



Callsign	:WKDL-CPM	T#	Field	Phase	Spacing	Orientation	Height	Top Load	Tower Ref
Frequency	:1250 kHz	1	1.000	0.0	0.0	0.0	89.7	0.0	0
Power	:0.125 kw	2	0.920	163.0	50.0	227.8	68.6	0.0	0
ERSS	:229.4 mV/m/km								
Theoret. Pattern RMS	:107.6 mV/m/km								
Standard Pattern RMS	:113.5 mV/m/km								
Modified Pattern RMS	:								
Latitude	:38-43-52.0 N								
Longitude	: 77-46-42.0 W								
Number Augmentations	:0								

Azim	Field [mV/m]
0.0	146.362
5.0	154.570
10.0	161.946
15.0	168.458
20.0	174.081
25.0	178.795
30.0	182.588
35.0	185.453
40.0	187.384
45.0	188.378
50.0	188.434
55.0	187.552
60.0	185.734
65.0	182.981
70.0	179.299
75.0	174.695
80.0	169.181
85.0	162.774
90.0	155.499
95.0	147.389
100.0	138.486
105.0	128.842
110.0	118.522
115.0	107.604
120.0	96.181
125.0	84.360
130.0	72.270
135.0	60.073
140.0	47.987
145.0	36.373
150.0	25.991
155.0	18.830
160.0	18.518
165.0	24.759
170.0	33.594
175.0	42.966
180.0	52.128
185.0	60.755
190.0	68.673
195.0	75.770
200.0	81.970

Azim	Field [mV/m]
205.0	87.218
210.0	91.472
215.0	94.702
220.0	96.888
225.0	98.017
230.0	98.081
235.0	97.080
240.0	95.020
245.0	91.914
250.0	87.782
255.0	82.651
260.0	76.563
265.0	69.570
270.0	61.745
275.0	53.196
280.0	44.085
285.0	34.711
290.0	25.743
295.0	19.002
300.0	18.365
305.0	24.900
310.0	35.040
315.0	46.559
320.0	58.611
325.0	70.808
330.0	82.920
335.0	94.781
340.0	106.258
345.0	117.242
350.0	127.637
355.0	137.366



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Engineering Report Exhibit 12 Figure 2 Page 3

Conical Radiation Pattern

WKDL – Warrenton, VA – Metro Radio, Inc.

October 2009

BRG	0	5	10	15	20	25	30	35	40	45	50	55	60 deg Elev
0	146.362	145.254	141.975	136.655	129.501	120.782	110.811	99.929	88.481	76.802	65.205	53.965	43.317
1	148.068	146.946	143.625	138.236	130.989	122.157	112.058	101.035	89.440	77.612	65.868	54.488	43.711
2	149.742	148.606	145.243	139.788	132.450	123.508	113.282	102.121	90.381	78.407	66.519	55.002	44.099
3	151.384	150.234	146.831	141.309	133.884	124.833	114.483	103.188	91.306	79.188	67.159	55.507	44.479
4	152.993	151.830	148.387	142.801	135.289	126.132	115.661	104.233	92.213	79.954	67.786	56.002	44.853
5	154.570	153.393	149.912	144.263	136.665	127.405	116.816	105.258	93.102	80.706	68.402	56.489	45.220
6	156.113	154.924	151.404	145.693	138.013	128.652	117.946	106.263	93.974	81.442	69.005	56.965	45.579
7	157.622	156.421	152.864	147.093	139.332	129.872	119.053	107.246	94.827	82.163	69.597	57.432	45.932
8	159.098	157.884	154.291	148.462	140.622	131.065	120.136	108.207	95.661	82.869	70.175	57.890	46.277
9	160.539	159.314	155.686	149.799	141.882	132.231	121.194	109.148	96.478	83.559	70.741	58.337	46.614
10	161.946	160.709	157.047	151.105	143.112	133.370	122.227	110.066	97.275	84.234	71.295	58.774	46.945
11	163.319	162.070	158.375	152.378	144.313	134.481	123.236	110.963	98.054	84.892	71.835	59.202	47.267
12	164.657	163.397	159.669	153.620	145.483	135.564	124.219	111.837	98.813	85.535	72.362	59.619	47.582
13	165.959	164.689	160.930	154.829	146.623	136.619	125.178	112.689	99.554	86.161	72.877	60.025	47.889
14	167.227	165.946	162.156	156.006	147.732	137.646	126.111	113.519	100.274	86.771	73.377	60.422	48.189
15	168.458	167.168	163.348	157.149	148.811	138.645	127.018	114.326	100.976	87.365	73.865	60.808	48.480
16	169.655	168.355	164.506	158.260	149.859	139.615	127.899	115.110	101.657	87.942	74.339	61.183	48.764
17	170.815	169.506	165.629	159.338	150.875	140.557	128.755	115.871	102.319	88.503	74.799	61.547	49.039
18	171.940	170.621	166.718	160.383	151.861	141.470	129.584	116.609	102.961	89.047	75.246	61.901	49.306
19	173.028	171.701	167.771	161.394	152.814	142.354	130.387	117.324	103.583	89.573	75.679	62.244	49.565
20	174.081	172.745	168.790	162.372	153.737	143.208	131.164	118.016	104.184	90.083	76.098	62.575	49.816
21	175.097	173.752	169.773	163.316	154.628	144.034	131.915	118.684	104.766	90.576	76.503	62.896	50.059
22	176.076	174.724	170.722	164.226	155.487	144.830	132.638	119.328	105.326	91.051	76.893	63.206	50.293
23	177.019	175.659	171.635	165.102	156.314	145.597	133.336	119.949	105.867	91.509	77.270	63.504	50.519
24	177.925	176.558	172.512	165.945	157.109	146.334	134.006	120.546	106.386	91.950	77.632	63.791	50.736
25	178.795	177.421	173.354	166.753	157.872	147.041	134.649	121.119	106.885	92.373	77.980	64.067	50.945
26	179.627	178.247	174.160	167.527	158.602	147.719	135.266	121.668	107.363	92.778	78.314	64.332	51.145
27	180.423	179.036	174.931	168.267	159.301	148.366	135.855	122.193	107.821	93.166	78.633	64.585	51.337
28	181.182	179.789	175.666	168.973	159.967	148.984	136.417	122.694	108.257	93.536	78.937	64.826	51.520
29	181.904	180.505	176.365	169.644	160.601	149.572	136.952	123.171	108.672	93.889	79.227	65.056	51.694
30	182.588	181.184	177.028	170.281	161.202	150.130	137.459	123.624	109.066	94.223	79.503	65.274	51.859
31	183.236	181.827	177.655	170.883	161.771	150.657	137.940	124.052	109.439	94.539	79.763	65.481	52.015



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Engineering Report Exhibit 12 Figure 2 Page 4

Conical Radiation Pattern

WKDL – Warrenton, VA – Metro Radio, Inc.

October 2009

BRG	0	5	10	15	20	25	30	35	40	45	50	55	60 deg Elev
32	183.846	182.432	178.246	171.451	162.307	151.155	138.392	124.455	109.791	94.838	80.009	65.676	52.163
33	184.419	183.000	178.801	171.984	162.811	151.622	138.818	124.834	110.121	95.118	80.240	65.859	52.302
34	184.955	183.532	179.320	172.482	163.281	152.059	139.215	125.189	110.430	95.381	80.456	66.031	52.432
35	185.453	184.026	179.803	172.946	163.719	152.465	139.585	125.519	110.718	95.625	80.657	66.190	52.553
36	185.914	184.484	180.249	173.375	164.125	152.841	139.928	125.824	110.984	95.851	80.843	66.338	52.665
37	186.337	184.904	180.659	173.769	164.497	153.187	140.242	126.105	111.229	96.059	81.014	66.474	52.768
38	186.724	185.287	181.034	174.129	164.837	153.502	140.529	126.361	111.452	96.248	81.170	66.598	52.861
39	187.072	185.633	181.371	174.453	165.143	153.786	140.788	126.592	111.653	96.419	81.311	66.710	52.946
40	187.384	185.942	181.673	174.743	165.417	154.040	141.020	126.799	111.833	96.572	81.437	66.810	53.022
41	187.657	186.214	181.938	174.998	165.658	154.264	141.223	126.980	111.992	96.707	81.548	66.898	53.089
42	187.894	186.448	182.167	175.218	165.866	154.457	141.399	127.137	112.128	96.823	81.644	66.974	53.146
43	188.093	186.645	182.360	175.403	166.041	154.619	141.547	127.269	112.243	96.921	81.724	67.037	53.195
44	188.254	186.805	182.516	175.553	166.183	154.751	141.667	127.376	112.337	97.000	81.789	67.089	53.234
45	188.378	186.928	182.636	175.669	166.291	154.852	141.759	127.458	112.408	97.061	81.840	67.129	53.264
46	188.464	187.014	182.720	175.749	166.367	154.923	141.823	127.515	112.458	97.103	81.875	67.157	53.285
47	188.513	187.062	182.767	175.795	166.410	154.962	141.860	127.548	112.487	97.127	81.894	67.173	53.297
48	188.524	187.073	182.778	175.805	166.420	154.972	141.868	127.555	112.493	97.133	81.899	67.176	53.300
49	188.498	187.047	182.753	175.781	166.397	154.950	141.848	127.538	112.478	97.120	81.888	67.168	53.294
50	188.434	186.984	182.691	175.721	166.341	154.898	141.801	127.496	112.441	97.088	81.862	67.147	53.278
51	188.333	186.884	182.593	175.627	166.252	154.815	141.726	127.428	112.382	97.039	81.821	67.115	53.253
52	188.194	186.746	182.458	175.498	166.130	154.702	141.622	127.336	112.302	96.970	81.765	67.070	53.219
53	188.018	186.571	182.287	175.333	165.975	154.558	141.491	127.219	112.200	96.884	81.694	67.013	53.177
54	187.804	186.359	182.080	175.134	165.786	154.383	141.332	127.077	112.076	96.779	81.607	66.945	53.124
55	187.552	186.109	181.837	174.900	165.565	154.178	141.145	126.911	111.931	96.655	81.505	66.864	53.063
56	187.264	185.823	181.557	174.632	165.311	153.942	140.931	126.719	111.764	96.513	81.389	66.771	52.993
57	186.937	185.499	181.241	174.328	165.025	153.676	140.688	126.503	111.575	96.353	81.257	66.666	52.913
58	186.574	185.138	180.888	173.989	164.705	153.379	140.418	126.262	111.365	96.175	81.110	66.550	52.825
59	186.172	184.740	180.500	173.616	164.352	153.052	140.120	125.996	111.133	95.978	80.947	66.421	52.727
60	185.734	184.305	180.075	173.208	163.966	152.694	139.794	125.705	110.880	95.763	80.770	66.280	52.621
61	185.258	183.833	179.614	172.765	163.548	152.306	139.441	125.390	110.605	95.529	80.578	66.128	52.505
62	184.745	183.324	179.117	172.287	163.097	151.887	139.059	125.050	110.309	95.278	80.371	65.964	52.381
63	184.194	182.777	178.583	171.775	162.613	151.439	138.651	124.686	109.992	95.008	80.149	65.787	52.247



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Conical Radiation Pattern

WKDL – Warrenton, VA – Metro Radio, Inc.

October 2009

BRG	0	5	10	15	20	25	30	35	40	45	50	55	60 deg Elev
64	183.606	182.194	178.014	171.228	162.097	150.959	138.215	124.297	109.653	94.721	79.912	65.599	52.105
65	182.981	181.574	177.408	170.646	161.547	150.450	137.751	123.883	109.293	94.415	79.661	65.400	51.954
66	182.319	180.917	176.767	170.030	160.966	149.910	137.260	123.445	108.911	94.091	79.394	65.188	51.794
67	181.619	180.223	176.089	169.380	160.351	149.340	136.741	122.983	108.509	93.750	79.113	64.966	51.625
68	180.883	179.492	175.376	168.695	159.705	148.741	136.195	122.497	108.085	93.390	78.817	64.731	51.447
69	180.109	178.725	174.627	167.975	159.025	148.111	135.622	121.986	107.640	93.013	78.507	64.485	51.261
70	179.299	177.921	173.842	167.222	158.314	147.451	135.022	121.452	107.175	92.618	78.182	64.227	51.066
71	178.451	177.080	173.022	166.434	157.570	146.762	134.395	120.893	106.688	92.206	77.843	63.958	50.863
72	177.567	176.203	172.165	165.612	156.795	146.042	133.741	120.310	106.181	91.775	77.489	63.678	50.650
73	176.646	175.290	171.274	164.756	155.987	145.293	133.060	119.704	105.653	91.328	77.121	63.386	50.430
74	175.689	174.340	170.347	163.866	155.147	144.515	132.352	119.073	105.105	90.863	76.739	63.083	50.201
75	174.695	173.354	169.384	162.942	154.275	143.707	131.618	118.419	104.536	90.381	76.342	62.769	49.963
76	173.664	172.332	168.387	161.985	153.372	142.870	130.857	117.742	103.946	89.881	75.932	62.444	49.717
77	172.597	171.273	167.354	160.993	152.437	142.004	130.069	117.041	103.336	89.365	75.507	62.108	49.463
78	171.494	170.179	166.286	159.969	151.470	141.108	129.255	116.317	102.707	88.831	75.069	61.761	49.200
79	170.355	169.050	165.184	158.911	150.472	140.184	128.416	115.569	102.057	88.281	74.617	61.403	48.930
80	169.181	167.884	164.047	157.820	149.443	139.231	127.550	114.799	101.387	87.713	74.151	61.034	48.651
81	167.970	166.684	162.875	156.696	148.383	138.249	126.658	114.006	100.698	87.130	73.672	60.655	48.364
82	166.724	165.448	161.670	155.539	147.292	137.239	125.740	113.190	99.988	86.529	73.179	60.265	48.070
83	165.442	164.177	160.430	154.349	146.171	136.201	124.797	112.351	99.260	85.913	72.672	59.864	47.767
84	164.126	162.871	159.156	153.127	145.019	135.134	123.829	111.490	98.512	85.280	72.153	59.453	47.457
85	162.774	161.530	157.848	151.873	143.836	134.040	122.836	110.607	97.745	84.631	71.620	59.032	47.139
86	161.388	160.155	156.507	150.586	142.624	132.917	121.817	109.701	96.958	83.966	71.075	58.601	46.813
87	159.967	158.746	155.132	149.268	141.381	131.768	120.774	108.774	96.153	83.285	70.516	58.159	46.480
88	158.512	157.303	153.724	147.918	140.109	130.591	119.706	107.825	95.330	82.588	69.945	57.708	46.140
89	157.022	155.826	152.284	146.537	138.808	129.387	118.613	106.855	94.488	81.876	69.362	57.247	45.792
90	155.499	154.315	150.811	145.125	137.477	128.156	117.497	105.863	93.627	81.149	68.766	56.776	45.436
91	153.943	152.772	149.306	143.682	136.118	126.899	116.357	104.851	92.749	80.407	68.157	56.295	45.074
92	152.354	151.196	147.769	142.208	134.730	125.615	115.193	103.817	91.852	79.650	67.537	55.805	44.704
93	150.731	149.587	146.200	140.704	133.314	124.306	114.006	102.764	90.938	78.877	66.904	55.306	44.328
94	149.076	147.946	144.600	139.171	131.869	122.971	112.795	101.689	90.007	78.091	66.260	54.797	43.945
95	147.389	146.273	142.968	137.607	130.397	121.610	111.562	100.595	89.058	77.290	65.604	54.280	43.555



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Conical Radiation Pattern

WKDL – Warrenton, VA – Metro Radio, Inc.

October 2009

BRG	0	5	10	15	20	25	30	35	40	45	50	55	60 deg Elev
96	145.670	144.569	141.307	136.015	128.898	120.224	110.306	99.481	88.092	76.475	64.937	53.753	43.158
97	143.920	142.833	139.615	134.393	127.372	118.814	109.028	98.347	87.110	75.645	64.258	53.218	42.755
98	142.139	141.067	137.893	132.744	125.819	117.379	107.728	97.194	86.111	74.802	63.568	52.674	42.345
99	140.327	139.270	136.142	131.066	124.240	115.920	106.407	96.022	85.096	73.946	62.867	52.121	41.929
100	138.486	137.444	134.362	129.360	122.635	114.438	105.064	94.832	84.065	73.076	62.156	51.560	41.507
101	136.614	135.589	132.553	127.627	121.004	112.932	103.700	93.623	83.018	72.193	61.434	50.991	41.079
102	134.714	133.704	130.716	125.868	119.349	111.403	102.316	92.396	81.956	71.298	60.702	50.414	40.644
103	132.784	131.791	128.851	124.082	117.668	109.851	100.912	91.151	80.878	70.390	59.959	49.829	40.204
104	130.827	129.850	126.960	122.270	115.964	108.278	99.487	89.890	79.786	69.469	59.207	49.236	39.759
105	128.842	127.882	125.042	120.433	114.236	106.683	98.044	88.611	78.680	68.537	58.445	48.636	39.307
106	126.829	125.887	123.097	118.572	112.485	105.067	96.581	87.315	77.559	67.593	57.673	48.029	38.851
107	124.791	123.866	121.128	116.686	110.711	103.430	95.100	86.003	76.424	66.637	56.893	47.414	38.389
108	122.726	121.819	119.133	114.776	108.916	101.772	93.601	84.676	75.276	65.670	56.103	46.793	37.921
109	120.636	119.747	117.114	112.843	107.098	100.095	92.084	83.333	74.115	64.692	55.304	46.164	37.449
110	118.522	117.651	115.072	110.887	105.259	98.399	90.550	81.975	72.941	63.703	54.497	45.529	36.972
111	116.383	115.530	113.006	108.910	103.400	96.684	88.999	80.602	71.754	62.704	53.682	44.888	36.491
112	114.222	113.387	110.918	106.911	101.521	94.950	87.431	79.215	70.555	61.695	52.859	44.240	36.004
113	112.037	111.222	108.808	104.891	99.623	93.199	85.848	77.814	69.345	60.677	52.027	43.587	35.514
114	109.831	109.035	106.677	102.852	97.706	91.431	84.250	76.400	68.123	59.649	51.189	42.927	35.019
115	107.604	106.827	104.526	100.793	95.771	89.647	82.637	74.973	66.890	58.612	50.343	42.262	34.520
116	105.357	104.599	102.356	98.716	93.819	87.847	81.010	73.534	65.647	57.566	49.490	41.592	34.016
117	103.090	102.352	100.166	96.620	91.850	86.031	79.369	72.083	64.393	56.511	48.630	40.917	33.510
118	100.804	100.086	97.959	94.508	89.865	84.201	77.715	70.620	63.130	55.449	47.764	40.236	32.999
119	98.501	97.802	95.735	92.379	87.864	82.357	76.049	69.146	61.857	54.379	46.892	39.551	32.485
120	96.181	95.502	93.494	90.235	85.850	80.499	74.370	67.662	60.576	53.302	46.014	38.861	31.968
121	93.844	93.186	91.238	88.076	83.821	78.629	72.681	66.168	59.286	52.218	45.130	38.167	31.448
122	91.493	90.855	88.968	85.903	81.780	76.747	70.980	64.665	57.988	51.127	44.241	37.469	30.924
123	89.128	88.511	86.684	83.718	79.726	74.854	69.270	63.153	56.683	50.030	43.347	36.767	30.398
124	86.750	86.153	84.387	81.520	77.661	72.951	67.550	61.633	55.371	48.927	42.449	36.062	29.870
125	84.360	83.784	82.079	79.311	75.586	71.038	65.822	60.105	54.052	47.819	41.546	35.353	29.338
126	81.958	81.403	79.760	77.092	73.501	69.116	64.086	58.570	52.727	46.705	40.639	34.641	28.805
127	79.548	79.014	77.432	74.865	71.408	67.186	62.342	57.029	51.397	45.587	39.728	33.927	28.270



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Engineering Report Exhibit 12 Figure 2 Page 7

Conical Radiation Pattern

WKDL – Warrenton, VA – Metro Radio, Inc.

October 2009

BRG	0	5	10	15	20	25	30	35	40	45	50	55	60 deg Elev
128	77.129	76.615	75.096	72.629	69.307	65.249	60.592	55.482	50.061	44.465	38.814	33.210	27.732
129	74.702	74.210	72.752	70.386	67.199	63.306	58.837	53.930	48.722	43.340	37.898	32.490	27.193
130	72.270	71.799	70.403	68.138	65.086	61.358	57.076	52.373	47.378	42.211	36.978	31.769	26.653
131	69.833	69.383	68.050	65.885	62.969	59.405	55.312	50.813	46.031	41.079	36.056	31.045	26.111
132	67.393	66.964	65.693	63.628	60.848	57.449	53.544	49.250	44.681	39.945	35.132	30.320	25.568
133	64.952	64.544	63.334	61.371	58.725	55.491	51.774	47.684	43.330	38.809	34.207	29.594	25.025
134	62.511	62.124	60.976	59.112	56.602	53.532	50.002	46.117	41.976	37.671	33.281	28.867	24.480
135	60.073	59.706	58.619	56.855	54.479	51.573	48.231	44.550	40.622	36.533	32.353	28.140	23.935
136	57.638	57.292	56.266	54.601	52.358	49.615	46.460	42.982	39.268	35.395	31.426	27.412	23.390
137	55.210	54.884	53.919	52.352	50.242	47.661	44.691	41.416	37.915	34.256	30.498	26.684	22.845
138	52.790	52.484	51.579	50.109	48.130	45.710	42.925	39.852	36.562	33.119	29.571	25.956	22.299
139	50.381	50.095	49.249	47.876	46.027	43.766	41.164	38.291	35.212	31.982	28.645	25.229	21.755
140	47.987	47.721	46.933	45.654	43.933	41.829	39.408	36.734	33.865	30.848	27.720	24.502	21.210
141	45.611	45.364	44.632	43.446	41.851	39.902	37.660	35.183	32.522	29.717	26.797	23.777	20.667
142	43.257	43.028	42.352	41.256	39.784	37.987	35.922	33.639	31.184	28.589	25.876	23.054	20.125
143	40.928	40.718	40.095	39.087	37.735	36.087	34.194	32.103	29.851	27.465	24.958	22.332	19.584
144	38.632	38.438	37.867	36.944	35.708	34.204	32.480	30.577	28.526	26.346	24.043	21.613	19.044
145	36.373	36.196	35.674	34.832	33.706	32.342	30.782	29.063	27.209	25.233	23.133	20.897	18.506
146	34.161	33.999	33.522	32.756	31.736	30.505	29.103	27.563	25.903	24.127	22.227	20.183	17.971
147	32.003	31.856	31.421	30.724	29.803	28.697	27.447	26.079	24.607	23.029	21.327	19.473	17.437
148	29.913	29.777	29.379	28.746	27.914	26.925	25.817	24.614	23.325	21.940	20.432	18.767	16.906
149	27.903	27.777	27.411	26.832	26.079	25.195	24.219	23.173	22.059	20.861	19.545	18.066	16.378
150	25.991	25.874	25.532	24.995	24.308	23.516	22.659	21.758	20.811	19.794	18.665	17.370	15.854
151	24.200	24.087	23.760	23.254	22.616	21.899	21.144	20.374	19.584	18.741	17.794	16.679	15.332
152	22.554	22.442	22.121	21.629	21.021	20.356	19.684	19.028	18.382	17.704	16.933	15.994	14.815
153	21.086	20.971	20.643	20.145	19.542	18.905	18.290	17.728	17.209	16.685	16.083	15.316	14.302
154	19.832	19.709	19.359	18.833	18.207	17.565	16.977	16.482	16.070	15.687	15.245	14.646	13.793
155	18.830	18.694	18.306	17.727	17.045	16.361	15.763	15.302	14.973	14.713	14.422	13.984	13.289
156	18.117	17.963	17.523	16.865	16.091	15.322	14.669	14.202	13.925	13.769	13.616	13.332	12.791
157	17.723	17.546	17.040	16.279	15.378	14.479	13.721	13.200	12.937	12.858	12.828	12.689	12.298
158	17.663	17.460	16.878	15.995	14.937	13.865	12.947	12.318	12.021	11.987	12.061	12.058	11.812
159	17.935	17.705	17.040	16.023	14.786	13.505	12.376	11.577	11.192	11.164	11.319	11.440	11.332



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Engineering Report Exhibit 12 Figure 2 Page 8

Conical Radiation Pattern

WKDL – Warrenton, VA – Metro Radio, Inc.

October 2009

BRG	0	5	10	15	20	25	30	35	40	45	50	55	60 deg Elev
160	18.518	18.259	17.511	16.355	14.928	13.414	12.033	11.005	10.468	10.398	10.606	10.837	10.860
161	19.376	19.090	18.260	16.968	15.349	13.592	11.931	10.623	9.870	9.701	9.926	10.249	10.396
162	20.469	20.157	19.249	17.826	16.022	14.024	12.071	10.448	9.417	9.086	9.286	9.680	9.940
163	21.756	21.419	20.437	18.890	16.909	14.681	12.441	10.485	9.127	8.567	8.692	9.131	9.495
164	23.197	22.837	21.785	20.120	17.975	15.528	13.015	10.727	9.012	8.160	8.153	8.606	9.059
165	24.759	24.377	23.259	21.483	19.182	16.532	13.761	11.156	9.074	7.879	7.677	8.108	8.635
166	26.416	26.013	24.830	22.949	20.500	17.660	14.650	11.747	9.304	7.734	7.276	7.640	8.224
167	28.144	27.720	26.476	24.494	21.905	18.884	15.650	12.471	9.686	7.728	6.958	7.208	7.826
168	29.925	29.482	28.179	26.099	23.374	20.182	16.738	13.302	10.199	7.858	6.733	6.816	7.444
169	31.746	31.283	29.922	27.747	24.892	21.536	17.893	14.217	10.820	8.114	6.607	6.470	7.079
170	33.594	33.111	31.694	29.427	26.446	22.930	19.097	15.196	11.527	8.480	6.583	6.175	6.732
171	35.459	34.958	33.486	31.128	28.023	24.354	20.338	16.224	12.302	8.939	6.659	5.938	6.406
172	37.335	36.816	35.289	32.842	29.617	25.798	21.605	17.288	13.127	9.474	6.828	5.763	6.102
173	39.215	38.678	37.097	34.563	31.219	27.254	22.890	18.377	13.992	10.070	7.080	5.653	5.824
174	41.093	40.538	38.905	36.285	32.825	28.717	24.186	19.484	14.885	10.711	7.404	5.609	5.573
175	42.966	42.393	40.708	38.004	34.430	30.181	25.487	20.601	15.798	11.389	7.787	5.632	5.353
176	44.829	44.239	42.503	39.715	36.029	31.643	26.790	21.725	16.725	12.093	8.219	5.716	5.165
177	46.679	46.072	44.286	41.416	37.620	33.099	28.089	22.851	17.660	12.816	8.689	5.859	5.012
178	48.514	47.890	46.054	43.105	39.200	34.546	29.383	23.974	18.599	13.552	9.189	6.052	4.895
179	50.331	49.691	47.806	44.777	40.766	35.981	30.668	25.093	19.538	14.297	9.711	6.289	4.816
180	52.128	51.472	49.539	46.432	42.316	37.403	31.942	26.205	20.475	15.047	10.250	6.562	4.774
181	53.903	53.231	51.251	48.068	43.848	38.809	33.204	27.308	21.407	15.797	10.801	6.866	4.769
182	55.655	54.967	52.941	49.682	45.361	40.199	34.452	28.400	22.333	16.547	11.359	7.194	4.798
183	57.381	56.678	54.606	51.274	46.854	41.570	35.684	29.479	23.250	17.292	11.922	7.541	4.861
184	59.082	58.364	56.247	52.843	48.325	42.922	36.899	30.545	24.156	18.033	12.486	7.902	4.954
185	60.755	60.022	57.862	54.386	49.772	44.253	38.096	31.596	25.052	18.767	13.050	8.274	5.073
186	62.400	61.652	59.449	55.903	51.196	45.562	39.274	32.630	25.935	19.492	13.612	8.653	5.215
187	64.015	63.253	61.007	57.393	52.594	46.848	40.433	33.648	26.804	20.209	14.169	9.037	5.377
188	65.599	64.823	62.537	58.856	53.967	48.111	41.570	34.649	27.660	20.914	14.721	9.424	5.555
189	67.152	66.363	64.036	60.290	55.313	49.350	42.686	35.630	28.500	21.609	15.267	9.811	5.747
190	68.673	67.870	65.504	61.694	56.631	50.563	43.780	36.593	29.325	22.292	15.805	10.197	5.949
191	70.161	69.345	66.940	63.068	57.921	51.751	44.850	37.536	30.133	22.962	16.335	10.581	6.159



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Conical Radiation Pattern

WKDL – Warrenton, VA – Metro Radio, Inc.

October 2009

BRG	0	5	10	15	20	25	30	35	40	45	50	55	60 deg Elev
192	71.615	70.787	68.345	64.411	59.182	52.912	45.898	38.459	30.925	23.619	16.856	10.961	6.376
193	73.035	72.195	69.716	65.723	60.414	54.047	46.921	39.361	31.699	24.262	17.367	11.336	6.597
194	74.420	73.568	71.053	67.003	61.616	55.154	47.920	40.241	32.455	24.891	17.867	11.707	6.820
195	75.770	74.906	72.357	68.250	62.788	56.233	48.894	41.100	33.193	25.505	18.357	12.071	7.045
196	77.084	76.208	73.625	69.464	63.928	57.284	49.842	41.937	33.912	26.104	18.836	12.428	7.270
197	78.361	77.475	74.859	70.645	65.038	58.306	50.765	42.751	34.612	26.687	19.302	12.777	7.493
198	79.602	78.705	76.057	71.791	66.115	59.299	51.661	43.542	35.292	27.254	19.757	13.119	7.715
199	80.805	79.897	77.219	72.903	67.160	60.263	52.531	44.310	35.952	27.806	20.199	13.453	7.934
200	81.970	81.053	78.345	73.981	68.172	61.196	53.374	45.054	36.593	28.340	20.628	13.777	8.149
201	83.098	82.170	79.434	75.023	69.152	62.099	54.189	45.774	37.213	28.858	21.044	14.093	8.360
202	84.186	83.250	80.485	76.030	70.098	62.971	54.977	46.470	37.812	29.359	21.447	14.399	8.566
203	85.236	84.290	81.500	77.001	71.011	63.813	55.737	47.141	38.391	29.842	21.836	14.695	8.767
204	86.247	85.292	82.476	77.935	71.889	64.623	56.469	47.788	38.948	30.308	22.211	14.981	8.963
205	87.218	86.255	83.414	78.833	72.734	65.402	57.173	48.410	39.484	30.757	22.572	15.257	9.152
206	88.149	87.179	84.314	79.695	73.544	66.149	57.848	49.007	39.998	31.187	22.919	15.522	9.335
207	89.041	88.062	85.175	80.519	74.319	66.864	58.495	49.578	40.490	31.599	23.252	15.776	9.512
208	89.892	88.906	85.997	81.307	75.059	67.547	59.112	50.124	40.961	31.993	23.570	16.020	9.681
209	90.702	89.710	86.780	82.057	75.764	68.197	59.700	50.643	41.409	32.368	23.873	16.253	9.844
210	91.472	90.473	87.524	82.769	76.434	68.815	60.258	51.137	41.835	32.725	24.161	16.474	9.999
211	92.201	91.195	88.228	83.443	77.068	69.400	60.787	51.605	42.238	33.063	24.434	16.684	10.146
212	92.888	91.877	88.893	84.079	77.666	69.953	61.287	52.047	42.619	33.382	24.692	16.882	10.286
213	93.535	92.518	89.517	84.677	78.229	70.472	61.756	52.462	42.977	33.682	24.935	17.069	10.418
214	94.139	93.117	90.102	85.237	78.755	70.957	62.195	52.850	43.312	33.963	25.162	17.244	10.542
215	94.702	93.676	90.646	85.758	79.245	71.410	62.604	53.212	43.625	34.225	25.374	17.407	10.657
216	95.224	94.193	91.149	86.241	79.699	71.829	62.983	53.547	43.914	34.467	25.570	17.559	10.765
217	95.703	94.668	91.613	86.684	80.117	72.214	63.332	53.855	44.180	34.691	25.751	17.698	10.864
218	96.140	95.102	92.035	87.089	80.497	72.565	63.649	54.137	44.423	34.894	25.916	17.825	10.954
219	96.536	95.493	92.417	87.455	80.841	72.883	63.937	54.391	44.642	35.078	26.065	17.940	11.036
220	96.888	95.843	92.758	87.782	81.149	73.166	64.193	54.618	44.838	35.243	26.198	18.043	11.109
221	97.199	96.151	93.058	88.069	81.419	73.416	64.419	54.818	45.011	35.387	26.315	18.134	11.174
222	97.467	96.417	93.318	88.317	81.653	73.632	64.614	54.990	45.160	35.512	26.416	18.212	11.230
223	97.693	96.641	93.536	88.526	81.849	73.813	64.778	55.136	45.285	35.618	26.501	18.278	11.277



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Engineering Report Exhibit 12 Figure 2 Page 10

Conical Radiation Pattern

WKDL – Warrenton, VA – Metro Radio, Inc.

October 2009

BRG	0	5	10	15	20	25	30	35	40	45	50	55	60 deg Elev
224	97.876	96.823	93.713	88.696	82.009	73.960	64.912	55.254	45.387	35.703	26.571	18.331	11.315
225	98.017	96.962	93.849	88.826	82.131	74.074	65.014	55.344	45.465	35.769	26.624	18.372	11.345
226	98.115	97.059	93.943	88.917	82.217	74.152	65.085	55.407	45.519	35.814	26.661	18.401	11.365
227	98.170	97.114	93.997	88.968	82.265	74.197	65.126	55.443	45.550	35.840	26.682	18.417	11.377
228	98.183	97.127	94.009	88.980	82.276	74.207	65.135	55.451	45.557	35.846	26.687	18.421	11.379
229	98.153	97.097	93.981	88.952	82.250	74.183	65.113	55.432	45.541	35.832	26.675	18.412	11.373
230	98.081	97.025	93.910	88.885	82.187	74.125	65.060	55.385	45.501	35.798	26.648	18.391	11.358
231	97.966	96.911	93.799	88.779	82.087	74.032	64.977	55.311	45.437	35.745	26.604	18.357	11.334
232	97.808	96.755	93.647	88.633	81.949	73.906	64.862	55.210	45.349	35.671	26.545	18.311	11.301
233	97.608	96.556	93.453	88.447	81.775	73.745	64.716	55.081	45.238	35.578	26.469	18.253	11.259
234	97.365	96.316	93.219	88.223	81.564	73.550	64.540	54.925	45.103	35.465	26.378	18.182	11.209
235	97.080	96.033	92.943	87.959	81.315	73.320	64.333	54.741	44.944	35.332	26.270	18.099	11.149
236	96.752	95.708	92.627	87.656	81.030	73.057	64.094	54.530	44.762	35.179	26.146	18.003	11.081
237	96.383	95.342	92.269	87.313	80.708	72.760	63.825	54.292	44.557	35.007	26.007	17.896	11.004
238	95.971	94.933	91.871	86.932	80.349	72.429	63.526	54.027	44.328	34.815	25.852	17.776	10.919
239	95.516	94.483	91.432	86.512	79.954	72.064	63.196	53.735	44.076	34.604	25.680	17.644	10.825
240	95.020	93.991	90.953	86.052	79.522	71.665	62.835	53.416	43.801	34.373	25.494	17.500	10.723
241	94.482	93.457	90.433	85.554	79.054	71.233	62.444	53.071	43.503	34.123	25.291	17.344	10.612
242	93.902	92.883	89.873	85.018	78.549	70.767	62.023	52.698	43.181	33.853	25.073	17.176	10.493
243	93.281	92.267	89.272	84.443	78.008	70.268	61.572	52.299	42.837	33.564	24.840	16.996	10.366
244	92.618	91.609	88.632	83.829	77.431	69.736	61.091	51.873	42.469	33.257	24.591	16.804	10.231
245	91.914	90.911	87.951	83.178	76.819	69.170	60.579	51.421	42.080	32.930	24.327	16.601	10.088
246	91.169	90.172	87.231	82.488	76.170	68.572	60.039	50.943	41.667	32.584	24.048	16.387	9.938
247	90.383	89.393	86.472	81.761	75.486	67.941	59.468	50.439	41.232	32.220	23.753	16.161	9.779
248	89.556	88.573	85.673	80.996	74.767	67.278	58.868	49.908	40.775	31.837	23.444	15.924	9.614
249	88.689	87.714	84.835	80.194	74.013	66.582	58.240	49.352	40.296	31.436	23.121	15.676	9.442
250	87.782	86.814	83.959	79.355	73.224	65.854	57.582	48.771	39.795	31.017	22.782	15.417	9.263
251	86.834	85.875	83.043	78.479	72.400	65.094	56.895	48.164	39.272	30.579	22.430	15.148	9.077
252	85.847	84.896	82.090	77.566	71.542	64.303	56.180	47.532	38.727	30.124	22.063	14.868	8.885
253	84.821	83.879	81.098	76.616	70.650	63.480	55.437	46.876	38.162	29.651	21.682	14.577	8.687
254	83.756	82.822	80.069	75.631	69.724	62.626	54.665	46.194	37.575	29.161	21.287	14.277	8.484
255	82.651	81.728	79.003	74.610	68.764	61.741	53.866	45.489	36.967	28.653	20.879	13.968	8.276



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Engineering Report Exhibit 12 Figure 2 Page 11

Conical Radiation Pattern

WKDL – Warrenton, VA – Metro Radio, Inc.

October 2009

BRG	0	5	10	15	20	25	30	35	40	45	50	55	60 deg Elev
256	81.509	80.595	77.899	73.554	67.771	60.826	53.040	44.759	36.339	28.128	20.458	13.648	8.063
257	80.328	79.425	76.759	72.463	66.746	59.881	52.186	44.005	35.691	27.587	20.024	13.320	7.847
258	79.110	78.217	75.582	71.337	65.688	58.906	51.306	43.228	35.022	27.029	19.576	12.984	7.627
259	77.855	76.973	74.370	70.176	64.598	57.901	50.399	42.428	34.334	26.456	19.117	12.639	7.404
260	76.563	75.692	73.122	68.982	63.476	56.867	49.466	41.605	33.626	25.866	18.646	12.286	7.180
261	75.234	74.375	71.839	67.755	62.323	55.805	48.507	40.759	32.900	25.261	18.163	11.926	6.955
262	73.870	73.023	70.522	66.495	61.139	54.715	47.523	39.892	32.155	24.641	17.668	11.559	6.731
263	72.471	71.636	69.171	65.202	59.925	53.596	46.515	39.003	31.391	24.006	17.164	11.187	6.508
264	71.037	70.214	67.787	63.878	58.681	52.451	45.482	38.092	30.610	23.358	16.649	10.809	6.289
265	69.570	68.759	66.370	62.522	57.408	51.279	44.425	37.161	29.812	22.696	16.124	10.428	6.074
266	68.068	67.271	64.920	61.136	56.107	50.081	43.345	36.210	28.997	22.020	15.591	10.043	5.867
267	66.535	65.751	63.440	59.720	54.778	48.857	42.242	35.240	28.166	21.333	15.050	9.656	5.668
268	64.969	64.199	61.928	58.274	53.421	47.609	41.118	34.251	27.319	20.633	14.501	9.269	5.482
269	63.372	62.616	60.387	56.801	52.038	46.336	39.972	33.243	26.458	19.923	13.947	8.883	5.310
270	61.745	61.004	58.817	55.299	50.629	45.041	38.806	32.218	25.583	19.203	13.388	8.501	5.155
271	60.089	59.362	57.219	53.772	49.196	43.723	37.620	31.177	24.695	18.474	12.825	8.124	5.022
272	58.405	57.693	55.594	52.218	47.739	42.384	36.415	30.120	23.795	17.738	12.261	7.756	4.913
273	56.694	55.997	53.943	50.640	46.260	41.024	35.193	29.049	22.884	16.995	11.697	7.400	4.832
274	54.957	54.275	52.267	49.039	44.759	39.645	33.954	27.964	21.964	16.247	11.135	7.060	4.782
275	53.196	52.530	50.569	47.416	43.237	38.249	32.701	26.868	21.035	15.497	10.580	6.741	4.766
276	51.411	50.762	48.848	45.772	41.698	36.836	31.434	25.761	20.101	14.747	10.033	6.449	4.786
277	49.606	48.973	47.107	44.110	40.141	35.408	30.155	24.646	19.163	13.999	9.500	6.189	4.843
278	47.782	47.165	45.349	42.431	38.569	33.968	28.866	23.525	18.223	13.257	8.986	5.969	4.938
279	45.941	45.341	43.574	40.737	36.985	32.517	27.570	22.401	17.285	12.525	8.497	5.795	5.069
280	44.085	43.502	41.786	39.032	35.390	31.059	26.269	21.275	16.353	11.809	8.041	5.675	5.236
281	42.218	41.652	39.987	37.317	33.788	29.596	24.967	20.153	15.431	11.114	7.628	5.615	5.437
282	40.342	39.794	38.182	35.596	32.183	28.132	23.667	19.039	14.525	10.450	7.267	5.618	5.670
283	38.463	37.933	36.373	33.874	30.578	26.671	22.375	17.939	13.642	9.825	6.970	5.689	5.932
284	36.584	36.072	34.567	32.155	28.978	25.219	21.096	16.859	12.792	9.252	6.750	5.825	6.221
285	34.711	34.218	32.767	30.445	27.390	23.782	19.838	15.808	11.985	8.746	6.617	6.026	6.533
286	32.852	32.377	30.982	28.752	25.821	22.368	18.610	14.798	11.235	8.322	6.581	6.287	6.868
287	31.014	30.558	29.220	27.083	24.280	20.989	17.424	13.842	10.560	7.998	6.645	6.603	7.223



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BRG	0	5	10	15	20	25	30	35	40	45	50	55	60 deg Elev
288	29.207	28.771	27.492	25.451	22.780	19.655	16.294	12.958	9.980	7.791	6.811	6.968	7.595
289	27.445	27.030	25.810	23.868	21.334	18.384	15.238	12.167	9.516	7.714	7.074	7.376	7.984
290	25.743	25.349	24.191	22.352	19.961	17.196	14.279	11.493	9.192	7.775	7.427	7.823	8.387
291	24.122	23.748	22.656	20.924	18.684	16.114	13.444	10.964	9.028	7.976	7.859	8.303	8.804
292	22.604	22.253	21.229	19.610	17.530	15.169	12.763	10.606	9.037	8.309	8.362	8.813	9.232
293	21.221	20.894	19.941	18.442	16.531	14.393	12.267	10.444	9.223	8.762	8.924	9.348	9.672
294	20.007	19.705	18.828	17.456	15.725	13.822	11.987	10.492	9.580	9.321	9.537	9.905	10.122
295	19.002	18.727	17.929	16.691	15.149	13.489	11.942	10.751	10.093	9.971	10.194	10.482	10.580
296	18.249	18.002	17.287	16.187	14.837	13.417	12.142	11.212	10.744	10.697	10.887	11.076	11.048
297	17.788	17.568	16.937	15.974	14.811	13.617	12.579	11.855	11.512	11.487	11.613	11.686	11.523
298	17.647	17.454	16.904	16.071	15.080	14.081	13.234	12.655	12.377	12.330	12.365	12.309	12.005
299	17.841	17.673	17.195	16.478	15.632	14.791	14.081	13.588	13.324	13.218	13.140	12.945	12.494
300	18.365	18.219	17.802	17.178	16.446	15.716	15.090	14.631	14.338	14.143	13.936	13.591	12.989
301	19.198	19.068	18.697	18.142	17.487	16.824	16.235	15.765	15.406	15.100	14.750	14.248	13.490
302	20.306	20.187	19.847	19.335	18.722	18.086	17.492	16.973	16.521	16.083	15.579	14.913	13.996
303	21.650	21.537	21.213	20.719	20.118	19.473	18.839	18.242	17.674	17.090	16.421	15.587	14.506
304	23.193	23.081	22.759	22.263	21.646	20.963	20.261	19.562	18.859	18.117	17.276	16.267	15.021
305	24.900	24.786	24.454	23.938	23.283	22.538	21.744	20.923	20.072	19.161	18.141	16.954	15.540
306	26.743	26.622	26.272	25.719	25.008	24.181	23.278	22.320	21.308	20.219	19.016	17.648	16.063
307	28.696	28.567	28.189	27.589	26.806	25.882	24.854	23.746	22.563	21.291	19.899	18.346	16.589
308	30.740	30.600	30.188	29.530	28.663	27.629	26.465	25.198	23.836	22.374	20.789	19.049	17.118
309	32.859	32.706	32.255	31.531	30.571	29.416	28.106	26.670	25.124	23.467	21.686	19.757	17.650
310	35.040	34.872	34.378	33.581	32.520	31.237	29.772	28.161	26.424	24.569	22.589	20.468	18.185
311	37.272	37.088	36.547	35.672	34.503	33.084	31.459	29.667	27.735	25.678	23.497	21.183	18.721
312	39.546	39.346	38.755	37.798	36.516	34.955	33.164	31.186	29.055	26.793	24.409	21.901	19.260
313	41.856	41.638	40.995	39.952	38.552	36.845	34.884	32.716	30.384	27.914	25.325	22.621	19.800
314	44.196	43.959	43.261	42.130	40.609	38.752	36.616	34.256	31.718	29.040	26.244	23.343	20.341
315	46.559	46.304	45.550	44.327	42.682	40.672	38.358	35.803	33.059	30.169	27.166	24.067	20.884
316	48.943	48.669	47.858	46.541	44.769	42.603	40.110	37.356	34.404	31.302	28.089	24.793	21.428
317	51.343	51.049	50.180	48.768	46.867	44.543	41.868	38.915	35.752	32.437	29.015	25.520	21.972
318	53.756	53.443	52.514	51.005	48.974	46.490	43.631	40.477	37.103	33.574	29.942	26.247	22.517
319	56.180	55.846	54.857	53.251	51.088	48.442	45.398	42.042	38.456	34.711	30.869	26.975	23.063



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BRG	0	5	10	15	20	25	30	35	40	45	50	55	60 deg Elev
320	58.611	58.257	57.207	55.502	53.206	50.398	47.168	43.609	39.810	35.850	31.797	27.703	23.608
321	61.048	60.673	59.562	57.758	55.328	52.356	48.939	45.177	41.164	36.988	32.724	28.431	24.153
322	63.488	63.092	61.919	60.016	57.451	54.315	50.711	46.744	42.518	38.126	33.651	29.158	24.698
323	65.929	65.512	64.278	62.274	59.574	56.274	52.482	48.311	43.871	39.263	34.577	29.885	25.242
324	68.370	67.932	66.636	64.531	61.696	58.232	54.251	49.875	45.221	40.399	35.502	30.610	25.786
325	70.808	70.350	68.992	66.786	63.816	60.186	56.018	51.437	46.570	41.532	36.425	31.335	26.328
326	73.243	72.764	71.344	69.037	65.932	62.137	57.781	52.996	47.916	42.663	37.346	32.057	26.869
327	75.674	75.173	73.691	71.284	68.043	64.084	59.540	54.551	49.258	43.790	38.265	32.778	27.409
328	78.097	77.576	76.031	73.524	70.148	66.025	61.293	56.101	50.596	44.915	39.180	33.497	27.948
329	80.513	79.971	78.364	75.757	72.246	67.959	63.041	57.646	51.929	46.035	40.093	34.213	28.484
330	82.920	82.357	80.689	77.981	74.336	69.885	64.781	59.185	53.258	47.151	41.002	34.926	29.019
331	85.317	84.733	83.003	80.196	76.417	71.804	66.514	60.717	54.580	48.263	41.907	35.637	29.551
332	87.703	87.098	85.307	82.400	78.488	73.713	68.239	62.242	55.896	49.369	42.809	36.344	30.081
333	90.076	89.450	87.599	84.593	80.549	75.613	69.955	63.759	57.206	50.469	43.705	37.048	30.609
334	92.435	91.790	89.877	86.774	82.598	77.501	71.662	65.267	58.508	51.564	44.597	37.749	31.134
335	94.781	94.115	92.142	88.941	84.634	79.379	73.358	66.767	59.803	52.652	45.484	38.445	31.656
336	97.111	96.424	94.392	91.095	86.657	81.244	75.043	68.257	61.089	53.734	46.366	39.138	32.175
337	99.424	98.718	96.627	93.233	88.666	83.096	76.717	69.737	62.367	54.808	47.241	39.825	32.691
338	101.721	100.994	98.844	95.355	90.661	84.935	78.378	71.206	63.636	55.875	48.111	40.509	33.204
339	103.999	103.253	101.044	97.461	92.639	86.759	80.027	72.665	64.896	56.934	48.975	41.187	33.713
340	106.258	105.493	103.226	99.549	94.602	88.569	81.662	74.111	66.145	57.985	49.832	41.861	34.218
341	108.498	107.713	105.389	101.619	96.547	90.363	83.284	75.546	67.384	59.027	50.682	42.529	34.720
342	110.716	109.912	107.532	103.670	98.475	92.141	84.891	76.967	68.613	60.061	51.525	43.192	35.217
343	112.914	112.091	109.655	105.702	100.385	93.902	86.483	78.376	69.830	61.085	52.361	43.849	35.710
344	115.089	114.247	111.756	107.713	102.275	95.646	88.060	79.772	71.036	62.100	53.189	44.500	36.199
345	117.242	116.381	113.835	109.703	104.146	97.372	89.621	81.153	72.230	63.105	54.009	45.145	36.684
346	119.371	118.492	115.891	111.672	105.997	99.080	91.165	82.520	73.412	64.100	54.821	45.784	37.164
347	121.475	120.579	117.925	113.619	107.828	100.768	92.693	83.872	74.581	65.084	55.625	46.416	37.639
348	123.555	122.641	119.934	115.542	109.637	102.438	94.203	85.209	75.737	66.058	56.420	47.042	38.109
349	125.609	124.677	121.919	117.443	111.424	104.087	95.695	86.530	76.880	67.020	57.206	47.661	38.574
350	127.637	126.688	123.878	119.319	113.188	105.716	97.168	87.835	78.009	67.972	57.983	48.273	39.034
351	129.639	128.673	125.812	121.171	114.930	107.324	98.624	89.124	79.124	68.911	58.751	48.877	39.488



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BRG	0	5	10	15	20	25	30	35	40	45	50	55	60 deg Elev
352	131.613	130.630	127.720	122.998	116.649	108.910	100.059	90.396	80.225	69.839	59.509	49.474	39.938
353	133.559	132.560	129.600	124.800	118.343	110.475	101.476	91.651	81.311	70.754	60.257	50.064	40.381
354	135.477	134.461	131.454	126.575	120.014	112.017	102.872	92.889	82.382	71.658	60.996	50.646	40.819
355	137.366	136.334	133.280	128.324	121.659	113.537	104.248	94.109	83.438	72.548	61.724	51.220	41.251
356	139.226	138.178	135.077	130.046	123.280	115.033	105.604	95.310	84.479	73.426	62.442	51.785	41.676
357	141.056	139.993	136.846	131.740	124.874	116.507	106.938	96.493	85.504	74.290	63.149	52.343	42.096
358	142.855	141.777	138.585	133.407	126.443	117.956	108.251	97.658	86.512	75.141	63.845	52.892	42.510
359	144.624	143.531	140.295	135.045	127.986	119.381	109.542	98.803	87.505	75.979	64.531	53.433	42.917