

BENJAMIN F. DAWSON III, PE
THOMAS M. ECKELS, PE
STEPHEN S. LOCKWOOD, PE
DAVID J. PINION, PE

PAUL W. LEONARD, PE
ERIK C. SWANSON, PE
THOMAS S. GORTON, PE
MICHAEL H. MEHIGAN, EIT

HATFIELD & DAWSON
CONSULTING ELECTRICAL ENGINEERS
9500 GREENWOOD AVE. N.
SEATTLE, WASHINGTON 98103

TELEPHONE (206) 783-9151
FACSIMILE (206) 789-9834
E-MAIL hatdaw@hatdaw.com

JAMES B. HATFIELD, PE
CONSULTANT

MAURY L. HATFIELD, PE
CONSULTANT
OAKHURST, NSW
AUSTRALIA

**Engineering Statement
Minor Modification of Construction Permit for KMNZ-LD
Coeur d'Alene, Idaho
For Operation on Channel 40
March 2009**

This Engineering Statement has been prepared on behalf of Spokane Television, Inc. ("Spokane TV"), licensee of LPTV Digital Companion Channel station KMNZ-LD at Coeur d'Alene, Idaho. This material has been prepared in connection with an application for minor modification of the KMNZ-LD construction permit.

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. (It should be noted that this study was run at a slightly higher ERP than requested in this application.)

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

Summary Study

1990 Census data selected
TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 03-05-2009 Time: 04:21:41

Record Selected for Analysis

KMNZ-LD USERRECORD-05 COEUR D'ALENE ID US
Channel 40 ERP 1.3 kW HAAT 466. m RCAMSL 01265 m STRINGENT MASK
Latitude 047-43-54 Longitude 0116-43-47
Status APP Zone 2 Border
Dir Antenna Make usr Model USRPAT05 Beam tilt N Ref Azimuth 0.
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

Facility meets maximum power limit

Azimuth (Deg)	ERP (kW)	HAAT (m)	51.0 dBu F(50,90) (km)
0.0	0.396	499.3	42.3
45.0	0.074	401.2	29.3
90.0	0.126	149.7	22.2
135.0	0.149	447.2	34.7
180.0	0.451	516.9	43.7
225.0	1.032	560.2	49.7
270.0	1.295	579.9	51.4
315.0	0.892	573.6	49.0

Contour Overlap to Proposed Station

Station
K40EE 40 PULLMAN WA BLTT19951130JT causes

Contour overlap to Digital LPTV station
KMNZ-LD 40 COEUR D'ALENE ID USERRECORD05
Required D/U ratio: 2.0

Station
K41FJ 41 COEUR D'ALENE, ETC. ID BLTT20021023AAB

Station inside contour of Digital LPTV station
KMNZ-LD 40 COEUR D'ALENE ID USERRECORD05

Contour Overlap Evaluation to Proposed Station Complete

LANDMOBILE SPACING VIOLATIONS FOUND

NONE

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quite zone

Proposed facility OK toward Table Mountain

Proposed facility is within the Canadian coordination distance
Distance to border = 141.0km

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

Start of Interference Analysis

Channel	Proposed Station Call	City/State	ARN
40	KMNZ-LD	COEUR D'ALENE ID	USERRECORD05

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
26	KCDT	COEUR D'ALENE ID	0.0	LIC	BLET	-20030807AAU
32	K32HA	BONNERS FERRY ID	103.8	LIC	BLTT	-20060511ABW
32	DK32DM	TROUT CREEK, ETC. MT	83.7	APP	BSTA	-20080708AMQ
32	K32GS	SPOKANE WA	45.4	LIC	BLTT	-20060802AUC
36	K36BW	THOMPSON FALLS MT	107.9	APP	BSTA	-20060308ALU
36	K36BW	THOMPSON FALLS MT	104.7	LIC	BLTTL	-19910729IA
38	KMNZ-LP	COEUR D'ALENE ID	0.0	LIC	BLTTL	-20041115AFH
39	K39CT	COTTONWOOD, ETC. ID	185.9	LIC	BLTT	-19911104IR
39	K22JB-D	KALISPELL MT	179.0	APP	BDISDTL	-20081124AGD
39	KHBA-LP	SPOKANE WA	45.8	LIC	BLDTL	-20081204AAA
39	KHBA-LP	SPOKANE WA	45.8	CP	BPDTL	-20081210AAA
39	KHBA-LP	SPOKANE WA	45.8	APP	BSTA	-20081212ACL
40	K40DJ	COOLIN ID	89.1	CP	BDFCDTT	-20070529ABS
40	K40DJ	COOLIN, ETC. ID	89.1	LIC	BLTT	-19920519IC
40	KECI-TV	MISSOULA MT	219.3	LIC	BLCDT	-20060817ACY
40	K40AJ	BAKER VALLEY, ETC. OR	356.3	LIC	BLTT	-19820816IE
40	K40FM	MILTON-FREEWATER OR	241.3	LIC	BLTT	-20030108AAW
40	K40IK	WALLOWA OR	264.1	LIC	BLTT	-20080902ABE
40	K40AE	CASHMERE WA	285.2	LIC	BLTT	-19810408JG
40	K40EE	PULLMAN WA	102.3	LIC	BLTT	-19951130JT
41	K41FJ	COEUR D'ALENE, ETC. ID	0.0	LIC	BLTT	-20021023AAB
41	K41GW	JULIAETTA ID	128.2	LIC	BLTT	-20020122ABK
41	K41IW	POLSON MT	193.7	LIC	BLTT	-20050321ASW
41	K41IW	POLSON MT	193.5	CP	BDFCDTT	-20070618ACT
42	K42GT	PRIEST LAKE ID	96.7	LIC	BLTT	-20070402AEZ
43	K43GE	JULIAETTA ID	128.2	LIC	BLTT	-20001124AAL
43	K43GZ	SPOKANE WA	45.8	LIC	BLTT	-20051206ADC
44	K44EC	COEUR D'ALENE ID	0.0	LIC	BLTT	-19961126JL
47	KQUP-LP	COEUR D'ALENE ID	47.3	LIC	BLTTL	-20051020AED
48	K48HB	JULIAETTA ID	128.2	LIC	BLTT	-20020122ABL
48	K48DX	SANDPOINT ID	66.7	LIC	BLTTL	-19920709IC

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

NONE.

II. NIER 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.

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

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 (25 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 0.1 at these angles, based on the

manufacturer's vertical plane pattern for the TCI/Dielectric 881-8 antenna proposed in this application. This relative field value yields a worst-case adjusted average effective radiated power of 11 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 $0.6 \mu\text{W}/\text{cm}^2$, which is 0.1% of $419 \mu\text{W}/\text{cm}^2$ (the FCC maximum for uncontrolled environments at the Channel 40 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 non-ionizing radiation 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.

March 5, 2009

Erik C. Swanson, P.E.

Hatfield & Dawson Consulting Engineers