Comprehensive Technical Statement

in support of

All Classical Public Media, Inc.

Application for Minor Change

KQHR (FM), Facility ID # 175508

Channel 201C2, 88.1 MHz

The Dalles, OR

Introduction

All Classical Public Media, Inc ("ACPM") proposes a minor modification to its KQHR (FM), FCC Facility ID # 175508.

The following changes are proposed:

- Transmitter location
- Antenna height
- Effective radiated power
- Directional antenna pattern

Data Sources

Distances were calculated using the FCC method defined in 73.208 of the Commission's Rules.

Except where otherwise noted, contours shown in this report were generated using antenna center above mean sea level, NAD-83 coordinates, and the FCC online HAAT calculator.

Transmitter Location

Tower data:

Coordinates (NAD-83)	45 42 43.4 N
	121 06 53.2 W
ASR	None, not required. TOWAIR study attached (Exhibit 2)

Antenna data:

Description	Three-bay custom-pattern CP directional
Interbay spacing	0.5 λ
Antenna center	20 m AGL
	976 m AMSL
	584 m AAT

ERP:

Horizontal	2.35 kW
Vertical	2.35 kW

Pattern:

brg	rel fld	brg	rel fld	brg	rel fld
0	0.750	120	1.000	240	1.000
10	0.600	130	1.000	250	1.000
20	0.500	140	1.000	260	0.850
30	0.500	150	1.000	270	0.850
40	0.600	160	1.000	280	1.000
50	0.750	170	1.000	290	1.000
60	0.900	180	1.000	300	1.000
70	1.000	190	1.000	310	1.000
80	1.000	200	1.000	320	1.000
90	1.000	210	1.000	330	1.000
100	1.000	220	1.000	340	1.000
110	1.000	230	1.000	350	0.900

Supplemental radial 025°, relative field 0.450

This pattern meets the requirements of 73.510(b) in that the maximum directivity is less than 15 dB and the maximum change over any 10° increment is 2 dB or less.

Allocation Study – Non-reserved (commercial) channels

On channel 201, the only potential non-reserved band conflicts are the IF-separated channels 254 and 255. The nearest IF-separated stations are far away, as shown on this map:
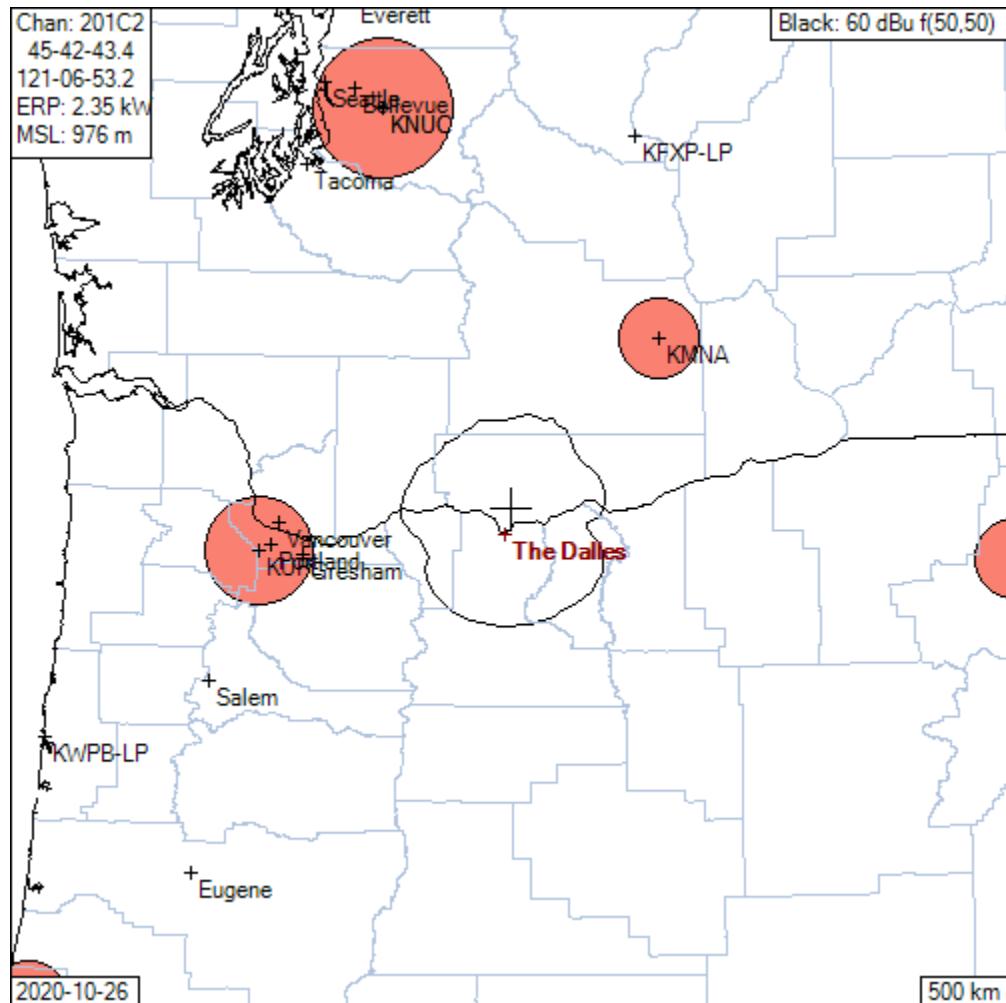

The colored circles indicated the required distance separation between the KQHR transmitter and transmitter of each IF-separated station. It is clear that the distance separation requirements are met.

Allocation Study – Reserved (NCE) channels

Detailed Interference Study

All outbound interference maps show the 60dbu f(50,50) protected contours of the conflicting records in black filled with salmon. The outbound interfering contour of the proposed facility is shown in red and labeled in the upper-right corner of each map.

Outbound co-channel
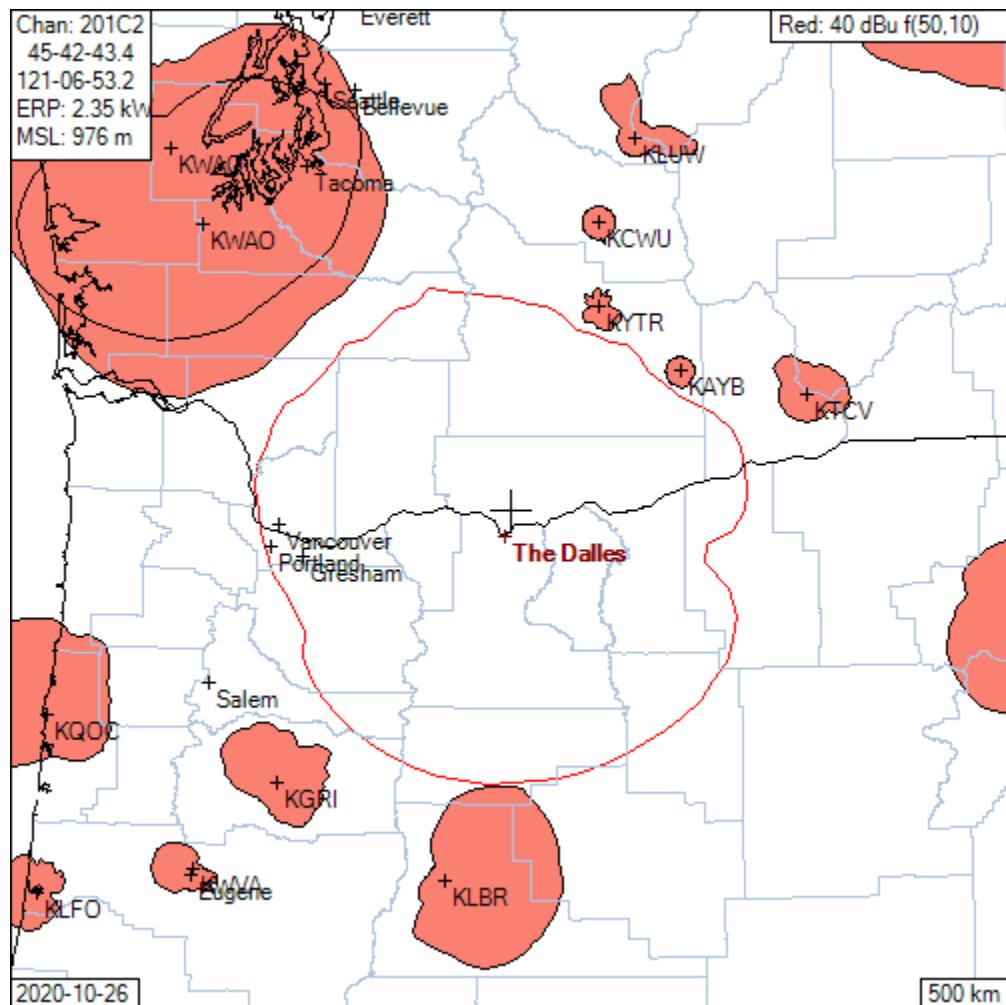
The red polygon represents the 40 dBu f(50,10) co-channel interfering contour. The contour is close to KLBR to the south and KYTR and KAYB to the northeast. Tabulations are provided below as Exhibit 2.

Outbound first adjacent

The only nearby first-adjacent station is KBVM:
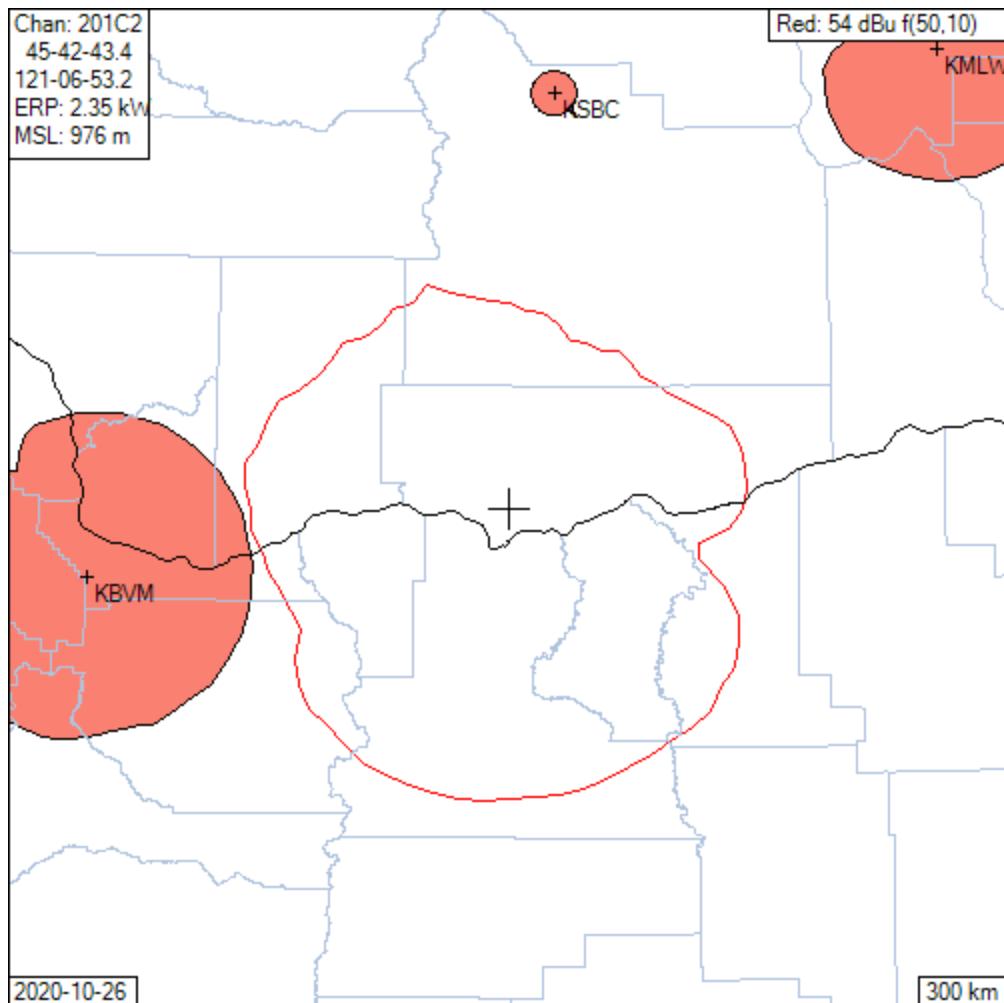
In this case, the red polygon represents the 54 dBu f(50,10) first-adjacent interfering contour. A tabulation for KBVM is included below as Exhibit 2.

Outbound second and third adjacent

The red polygon represents the 100 dBu f(50,10) second- and third-adjacent interfering contour:
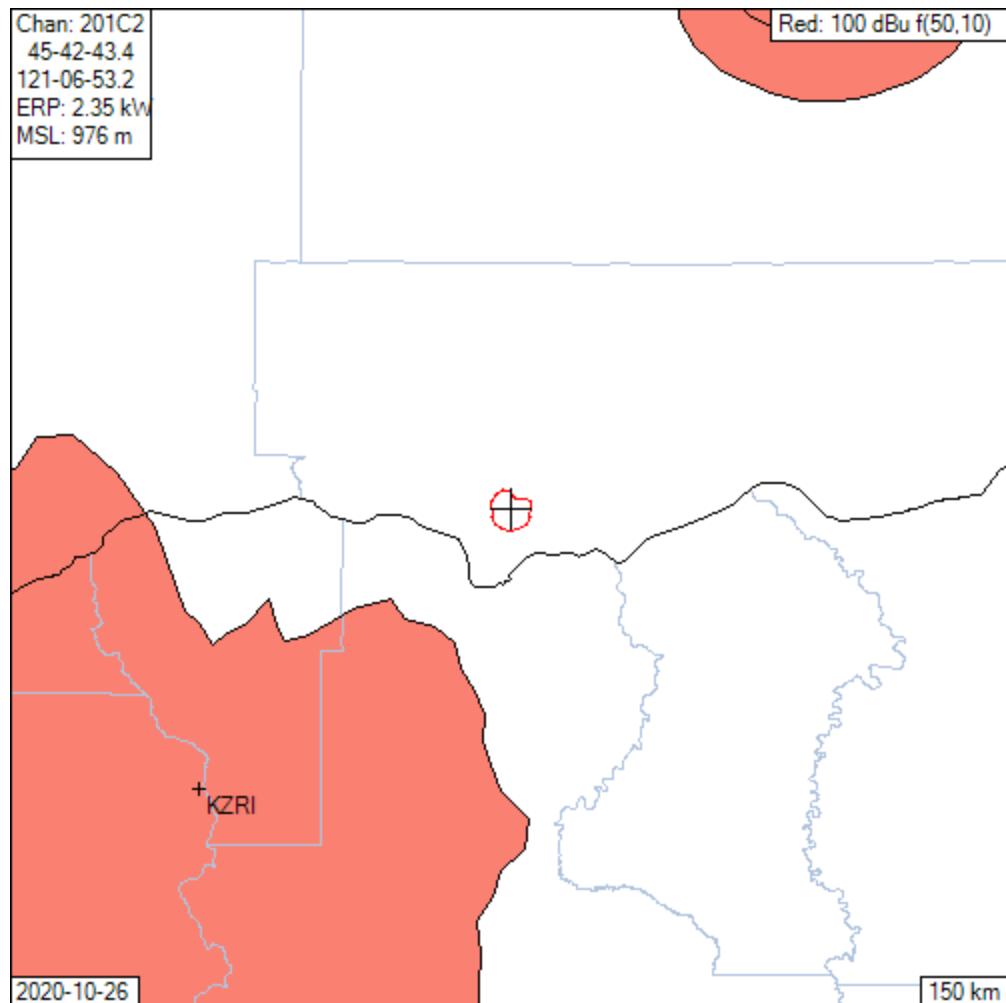
There is no overlap of this contour with any second- or third-adjacent station.

Inbound

The inbound interference map shows the proposed 60 dBu f(50,50) in black, and the channel-appropriate interfering contours in black filled with salmon.
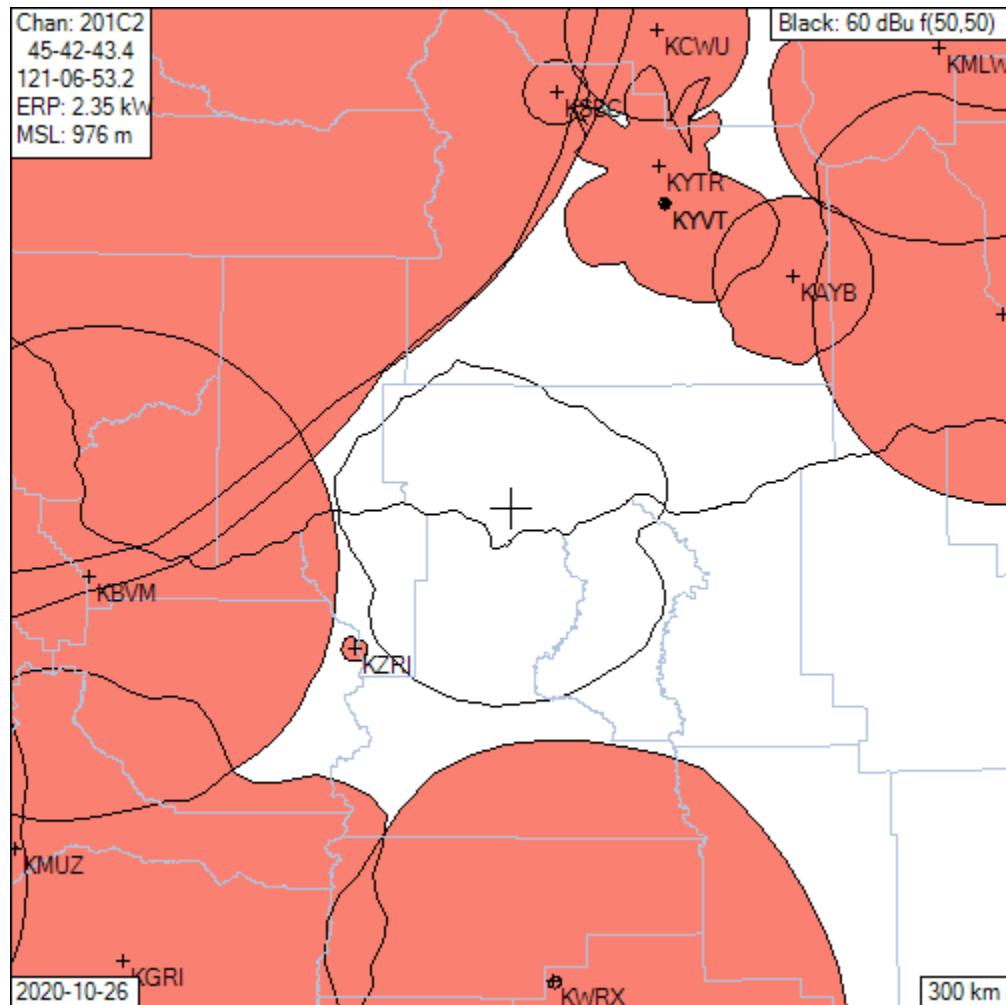
There is no overlap of any interfering contour with the proposed 60 dBu f(50,50) contour. KBVM is close, and a tabulation is provided in Exhibit 2 below.

Blanketing Interference

The proposed site is extremely remote, and there is no population within the 115dBu blanketing contour.

Channel 6 Interference

The nearest full-service television station operating on channel 6 is KTVM-DT in Butte, MT, more than 650 km to the east. For channel 201, only channel 6 stations within 265 km must be considered. Therefore, the proposal complies with §73.525.

International

The FM Agreements with Canada and Mexico require evaluation and potential coordination of any proposal within 320 km of the border.

The distance to the nearest point along the US/Canada border is 328 km. Coordination with Canada is not required.

The distance to the nearest point along the US/Mexico border is 1,504 km. Coordination with Mexico is not required.

Quiet Zones

The proposed site is outside the National Radio Quiet Zone (National Radio Astronomy Observatory Notification Area) in West Virginia.

The proposed site is outside the Arecibo Observatory notification area in Puerto Rico.

The proposed site is not within a 100 km extension of the Table Mountain Radio Receiving Zone in Colorado.

Protected Monitoring Stations

The nearest Protected Monitoring Station is 376 km distant, in Ferndale, WA. This is well beyond any potential 80 dBu contour.

Minor Change

No change is proposed to the channel or community. The proposed transmitter site is within the present 60 dBu f(50,50) contour of KQHR. Therefore, the proposal is for a minor change.

KQHR Coverage Contour Map
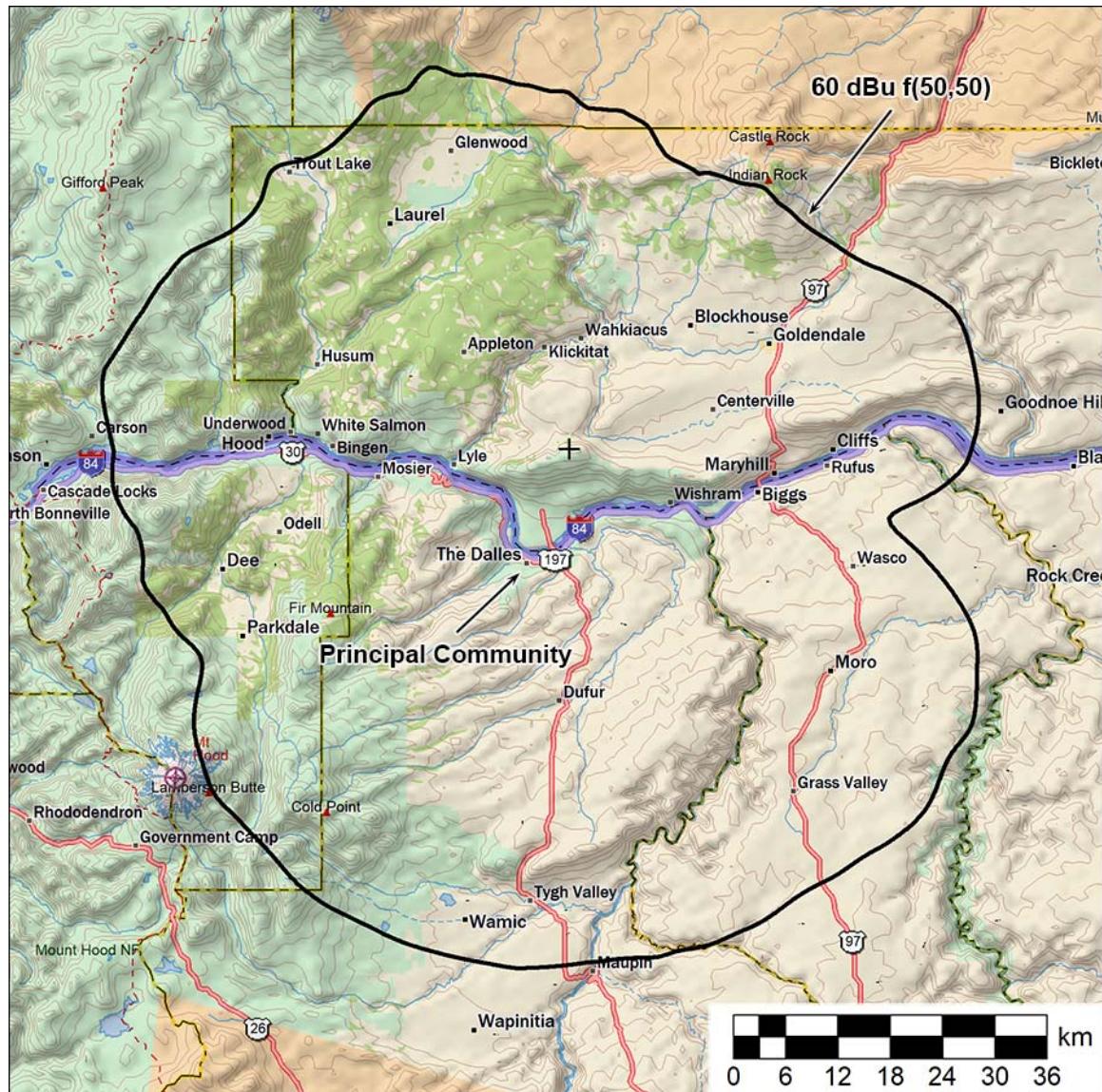
The entire principal community of The Dalles, OR, falls within the proposed 60 dBu f(50,50) contour.

Environmental / RF Exposure

The proposed antenna is a Shively 6810 directional antenna consisting of three bays spaced at 0.5 λ centered 20 m above ground. This is a ring-stub design, and the OET Type 1 antenna is used in calculating RF exposure. The proposed ERP is 2.35 kW, and the OET algorithm returns an exposure level of 15.9% of the allowed limit for casual / uncontrolled exposure:
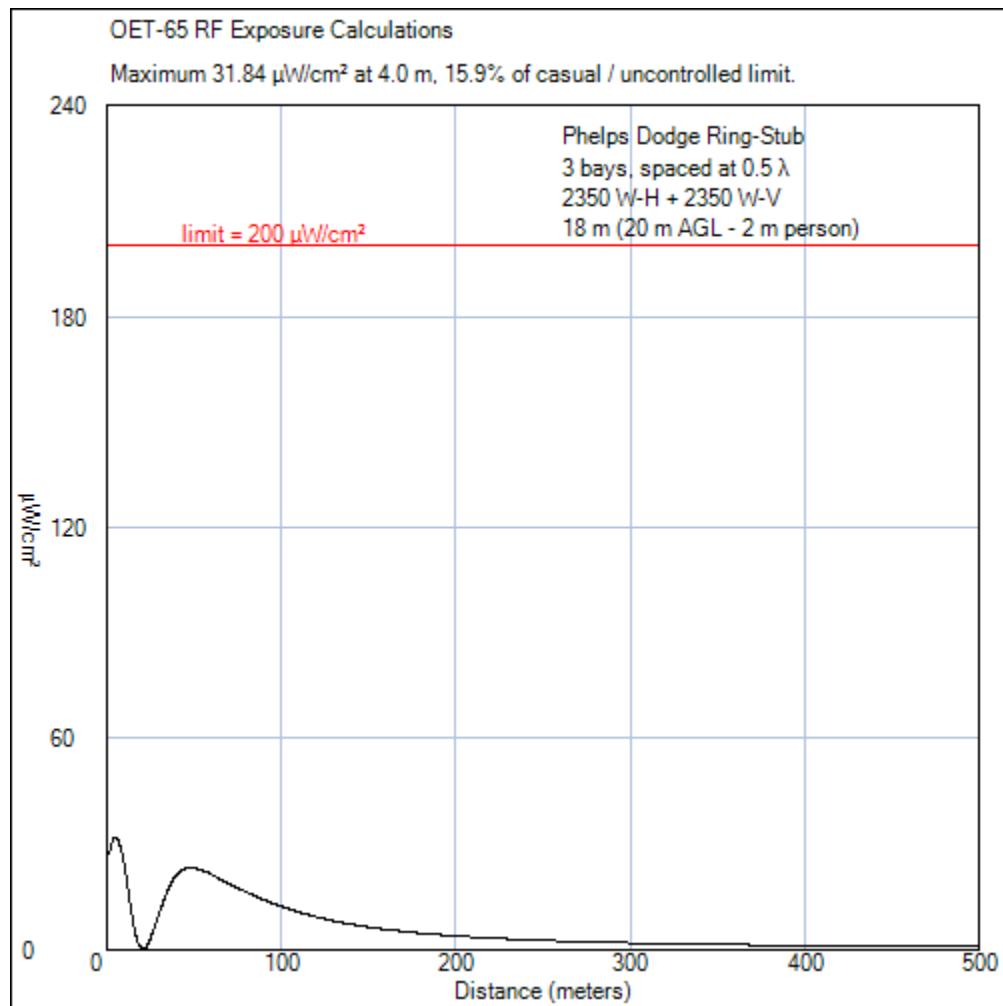
Also on this tower is KACI, FCC Facility ID # 49856. KACI employs a two-bay ERI LPX-2E "Rototiller" design centered 24 m above ground. The ERP is 2.2 kW, and the OET algorithm returns an exposure level of 13.5% of the allowed limit for casual / uncontrolled exposure:

OET-65 RF Exposure Calculations

Maximum 27.01 µW/cm² at 44.8 m, 13.5% of casual / uncontrolled limit.

ERI Rototiller
2 bays, spaced at 0.5 λ
2200 W-H + 2200 W-V
22 m (24 m AGL - 2 m person)

limit = 200 µW/cm²
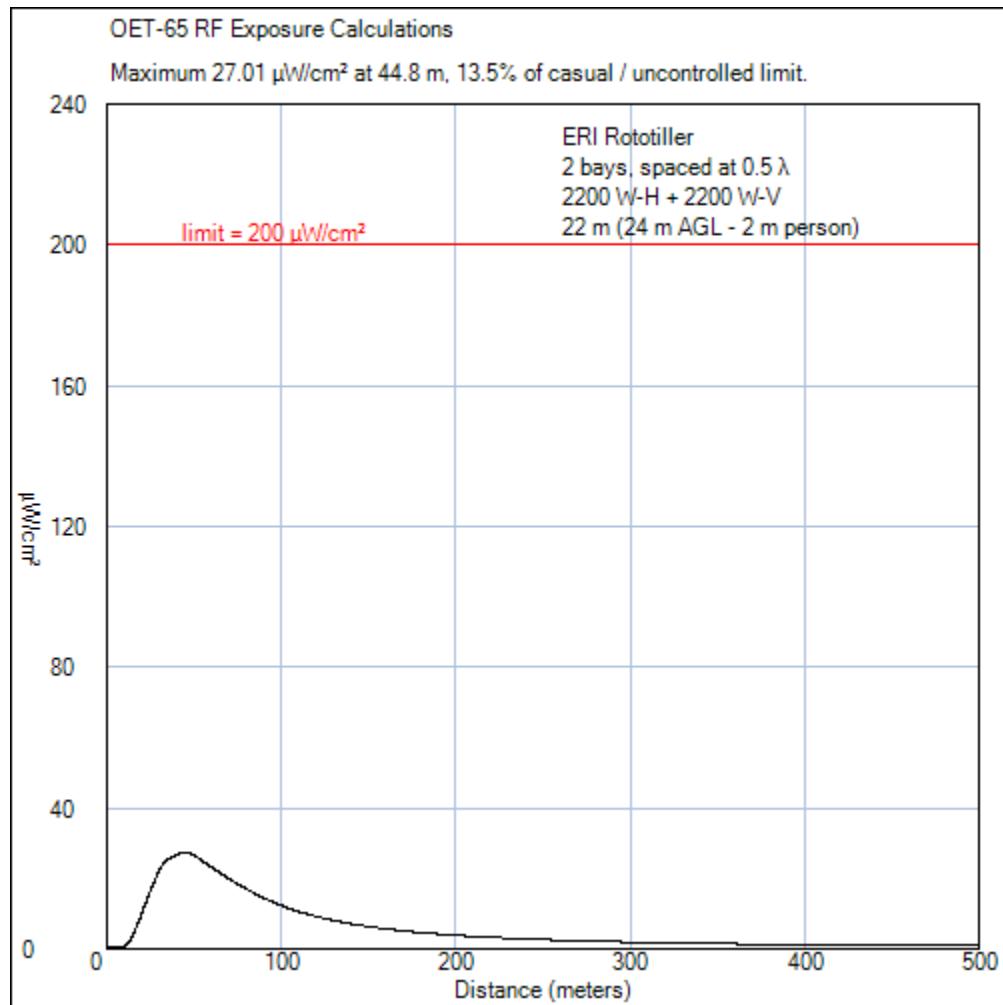
Summing the maximum exposures of the two antennas produces a maximum of 29.46% of the limit for casual / uncontrolled exposure. The site is very remote, and access is via a locked gate. Appropriate access controls and signage are provided.

The tower is an existing structure. No construction or excavation is proposed.

Therefore, the proposal is not for a major environmental action.

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TOWAIR Determination Results

* * * NOTICE * * *

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results	
Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.	
Your Specifications	
NAD83 Coordinates	
Latitude	45-42-43.4 north
Longitude	121-06-53.2 west
Measurements (Meters)	
Overall Structure Height (AGL)	26
Support Structure Height (AGL)	0
Site Elevation (AMSL)	956
Structure Type	
GTOWER - Guyed Structure Used for Communication Purposes	

Exhibit 2: Contour Overlap Tabulations

The following tabulations are provided on the following pages:

- Outbound co-channel to KLBR
- Outbound co-channel to KYTR
- Outbound co-channel to KAYB
- Outbound first adjacent to KBVM
- Inbound first adjacent from KBVM

Keys to the tabulations:

Outbound co-channel

> The first six columns show the calculation of distance to the proposed 40 dBu f(50,10) contour, followed by the latitude and longitude of the point described by the azimuth and distance from the proposal. The following columns show the calculation of the f(50,50) signal from the conflict at each location, and the margin below the 60 dBu limit. (A negative margin indicates prohibited overlap.)

Outbound 1st adjacent

> The first six columns show the calculation of distance to the proposed 54 dBu f(50,10) contour, followed by the latitude and longitude of the point described by the azimuth and distance from the proposal. The following columns show the calculation of the inbound f(50,50) signal from the conflict, and margin below the 60 dBu limit. (A negative margin indicates prohibited overlap.)

Inbound 1st adjacent

> The first six columns show the calculation of distance to the proposed 60 dBu f(50,50) contour, followed by the latitude and longitude of the point described by the azimuth and distance from the proposal. The following columns show the calculation of the inbound f(50,10) signal from the conflict, and margin below the 54 dBu limit. (A negative margin indicates prohibited overlap.)

KQHR Application for Minor Change
Overlap Tabulations

Co-Channel Outbound Interference to KLBR

az	eRel	kW	terht	eah	km	lat	lon	km	brg	eRel	kW	terht	eah	fs	margin
175	1.000	2.350	208.5	767.5	135.99	44 29 33.66	120 57 59.22	66.95	42.0	1.000	5.000	1226.2	600.8	57.30	2.70
176	1.000	2.350	205.7	770.3	136.11	44 29 23.71	120 59 46.29	65.14	40.6	1.000	5.000	1227.2	599.8	58.02	1.98
177	1.000	2.350	204.3	771.7	136.17	44 29 17.12	121 01 33.83	63.45	39.1	0.982	4.824	1228.3	598.7	58.55	1.45
178	1.000	2.350	203.0	773.0	136.23	44 29 11.98	121 03 21.57	61.83	37.5	0.949	4.505	1229.2	597.8	58.91	1.09
179	1.000	2.350	198.8	777.2	136.41	44 29 04.02	121 05 09.35	60.20	35.9	0.915	4.190	1230.2	596.8	59.28	0.72
180	1.000	2.350	194.6	781.4	136.60	44 28 57.42	121 06 57.45	58.65	34.1	0.879	3.864	1232.2	594.8	59.56	0.44
181	1.000	2.350	190.7	785.3	136.77	44 28 52.58	121 08 45.83	57.20	32.2	0.840	3.529	1234.7	592.3	59.76	0.24
182	1.000	2.350	186.6	789.4	136.94	44 28 48.86	121 10 34.45	55.84	30.2	0.799	3.190	1237.0	590.0	59.87	0.13
183	1.000	2.350	182.2	793.8	137.13	44 28 46.10	121 12 23.30	54.59	28.1	0.763	2.912	1239.9	587.1	59.98	0.02
184	1.000	2.350	178.0	798.0	137.31	44 28 45.00	121 14 12.33	53.45	25.9	0.726	2.639	1244.0	583.0	59.98	0.02
185	1.000	2.350	173.8	802.2	137.49	44 28 45.26	121 16 01.49	52.44	23.5	0.688	2.366	1250.7	576.3	59.83	0.17
186	1.000	2.350	170.3	805.7	137.63	44 28 47.88	121 17 50.63	51.59	21.0	0.647	2.096	1257.1	569.9	59.55	0.45
187	1.000	2.350	170.6	805.4	137.62	44 28 56.90	121 19 38.96	51.04	18.4	0.610	1.861	1265.6	561.4	59.11	0.89
188	1.000	2.350	172.8	803.2	137.53	44 29 09.77	121 21 26.56	50.71	15.7	0.575	1.655	1274.9	552.1	58.55	1.45
189	1.000	2.350	173.8	802.2	137.49	44 29 22.34	121 23 14.12	50.49	13.0	0.540	1.458	1283.6	543.4	57.90	2.10
190	1.000	2.350	173.9	802.1	137.48	44 29 35.05	121 25 01.62	50.39	10.3	0.505	1.273	1294.2	532.8	57.10	2.90

KQHR Application for Minor Change
Overlap Tabulations

Co-Channel Outbound Interference to KYTR

az	eRel	kW	terht	eah	km	lat	lon	km	brg	eRel	kW	terht	eah	fs	margin
20	0.500	0.588	491.4	484.6	96.77	46 31 46.09	120 40 58.86	16.06	224.9	1.000	0.052	398.7	145.3	52.73	7.27
21	0.490	0.564	484.4	491.6	96.77	46 31 26.62	120 39 44.53	15.44	219.2	1.000	0.052	392.9	151.1	53.70	6.30
22	0.480	0.541	477.6	498.4	96.72	46 31 04.71	120 38 31.65	15.07	213.0	1.000	0.052	404.8	139.2	53.32	6.68
23	0.470	0.519	470.2	505.8	96.69	46 30 42.40	120 37 19.09	14.90	206.5	1.000	0.052	431.2	112.8	51.71	8.29
24	0.460	0.497	463.1	512.9	96.59	46 30 17.61	120 36 08.21	15.01	200.1	1.000	0.052	439.0	105.0	50.97	9.03
25	0.450	0.476	458.3	517.7	96.30	46 29 45.87	120 35 02.26	15.53	194.0	1.000	0.052	413.5	130.5	52.27	7.73
26	0.460	0.497	456.5	519.5	97.13	46 29 46.19	120 33 33.74	15.18	187.1	1.000	0.052	391.8	152.2	54.04	5.96
27	0.470	0.519	459.2	516.8	97.58	46 29 34.36	120 32 12.80	15.43	180.5	1.000	0.052	378.5	165.5	54.57	5.43
28	0.480	0.541	464.5	511.5	97.80	46 29 14.75	120 30 57.10	16.10	174.8	1.000	0.052	366.6	177.4	54.51	5.49
29	0.490	0.564	469.9	506.1	97.99	46 28 53.30	120 29 42.47	16.97	169.6	1.000	0.052	351.7	192.3	54.32	5.68
30	0.500	0.588	475.7	500.3	98.11	46 28 29.24	120 28 29.69	18.04	165.2	1.000	0.052	336.3	207.7	53.95	6.05
31	0.510	0.611	480.6	495.4	98.29	46 28 05.65	120 27 16.21	19.19	161.3	1.000	0.052	324.3	219.7	53.37	6.63
32	0.520	0.635	484.8	491.2	98.51	46 27 42.17	120 26 02.27	20.42	157.7	1.000	0.052	310.9	233.1	52.79	7.21
33	0.530	0.660	487.7	488.3	98.82	46 27 20.27	120 24 46.35	21.69	154.4	1.000	0.052	316.5	227.5	51.49	8.51

KQHR Application for Minor Change
Overlap Tabulations

Co-Channel Outbound Interference to KAYB

az	eRel	kW	terht	eah	km	lat	lon	km	brg	eRel	kW	terht	eah	fs	margin
45	0.675	1.070	563.0	413.0	98.31	46 20 02.24	120 12 35.54	15.07	271.2	1.000	0.250	226.0	30.0	47.03	12.97
46	0.690	1.120	570.2	405.8	98.20	46 19 19.66	120 11 43.60	14.00	265.8	1.000	0.250	226.0	30.0	48.30	11.70
47	0.705	1.170	575.7	400.3	98.26	46 18 40.18	120 10 46.98	12.95	260.0	1.000	0.250	226.0	30.0	49.70	10.30
48	0.720	1.220	580.2	395.8	98.41	46 18 02.03	120 09 48.00	11.99	253.4	1.000	0.250	226.0	30.0	51.11	8.89
49	0.735	1.270	583.7	392.3	98.66	46 17 25.13	120 08 46.47	11.15	245.8	1.000	0.250	226.0	30.0	52.43	7.57
50	0.750	1.320	586.4	389.6	98.98	46 16 48.96	120 07 42.98	10.49	237.2	1.000	0.250	226.0	30.0	53.53	6.47
51	0.765	1.380	588.6	387.4	99.36	46 16 12.77	120 06 38.63	10.08	227.5	1.000	0.250	222.5	33.5	54.98	5.02
52	0.780	1.430	590.6	385.4	99.74	46 15 35.86	120 05 34.60	9.99	217.3	1.000	0.250	219.5	36.5	55.84	4.16
53	0.795	1.490	592.4	383.6	100.13	46 14 58.24	120 04 30.90	10.25	207.3	1.000	0.250	220.3	35.7	55.21	4.79
54	0.810	1.540	593.9	382.1	100.55	46 14 20.12	120 03 27.04	10.81	198.0	1.000	0.250	221.0	35.0	54.09	5.91
55	0.825	1.600	594.6	381.4	101.05	46 13 42.54	120 02 20.78	11.60	189.5	1.000	0.250	222.7	33.3	52.41	7.59
56	0.840	1.660	594.1	381.9	101.69	46 13 06.28	120 01 10.08	12.56	181.9	1.000	0.250	219.4	36.6	51.71	8.29
57	0.855	1.720	592.0	384.0	102.50	46 12 31.95	119 59 52.96	13.67	174.8	1.000	0.250	221.5	34.5	49.68	10.32
58	0.870	1.780	588.1	387.9	103.51	46 11 59.64	119 58 28.38	14.93	168.2	1.000	0.250	223.7	32.3	47.63	12.37
59	0.885	1.840	582.5	393.5	104.71	46 11 28.75	119 56 56.91	16.36	162.2	1.000	0.250	226.0	30.0	45.73	14.27
60	0.900	1.900	575.7	400.3	106.02	46 10 58.03	119 55 20.91	17.97	156.9	1.000	0.250	226.0	30.0	44.23	15.77

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Overlap Tabulations

First Adjacent Outbound Interference to KBVM

az	eRel	kW	terht	eah	km	lat	lon	km	brg	eRel	kW	terht	eah	fs	margin
235	1.000	2.350	383.5	592.5	78.64	45 18 10.75	121 56 24.75	66.43	110.7	1.000	3.500	82.1	445.9	52.19	7.81
236	1.000	2.350	403.4	572.6	77.54	45 19 07.44	121 56 19.21	65.94	109.2	1.000	3.500	80.7	447.3	52.43	7.57
237	1.000	2.350	422.8	553.2	76.43	45 20 03.68	121 56 11.48	65.53	107.7	1.000	3.500	78.5	449.5	52.65	7.35
238	1.000	2.350	440.2	535.8	75.35	45 20 58.58	121 56 03.42	65.19	106.3	1.000	3.500	77.3	450.7	52.83	7.17
239	1.000	2.350	454.3	521.7	74.40	45 21 50.87	121 55 58.15	64.85	104.9	1.000	3.500	77.2	450.8	52.97	7.03
240	1.000	2.350	464.5	511.5	73.68	45 22 38.79	121 56 00.43	64.43	103.6	1.000	3.500	77.0	451.0	53.15	6.85
241	1.000	2.350	468.5	507.5	73.39	45 23 19.47	121 56 18.54	63.75	102.6	1.000	3.500	77.0	451.0	53.44	6.56
242	1.000	2.350	467.5	508.5	73.46	45 23 54.61	121 56 50.21	62.84	101.8	1.000	3.500	77.2	450.8	53.82	6.18
243	1.000	2.350	463.1	512.9	73.78	45 24 26.48	121 57 31.06	61.76	101	1.000	3.500	77.3	450.7	54.28	5.72
244	1.000	2.350	456.8	519.2	74.23	45 24 57.14	121 58 16.55	60.61	100.4	1.000	3.500	77.8	450.2	54.77	5.23
245	1.000	2.350	451.1	524.9	74.62	45 25 29.29	121 58 59.33	59.52	99.6	1.000	3.500	78.4	449.6	55.24	4.76
246	1.000	2.350	447.0	529.0	74.90	45 26 03.72	121 59 36.58	58.54	98.7	1.000	3.500	79.2	448.8	55.65	4.35
247	1.000	2.350	444.5	531.5	75.07	45 26 40.18	122 00 08.40	57.69	97.7	1.000	3.500	80.0	448.0	56.01	3.99
248	1.000	2.350	443.0	533.0	75.17	45 27 17.96	122 00 36.44	56.93	96.6	1.000	3.500	80.2	447.8	56.35	3.65
249	1.000	2.350	439.9	536.1	75.37	45 27 54.89	122 01 08.06	56.11	95.5	1.000	3.500	79.9	448.1	56.72	3.28
250	1.000	2.350	432.6	543.4	75.84	45 28 29.35	122 01 49.97	55.10	94.5	1.000	3.500	79.7	448.3	57.19	2.81
251	0.985	2.280	421.3	554.7	76.13	45 29 06.41	122 02 23.80	54.28	93.4	1.000	3.500	79.4	448.6	57.57	2.43
252	0.970	2.210	408.3	567.7	76.48	45 29 43.49	122 02 59.09	53.45	92.2	1.000	3.500	79.1	448.9	57.96	2.04
253	0.955	2.140	398.8	577.2	76.59	45 30 23.43	122 03 23.45	52.88	90.9	1.000	3.500	78.7	449.3	58.23	1.77
254	0.940	2.080	396.2	579.8	76.32	45 31 07.35	122 03 29.55	52.73	89.4	1.000	3.500	77.8	450.2	58.32	1.68
255	0.925	2.010	396.2	579.8	75.90	45 31 52.47	122 03 28.01	52.78	87.9	1.000	3.500	76.2	451.8	58.34	1.66
256	0.910	1.950	394.6	581.4	75.55	45 32 36.71	122 03 28.67	52.83	86.4	1.000	3.500	74.6	453.4	58.36	1.64
257	0.895	1.880	389.5	586.5	75.38	45 33 19.46	122 03 35.78	52.76	85	1.000	3.500	72.4	455.6	58.45	1.55
258	0.880	1.820	381.8	594.2	75.32	45 34 01.39	122 03 46.93	52.64	83.6	1.000	3.500	70.5	457.5	58.55	1.45
259	0.865	1.760	371.3	604.7	75.38	45 34 42.64	122 04 02.43	52.45	82.1	1.000	3.500	69.0	459.0	58.67	1.33
260	0.850	1.700	357.2	618.8	75.59	45 35 23.16	122 04 24.01	52.16	80.7	1.000	3.500	69.1	458.9	58.80	1.20
261	0.850	1.700	343.1	632.9	76.28	45 36 01.45	122 05 06.37	51.45	79.2	1.000	3.500	70.6	457.4	59.09	0.91
262	0.850	1.700	330.4	645.6	76.91	45 36 40.98	122 05 44.78	50.87	77.7	1.000	3.500	71.5	456.5	59.33	0.67

263	0.850	1.700	321.1	654.9	77.36	45 37 22.04	122 06 14.58	50.51	76.2	1.000	3.500	70.3	457.7	59.53	0.47
264	0.850	1.700	312.1	663.9	77.80	45 38 03.77	122 06 42.64	50.24	74.6	1.000	3.500	68.2	459.8	59.71	0.29
265	0.850	1.700	305.1	670.9	78.14	45 38 46.41	122 07 05.11	50.13	73	1.000	3.500	65.6	462.4	59.82	0.18
266	0.850	1.700	303.1	672.9	78.24	45 39 30.15	122 07 15.32	50.32	71.4	1.000	3.500	63.5	464.5	59.79	0.21
267	0.850	1.700	302.8	673.2	78.25	45 40 14.24	122 07 20.66	50.65	69.9	1.000	3.500	61.6	466.4	59.69	0.31
268	0.850	1.700	304.8	671.2	78.16	45 40 58.57	122 07 19.73	51.14	68.5	1.000	3.500	60.8	467.2	59.48	0.52
269	0.850	1.700	308.3	667.7	77.99	45 41 42.89	122 07 14.32	51.76	67.1	1.000	3.500	60.2	467.8	59.21	0.79
270	0.850	1.700	311.6	664.4	77.83	45 42 27.04	122 07 08.23	52.41	65.8	1.000	3.500	59.8	468.2	58.93	1.07
271	0.865	1.760	315.1	660.9	78.15	45 43 11.10	122 07 23.21	52.68	64.3	1.000	3.500	59.4	468.6	58.81	1.19
272	0.880	1.820	318.6	657.4	78.45	45 43 55.50	122 07 36.59	53.02	62.8	1.000	3.500	59.0	469.0	58.67	1.33
273	0.895	1.880	320.3	655.7	78.84	45 44 40.33	122 07 52.53	53.36	61.3	1.000	3.500	58.6	469.4	58.53	1.47
274	0.910	1.950	323.2	652.8	79.16	45 45 25.44	122 08 04.16	53.81	59.9	1.000	3.500	58.0	470.0	58.33	1.67
275	0.925	2.010	324.4	651.6	79.55	45 46 11.05	122 08 18.17	54.26	58.4	1.000	3.500	57.3	470.7	58.15	1.85
276	0.940	2.080	326.2	649.8	79.90	45 46 56.93	122 08 29.25	54.80	57	1.000	3.500	56.5	471.5	57.92	2.08
277	0.955	2.140	329.4	646.6	80.18	45 47 42.86	122 08 35.54	55.46	55.7	1.000	3.500	55.6	472.4	57.65	2.35
278	0.970	2.210	333.7	642.3	80.40	45 48 28.76	122 08 37.75	56.23	54.5	1.000	3.500	54.5	473.5	57.33	2.67
279	0.985	2.280	340.1	635.9	80.49	45 49 14.26	122 08 33.45	57.12	53.4	1.000	3.500	53.5	474.5	56.96	3.04
280	1.000	2.350	349.9	626.1	80.41	45 49 58.80	122 08 19.59	58.18	52.4	1.000	3.500	52.6	475.4	56.51	3.49
281	1.000	2.350	360.5	615.5	79.86	45 50 40.45	122 07 43.52	59.58	51.9	1.000	3.500	52.0	476.0	55.91	4.09
282	1.000	2.350	371.0	605.0	79.32	45 51 21.34	122 07 06.47	60.98	51.4	1.000	3.500	51.4	476.6	55.31	4.69
283	1.000	2.350	380.7	595.3	78.80	45 52 01.65	122 06 29.63	62.38	51	1.000	3.500	50.9	477.1	54.73	5.27
284	1.000	2.350	388.8	587.2	78.35	45 52 41.79	122 05 55.36	63.73	50.5	1.000	3.500	50.4	477.6	54.17	5.83
285	1.000	2.350	395.8	580.2	77.96	45 53 21.71	122 05 22.69	65.05	50.1	1.000	3.500	49.9	478.1	53.63	6.37

KQHR Application for Minor Change
Overlap Tabulations

First Adjacent Inbound Interference from KBVM

az	eRel	kW	terht	eah	km	lat	lon	km	brg	eRel	kW	terht	eah	fs	margin
240	1.000	2.350	464.5	511.5	48.65	45 29 30.18	121 39 24.56	84.16	91.5	1.000	3.500	78.8	449.2	50.72	3.28
241	1.000	2.350	468.5	507.5	48.42	45 29 57.60	121 39 35.09	83.90	90.9	1.000	3.500	78.7	449.3	50.81	3.19
242	1.000	2.350	467.5	508.5	48.48	45 30 20.71	121 39 56.25	83.42	90.4	1.000	3.500	78.5	449.5	50.97	3.03
243	1.000	2.350	463.1	512.9	48.73	45 30 41.26	121 40 24.66	82.80	90	1.000	3.500	78.4	449.6	51.17	2.83
244	1.000	2.350	456.8	519.2	49.08	45 31 00.72	121 40 57.13	82.09	89.6	1.000	3.500	78.0	450.0	51.42	2.58
245	1.000	2.350	451.1	524.9	49.40	45 31 21.21	121 41 27.90	81.42	89.1	1.000	3.500	77.5	450.5	51.65	2.35
246	1.000	2.350	447.0	529.0	49.64	45 31 43.42	121 41 54.50	80.84	88.6	1.000	3.500	77.0	451.0	51.85	2.15
247	1.000	2.350	444.5	531.5	49.78	45 32 07.25	121 42 16.77	80.37	88.1	1.000	3.500	76.4	451.6	52.02	1.98
248	1.000	2.350	443.0	533.0	49.86	45 32 32.12	121 42 36.06	79.97	87.5	1.000	3.500	75.8	452.2	52.16	1.84
249	1.000	2.350	439.9	536.1	50.04	45 32 56.21	121 42 58.63	79.51	87	1.000	3.500	75.3	452.7	52.33	1.67
250	1.000	2.350	432.6	543.4	50.43	45 33 18.15	121 43 30.23	78.85	86.5	1.000	3.500	74.7	453.3	52.56	1.44
251	0.985	2.280	421.3	554.7	50.71	45 33 42.01	121 43 56.07	78.33	85.9	1.000	3.500	74.0	454.0	52.74	1.26
252	0.970	2.210	408.3	567.7	51.01	45 34 06.05	121 44 22.55	77.81	85.4	1.000	3.500	73.0	455.0	52.94	1.06
253	0.955	2.140	398.8	577.2	51.11	45 34 32.49	121 44 39.79	77.50	84.7	1.000	3.500	72.0	456.0	53.07	0.93
254	0.940	2.080	396.2	579.8	50.91	45 35 02.00	121 44 42.80	77.51	84.1	1.000	3.500	71.0	457.0	53.10	0.90
255	0.925	2.010	396.2	579.8	50.59	45 35 32.41	121 44 39.96	77.66	83.4	1.000	3.500	70.3	457.7	53.07	0.93
256	0.910	1.950	394.6	581.4	50.34	45 36 02.12	121 44 39.02	77.78	82.7	1.000	3.500	69.6	458.4	53.04	0.96
257	0.895	1.880	389.5	586.5	50.22	45 36 30.65	121 44 43.40	77.79	82	1.000	3.500	68.9	459.1	53.06	0.94
258	0.880	1.820	381.8	594.2	50.19	45 36 58.52	121 44 51.21	77.74	81.4	1.000	3.500	68.8	459.2	53.08	0.92
259	0.865	1.760	371.3	604.7	50.25	45 37 25.87	121 45 02.54	77.61	80.7	1.000	3.500	69.1	458.9	53.11	0.89
260	0.850	1.700	357.2	618.8	50.44	45 37 52.68	121 45 18.67	77.40	80.1	1.000	3.500	69.7	458.3	53.17	0.83
261	0.850	1.700	343.1	632.9	50.95	45 38 18.01	121 45 49.41	76.87	79.4	1.000	3.500	70.4	457.6	53.32	0.68
262	0.850	1.700	330.4	645.6	51.41	45 38 44.28	121 46 16.80	76.43	78.8	1.000	3.500	71.0	457.0	53.45	0.55
263	0.850	1.700	321.1	654.9	51.74	45 39 11.68	121 46 37.73	76.14	78.1	1.000	3.500	71.5	456.5	53.52	0.48
264	0.850	1.700	312.1	663.9	52.06	45 39 39.57	121 46 57.28	75.90	77.4	1.000	3.500	71.5	456.5	53.61	0.39
265	0.850	1.700	305.1	670.9	52.30	45 40 08.10	121 47 12.82	75.76	76.7	1.000	3.500	71.0	457.0	53.67	0.33
266	0.850	1.700	303.1	672.9	52.37	45 40 37.38	121 47 19.67	75.82	76	1.000	3.500	70.1	457.9	53.67	0.33
267	0.850	1.700	302.8	673.2	52.38	45 41 06.90	121 47 23.08	75.96	75.3	1.000	3.500	69.2	458.8	53.65	0.35

268	0.850	1.700	304.8	671.2	52.31	45 41 36.57	121 47 22.12	76.21	74.6	1.000	3.500	68.3	459.7	53.59	0.41
269	0.850	1.700	308.3	667.7	52.19	45 42 06.23	121 47 18.00	76.53	74	1.000	3.500	67.4	460.6	53.51	0.49
270	0.850	1.700	311.6	664.4	52.07	45 42 35.77	121 47 13.42	76.87	73.3	1.000	3.500	66.3	461.7	53.43	0.57
271	0.865	1.760	315.1	660.9	52.29	45 43 05.27	121 47 23.57	76.92	72.6	1.000	3.500	65.2	462.8	53.44	0.56
272	0.880	1.820	318.6	657.4	52.50	45 43 35.02	121 47 32.68	77.00	71.9	1.000	3.500	64.2	463.8	53.44	0.56
273	0.895	1.880	320.3	655.7	52.77	45 44 05.07	121 47 43.67	77.05	71.2	1.000	3.500	63.2	464.8	53.45	0.55
274	0.910	1.950	323.2	652.8	53.00	45 44 35.31	121 47 51.71	77.18	70.5	1.000	3.500	62.3	465.7	53.43	0.57
275	0.925	2.010	324.4	651.6	53.27	45 45 05.91	121 48 01.50	77.29	69.8	1.000	3.500	61.6	466.4	53.42	0.58
276	0.940	2.080	326.2	649.8	53.52	45 45 36.69	121 48 09.29	77.45	69.1	1.000	3.500	61.2	466.8	53.38	0.62
277	0.955	2.140	329.4	646.6	53.72	45 46 07.51	121 48 13.80	77.70	68.4	1.000	3.500	60.8	467.2	53.31	0.69
278	0.970	2.210	333.7	642.3	53.87	45 46 38.30	121 48 15.50	78.01	67.8	1.000	3.500	60.5	467.5	53.21	0.79
279	0.985	2.280	340.1	635.9	53.94	45 47 08.81	121 48 12.73	78.41	67.1	1.000	3.500	60.3	467.7	53.09	0.91
280	1.000	2.350	349.9	626.1	53.89	45 47 38.63	121 48 03.28	78.95	66.6	1.000	3.500	60.0	468.0	52.92	1.08
281	1.000	2.350	360.5	615.5	53.50	45 48 06.35	121 47 38.03	79.79	66.1	1.000	3.500	59.9	468.1	52.65	1.35
282	1.000	2.350	371.0	605.0	53.11	45 48 33.53	121 47 12.03	80.63	65.8	1.000	3.500	59.8	468.2	52.38	1.62
283	1.000	2.350	380.7	595.3	52.74	45 49 00.32	121 46 46.38	81.47	65.4	1.000	3.500	59.7	468.3	52.11	1.89
284	1.000	2.350	388.8	587.2	52.43	45 49 26.98	121 46 22.43	82.28	65	1.000	3.500	59.6	468.4	51.85	2.15
285	1.000	2.350	395.8	580.2	52.14	45 49 53.43	121 45 59.35	83.07	64.6	1.000	3.500	59.5	468.5	51.60	2.40
286	1.000	2.350	402.4	573.6	51.87	45 50 19.50	121 45 35.96	83.87	64.3	1.000	3.500	59.4	468.6	51.35	2.65
287	1.000	2.350	408.9	567.1	51.58	45 50 45.07	121 45 11.67	84.68	63.9	1.000	3.500	59.3	468.7	51.09	2.91
288	1.000	2.350	416.0	560.0	51.26	45 51 09.79	121 44 45.04	85.53	63.6	1.000	3.500	59.2	468.8	50.82	3.18
289	1.000	2.350	420.6	555.4	51.04	45 51 35.09	121 44 22.52	86.30	63.3	1.000	3.500	59.2	468.8	50.58	3.42
290	1.000	2.350	424.0	552.0	50.87	45 52 00.57	121 44 01.70	87.05	63	1.000	3.500	59.1	468.9	50.34	3.66
291	1.000	2.350	428.2	547.8	50.66	45 52 25.19	121 43 38.34	87.84	62.7	1.000	3.500	59.0	469.0	50.10	3.90
292	1.000	2.350	431.6	544.4	50.49	45 52 49.83	121 43 15.95	88.61	62.4	1.000	3.500	58.9	469.1	49.85	4.15
293	1.000	2.350	437.1	538.9	50.19	45 53 12.63	121 42 47.91	89.47	62.1	1.000	3.500	58.8	469.2	49.59	4.41
294	1.000	2.350	441.8	534.2	49.93	45 53 35.36	121 42 20.78	90.31	61.9	1.000	3.500	58.8	469.2	49.32	4.68
295	1.000	2.350	445.1	530.9	49.74	45 53 58.61	121 41 56.29	91.11	61.7	1.000	3.500	58.7	469.3	49.08	4.92
296	1.000	2.350	449.3	526.7	49.51	45 54 20.74	121 41 29.13	91.95	61.4	1.000	3.500	58.6	469.4	48.82	5.18
297	1.000	2.350	454.8	521.2	49.19	45 54 41.37	121 40 58.48	92.83	61.3	1.000	3.500	58.6	469.4	48.55	5.45
298	1.000	2.350	463.4	512.6	48.71	45 54 58.86	121 40 20.27	93.81	61.2	1.000	3.500	58.6	469.4	48.25	5.75
299	1.000	2.350	474.3	501.7	48.10	45 55 13.72	121 39 36.76	94.85	61.3	1.000	3.500	58.6	469.4	47.93	6.07
300	1.000	2.350	485.4	490.6	47.50	45 55 27.78	121 38 53.19	95.89	61.3	1.000	3.500	58.6	469.4	47.61	6.39