January 2015
FM Translator K229AD
Yakima, Washington Channel 229D
Allocation Study

The attached spacing study shows the spacing between the proposed translator site and the location of cochannel and adjacent channel stations and proposals. This study was made with the Commission's Class A spacing requirements, and individual situations were examined to determine the lack of prohibited contour overlap per the requirements of §74.1204 of the Rules. The attached allocation study map demonstrates compliance with the Commission's Rules for protection of FM broadcast stations and FM translators as outlined in §74.1204.

The proposed facility will operate will an ERP of less than 100 watts. Therefore there are no spacing restrictions to stations which are 53 or 54 channels removed from the proposed operation.

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SEARCH PARAMETERS FM Database Date: 141230

Channel: 229A 93.7 MHz

Latitude: 46 30 48

Longitude: 120 24 3

Safety Zone: 50 km

Job Title: K229AD MODIFICATION

Call Status	City St FCC File No.	Channel Freq.	ERP(kW) HAAT(m)		Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KACI-FM	THE DALLES	228C2	2.300		45-42-44	211.9	104.72	106
LIC	OR BLH-20823AAZ	93.5	588.0		121-06-49		-1.28	SHORT
KWDR	ROYAL CITY	228A	0.210		46-48-25	62.8	72.46	72
LIC	WA BMLH-91009AAP	93.5	508.0		119-33-20		0.46	CLOSE
	HERMISTON	229A	0.000		45-51-57	130.3	110.68	115
	OR RM-inv-54	93.7	0.0		119-18-42		-4.32	SHORT
KQFM	HERMISTON	229A	5.300		45-51-57	130.3	110.68	115
CP	OR BPH-41105ABO	93.7	94.0		119-18-42		-4.32	SHORT
KLSY	MONTESANO	229C0	32.000	DA	47-18-46	292.6	243.09	215
LIC	WA BLH-40620AAX	93.7	679.0		123-22-15		28.09	CLEAR
KLSY	MONTESANO	229C0	28.000	DA	47-18-46	292.6	243.09	215
CP	WA BPH-40729ABN	93.7	718.0		123-22-15		28.09	CLEAR
KLSYaux	MONTESANO	229C0	4.800		47-18-46	292.6	243.09	0
LIC	WA BXLH-40625AOW	93.7	666.0		123-22-15		0.00	AUX
KRKG-FM	PASCO	229A	0.450		46-06-15	114.5	107.95	115
LIC	WA BLH-90706ADN	93.7	361.0		119-07-48		-7.05	SHORT
KDRKaux	SPOKANE	229C	0.300		47-34-38	62.2	263.77	0
LIC	WA BXLH-71105AEY	93.7	413.0		117-17-54		0.00	AUX
K229AD	YAKIMA	229D	0.035	DA	46-37-49	322.1	16.51	0
LIC	WA BLFT-30815ADU	93.7	0.0		120-32-01		0.00	TRANS
KTAC	EPHRATA	230C3	18.000		47-19-13	34.7	109.66	89
LIC	WA BLH-20618AAE	93.9	117.0		119-34-22		20.66	CLEAR
K230AX	WENATCHEE, ETC.	230D	0.048	DA	47-30-33	6.2	111.39	0
LIC	WA BLFT-70515ADE	93.9	784.0		120-14-22		0.00	TRANS
	BOARDMAN	231C3	0.000		45-53-51	151.6	77.77	42
VAC	OR RM-11245	94.1	0.0		119-55-21		35.77	CLEAR

SEARCH PARAMETERS FM Database Date: 141230

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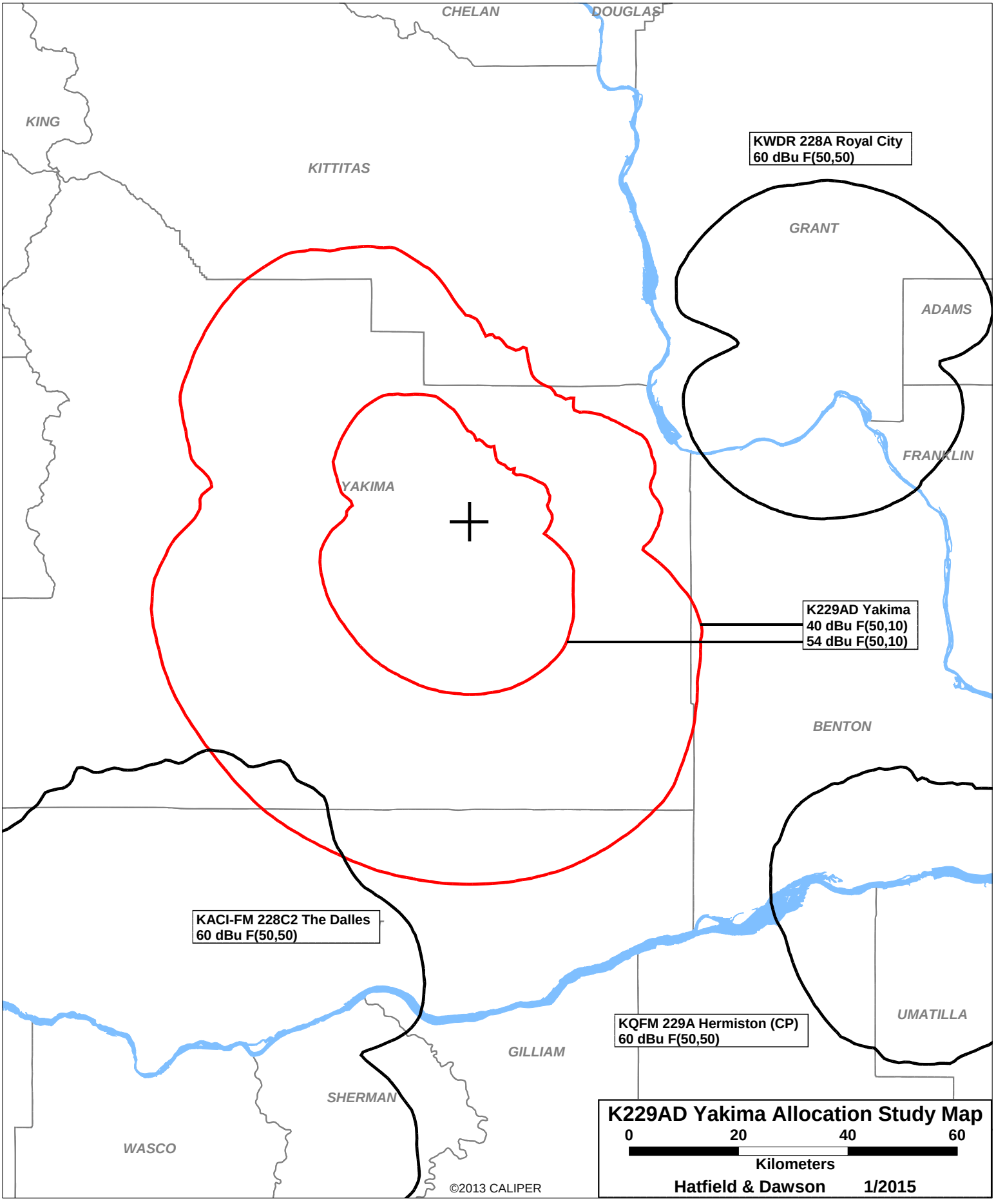
Safety Zone: 50 km
Job Title: K229AD MODIFICATION

Call / Status	City / St / FCC File No.	Channel / Freq.	ERP(kW) / HAAT(m)	Latitude / Longitude	Bearing deg-True	Dist (km)	Req (km)
K231CB	PROSSER	231D	0.013 DA	46-14-52	114.4	70.95	0
CP MOD	WA BMPFT-40123BAE	94.1	0.0	119-33-44		0.00	TRANS
K232CV	ELLENSBURG	232D	0.036 DA	46-53-13	355.8	41.64	0
LIC	WA BLFT-940519TD	94.3	514.0	120-26-26		0.00	TRANS
K283BX	WAPATO	283D	0.250	46-30-48	0.0	0.00	0
CP MOD	WA BMPFT-40915ABT	104.5	418.0	120-24-03		0.00	TRANS

==== END OF FM SPACING STUDY FOR CHANNEL 229 ====


CHELAN
DOUGLAS
KING
KITTITAS
KWDR 228A Royal City
60 dBu F(50,50)
GRANT
ADAMS
FRANKLIN
YAKIMA
K229AD Yakima
40 dBu F(50,10)
54 dBu F(50,10)
BENTON
KACI-FM 228C2 The Dalles
60 dBu F(50,50)
KQFM 229A Hermiston (CP)
60 dBu F(50,50)
UMATILLA
GILLIAM
SHERMAN
WASCO
©2013 CALIPER
K229AD Yakima Allocation Study Map
0
20
40
60
Kilometers
Hatfield & Dawson
1/2015

January 2015
FM Translator K229AD
Yakima, Washington Channel 229D
RF Exposure Study

Facilities Proposed
The proposed operation will be on Channel 229D (93.7 MHz) with a maximum lobe effective radiated power of 99 watts. Operation is proposed with an antenna to be mounted on an existing tower in the Rattlesnake Hills, with FCC Antenna Structure Registration Number 1232764.

Diplexed operation is proposed with an auxiliary antenna facility for KZTA(FM).

RF Exposure Calculations
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 of K229AD 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.

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 K229AD antenna system have been made assuming that the antenna will radiate 100% power straight down to a point 2 meters above ground at the base of the tower (65 meters below the antenna). Under this worst-case assumption, the highest calculated ground level power density from K229AD occurs at the base of the antenna support structure. At this point the power density is calculated to be 0.8 $\mu W/cm^2$, which is 0.1% of 1000 $\mu W/cm^2$ (the FCC standard for controlled environments) and 0.4% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of K229AD 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.

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.