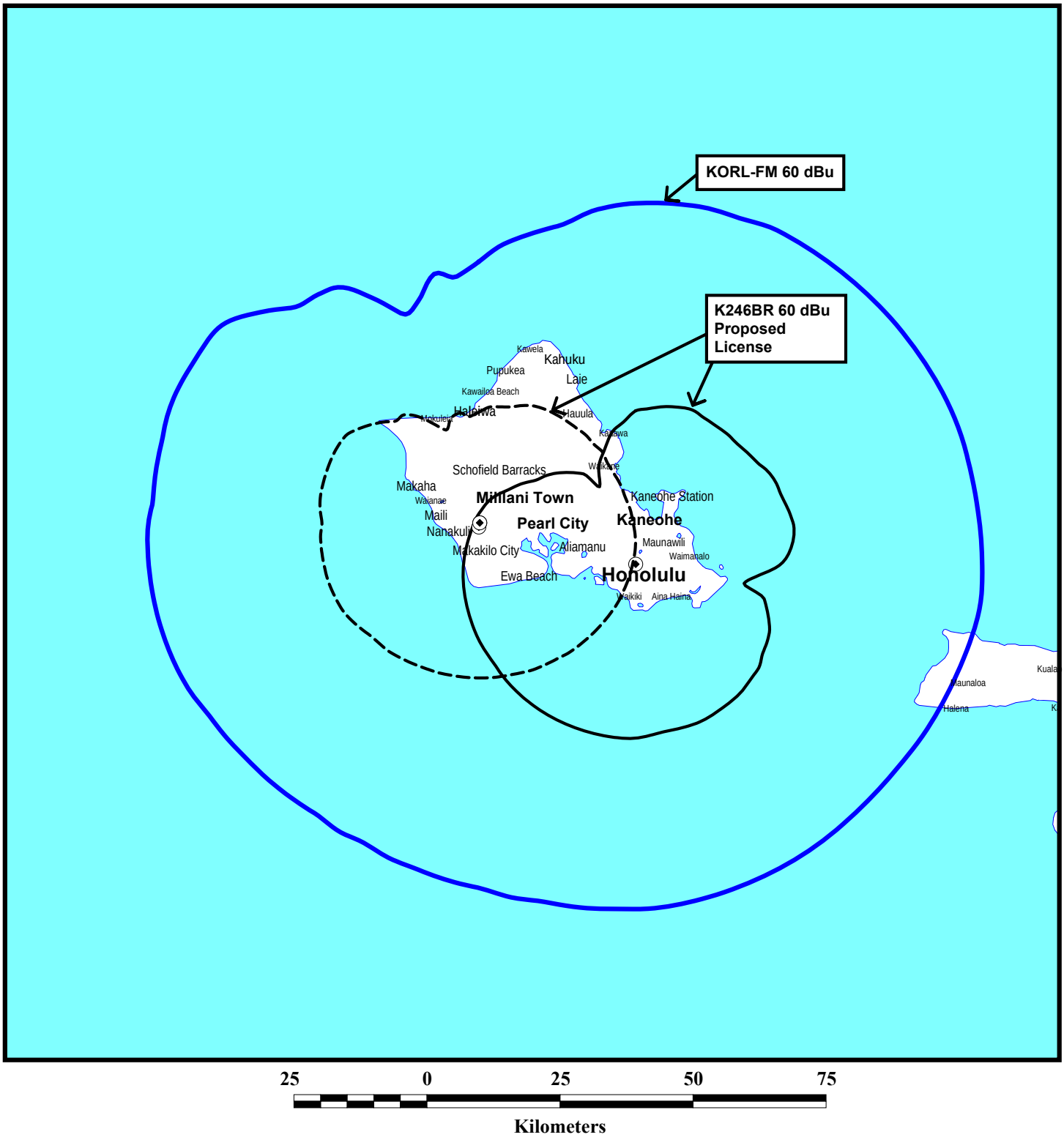
| | |
|---|---|
| Overall Structure Height (AGL) | 29 |
| Support Structure Height (AGL) | 29 |
| Site Elevation (AMSL) | 821.4 |

**Structure Type**

MAST - Mast

**Tower Construction Notifications**
Notify Tribes and Historic Preservation Officers of your plans to build a tower.

CLOSE WINDOW




# FM FILL-IN COMPLIANCE MAP

FM TRANSLATOR STATION K246BR
HONOLULU, HAWAII
CH 246 (97.1 MHZ) 0.099 KW (ND)

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

# FM Contour Study LMS

du Treil, Lundin, & Rackley, Inc., Sarasota, Florida

**Channel:** 246 **Coordinates:** 021-24-10.6 158-05-52 (NAD 83) **ERP:** 0.099 kW **Max. HAAT:** 850 m **Considering Only Interference Caused**

**Comment:** Proposed K246BR

| Callsign | Chan. | Service | Status | Freq. | City | | State | Co. | Rec. | Latitude | Dist. (km) | Sep. (km) | Spac. (km) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Facility ID | ARN | | | Class | DA | 73.215 ERP (kW) | HAAT (m) | | | Longitude | Bear. (deg) | Comment | |
| **K244EO** | 244 | FX | L2C | 96.7 | HONOLULU | | HI | US | C | 21-19-58.5 | 30.36 | 33.57 | -3.21 |
| 146666 | BLFT-20180417AAT | | | D | NDI | 0.25 | | | | 157-48-53.1 | 104.83 | **SHORT** | /1 |
| K244EO 60.0 dBu desired distance: 32.9 km | | | | | | Proposed 100.0 dBu undesired distance: 0.7 km | | | | | | | |
| **K246BR** | 246 | FX | L2C | 97.1 | HONOLULU | | HI | US | C | 21-19-58.5 | 30.36 | 123.61 | -93.25 |
| 151909 | BLFT-20110912ACH | | | D | NDI | 0.25 | 512.1 | | | 157-48-53.1 | 104.83 | **SHORT** | /2 |
| K246BR 60.0 dBu desired distance: 32.7 km | | | | | | Proposed 40.0 dBu undesired distance: 90.9 km | | | | | | | |
| **KHCM-FM** | 248 | FM | MOD | 97.5 | HONOLULU | | HI | US | C | 21-17-25.6 | 29.55 | 55.9 | -26.35 |
| 34620 | BMLH-20050719AHM | | | C1 | NDI | 80 | 14 | | | 157-50-22.1 | 115.01 | **SHORT** | /3 |
| KHCM-FM 60.0 dBu desired distance: 55.2 km | | | | | | Proposed 100.0 dBu undesired distance: 0.7 km | | | | | | | |
| **KHCM-FM** | 248 | FM | MOD | 97.5 | HONOLULU | | HI | US | C | 21-16-58 | 30.25 | 43.53 | -13.28 |
| 34620 | 0000193177 | | | C1 | NDI | 100 | 63 | | | 157-50-09 | 116.17 | **SHORT** | /3 |
| KHCM-FM 60.0 dBu desired distance: 42.8 km | | | | | | Proposed 100.0 dBu undesired distance: 0.7 km | | | | | | | |

/1 There is prohibited overlap with K244EO. However, as noted in the Technical Summary, K244EO is concurrently filing a contingent application to co-locate with the proposed K246BR operation which will eliminate the prohibited overlap.

/2 K246BR licensed operation.

/3 There will be overlap normally prohibited by Section 74.1204. However, based on the U/D signal strength ratio method, which is permitted by the FCC (per Living Way Ministries, Inc.) it has been determined that no actual interference will occur due to lack of population under Section 74.1204(d). See Technical Summary and Figure 3.

Figure 3


**UNDESIRED-TO-DESIRED (U/D) SIGNAL STRENGTH INTERFERENCE RATIO ANALYSIS**

FM TRANSLATOR STATION K246BR

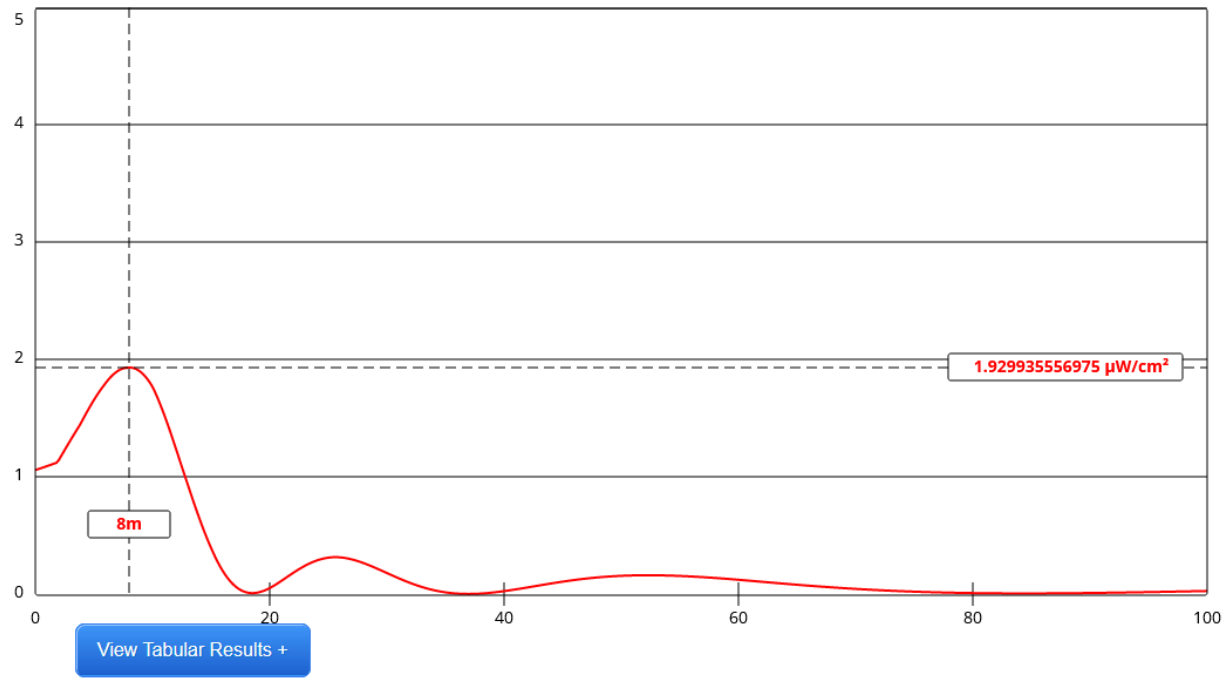
HONOLULU, HAWAII

CH 246 (97.1 MHZ) 0.099 KW (ND)

*du Treil, Lundin & Rackley, Inc. Sarasota, Florida*

Figure 4

Output of FCC's FM Model Program:




| | | | |
|---|---|---|---|
| Channel Selection | Channel 246 (97.1 MHz) | | |
| Antenna Type + | EPA Type 2: Opposed V Dipole | | |
| Height (m) | 23.5 | Distance (m) | 100 |
| ERP-H (W) | 99 | ERP-V (W) | 99 |
| Num of Elements | 4 | λ | 1 |
| Num of Points | 500 | Apply | |