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**Engineering Statement
Minor Modification of KYMU-LD
Channel 6 at Seattle, WA
February 2020**

I. Background

This Engineering Statement has been prepared on behalf of Seattle 6 Broadcasting LLC ("Seattle6"), licensee of digital LPTV station KYMU-LD. This material has been prepared in connection with an application for minor modification.

II. Interference Study

Study has been made of all cochannel and adjacent-channel facilities in the vicinity of the proposed operation, including a detailed Longley-Rice interference study to demonstrate that the proposed operation will not cause interference to any authorized or pending proposed facilities. This study was performed using the Commission's TVStudy software.

The results of this study indicate that the proposed facility is predicted to cause zero additional interference to any of the listed stations. Based on the foregoing interference study, it is believed that the proposed facility can operate without risk of interference to other stations. This study was run with a grid spacing of 1.0 km, and a terrain increment of 1.0 km.

Hatfield & Dawson Consulting Engineers

Study created: 2020.02.27 14:03:33

Study build station data: LMS TV 2020-02-18

Proposal: KYMU-LD D6 LD APP Tacoma, WA
File number: KYMU-NEWDA
Facility ID: 182983
Station data: User record
Record ID: 951
Country: U.S.

Build options:
Protect pre-transition records not on baseline channel

Search options:
Non-U.S. records included

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	KCEM-LD	D5	LD	LIC	CHELAN BUTTE, WA	BLDTV20120619AAQ	166.6 km
No	K05MU-D	D5	LD	LIC	LEAVENWORTH, WA	BLDTV20111114AEI	125.7
No	K06NI	N6+	TX	LIC	THE DALLES, OR	BLTVL20050309ACR	233.5
No	KPWC-LD	D6	LD	CP	TILLAMOOK, OR	BLANK0000054569	301.3
No	K06OY	N6	TX	LIC	BAKER FLATS, ECT, WA	BLTTV20120217AAA	153.4
No	K06QD-D	D6	LD	CP	PASCO, WA	BNPDVL20100218ADI	289.4
No	K06PU-D	D6	LD	CP	YAKIMA, WA	BNPDVL20091123AJK	166.2
No	CHKC-TV-2	D6	DC	LIC	KEREMEOSOLALLA, BC	BLANKCANLP178	258.4
No	CH4552	D6	DC	LIC	PEMBERTON, BC	BLANKCANLP261	299.9

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D6
Mask: Stringent
Latitude: 47 37 58.90 N (NAD83)
Longitude: 122 21 23.90 W
Height AMSL: 243.9 m
HAAT: 0.0 m
Peak ERP: 3.00 kW
Antenna: SCA-CA2-130DEGSKEW 140.0 deg
Elev Pattnr: Generic

43.0 dBu contour:			
Azimuth	ERP	HAAT	Distance
0.0 deg	0.288 kW	122.8 m	34.7 km
45.0	2.46	176.0	56.8
90.0	2.45	188.4	57.6
135.0	0.663	202.2	48.7
180.0	1.92	180.0	55.3
225.0	2.85	239.6	62.5
270.0	0.597	220.9	48.9
315.0	0.069	235.6	34.1

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 196 m

**Proposal 13.00 dBu contour crosses Canadian border, coordination required
Distance to Canadian border: 98.2 km

Distance to Mexican border: 1722.1 km

Conditions at FCC monitoring station: Ferndale WA
Bearing: 354.4 degrees Distance: 147.7 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 115.1 degrees Distance: 1597.2 km

Study cell size: 1.00 km
Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

No IX check failures found.

III. RF Exposure Study

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.

Power density levels produced by the proposed facility were calculated for an elevation of 2 meters above ground (120 meters below the antenna radiation center), with a worst-case assumption that the antenna will radiate 100% power straight down. Under this worst-case assumption, the highest calculated power density from the proposed antenna alone occurs at the base of the antenna support structure. At this point the power density from the proposed facility is calculated to be 7.0 $\mu W/cm^2$, which is 3.5% of 200 $\mu W/cm^2$ (the FCC maximum for uncontrolled environments at the Channel 6 frequency).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of KYMU-LD alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 1000 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 applicant's 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.

Pursuant to OET Bulletin No. 65, all station personnel and contractors are required to follow appropriate safety procedures before any work is commenced on the antenna tower, including reduction in power or discontinuance of operation before any maintenance work is undertaken. 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 exposure in excess of FCC guidelines.

February 27, 2020

Erik C. Swanson, P.E.