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## ENGINEERING REPORT

### APPLICATION FOR CONSTRUCTION PERMIT for MODIFIED DAYTIME FACILITIES

KPTK-AM

Facility ID 6387

1090 kHz  
50 kW DA-2  
SEATTLE, WASHINGTON

**CBS Radio Holdings Inc.**

November 2007

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## 1. Purpose of Application

This Engineering Report is part of an application by CBS Radio Holdings, Inc. to modify the daytime directional antenna pattern of KPTK-AM, Seattle. No changes to the licensed nighttime operation of KPTK are proposed, and no new tower construction is required.

## 2. Allocation Considerations

### a. Daytime

All computations contained in this report are based on data taken from the October 29, 2007 edition of the FCC AM database. Measured ground conductivity was used to locate the relevant contours of KPTK and first-adjacent channel station KFXX, Portland, OR. Conductivity data used for KPTK is based on measurements of KIRO-AM, a Class A station which operates from a transmitter site located less than 1 km from the KPTK transmitter. M3 conductivities were used in all other domestic cases, with the waters of Puget Sound assumed to have the conductivities specified in *Letter to Auburn Broadcasters* (1957). Region II conductivity data was used to calculate the contours of CFAX, Victoria, B.C and notified Canadian facility on 1100 kHz at Hope, B.C. The proposed 50 kW daytime operation will not cause prohibited contour overlap with any existing facility or application, with the exception of 2<sup>nd</sup>-adjacent channel station KWDB, Oak Harbor, WA. Existing overlap with KWDB is reduced by this proposal, as shown in Exhibit 15A. Protection of 2<sup>nd</sup>-adjacent channel station CFAX, is demonstrated in accordance with §73.37 note (2), which specifies that the terms of the relevant international agreement shall apply in lieu of the domestic protection standard for 2<sup>nd</sup>-adjacent channel stations. The agreement between the U.S. and Canada specifies no overlap of any station's 15 mV/m contour over the 0.5 mV/m protected contour of another station over land areas belonging to the protected station's country. As shown in the included exhibits, the proposed 15 mV/m contour of KPTK does not reach the Canadian border.

b. Critical Hours

The closest point on the 0.1 mV/m daytime contour of co-channel Class A station KAAY, Little Rock is 1640 miles from the KPTK transmitter site, at a bearing of 109°. Using the methodology specified in section §73.187 of the Commission's rules, the most restrictive critical hours radiation limit toward KAAY is 4288.6 mV/m/km at a bearing of 107°. The most restrictive limit toward WBAL, Baltimore is 7747.1 mV/m/km at a bearing of 87°. The 50 kW daytime operation proposed radiates less than 2300 mV/m/km between 70° and 180° and therefore satisfies the critical hours protection requirements toward Little Rock and Baltimore.

3. Facilities Proposed

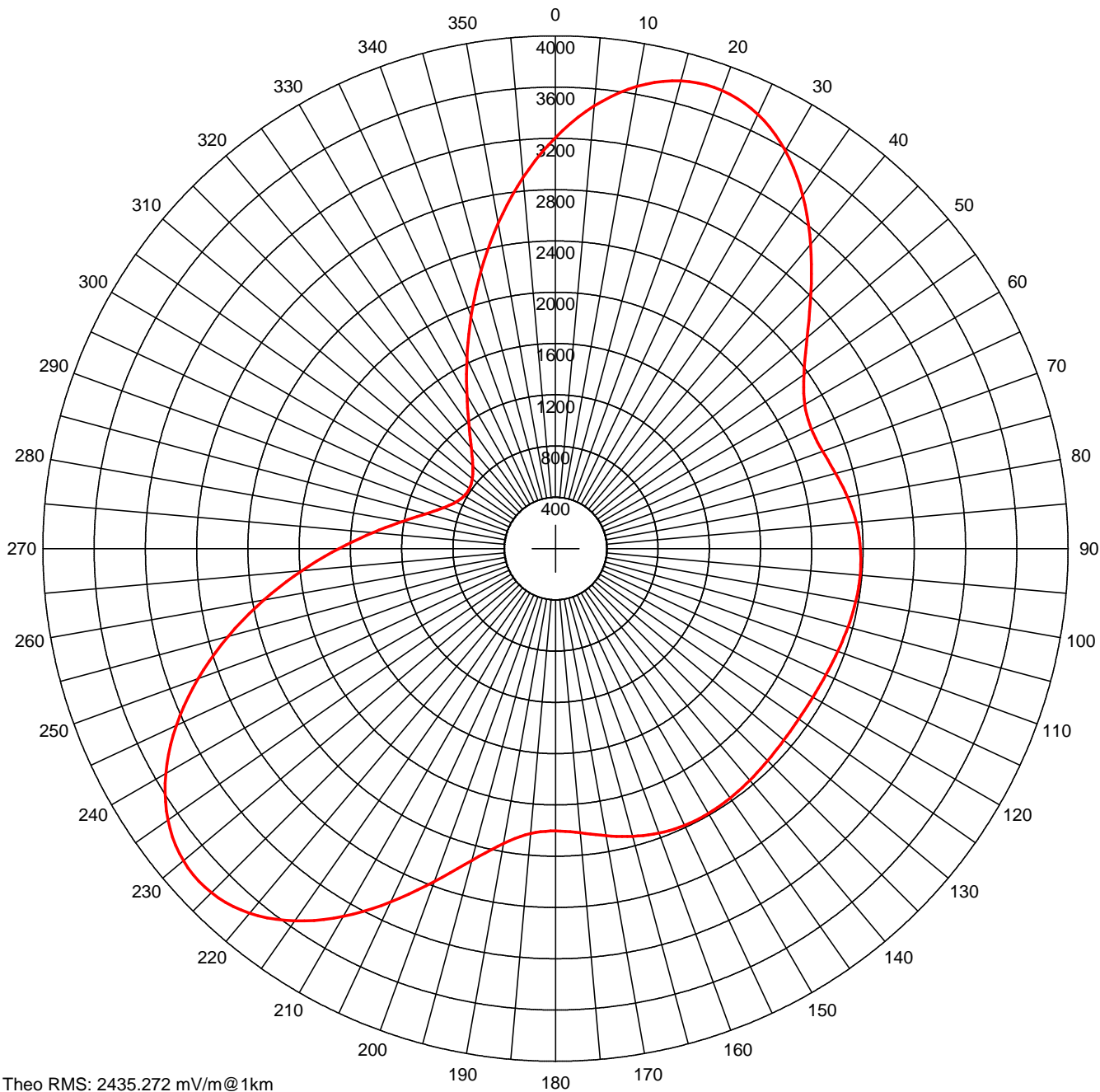
CBS Radio Holdings, Inc. proposes continued operation of KPTK on 1090 kHz from the presently authorized transmitter site with an operating power of 50 kW unlimited time. Different directional antenna patterns will be employed for daytime and nighttime operation. The proposed modification of the daytime directional antenna will require electrical adjustment of the existing array only, no new tower construction is required. No changes to the presently authorized nighttime operation are proposed.

Unauthorized antenna tower access is restricted by fences with locked gates. These fences are at least 4 meters from the tower bases as required by OET-65. The antenna towers are posted with warning signs, and all station personnel and contractors will be required to follow appropriate safety procedures before any work is commenced on the antenna towers, including reduction in power or discontinuance of operation before any maintenance work is undertaken.

The population within the proposed daytime 1V/m contour is 440 persons, which is 0.05% of the population within the proposed 25 mV/m contour, (938,881 using 2000 census block centroid data) thus satisfying the requirements of §73.24(g).

The proposed operation is co-located with KTTH-AM, 770 kHz, Seattle.

AM Directional Pattern



Theo RMS: 2435.272 mV/m@1km  
Std RMS: 2558.113 mV/m@1km  
Meas RMS: 0.0 mV/m@1km  
Q: 70.711 mV/m@1km

Horizontal Plane Standard Pattern

- Pattern (mV/m @ 1km)
- Meas Pat (mV/m@1km)
- Pattern X10
- Meas Pat X10

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Switch	TL Switch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.050	18.0	0.0	0.0	160.0	0	0	0.0	0.0	0.0	0.0
2	1.000	0.0	138.0	123.0	160.0	0	0	0.0	0.0	0.0	0.0
3	0.550	101.0	276.0	123.0	160.0	0	0	0.0	0.0	0.0	0.0

Call: KPTK  
Freq: 1090 kHz  
SEATTLE, WA, US  
Lat: 47-23-38 N  
Lng: 122-25-25 W  
Power: 50.0 kW  
Theo RMS: 2435.27 mV/m @ 1km

# Critical Hours Radiation Report

Call: KPTK  
 Freq: 1090 kHz  
 SEATTLE, WA, US  
 Lat: 47-23-38 N  
 Lng: 122-25-25 W  
 Power: 50.0 kW  
 Theo RMS: 2435.27 mV/m @ 1km

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swtch	TL Swtch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.050	18.0	0.0	0.0	160.0	0	0	0.0	0.0	0.0	0.0
2	1.000	0.0	138.0	123.0	160.0	0	0	0.0	0.0	0.0	0.0
3	0.550	101.0	276.0	123.0	160.0	0	0	0.0	0.0	0.0	0.0

Interpolation factors for 1090 kHz:

K(500) = 0.000  
 K(1000) = 0.850  
 K(1600) = 0.150

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 Call: KAAY  
 Freq: 1090 kHz  
 LITTLE ROCK, AR, US  
 Lat: 34-36-00 N  
 Lng: 092-13-30 W  
 Power: 50.0 kW  
 Theo RMS: 411.99 mV/m/kw @ 1km

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swtch	TL Swtch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	199.0	0	0	0.0	0.0	0.0	0.0

Permissible radiation calculated using FCC 73.190 curves.

Class A Azimuth (deg)	Reference Azimuth (deg)	Distance to 0.1 mV (km) / (mi)	Max Vert Angle (deg)	Max Rad Below Ang (mV/m@1km)	Permiss Radiation (mV/m@1km)	Margin (mV/m@1km)
0.65	104.00	2729.9 / 1696.3	0.0	2366.72	4575.9	2209.2
346.14	105.00	2682.1 / 1666.6	0.0	2363.13	4404.7	2041.6
334.53	106.00	2655.4 / 1650.0	0.0	2359.44	4318.9	1959.4
324.06	107.00	2642.3 / 1641.9	0.0	2355.69	4288.6	1932.9
313.87	108.00	2641.8 / 1641.6	0.0	2351.92	4309.2	1957.3
303.41	109.00	2638.9 / 1639.7	0.0	2348.19	4319.9	1971.7
293.17	110.00	2642.2 / 1641.8	0.0	2344.53	4355.9	2011.4
282.01	111.00	2661.8 / 1654.0	0.0	2340.97	4467.8	2126.9
267.12	112.00	2708.0 / 1682.6	0.0	2337.56	4691.2	2353.6
234.09	113.00	2833.1 / 1760.4	0.0	2334.33	5250.7	2916.3

Call: WBAL  
 Freq: 1090 kHz  
 BALTIMORE, MD, US  
 Lat: 39-22-33 N  
 Lng: 076-46-21 W  
 Power: 50.0 kW  
 Theo RMS: 408.77 mV/m/kw @ 1km

	Field	Phase	Spacing	Orient	Height	Ref	TL	A	B	C	D
#	Ratio	(deg)	(deg)	(deg)	(deg)	Switch	Switch	(deg)	(deg)	(deg)	(deg)
1	1.000	0.0	0.0	0.0	200.0	0	0	0.0	0.0	0.0	0.0

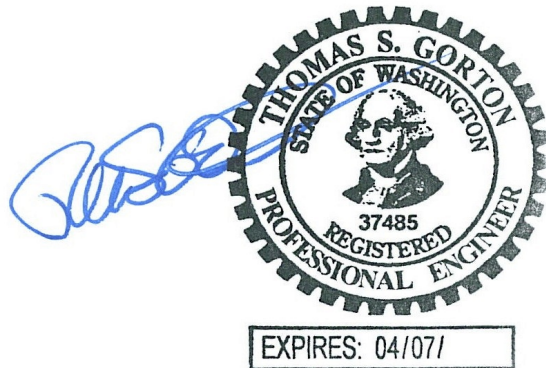
Permissible radiation calculated using FCC 73.190 curves.

Class A	Reference	Distance		Max Vert	Max Rad	Permiss	
Azimuth	Azimuth	to 0.1 mV		Angle	Below Ang	Radiation	Margin
(deg)	(deg)	(km)	(mi)	(deg)	(mV/m@1km)	(mV/m@1km)	(mV/m@1km)
355.80	84.00	3645.9	/ 2265.5	0.0	2349.04	8215.3	5866.3
330.93	85.00	3590.3	/ 2230.9	0.0	2356.01	7916.4	5560.4
311.17	86.00	3566.0	/ 2215.8	0.0	2362.27	7776.4	5414.1
292.89	87.00	3563.1	/ 2214.0	0.0	2367.82	7747.1	5379.2
273.16	88.00	3585.0	/ 2227.6	0.0	2372.63	7849.6	5477.0
245.99	89.00	3644.3	/ 2264.5	0.0	2376.71	8154.7	5778.0
168.77	90.00	3935.3	/ 2445.3	0.0	2380.06	9430.0	7050.0
165.65	91.00	4026.1	/ 2501.7	0.0	2382.70	9923.9	7541.2

## 6. Statement of Engineer

This Engineering Report, relative to an application for a Construction Permit for modified daytime facilities for KPTK-AM, Seattle, WA has been prepared by the undersigned. All representations contained herein are true to the best of my knowledge. I am an experienced radio engineer whose qualifications are a matter of record with the Federal Communications Commission. I am an engineer in the firm of Hatfield and Dawson Consulting Engineers and am Registered as a Professional Engineer in the States of Washington and Oregon.

Signed this 13<sup>th</sup> day of November, 2007



Thomas S. Gorton, P.E.

Hatfield & Dawson Consulting Engineers