

# **ENGINEERING REPORT**

## **FM Translator Minor Construction Permit Application**

for

**K294BG – Olympia, WA**

License No. BLFT-20090724ACG

§74.1233(D)(2) Non-Adjacent Channel  
Displacement Waiver Request

May, 2010

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(Exhibit numbering is in response to FCC Online Form 349, Section III-A)

## **Discussion**

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This firm has been retained to prepare the required engineering report in support of a minor construction permit application for FM translator K294BG, Olympia, WA, License No. BLFT-20090724ACG. K294BG is presently licensed on 106.7 MHz with 0.010 watts of directional power with an antenna COR of 842 meters AMSL. Operation on non-adjacent channel CH277D is requested with 10 watts ERP at the present site and COR of 842 meters AMSL. While the present DA antenna will be utilized, the antenna will be rotated to 190.0°T to protect the necessary allocation concerns. The translator will rebroadcast LPFM station KGHO-LP, Hoquiam, WA, CH253L1, Facility ID No. 134721.

Due to the recent commencement of improved HD-FM operations for KRWM(FM) – Bremerton, WA; CH295C1 (Facility ID No. 53870), translator K294BG has suffered catastrophic incoming first-adjacent channel interference to its analog reception. As a result, the applicant respectfully requests a waiver of §74.1233(d)(2) for this non-adjacent channel “displacement” application. Within the **Exhibit 1** §74.1233(d)(2) waiver request, the applicant has demonstrated the unavailability of a minor change first, second or third adjacent channel as well as the unavailability of a 53rd or 54th minor change I.F. channel based on a 1 watt NDA facility from the present licensed site. As a consequence of the unavailability of a minimum minor change channel and the recent change to full service station KRWM(FM) resulting in catastrophic interference to K294BG. It is believed a waiver of §74.1233(d)(2) for this non-adjacent channel “displacement” is merited in this instance.

The proposed facility will be mounted on an existing tower which does not require Antenna Structure Registration Number. A copy of USGS topographic mapping of the existing tower site has been included in **Exhibit 13.1**. A copy of the vertical antenna system has been included in **Exhibit 13.2**. As this proposal will not increase the overall tower height, it is believed the FAA need not be notified.

It has been determined the translator may be used in the area without interference to any existing FM broadcast station or facility with the exception of KNBQ(FM), CH275C, Centralia, WA. General allocation details are found in **Exhibit 13.5**. A §74.1204(d) Second Adjacent Channel Given Interference Waiver is request toward KNBQ(FM) as noted in the **Exhibit 13.1** topographic map site showing. Full protection will be afforded the facility as the proposed interference area is void of population, housing, buildings or major roads as demonstrated in the exhibit. There are two additional facilities close enough to merit additional studies, APP-277D – Tacoma, WA; BNPFT-20030317KFM and APP-277D – Aberdeen, WA; BNPFT-20030317KLL. Contour protection studies toward both have been supplied in **Exhibit 13.6**. It is believed sufficient clearance exists precluding the need for additional contour protection showings.

The translator site and proposed 60 dBu contour lie outside of the KGHO-LP 60 dBu contour, however the proposed operation remains in compliance with the Rules as KGHO-LP is an educational LPFM station and the proposed translator is an educational non-fill-in translator. A map of the proposed service area in relation to the primary station service contour has been included in **Exhibit 13.4**.

Regarding protection of international concerns, the facility is and will remain within 320 km of the common border between the United States and Canada. Full protection will be afforded all Canadian concerns as noted in **Exhibit 13.5**. In addition the applicant certifies the proposed 34 dBu f(50:10) contour does not extend beyond the domestic border. A copy of the 34 dBu contour will be supplied upon request.

## Discussion (continued)

The proposed operating parameters have been changed from the licensed values, however the proposed service contour serves a portion of the present service area as seen in **Exhibit 13.3**.

The translator will employ two Nicom BKY/3 directional (yagi) antennas. One bay will be horizontally polarized and located at the max 842 meter AMSL (31 meter AGL) height. The other bay will be vertically polarized and located at a 839 meter AMSL (28 meter AGL) height or an approximate 1 wavelength spacing for operation on 106.7 MHz. Both antenna arrays will be oriented at a common bearing of 190.0°T. Information concerning the directional antenna pattern has been included in **Exhibit 13.7**.

**RADIATION PROTECTION:** The Commission requires an engineering study regarding compliance with the guidelines for human protection from radiofrequency radiation. This report section is in response to that provision of the Rules. The current Federal Communications Commission guidelines for RF radiation protection are set forth in OET Bulletin No. 65 (Edition 97-01), and the accompanying Supplement A, (Edition 97-01).

The FM Broadcast facility proposed in this application will not produce human exposure to radiofrequency radiation in excess of the applicable safety standards specified in §1.1307(b)(3) of the Commission's rules concerning RF contributors of less than 5%. **Exhibit 17.1** provides the details of the study that was made to demonstrate compliance. The facility is or will be properly marked with signs, and entry is restricted by means of fencing with locked doors and/or gates if required. Any other means as may be required to protect employees and the general public will be employed. ***In the event work would be required in proximity to the antenna such that the person or persons working in the area would be potentially exposed to fields in excess of the guidelines set forth in OET Bulletin No. 65 (Edition 97-01), the transmitter power will be reduced or the station will cease operation during the critical period.***

**DISTANCES TO CONTOURS:** The following tabulation of the distances to the proposed service contours results from calculations performed in accordance with §73.313(d) and §73.333 Figure 1 utilizing the NGDC 30 terrain database.

N. Lat. = 465824.0 W. Lng. = 1230811.0 HAAT and Distance to Contour, FCC, FM 2-10 Mi, 51 pts Method - NGDC 30 SEC						
Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	201.1	640.9	0.0005	-32.77	0.230	4.59
030	240.8	601.2	0.0005	-32.77	0.230	4.55
060	186.5	655.5	0.0005	-33.15	0.220	4.42
090	115.4	726.6	0.0013	-28.87	0.360	6.85
120	101.7	740.3	0.0040	-24.01	0.630	10.78
150	135.4	706.6	0.0077	-21.11	0.880	13.58
180	197.8	644.2	0.0098	-20.09	0.990	14.12
210	249.7	592.3	0.0094	-20.26	0.970	13.35
240	325.7	516.3	0.0066	-21.83	0.810	11.23
270	208.4	633.6	0.0028	-25.51	0.530	9.04
300	201.8	640.2	0.0008	-30.75	0.290	5.62
330	274.7	567.3	0.0005	-33.15	0.220	4.34

Ave El= 203.26 M HAAT= 638.74 M AMSL= 842 M