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NIGHTTIME ALLOCATION CONSIDERATIONS
WHBG, HARRISONBURG, VIRGINIA

The currently licensed non-directional nighttime operation for WHBG is at a power level of 25 watts. The tower employed has an electrical length of 207.4° at 1360 kHz. WHBG, at the WSVA site, will employ a tower having an electrical length of 172.8° (0.48 wavelength) at 1360 kHz. This is the center tower of the WSVA three tower nighttime directional system, and is the tower used for non-directional operation for WSVA during daytime hours.

As a non-protected nighttime facility, the limit imposed by WHBG on each protected nighttime facility must not exceed 25% of the running RSS limit for that station. An allocation study using the formulae and procedures described in the Rules reveals that WHBG, at the WSVA site, may not exceed 29.9 mV/m at 1 km toward station WPTT, McKeesport, Pennsylvania, within the critical vertical bracket angle range of 32.4° to 46.6° . Station WCKY, Cincinnati, Ohio, is another co-channel nighttime facility which must be considered. The permissible radiation from the proposed WHBG operation cannot exceed 31.5 mV/m at 1 km within the vertical bracket angle range from 15.1° to 24.7° . Figure 1 provides a tabulation of the allocation study results. The study was conducted using the algorithm developed by EDX, version 4.2.

The 172.8° electrical height for the tower that will be employed for nighttime operation for WHBG is expected to produce an unattenuated field strength at 1 kilometer of 371 mV/m for 1 kW. The foregoing value was determined from Figure 8 of Section 73.190 of the FCC Rules. The vertical plane radiation characteristic for a 172.8° electrical height tower is furnished in Figure 2.

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Nighttime Allocation Considerations
WHBG, Harrisonburg, Virginia

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In order to achieve the necessary signal suppression toward the most critical station, WCKY, the nighttime power for WHBG cannot exceed 9.2 watts. At 9.2 watts, the WHBG radiation at ground level will be 35.8 mV/m. The radiation at the critical vertical angle of 15.1° will be $(35.8 \text{ mV/m} \times 0.88)$, or 31.5 mV/m. The limit to WCKY will be 0.72 mV/m, or 24.8 % of the 2.90 mV/m running RSS limit for WCKY. The proposed nighttime operation at a power level of 9.2 watts fulfills the less than 25% limitation requirement of the Rules.

1360 KHZ NIGHTTIME ALLOCATION STUDY

PROPOSED WHBG, HARRISONBURG, VIRGINIA

Transmitter site coordinates: N 38 27 4.00 W 78 54 29.00

Point		Distance (km)	Bearing (degs)	Theta Min. (degs)	Theta Max. (degs)	RSS Limit (mV/m)	Reqd. Prot. (mV/m)	Skywv. Mult. (uV/m)	Allowed Radiation (mV/m @ 1 km)
WEGA	*	2529.3	147.9	0.0	0.0	0.40	0.99	9.81	504.5
WMMV	*	1134.2	189.2	4.7	9.3	3.04	7.59	36.62	1036.8
WDCE	*	1165.1	196.1	4.4	9.0	2.15	5.39	35.07	768.0
WSMB	*	1392.9	230.4	2.8	6.6	0.87	2.19	25.53	428.0
KCOR	*	2064.1	247.2	0.0	1.9	0.37	0.91	12.55	363.5
KCOR	*	2064.1	247.2	0.0	1.9	0.37	0.91	12.55	363.5
WCOP	*	777.4	214.9	8.7	15.3	1.98	4.95	63.96	387.2
WGAD	*	810.4	234.7	8.2	14.6	2.44	6.09	59.29	513.7
KABQ	*	2491.1	270.0	0.0	0.0	0.35	0.87	7.59	571.9
WGPL	*	283.1	127.2	26.3	39.5	4.01	10.02	222.47	225.3
KGHF	*	2237.1	277.6	0.0	1.0	0.31	0.79	8.70	452.7
KGHF	*	2235.4	277.7	0.0	1.1	0.31	0.78	8.70	450.5
WLou	*	603.3	269.8	12.1	20.2	0.57	1.44	88.24	81.3
WOYK	*	244.1	46.9	30.0	43.8	0.99	2.47	251.02	49.2
WTAZ	*	946.3	287.9	6.5	12.0	1.90	4.75	42.15	563.9
WIOU	*	656.0	291.7	10.9	18.5	1.32	3.31	76.00	217.5
WIOU	*	656.0	291.7	10.9	18.5	1.32	3.31	76.00	217.5
WHWH	*	416.2	57.9	18.1	28.9	1.67	4.17	141.98	147.0
WNLK	*	553.3	55.9	13.3	22.1	1.91	4.76	96.08	247.9
WNLK	*	553.3	55.9	13.3	22.1	1.91	4.76	96.08	247.9
KRNT	*	1294.5	290.1	3.4	7.5	0.49	1.22	23.64	257.5
WTOU	*	375.1	324.5	20.1	31.6	3.02	7.56	160.41	235.5
WTOU	*	375.1	324.5	20.1	31.6	3.02	7.56	160.41	235.5
TGLK		2886.1	206.6	0.0	0.0	0.75	0.19	1.57	596.4
HRLP	18	2832.1	199.1	0.0	0.0	0.81	0.40	1.65	1225.7
HRDN		2744.1	202.0	0.0	0.0	0.89	0.44	1.78	1245.8
XEUD		2778.0	213.8	0.0	0.0	1.96	0.98	4.34	1127.4
WCHQ		2508.6	148.9	0.0	0.0	4.00	1.00	9.97	501.9
XEkf		2995.1	227.5	0.0	0.0	0.98	0.48	3.61	671.9
XEkf1		2995.1	227.5	0.0	0.0	0.98	0.48	3.61	671.9
XEDQ		2728.6	219.9	0.0	0.0	1.76	0.88	4.52	975.3
HIMG		2425.3	153.8	0.0	0.0	0.87	0.43	2.47	876.1
XEQY		2923.4	229.0	0.0	0.0	1.04	0.52	3.82	678.6
HISF		2282.0	156.8	0.0	0.0	1.17	0.57	2.86	1001.0
HISJ		2183.4	159.2	0.1	0.1	1.44	0.68	3.25	1041.3
XEY		2892.3	232.7	0.0	0.0	1.03	0.49	3.92	626.1
XEFBF		2685.9	225.6	0.0	0.0	1.39	0.70	4.70	740.5
XEVAL		2649.9	232.1	0.0	0.0	1.41	0.66	4.86	682.7
XEUL		2165.8	211.3	0.2	0.2	5.52	2.70	8.34	1618.0
CMHW		1898.2	178.4	1.5	1.5	2.17	1.08	4.90	1105.5
XEXM		2881.6	239.4	0.0	0.0	1.00	0.50	3.96	631.3
WKAT		1417.7	185.1	2.6	6.4	7.32	1.83	25.86	353.9
KRYS		2087.8	241.0	0.0	1.8	3.65	0.91	12.64	361.4
WHNR		1188.1	193.4	4.2	8.7	11.76	2.94	34.04	431.8
XEIK		2268.0	248.0	0.0	0.0	2.27	1.06	7.31	725.6
KWWJ		1764.7	241.7	0.7	3.7	4.69	1.17	16.77	349.8
WMOB		1199.2	226.7	4.1	8.6	13.05	3.26	32.66	499.6

1360 KHZ NIGHTTIME ALLOCATION STUDY
PROPOSED WHBG, HARRISONBURG, VIRGINIA

Point	Distance (km)	Bearing (degs)	Theta Min. (degs)	Theta Max. (degs)	RSS Limit (mV/m)	Reqd. Prot. (mV/m)	Skywv. Mult. (uV/m)	Allowed Radiation (mV/m @ 1 km)
KACT	2240.7	259.6	0.0	1.0	4.37	1.08	10.11	535.8
KAHZ	1783.9	254.9	0.6	3.6	5.35	1.34	15.62	427.6
KAHZ	1783.9	254.9	0.6	3.6	5.35	1.34	15.62	427.6
WCHL	279.6	182.2	26.6	39.9	27.55	6.75	226.06	149.2
WWLG	217.3	62.7	33.0	47.2	18.22	4.55	276.74	82.3
WNJC	350.9	69.0	21.5	33.5	22.29	5.57	175.18	159.1
WNJC	360.3	64.4	21.0	32.7	19.05	4.76	169.63	140.4
WCKY	494.8	282.1	15.1	24.7	2.90	0.72	115.10	31.5
KHNC	2235.1	283.7	0.0	1.1	1.86	0.47	8.14	285.9
KHNC	2235.1	283.7	0.0	1.1	1.86	0.47	8.14	285.9
WPTT	222.1	338.9	32.4	46.6	6.57	1.62	271.02	29.9
WPPA	341.3	42.1	22.1	34.2	8.05	2.01	179.19	56.2
WDRC	646.7	52.7	11.1	18.8	3.15	0.79	75.55	52.1
WNNJ	458.0	49.8	16.4	26.5	12.57	3.14	124.77	125.9
KRKK	2592.3	287.5	0.0	0.0	0.92	0.23	5.57	205.3
WKMI	706.5	309.7	9.9	17.1	8.36	2.09	65.88	158.6
KSCJ	1539.2	292.8	1.9	5.3	1.79	0.45	16.50	135.8
WKMI	706.6	309.7	9.9	17.1	8.36	2.09	65.86	158.7
WKMI	706.6	309.7	9.9	17.1	8.36	2.09	65.86	158.7
WKOP	475.9	31.4	15.8	25.6	10.36	2.59	117.28	110.4
WKOP	475.8	31.4	15.8	25.6	10.35	2.59	117.30	110.3
WKYO	672.0	327.4	10.6	18.1	26.31	6.58	69.86	470.8
WGEE	1012.0	314.0	5.8	11.0	2.62	0.64	34.55	92.7
NEW	1444.9	56.6	4.3	4.3	18.81	9.40	29.29	1605.3
NEW	650.6	344.3	14.9	14.9	28.47	14.23	105.24	676.2
CJVL	1096.7	33.8	7.4	7.4	24.15	12.08	55.16	1094.6
CJVL	1096.7	33.8	7.4	7.4	24.15	12.08	55.16	1094.6
KKBJ	1633.5	312.9	1.4	4.6	2.45	0.61	12.35	247.8
CKBC	1481.2	42.2	4.0	4.0	17.47	8.73	27.33	1598.0
WIVV *	2610.2	146.3	0.0	0.0	0.38	0.94	9.30	505.7
WCOA *	1172.8	223.2	4.4	8.9	1.47	3.69	33.99	542.2
KJCE *	1938.3	247.8	0.0	2.7	0.40	1.01	13.96	361.9
KFRO *	1572.8	249.9	1.7	5.1	0.53	1.34	19.83	336.9
WTAB *	478.2	179.5	15.7	25.5	2.49	6.22	124.88	249.0
WDEF *	686.8	238.5	10.3	17.6	3.18	7.94	75.36	526.7
KGNO *	1851.3	274.2	0.3	3.2	0.62	1.54	13.03	590.6
WGCL *	674.0	279.4	10.5	18.0	3.74	9.35	74.13	630.5
WGCL *	674.0	279.4	10.5	18.0	3.74	9.35	74.13	630.5
KSOP *	2823.8	285.7	0.0	0.0	0.09	0.23	4.73	245.0
WLTH *	792.5	298.3	8.5	15.0	1.26	3.15	55.60	282.9
WLTH *	792.5	298.3	8.5	15.0	1.26	3.15	55.60	282.9
WSPD *	527.0	313.1	14.1	23.2	2.76	6.89	102.87	334.8
WWCB *	392.6	350.9	19.2	30.4	3.42	8.56	150.66	284.0
KDTH *	1088.0	298.1	5.1	9.9	1.21	3.03	31.79	476.9
WFEA *	799.2	49.3	8.4	14.8	3.79	9.49	52.90	896.6
KSUM *	1424.4	298.8	2.6	6.3	0.25	0.62	18.62	167.6
WXXI *	529.0	11.8	14.0	23.1	2.10	5.26	100.07	262.9
WAZI *	935.0	306.3	6.6	12.2	0.99	2.46	40.96	300.8
WDEA *	1095.7	49.1	5.0	9.8	2.23	5.59	29.25	954.9
WKJF *	840.7	321.9	7.8	14.0	2.70	6.75	47.88	704.7
KXTL *	2876.3	297.9	0.0	0.0	0.04	0.09	3.51	124.6
KUND *	1803.5	311.6	0.5	3.5	0.13	0.34	9.76	172.8

* - indicates an adjacent channel station.

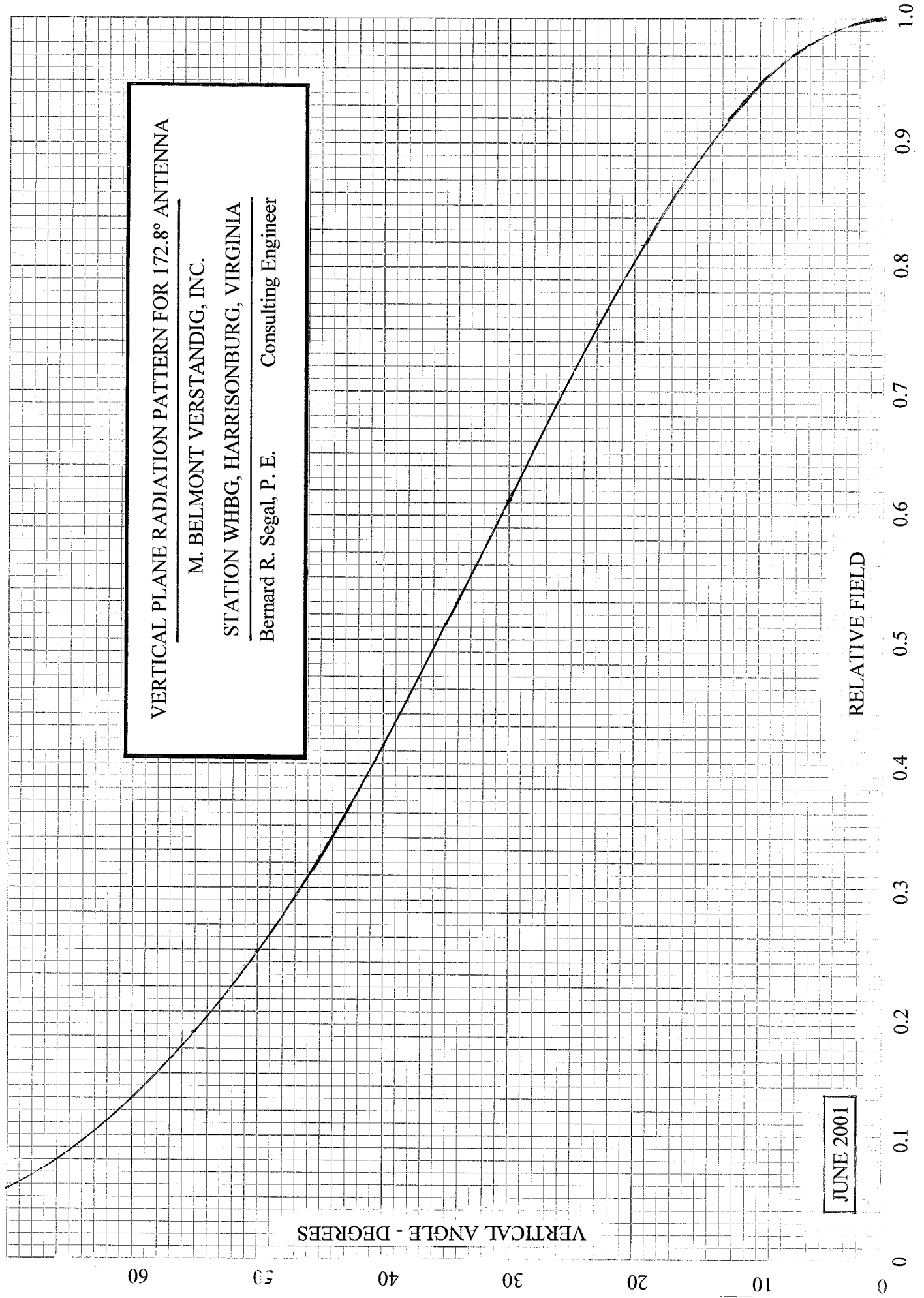


FIGURE 2