

Engineering Report Exhibit 16 Page 1

Night Protection

WCTN, Potomac – Cabin John, MD

March 2009 (Amended)

SITE Coordinates : 39-02-12.0 N 77-12-09.0 W
BEARING CALL LIM CLASS | SLANT

				GEOMAG	AZIMUTH	GND RAD	MIN ELEV	MAX ELEV	MAX RAD	SWAVE FLD	LIMITATION	RSS LIMIT 50%	RSS LIMIT 25%
18.4	WIBX 103.364	B	518.4	52.5	18.4	48.7	15.7	25.5	46.2	0.114027	1.054	7.961	9.429
25.6	WEAV 2176.621	B	718.0	53.2	25.6	40.7	10.2	17.6	39.9	0.064470	0.051	8.171	11.226
37.0	CKNB 515.341	B	1327.5	55.1	37.0	28.5	5.3	5.3	28.4	0.037643	0.214	7.760	9.253
37.0	CKNB 515.341	B	1327.5	55.1	37.0	28.5	5.3	5.3	28.4	0.037643	0.214	7.760	9.253
47.1	WFGL 2020.533	B	632.7	52.3	47.1	23.6	12.1	20.4	23.4	0.082736	0.039	10.871	13.374
51.1	WPEN 27.7 *	B	283.0	51.0	51.1	27.6	35.3	49.6	26.4	0.291973	1.540	4.367	5.744
53.0	WELI 882.603	B	488.3	51.6	53.0	29.2	16.9	27.2	28.8	0.127965	0.074	6.411	9.035
55.1	CHER 1635.280	B	1605.2	54.4	55.1	30.0	3.3	3.3	29.9	0.021879	0.131	14.311	16.692
115.8	WTGM 517.684	B	251.6	50.1	115.8	37.8	43.0	57.1	15.3	0.346776	0.106	12.492	14.362
130.7	ZYI- 39568.297	C	6775.7	27.7	130.7	34.6	0.0	0.0	34.6	0.000253	0.002	4.000	4.000
132.8	ZYH- 23023.098	B	6070.2	29.7	132.8	33.8	0.0	0.0	33.8	0.000313	0.002	2.885	3.415
132.8	ZYI- 36242.756	C	6484.7	28.2	132.8	33.8	0.0	0.0	33.8	0.000276	0.002	4.000	4.879
134.5	45486.622	C	6718.5	26.8	134.5	33.2	0.0	0.0	33.2	0.000258	0.002	4.702	5.216
135.8	37696.028	C	6375.1	27.8	135.8	32.6	0.0	0.0	32.6	0.000283	0.002	4.264	4.713
135.8	30140.259	B	6063.4	29.0	135.8	32.6	0.0	0.0	32.6	0.000314	0.002	3.785	3.993
141.1	47974.063	B	5816.2	28.8	141.1	30.1	0.0	0.0	30.1	0.000339	0.002	6.500	6.500
145.8	ZYL- 35220.191	B	7415.8	21.3	145.8	27.6	0.0	0.0	27.6	0.000229	0.001	3.222	3.571
149.2	ZYL2 99999.000	B	7553.2	20.0	149.2	25.7	0.0	0.0	25.7	0.000215	0.001	4.347	4.793
151.9	WIPR 99999.000	B	2535.5	40.3	151.9	24.2	0.0	0.0	24.2	0.009770	0.005	41.057	41.057
152.0	99999.000	C	6956.2	21.9	152.0	24.1	0.0	0.0	24.1	0.000242	0.001	10.000	10.000
152.3	ZYK- 99999.000	B	7384.4	20.1	152.3	24.0	0.0	0.0	24.0	0.000232	0.001	5.871	6.231
153.3	99999.000	C	7945.0	17.5	153.3	23.4	0.0	0.0	23.4	0.000193	0.001	5.902	6.565
154.0	WCHQ 48440.971	B	2510.0	40.3	154.0	23.0	0.0	0.0	23.0	0.009975	0.005	38.656	38.656
154.4	ZYJ- 99999.000	B	7685.7	18.4	154.4	22.8	0.0	0.0	22.8	0.000206	0.001	7.070	7.413
155.7	ZYI4 99999.000	C	5954.7	25.6	155.7	22.1	0.0	0.0	22.1	0.000325	0.001	10.000	10.000
157.1	ZYK- 99999.000	B	8049.8	16.4	157.1	21.8	0.0	0.0	21.8	0.000188	0.001	7.698	7.698
157.4	LRH3 1104.626	A	7586.5	340.7	157.4	0.0	0.0	0.0	0.0	0.002263	0.025	0.000	0.000
159.5	YVKG 202.661	A	3341.6	343.9	159.5	0.0	0.0	0.0	0.0	0.012336	0.025	0.000	0.000
160.8	HIG 13366.631	C	2392.4	40.3	160.8	24.0	0.0	0.0	24.0	0.002504	0.012	13.389	13.389

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BEARING	CALL	LIM	CLASS	SLANT	GEOMAG	AZIMUTH	GND RAD	MIN ELEV	MAX ELEV	MAX RAD	SWAVE FLD	LIMITATION	RSS LIMIT 50%	RSS LIMIT 25%
164.2	LR3	1265.775	A	8414.3	345.1	164.2	0.0	0.0	0.0	0.0	0.001975	0.025	0.000	0.000
167.7	WKGM	500.685	B	297.7	49.4	167.7	28.6	32.6	46.8	27.0	0.275306	0.149	9.000	11.027
170.8	LRK3	1059.707	A	7527.3	351.9	170.8	0.0	0.0	0.0	0.0	0.002359	0.025	0.000	0.000
173.2	LU4	1525.376	A	9489.2	352.4	173.2	0.0	0.0	0.0	0.0	0.001639	0.025	0.000	0.000
174.3	CMMD	5211.530	C	2121.6	41.0	174.3	24.8	0.4	0.4	24.8	0.003558	0.018	7.417	8.337
177.4	HJFN	370.758	A	3809.3	358.0	177.4	0.0	0.0	0.0	0.0	0.006743	0.025	0.000	0.000
178.3	CMNE	4513.291	C	2084.3	41.1	178.3	22.1	0.6	0.6	22.1	0.003744	0.017	6.760	7.271
181.9	HCJX	99999.000	C	4501.9	30.2	181.9	23.9	0.0	0.0	23.9	0.000581	0.003	13.892	14.338
182.0	CMHE	3528.833	C	1977.6	41.5	182.0	24.1	1.1	1.1	24.1	0.004368	0.021	6.166	6.166
182.4	HCUE	99999.000	B	4540.0	30.0	182.4	24.3	0.0	0.0	24.3	0.000569	0.003	13.068	14.602
184.0	HCDE	41170.765	B	4603.6	29.7	184.0	25.8	0.0	0.0	25.8	0.000550	0.003	9.061	10.176
185.6	WRNS	2707.337	B	464.5	48.5	185.6	27.2	18.0	28.7	26.2	0.145640	0.076	30.444	31.544
187.0	CMGI	2833.344	C	1927.4	41.8	187.0	28.5	1.4	1.4	28.5	0.004754	0.027	5.388	5.761
188.8	CMEE	2444.581	C	1878.6	42.0	188.8	30.4	1.6	1.6	30.3	0.005166	0.031	5.051	5.633
190.3	HOR	23046.184	C	3438.4	35.1	190.3	31.9	0.0	0.0	31.9	0.001047	0.007	9.654	11.091
192.0	WINZ	11665.806	B	1495.2	43.8	192.0	33.7	2.2	5.8	33.7	0.023754	0.016	20.534	22.169
192.7	WSVU	10748.268	B	1402.2	44.2	192.7	34.4	2.8	6.6	34.4	0.026344	0.018	19.581	22.652
192.7	WSVU	10748.268	B	1402.2	44.2	192.7	34.4	2.8	6.6	34.4	0.026344	0.018	19.581	22.652
197.2	CMOD	2959.399	C	1991.4	41.7	197.2	39.3	1.1	1.1	39.3	0.004270	0.034	5.055	6.906
197.2	CMBE	1889.659	B	1856.6	42.3	197.2	39.3	1.8	1.8	39.3	0.005360	0.042	4.051	5.720
199.8	WTLN	478.841	B	1247.4	45.1	199.8	42.2	3.9	8.2	42.1	0.031691	0.267	11.331	12.140
200.2	HRSK	19192.286	C	2818.7	38.2	200.2	42.6	0.0	0.0	42.6	0.001674	0.014	12.849	14.573
202.5	WJKB	759.760	B	725.4	47.4	202.5	45.2	10.1	17.3	44.3	0.074349	0.659	45.190	45.190
203.8	YSGH	14845.842	B	3044.9	37.5	203.8	46.6	0.0	0.0	46.6	0.001392	0.013	8.265	10.109
203.9	HRQL	26510.755	C	2928.3	38.0	203.9	46.8	0.0	0.0	46.8	0.001524	0.014	16.164	17.602
205.0	HRZE	21519.713	C	2790.0	38.6	205.0	48.0	0.0	0.0	48.0	0.001717	0.017	14.783	15.297
208.6	WGRO	10213.386	B	1120.7	45.9	208.6	52.0	5.0	9.7	51.7	0.037410	0.039	25.542	30.567
211.1	TGAF	334.233	A	3062.4	24.5	211.1	0.0	0.0	0.0	0.0	0.007480	0.025	0.000	0.000
215.7	XEMA	14805.843	B	2686.9	39.9	215.7	59.5	0.0	0.0	59.5	0.004738	0.056	28.061	28.926
215.7	XEMA	14805.843	B	2686.9	39.9	215.7	59.5	0.0	0.0	59.5	0.004738	0.056	28.061	28.926

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216.0	XEMA 14408.945	B	2677.5	40.0	216.0	59.9	0.0	0.0	59.9	0.004781	0.057	27.556	28.415
216.4	XETU 19618.847	B	2926.1	39.1	216.4	60.3	0.0	0.0	60.3	0.003834	0.046	30.088	32.481
219.6	WJYZ 12463.632	B	1057.7	46.6	219.6	63.4	5.5	10.6	63.0	0.040646	0.051	40.527	40.527
221.5	WCRU 6244.618	B	579.6	48.5	221.5	65.3	13.6	22.5	62.4	0.104038	0.130	51.974	51.974
222.6	WMAC 2840.539	B	923.0	47.2	222.6	66.4	7.0	12.8	65.6	0.050401	0.066	9.579	11.453
223.2	XEZB 17256.227	B	3095.6	39.2	223.2	67.0	0.0	0.0	67.0	0.003367	0.045	23.241	27.188
224.4	XE 17606.511	B	3180.4	39.0	224.4	68.0	0.0	0.0	68.0	0.002967	0.040	20.897	25.641
224.8	WORD 119.866	B	650.8	48.3	224.8	68.4	11.7	19.7	66.1	0.087029	1.150	6.119	8.345
226.7	WRFC 4136.879	B	814.2	47.8	226.7	70.1	8.6	15.1	68.9	0.061272	0.084	18.853	20.278
228.0	XEAC 13687.883	B	3309.1	39.1	228.0	71.2	0.0	0.0	71.2	0.002881	0.041	15.777	23.413
230.5	WLPR 19260.927	B	1367.5	46.1	230.5	73.3	3.0	7.0	73.2	0.026297	0.038	37.009	40.520
230.5	WLPR 19260.927	B	1367.5	46.1	230.5	73.3	3.0	7.0	73.2	0.026297	0.038	37.009	40.520
231.5	WFIR 469.342	B	370.6	49.5	231.5	74.1	24.1	36.7	63.9	0.201158	0.257	6.099	7.553
232.4	XETO 10415.784	B	2713.9	41.8	232.4	74.9	0.0	0.0	74.9	0.004619	0.069	19.244	26.217
232.4	XETO 10415.784	B	2713.9	41.8	232.4	74.9	0.0	0.0	74.9	0.004619	0.069	19.244	26.217
232.9	WYLD 9703.696	B	1562.1	45.7	232.9	75.3	1.8	5.3	75.2	0.020946	0.032	13.710	16.260
233.1	WFIR 469.890	B	372.5	49.5	233.1	75.4	23.9	36.5	65.1	0.199589	0.260	6.050	7.503
233.8	WKYK 1482.947	B	599.6	48.8	233.8	76.0	13.0	21.6	72.8	0.098190	0.143	9.801	11.649
234.6	XECE 13477.742	B	3068.6	40.9	234.6	76.6	0.0	0.0	76.6	0.003435	0.053	18.518	23.759
235.0	XE 13269.858	B	2750.0	42.0	235.0	76.9	0.0	0.0	76.9	0.004474	0.069	23.747	26.472
236.4	XE 15481.486	B	3240.2	40.6	236.4	77.9	0.0	0.0	77.9	0.002855	0.044	17.677	20.352
237.1	XEME 14522.210	B	3311.3	40.5	237.1	78.4	0.0	0.0	78.4	0.002877	0.045	16.712	19.468
237.7	WERC 3344.081	B	1077.0	47.5	237.7	78.8	5.4	10.3	78.2	0.038511	0.060	9.133	10.303
238.7	XECA 13821.740	B	3049.9	41.7	238.7	79.6	0.0	0.0	79.6	0.003482	0.055	19.251	23.584
239.0	XECA 13724.910	B	3073.1	41.6	239.0	79.8	0.0	0.0	79.8	0.003424	0.055	18.795	23.227
240.7	XERN 13065.714	B	2626.7	43.3	240.7	80.9	0.0	0.0	80.9	0.005011	0.081	26.189	27.863
240.7	XERN 13065.714	B	2626.7	43.3	240.7	80.9	0.0	0.0	80.9	0.005011	0.081	26.189	27.863
242.4	XEZE 12640.660	B	3284.3	41.6	242.4	82.0	0.0	0.0	82.0	0.002877	0.047	14.545	18.664
243.6	KPRC 902.166	B	1954.5	45.6	243.6	82.7	0.0	2.6	82.7	0.013796	0.228	7.834	9.957
245.3	WCPC 4833.528	B	1213.9	47.7	245.3	83.8	4.2	8.6	83.4	0.031067	0.052	10.176	12.013

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246.4	WABG	13093.963	B	1328.3	47.5	246.4	84.3	3.3	7.3	84.1	0.026594	0.045	26.374	27.857
248.2	XEYJ	11072.436	B	2543.8	44.7	248.2	85.3	0.0	0.0	85.3	0.005468	0.093	24.216	25.232
253.3	XEOR	9711.867	B	3293.0	43.7	253.3	87.9	0.0	0.0	87.9	0.002881	0.051	11.192	15.981
255.3	XEFA	9894.730	B	2895.8	45.1	255.3	88.7	0.0	0.0	88.7	0.003931	0.070	15.559	19.170
255.3	XEFA	9893.670	B	2894.9	45.1	255.3	88.7	0.0	0.0	88.7	0.003934	0.070	15.570	19.180
255.4	KGKL	16533.970	B	2268.6	46.5	255.4	88.8	0.0	0.9	88.8	0.009943	0.018	10.394	13.152
260.7	XEPB	12518.139	B	3287.0	45.4	260.7	90.8	0.0	0.0	90.8	0.002878	0.052	14.411	17.316
260.7	KFSA	769.082	B	1590.0	48.4	260.7	90.8	1.7	5.1	90.7	0.018395	0.334	9.782	11.318
261.0	WVTS	84.3 **	B	445.4	50.0	261.0	90.9	19.0	30.1	82.9	0.152041	2.520	7.134	9.251
262.2	KJTV	1480.513	B	2288.9	47.5	262.2	91.3	0.0	0.8	91.3	0.009294	0.170	9.631	11.008
263.7	KZIM	3607.566	B	1107.7	49.4	263.7	91.8	5.1	9.9	91.2	0.034620	0.063	7.683	9.991
266.4	KIXZ	13797.317	B	2221.8	48.3	266.4	92.6	0.0	1.2	92.6	0.009492	0.018	9.721	10.477
266.5	KGMS	26441.315	B	3136.2	47.0	266.5	92.6	0.0	0.0	92.6	0.004888	0.009	9.534	10.339
267.5	KGWA	8918.224	B	1851.2	49.0	267.5	92.9	0.3	3.2	92.9	0.013344	0.025	8.257	9.520
269.5	WMIX	3807.191	B	1045.8	49.9	269.5	93.4	5.7	10.8	92.6	0.037668	0.070	9.422	11.473
270.1	KKNT	19874.539	B	3158.2	47.7	270.1	93.5	0.0	0.0	93.5	0.004588	0.009	5.546	7.295
270.9	XEKA	4671.226	B	3649.9	47.2	270.9	93.7	0.0	0.0	93.7	0.002293	0.043	4.285	5.885
270.9	XEKA	4672.180	B	3649.5	47.2	270.9	93.7	0.0	0.0	93.7	0.002294	0.043	4.287	5.887
271.0	XEGM	4702.779	B	3639.7	47.3	271.0	93.7	0.0	0.0	93.7	0.002309	0.043	4.343	5.938
272.2	KWOS	702.439	B	1313.1	50.0	272.2	93.9	3.4	7.5	93.7	0.024768	0.464	11.317	13.919
279.1	KWRU	26504.466	B	3685.6	49.4	279.1	95.1	0.0	0.0	95.1	0.002837	0.005	4.529	6.014
281.1	KRWZ	888.330	B	2381.2	50.8	281.1	95.3	0.0	0.4	95.3	0.007047	0.134	3.889	5.008
281.7	KKNE	99999.000	B	7764.3	43.6	281.7	95.4	0.0	0.0	95.4	0.000659	0.001	3.460	3.684
282.6	KKGN	27047.875	B	3895.5	50.2	282.6	95.5	0.0	0.0	95.5	0.002305	0.004	4.416	4.987
282.9	KMA	3203.178	B	1570.3	51.1	282.9	95.5	1.8	5.2	95.4	0.016559	0.032	2.958	4.243
283.6	KOVO	16845.376	B	2942.8	51.1	283.6	95.5	0.0	0.0	95.5	0.004234	0.008	4.448	5.705
283.9	KAHI	8629.857	B	3757.1	50.7	283.9	95.6	0.0	0.0	95.6	0.002414	0.046	14.731	16.664
284.6	KOVO	17125.151	B	2970.3	51.3	284.6	95.6	0.0	0.0	95.6	0.004071	0.008	4.346	5.577
286.3	KNEB	10995.653	B	2258.7	51.7	286.3	95.7	0.0	1.0	95.7	0.007389	0.014	5.403	6.500
286.4	KPSZ	5041.979	B	1410.7	51.5	286.4	95.7	2.7	6.6	95.5	0.020097	0.038	6.584	8.106

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289.7	KDIL	39807.435	B	3152.8	52.5	289.7	95.9	0.0	0.0	95.9	0.003154	0.006	7.752	10.043
289.9	KLAD	99999.000	B	3731.1	52.4	289.9	95.9	0.0	0.0	95.9	0.002055	0.004	7.613	9.022
291.5	WNTD	394.258	B	944.3	51.6	291.5	95.9	6.8	12.4	94.8	0.042479	0.805	11.535	13.398
292.8	KOEL	656.138	B	1313.3	52.1	292.8	95.9	3.4	7.5	95.6	0.022394	0.428	8.758	11.755
293.5	WSBT	2626.509	B	839.8	51.6	293.5	95.9	8.2	14.5	94.3	0.052274	0.099	9.627	10.984
293.9	NEW	99999.000	B	3819.1	53.6	293.9	95.9	0.0	0.0	95.9	0.001689	0.003	43.798	43.798
297.1	KALE	41892.676	B	3488.0	54.4	297.1	95.8	0.0	0.0	95.8	0.001931	0.004	5.016	6.473
297.4	KOZE	5593.428	B	3323.3	54.4	297.4	95.7	0.0	0.0	95.7	0.002202	0.042	9.386	9.855
297.7	WFAW	3650.055	B	1078.2	52.2	297.7	95.7	5.3	10.3	95.0	0.032418	0.062	8.235	9.466
298.0	KWAT	864.309	B	1775.0	53.2	298.0	95.7	0.7	3.7	95.7	0.011210	0.215	5.535	7.751
298.2	KMTX	3119.686	B	2941.8	54.4	298.2	95.7	0.0	0.0	95.7	0.003042	0.058	7.592	7.592
299.5	KJR	3625.973	B	3732.4	55.2	299.5	95.6	0.0	0.0	95.6	0.001440	0.028	3.481	4.178
301.1	KTNF	855.058	B	1499.3	53.2	301.1	95.5	2.2	5.8	95.4	0.016039	0.306	8.346	10.971
305.0	WWJ	95.3 ***	B	640.3	51.8	305.0	97.8	11.9	20.1	94.5	0.082304	1.556	3.555	5.094
307.8	WTCH	17174.550	B	1156.8	53.1	307.8	105.7	4.6	9.3	105.3	0.027006	0.057	35.090	37.106
310.8	CFAM	3148.247	B	1995.9	55.3	310.8	108.0	1.0	1.0	107.9	0.010647	0.230	13.408	17.586
320.6	KSEW	16114.132	B	5377.9	63.8	320.6	91.7	0.0	0.0	91.7	0.000194	0.004	2.500	2.500
320.6	KSEW	16149.803	B	5381.2	63.8	320.6	91.7	0.0	0.0	91.7	0.000194	0.004	2.500	2.500
341.4	CKBB	438.596	B	651.9	53.0	341.4	86.1	15.8	15.8	81.3	0.108951	1.771	19.114	19.114
341.4	CKBB	438.596	B	651.9	53.0	341.4	86.1	15.8	15.8	81.3	0.108951	1.771	19.114	19.114
341.4	CKBB	438.596	B	651.9	53.0	341.4	86.1	15.8	15.8	81.3	0.108951	1.771	19.114	19.114
355.9	WROC	102.833	B	495.9	52.4	355.9	78.4	16.6	26.7	74.1	0.122550	1.817	8.104	10.082

Note:

* WCTN licensed facility enters the WPEN 25% NIF at 1.618 with a present radiation of 27.7 mV/m @ 1 km.

** WCTN licensed facility enters the WVTS 25% NIF at 2.561 with a present radiation of 84.3 mV/m @ 1 km.

*** WCTN licensed facility enters the WWJ 50% NIF at 1.743 with a present radiation of 105.9 mV/m @ 1 km. Reducing this value by 10% yields a permissible radiation of 95.3 mV/m @ 1 km.