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**Engineering Statement
Digital Displacement Application for K53AZ
Channel 29 at Centralia, WA
November 2006**

This Engineering Statement has been prepared on behalf of KIRO-TV, Inc., licensee of TV translator station K53AZ at Centralia, Washington. This material has been prepared in connection with a digital displacement application.

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

1990 Census data selected
TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 11-02-2006 Time: 11:57:11

Record Selected for Analysis

CENT29 USERRECORD-01 CENTRALIA, ETC. WA US
Channel 29 ERP 1.1 kW HAAT 227. m RCAMSL 00380 m STRINGENT MASK
Latitude 046-33-38 Longitude 0123-03-29
Status APP Zone 2 Border
Dir Antenna Make usr Model USRPAT01 Beam tilt N Ref Azimuth 80.
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 | 0.749 | 245.9 | 36.7 |
| 45.0 | 0.775 | 284.3 | 38.7 |
| 90.0 | 0.982 | 232.7 | 37.5 |
| 135.0 | 1.067 | 222.6 | 37.4 |
| 180.0 | 0.370 | 224.3 | 31.9 |
| 225.0 | 0.000 | 133.1 | 5.1 |
| 270.0 | 0.000 | 227.4 | 6.5 |
| 315.0 | 0.006 | 243.9 | 12.9 |

Contour Overlap to Proposed Station

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 = 188.0km

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 |
|---------|--------------------------|--------------------|--------------|
| 29 | CENT29 | CENTRALIA, ETC. WA | USERRECORD01 |

Stations Potentially Affected by Proposed Station

| Chan | Call | City/State | Dist(km) | Status | Application | Ref. No. |
|------|---------|-------------------------|----------|--------|-------------|--------------|
| 14 | K14HN | VANCOUVER, CAMAS WA | 110.5 | LIC | BLTTL | -19940506IP |
| 15 | KCKA | CENTRALIA WA | 0.7 | LIC | BLET | -19821004KG |
| 21 | K21GY | NEHALEM & ROCKAWAY OR | 113.5 | CP | BNPTT | -20000830BSI |
| 21 | K21HG | RAINIER, ETC. OR | 42.9 | CP | BNPTT | -20000829ASD |
| 21 | K21DE | SEASIDE-ASTORIA OR | 71.2 | LIC | BLTTL | -19940902IE |
| 22 | KMYQ | SEATTLE WA | 130.3 | LIC | BLCT | -19990708KE |
| 25 | K25CG | ABERDEEN WA | 65.9 | LIC | BLTT | -19890801IB |
| 25 | K25CH | CENTRALIA WA | 0.7 | LIC | BLTT | -20031124AHA |
| 26 | K26DB | ASTORIA OR | 71.2 | LIC | BLTT | -19911016IG |
| 26 | K26GJ | PORTLAND OR | 129.0 | LIC | BLTTL | -20040419AAA |
| 26 | K26HS | TILLAMOOK OR | 138.6 | CP | BNPTTL | -20000829AQV |
| 26 | K54AO | BREMERTON WA | 122.7 | CP | BDISTTL | -20051221AJC |
| 28 | K28FP | ASTORIA OR | 71.2 | LIC | BLTTL | -19990727JG |
| 28 | K28CQ | HOOD RIVER, ETC. OR | 145.4 | LIC | BLTT | -19890324IE |
| 28 | K28IH | LONGVIEW,WA&RAINIER, OR | 42.9 | CP | BNPTT | -20000829ATU |
| 28 | NEW | CAMAS WA | 117.9 | APP | BDCCDTL | -20061025ADJ |
| 28 | KBTC-TV | TACOMA WA | 90.0 | APP | BPET | -20061025AFJ |
| 28 | KBTC-TV | TACOMA WA | 90.0 | APP | BSTA | -20061025AFM |
| 28 | KBTC-TV | TACOMA WA | 89.9 | LIC | BLET | -19870224KI |
| 28 | NEW | YAKIMA WA | 194.8 | APP | BDCCDTL | -20061030AGO |
| 29 | KEPB-TV | EUGENE OR | 284.4 | LIC | BLEDT | -20050127AHY |
| 29 | K29EG | MILTON, ETC. OR | 375.7 | LIC | BLTT | -20030107ABA |
| 29 | K29AZ | NEWPORT OR | 214.8 | CP | BPTT | -20060206ACC |
| 29 | K29AZ | NEWPORT OR | 214.7 | LIC | BLTTL | -19880803ID |
| 29 | K29CI | PRINEVILLE, ETC. OR | 308.8 | LIC | BLTT | -19911031SK |
| 29 | K29ED | EVERETT WA | 172.2 | APP | BPTT | -20060726AOP |
| 29 | K29ED | EVERETT WA | 172.2 | APP | BSTA | -20060602AAA |
| 29 | K29ED | EVERETT WA | 172.6 | LIC | BLTT | -20021016AAF |
| 29 | K29ED | EVERETT WA | 172.6 | APP | BDFCDTT | -20060309AAN |
| 29 | K29FF | KENNEWICK, ETC. WA | 305.7 | LIC | BLTTL | -20040616AAO |
| 29 | KIMA-TV | YAKIMA WA | 194.9 | LIC | BLCT | -2586 |
| 30 | KPTV | PORTLAND OR | 117.9 | LIC | BLCDT | -20001102AAP |
| 30 | K30FL | PORT ANGELES WA | 176.0 | APP | BDFCDTT | -20060919AAE |
| 30 | K30FL | PORT ANGELES WA | 176.0 | LIC | BLTTL | -20000510AAJ |
| 30 | KUSE-LP | SEATTLE WA | 128.8 | CP | BPTTL | -20030221AAF |
| 31 | K59BX | GRAYS RIVER WA | 39.2 | APP | BDISTT | -20060328AGL |
| 31 | K31FB | GRAYS RIVER, ETC. WA | 39.2 | LIC | BLTT | -19990701JM |
| 31 | K31HK | LONGVIEW, ETC, WA | 42.9 | CP | BNPTT | -20000829AWC |
| 33 | KWPX | BELLEVUE WA | 133.6 | CP | BPCT | -20050428AAJ |
| 33 | KWPX | BELLEVUE WA | 133.5 | LIC | BLCT | -19990312KE |
| 36 | K36GU | ROCKAWAY & VICINITY OR | 113.3 | LIC | BLTT | -20030610AAE |
| 36 | K36DG | LONGVIEW WA | 47.7 | LIC | BLTT | -19931202IF |
| 36 | K36DG | LONGVIEW WA | 46.7 | CP MOD | BMPTT | -20050825AEV |

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

NONE.

II. NIER 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.

$$S(\mu\text{W}/\text{cm}^2) = \frac{[(0.4) \text{ VERP} + \text{AERP}] \times 1.64 \times 2.56 \times 100 \times F^2}{4 \times B \times (\text{Distance})^2}$$

Where: VERP = total peak visual ERP in Watts
AERP = aural ERP in Watts
F = relative field factor in the downward direction
Distance = distance in meters from the center of radiation
to the calculation point.

Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

Power density levels produced by the proposed facility were calculated for an elevation of 2 meters above ground level, using the manufacturer's vertical plane pattern for the Scala 4DR-16-2HW antenna. The highest calculated power density from the proposed antenna alone occurs 21 meters from the base of the antenna support structure. At this point the power density is calculated to be 5.0 $\mu\text{W}/\text{cm}^2$, which is 1.3% of 375 $\mu\text{W}/\text{cm}^2$ (the FCC standard for uncontrolled environments at the Channel 29 visual carrier 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.

Public access to the transmitter site is restricted. 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.

November 2, 2006

Erik C. Swanson

Centralia Digital Ch29 - Scala 4DR-16-2HW

| | | |
|------------|--------------------|-----------|
| ERP | 1100 Watts H (avg) | |
| | 0 Watts V (avg) | |
| AGL | 14 less 2m is | 12 meters |
| Maximum is | 5.03 uW/cm² at | 21 meters |

Power Density vs Distance

