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Engineering Statement
Application for Minor Modification (Coordinate Correction)
K18GB-D at Medford, Oregon
September 2014

This Engineering Statement has been prepared on behalf of UCB USA, Inc., in connection with an application for minor modification of digital LPTV station K18GB-D at Medford, Oregon, in order to effect a correction in the station's licensed transmitter site coordinates and elevation data. UCB USA has recently purchased this facility, and has determined that the licensed coordinates reflect a location downhill from the actual site. (The incorrect coordinates are a long-standing error that have been used by many FM and TV facilities at the Baldy Mountain transmitter site, most of which have corrected their coordinates over the past several years.)

I. Allocation 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 facilities with which contour overlap exists. This study was performed using the SunDTV program from V-Soft Communications and a 1 km grid spacing. The SunDTV program identically duplicates the FCC's OET-69 processing program.

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 allocation and interference study, it is believed that the proposed facility can operate without risk of interference to other stations.

Summary Study

Percent allowed new interference: 0.500
Percent allowed new interference to non Class A LPTV: 2.000
Census data selected 2000
Data Base Selected
./data_files/pt_tvdb.sff

TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 09-17-2014 Time: 15:39:05

Record Selected for Analysis

K18GB-D USERRECORD-01 MEDFORD OR US
Channel 18 ERP 0.293 kW HAAT 417. m RCAMSL 01168 m STRINGENT MASK
Latitude 042-17-52 Longitude 0122-45-00
Status APP Zone 2 Border Site number: 01
Dir Antenna Make usr Model USRPAT01 Beam tilt N Ref Azimuth 75.
Last update Cutoff date Docket
Comments
Applicant

Cell Size for Service Analysis 1.0 km/side

Distance Increments for Longley-Rice Analysis 1.00 km

Not full service station
Service Class = LD
Maximum height/power limits not checked

Site number 1

Azimuth (Deg)	ERP (kW)	HAAT (m)	51.0 dBu F(50,90) (km)
0.0	0.243	571.3	40.9
45.0	0.092	352.1	29.2
90.0	0.030	33.0	7.3
135.0	0.293	327.1	35.0
180.0	0.061	309.1	25.9
225.0	0.012	375.3	19.4
270.0	0.016	678.1	26.5
315.0	0.015	694.0	26.5

Contour Overlap to Proposed Station

Contour Overlap Evaluation to Proposed Station Complete

NO LANDMOBILE SPACING VIOLATIONS FOUND

Checks to Site Number 01

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quiet zone

Proposed facility OK toward Table Mountain

Proposed facility is beyond the Canadian coordination distance

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

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Start of Interference Analysis

Channel	Proposed Station Call	City/State	ARN
18	K18GB-D	MEDFORD OR	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
14	KMCW-LP	MEDFORD OR	0.1	LIC	BLTTL	-20060417AFT
17	KVIQ	EUREKA CA	202.0	LIC	BLCDT	-20030806ACS
17	K17BA-D	YREKA CA	77.1	LIC	BLDTT	-20100113ADI
17	K17BA-D	YREKA CA	77.0	CP	BDFCDTT	-20090325AEK
17	K17DU-D	CHRISTMAS VALLEY OR	180.6	LIC	BLDTL	-20120605AAZ
17	KMTR	EUGENE OR	203.1	LIC	BLCDT	-20030618AAY
17	K17LN-D	GOLD BEACH OR	137.7	LIC	BLDTT	-20120607ADD
17	DK58BG	KLAMATH FALLS OR	82.3	APP	BPTT	-20031006ABX
17	K17EZ-D	ROGUE RIVER OR	49.0	CP	BPDTL	-20130325AFT
17	K17EZ-D	ROGUE RIVER OR	35.8	LIC	BLDTL	-20110325ABA
18	NEW-D	CHICO AND PARADISE CA	274.1	APP	BNPDTT	-20090825BTC
18	NEW-D	CHICO AND PARADISE CA	274.1	APP	BSTA	-20130327AAX
18	NEW	REDDING CA	183.7	APP	BNPDTL	-20090825BPG
18	NEW	RENO NV	394.7	APP	BNPDTL	-20090825BOT
18	DK53JV	BEND OR	228.8	CP	BDISDTT	-20090820ADP
18	KCKW-LD	EUGENE OR	191.8	CP	BNPDTL	-20101001AAH
18	K18EL-D	NEWBERG/TIGARD OR	340.3	LIC	BLDTT	-20140521ACS
18	K18FR-D	NEWPORT OR	292.6	LIC	BLDTT	-20100721FZO
18	K18LB-D	PHILOMATH OR	252.9	CP	BNPDTL	-20100514AIQ
18	KTVC	ROSEBURG OR	114.2	LIC	BLCDT	-20060721AAR
18	KTVC	ROSEBURG OR	114.2	APP	BPCDT	-20110311ACC
18	K18HH-D	THE DALLES OR	401.3	LIC	BLDTT	-20120621ABT
19	K19IV-D	REDDING CA	189.9	CP	BNPDTL	-20090825ASG
19	K19GL-D	YREKA CA	77.1	LIC	BLDTT	-20080826AAQ
19	K19GH-D	EUGENE, ETC. OR	203.1	LIC	BLDTA	-20091211AEO
19	K19HS-D	GRANTS PASS OR	50.3	LIC	BLDTT	-20080714ACF
19	K19HS-D	GRANTS PASS OR	45.5	CP	BPDTT	-20111107ALN
19	K19BK-D	LAKEVIEW OR	197.5	LIC	BLDTT	-20101112ARX
19	K19HH-D	MIDLAND, ETC. OR	94.6	LIC	BLDTT	-20131101AGB
19	KPIC	ROSEBURG OR	114.2	LIC	BLCDT	-20120423ABP
20	DK29GX-D	MERLIN OR	59.3	APP	BPTTL	-20040108AKI
21	K21AI	CAMAS VALLEY OR	113.2	LIC	BLTT	-19871124IB
25	K25CI	KLAMATH CA	128.7	LIC	BLTTL	-19890623ID

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Study of this proposal found the following interference problem(s):

NONE.

II. RF Exposure Study

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 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 FM and TV 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.

Power density levels produced by the proposed facility were calculated for an elevation of 2 meters above ground (7 meters below the antenna radiation center). The worst case power density levels occur at depression angles between 45 and 90 degrees below the horizontal. The calculations in this report assume a worst-case relative field value of 0.220 at these angles, based on the manufacturer's vertical plane pattern for the horizontally-polarized Jampro JA/LS-FB-8 antenna proposed in this application. This relative field value yields a worst-case adjusted average effective radiated power of 14.2 watts at depression angles between 45 and 90 degrees below the horizontal. Assuming this power and the shortest distance between the antenna radiation center and 2 meters above ground level (i.e. straight down), 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 is calculated to be 9.7 μW/cm², which is 3% of 329 μW/cm² (the FCC maximum for uncontrolled environments at the Channel 18 frequency).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation 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 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.

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 radiation in excess of FCC guidelines.

September 17, 2014
Erik C. Swanson, P.E.