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**Engineering Statement
Minor Modification Displacement Application for K59E
Channel 25 at The Dalles, OR
March 2009**

This Engineering Statement has been prepared on behalf of KING Broadcasting Company, licensee of TV translator station K59EK at The Dalles, Oregon. K59EK presently operates on a channel which is outside the "core" television spectrum. This material has been prepared in connection with a displacement application to modify this translator to Ch 25.

K59EK presently holds a displacement construction permit to operate on Ch 39. Previously, K59EK had held a displacement permit to operate on Ch 25 with facilities identical to those proposed herein. That was modified to Ch 39 due to interference which would occur to numerous off-air viewers of KNDU-TV Ch 25 Richland as well as local cable systems who receive KNDU-TV off-air, despite the fact that the FCC's interference study methodology showed no such interference.

KNDU ceased analog transmissions on Ch 25 on February 17, 2009. The combiner system for the translator antenna at The Dalles is already tuned to Ch 25. Therefore this application proposes analog displacement operation on alternate Ch 25.

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.

Summary Study

1990 Census data selected
TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 03-16-2009 Time: 16:44:16

Record Selected for Analysis

K59EK USERRECORD-01 THE DALLES OR US
Channel 25 ERP 1.2 kW HAAT 794. m RCAMSL 00981 m
Latitude 045-42-43 Longitude 0121-06-58
Status APP Zone 2 Border Offset +
Dir Antenna Make usr Model USRPAT01 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)	74.0 dBu F(50,50) (km)
0.0	1.200	459.5	18.6
45.0	1.200	409.3	17.4
90.0	1.200	471.0	18.8
135.0	1.200	759.0	22.9
180.0	1.174	794.1	23.2
225.0	1.200	736.2	22.6
270.0	1.200	669.1	21.7
315.0	1.200	476.2	18.9

Contour Overlap Evaluation from LPTV Station to Full Service TV & DTV

Contour overlap to station
KVAL-TV 25 EUGENE OR BLCDDT 20070226AEB
Offset Proposed + Offset Protected Required D/U ratio: 21.0

Contour overlap to station
KMYQ 25 SEATTLE WA BPCDDT 20080227AAB
Offset Proposed + Offset Protected Required D/U ratio: 21.0

Contour Overlap Evaluation from LPTV to Full Service TV & DTV Complete

Contour Overlap Evaluation from LPTV Station to LPTV Stations

No Spacing violations or contour overlap from LPTV station

Contour Overlap Evaluation from LPTV to LPTV Stations Complete

Contour Overlap to Proposed Station

Contour Overlap Evaluation to Proposed Station Complete

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quite zone

Proposed facility OK toward Table Mountian

Proposed facility is within the Canadian coordination distance
Distance to border = 327.8km

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

Start of Interference Analysis

Channel	Call	Proposed Station City/State	ARN
25	K59EK	THE DALLES OR	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
25	KVAL-TV	EUGENE OR	246.8	LIC	BLCDT	-20070226AEB
25	KMYQ	SEATTLE WA	230.3	CP	BPCDT	-20080227AAB

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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.

$$S(\mu\text{W}/\text{cm}^2) = \frac{[(0.4) \text{VERP} + \text{AERP}] \times 33.40981 \times F^2}{(\text{Distance})^2}$$

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.

Calculations of the power density produced by the proposed The Dalles Ch. 25 antenna system have been performed using the manufacturer's vertical plane pattern for the Kathrein 771-304 antenna proposed for use. Power density levels were calculated for an elevation of 2 meters above ground level (16 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 0.2 at these angles. This relative field value yields a worst-case adjusted peak effective radiated power of 48 Watts at depression angles between 45 and 90 degrees below the horizontal. Assuming a worst-case average effective radiated power of 24 Watts, and the shortest distance between the antenna radiation center and 2 meters above ground (i.e. straight down), the highest calculated ground level 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 $3.1 \mu\text{W}/\text{cm}^2$, which is less than 1% of $358 \mu\text{W}/\text{cm}^2$ (the FCC standard for uncontrolled environments at the Channel 25 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 site is restricted and the antenna tower is posted with warning signs. 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 16, 2009

Erik C. Swanson, P.E.

Hatfield & Dawson Consulting Engineers

771-304
OMNIDIRECTIONAL ANTENNA
11 dBd gain
470–860 MHz

The Kathrein Scala Division 771-304 Superturnstile Antenna is designed for low to medium power NTSC and DTV transmit applications which require Omni-directional coverage. Due to the very wide bandwidth, the antenna is ideally suited for combining multiple transmitters.

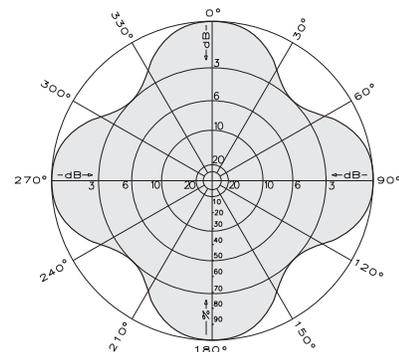
Performance under icing conditions is assured by the fiberglass (GRP) radome which covers the entire antenna. Lightning protection is provided by a large cross section conductor connecting the antenna's top cap to it's mounting bracket. These features make this antenna ideally suited for even the most adverse environmental conditions and difficult transmitter sites.

Like all Kathrein Scala Division antennas, the 771-304 is made of the finest materials using state of the art electrical and mechanical designs, resulting in superior performance and long service life. Please contact the Kathrein Scala Division Broadcast Sales department for further information and other gain options.

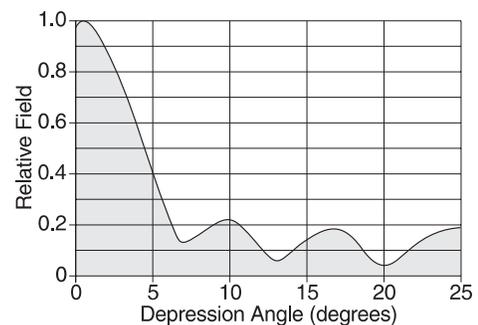
Specifications:

Frequency range	470–860 MHz (broadband)
Gain	11 dBd
Impedance	50 ohms
VSWR	<1.1:1 across the band
Polarization	Horizontal
Maximum input power	5 kW (at 50° C)
Azimuth pattern	Omni
Elevation pattern	5.5 degrees (half-power)
Connector	1½ inch EIA female flange
Weight	397 lb (180 kg)
Height	200.8 inches (5.1 m)
Radome diameter	11.8 inches (300 mm)
Equivalent flat plate area	14.48 ft ² (1.345 m ²)
Wind survival rating*	140 mph (225 kph)
Mounting	Mounts to an existing structure using an adapter. See mounting dimensions on reverse.

* Mechanical design is based on environmental conditions as stipulated in EIA-222-F (June 1996) and/or ETS 300 019-1-4 which include the static mechanical load imposed on an antenna by wind at maximum velocity. See the Engineering Section of the catalog for further details.



Azimuth pattern (E-plane)

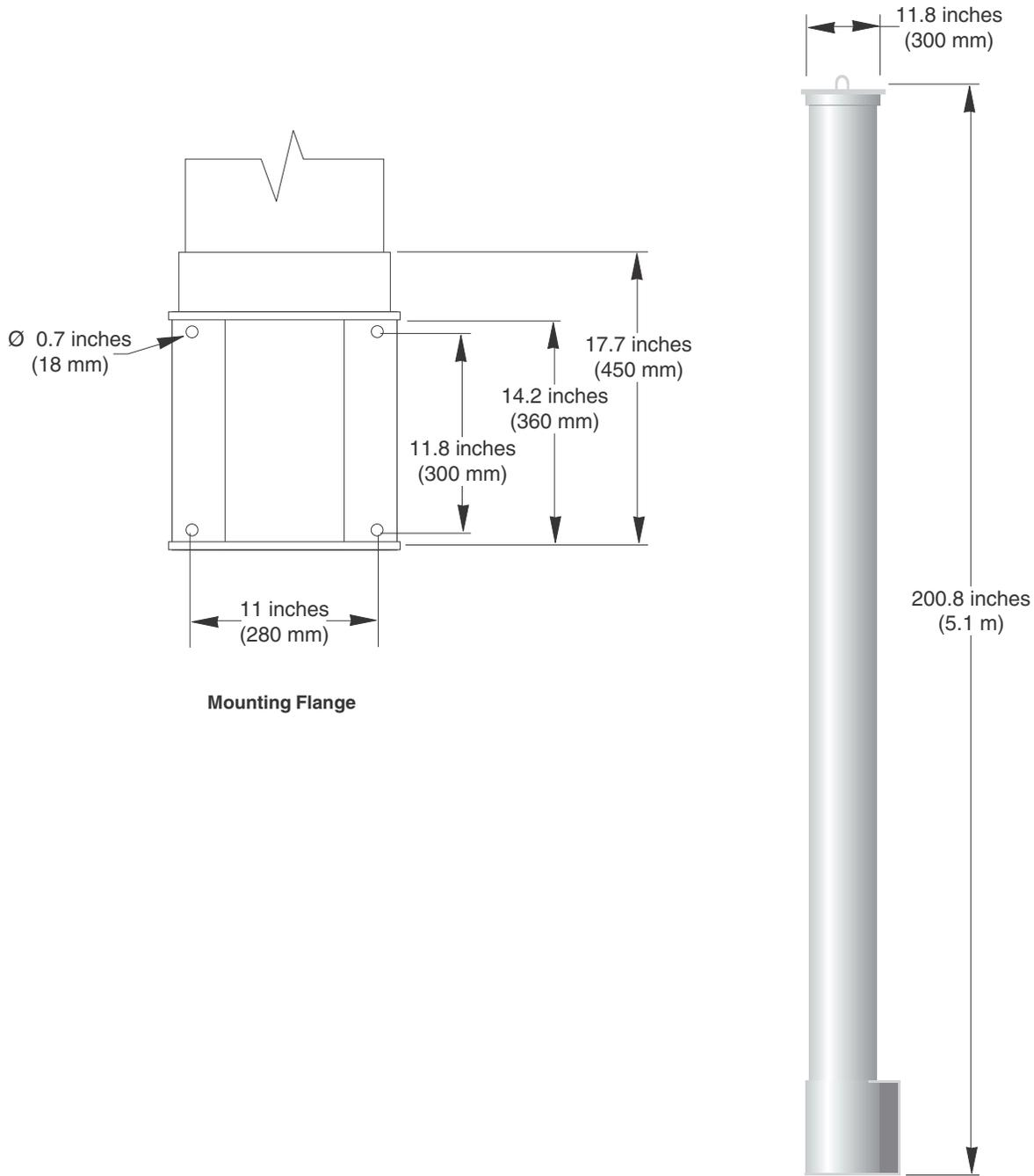


Elevation pattern (H-plane)



10501-B

771-304
OMNIDIRECTIONAL ANTENNA
11 dBd gain
470–860 MHz



Order Information:

Model	Description
771-304	Antenna with 1 $\frac{5}{8}$ inch EIA female flange connector

All specifications are subject to change without notice