

APPLICATION FOR MODIFICATION OF  
DTV CONSTRUCTION PERMIT  
FCC FILE NO. BMPCDT-20070707ACU  
FACILITY ID 72307  
STATION WNCF-DT  
MONTGOMERY, ALABAMA  
CH 51, 10.9 kW 246 M HAAT

Technical Narrative

This technical exhibit has been prepared in support of an application for modification of the construction permit for station WNCF-DT on channel 51 at Montgomery, Alabama (File No. BMPCDT-20070707ACU). By means of this instant modification application, WNCF-DT proposes to decrease the directional antenna maximum effective radiated power ("ERP") from 10.9 kW to 5.9 kW. No other changes are proposed. This instant application is considered a minor change in facilities pursuant to 47 C.F.R. Section 73.3572(a).

Proposed Facilities

It is proposed to operate WNCF-DT from the existing tower (FCC Tower registration 1040403) (NAD27 coordinates: 32° 22' 04" N, 86° 15' 42" W) on DTV channel 51 (692-698 MHz) with a directional antenna maximum ERP of 5.9 kW and an antenna HAAT of 246 meters. It is proposed to utilize a Dielectric model DL-8 directional antenna which will be mounted at 215 meters above ground level ("AGL") on the existing tower structure and will incorporate an electrical beam tilt of 1.0 degree. The proposed antenna radiation center height above mean sea level will be 302 meters. The only modification to the current authorization is the lower Effective Radiated Power level of 5.9 kW.

Antenna Data

Figure 1 provides a graph of the horizontal and vertical plane relative patterns for the proposed Dielectric model DL-8 horizontally polarized, directional antenna system.

Compliance with Second Periodic Review - Use it or Loose it  
Replication and Maximization Deadline

WNCF-DT has elected to return to the current WNCF-TV analog channel of 32 at the end of the DTV transition. Therefore, according to *paragraph 78 of the Second DTV Periodic Review Report and Order*, "Those licensees that receive a tentative DTV channel designation on a channel that is not their current DTV channel must serve at least 80 percent of the number of viewers served by the 1997 facility on which their replication coverage was based." The WNCF-TV 1997 facility served a total population of 577,207 while the herein proposed modification will serve a total population of 490,000. Considering the aforementioned population totals, this proposed modification will serve 84.89% of the number of viewers served by the 1997 WNCF-TV facility and therefore is in compliance with the FCC's Second Periodic Review - Use it or Loose it Replication and Maximization Deadline.

Principal City Coverage

Figure 2 depicts the predicted 48 dBu, F(50,90) coverage contour for the proposed WNCF-DT channel 51 operation. As indicated, Montgomery, Alabama is located within the 48 dBu contour. The Montgomery city limits were derived from information contained in the 2000 U.S. Census for Alabama.

The distances to the predicted 41 dBu and 48 dBu, F(50,90) coverage contours were determined in accordance with the provisions of Section 73.625.

### Environmental Protection Act

The proposed facilities were evaluated in terms of potential radio frequency (RF) energy exposure at ground level to workers and the general public. The radiation center for the proposed DTV antenna is located 215 meters above ground level. The maximum DTV ERP is 5.9 kW (horizontal polarization). A relative field value of 0.25 has been used for the antenna's downward radiation since this value is greater than the maximum downward radiation of the proposed antenna for all depression angles greater than 10° (See Figure 1 Page 4). The calculated power density at a point 2 meters above ground level is 0.000267 mW/cm<sup>2</sup>. This is 0.575% of the FCC's recommended limit of 0.4633 mW/cm<sup>2</sup> for channel 51 for an "uncontrolled" environment. Therefore, based on the responsibility threshold of 5.0%, the proposal will comply with the RF emission rules. The transmitter antenna supporting structure will be surrounded by a gated and locked chain link fence at a height of 2 meters. Appropriate warning signs will be placed on the fence to warn the general public of the possible RF radiation exposure.

If work is to be performed on the tower in an area where overexposure could occur, WNCF-DT will take the necessary action to prevent overexposure of workers on the tower, including reducing the WNCF-DT transmitter power or ceasing WNCF-DT operation completely. Additionally, WNCF-DT will cooperate with other site users to assure that work is performed at the site without exceeding the FCC maximum permissible exposure limit (MPE) for occupational /controlled exposure.

Please note that this technical exhibit only addresses the potential for radio frequency electromagnetic field exposure. All other aspects of the environmental processing analysis will be, or already has been, provided to the FCC by the tower owner as part of the tower registration process.

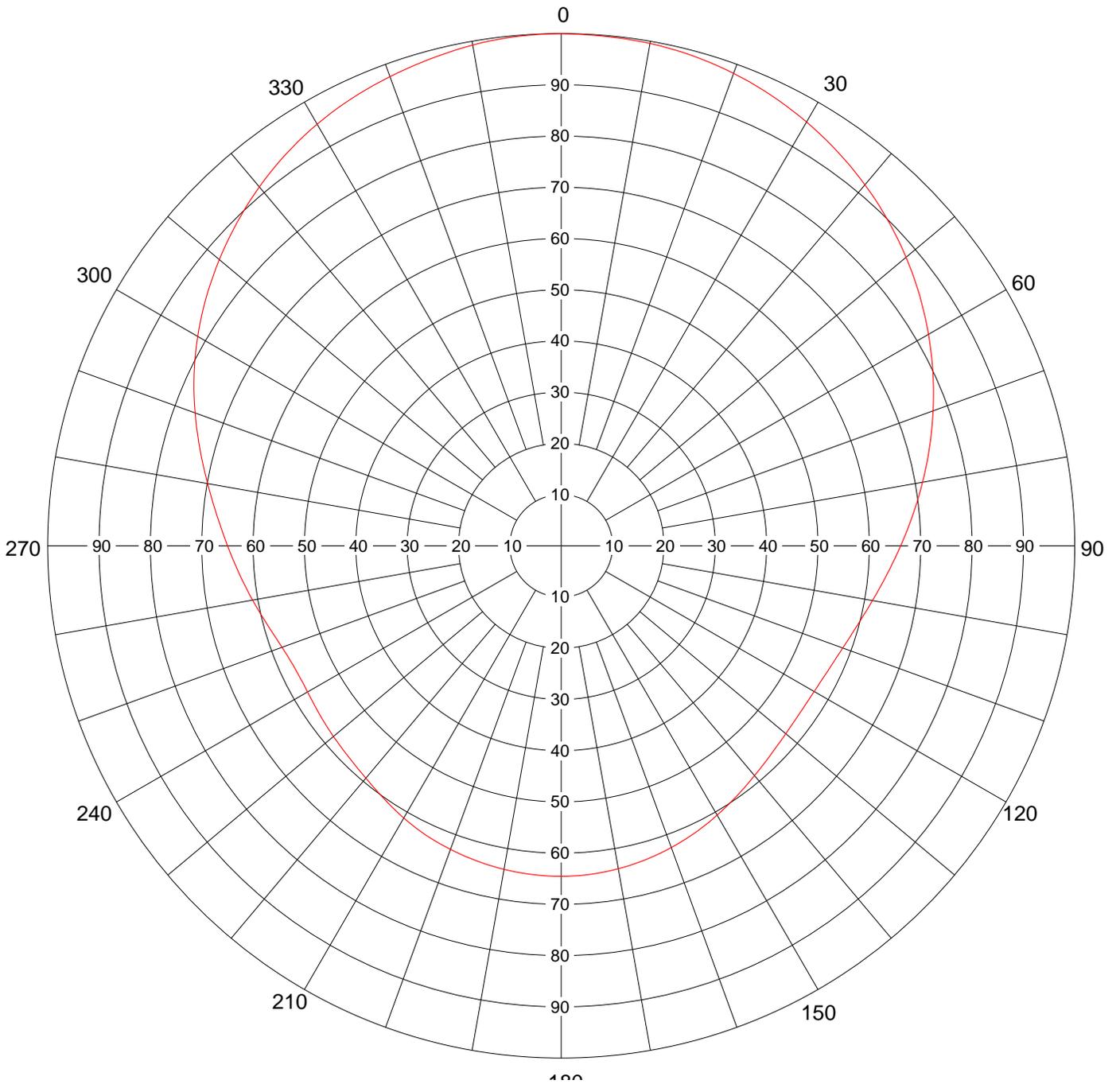
WNCF-DT  
Montgomery, Alabama  
5.9 kW ERP  
Proposed Modification

Gain  
Calculated / Measured

**1.7 (2.30 dB)**  
**Calculated**

Frequency  
Drawing #

**695 MHz**  
**DL-B**



WNCF-DT  
Montgomery, Alabama  
5.9 kW ERP  
Proposed Modification

**TABULATION OF AZIMUTH PATTERN**

Azimuth Pattern Drawing # **DL-B**

Angle	Field	ERP (kW)	ERP (dBk)
0	1.000	11.0	10.41
10	0.996	10.9	10.38
20	0.981	10.6	10.25
30	0.955	10.0	10.01
40	0.920	9.3	9.69
50	0.876	8.4	9.26
60	0.826	7.5	8.75
70	0.771	6.5	8.16
80	0.714	5.6	7.49
90	0.661	4.8	6.82
100	0.615	4.2	6.19
110	0.583	3.7	5.73
120	0.569	3.6	5.52
130	0.571	3.6	5.55
140	0.586	3.8	5.77
150	0.607	4.1	6.08
160	0.627	4.3	6.36
170	0.640	4.5	6.54
180	0.645	4.6	6.61
190	0.641	4.5	6.55
200	0.631	4.4	6.41
210	0.613	4.1	6.16
220	0.592	3.9	5.86
230	0.579	3.7	5.67
240	0.570	3.6	5.53
250	0.579	3.7	5.67
260	0.610	4.1	6.12
270	0.650	4.6	6.67
280	0.699	5.4	7.30
290	0.759	6.3	8.02
300	0.817	7.3	8.66
310	0.869	8.3	9.19
320	0.914	9.2	9.63
330	0.951	9.9	9.98
340	0.975	10.5	10.19
350	0.993	10.8	10.35

**Maxima**

Angle	Field	ERP (kW)	ERP (dBk)
0	1.000	11.0	10.41
180	0.645	4.6	6.61

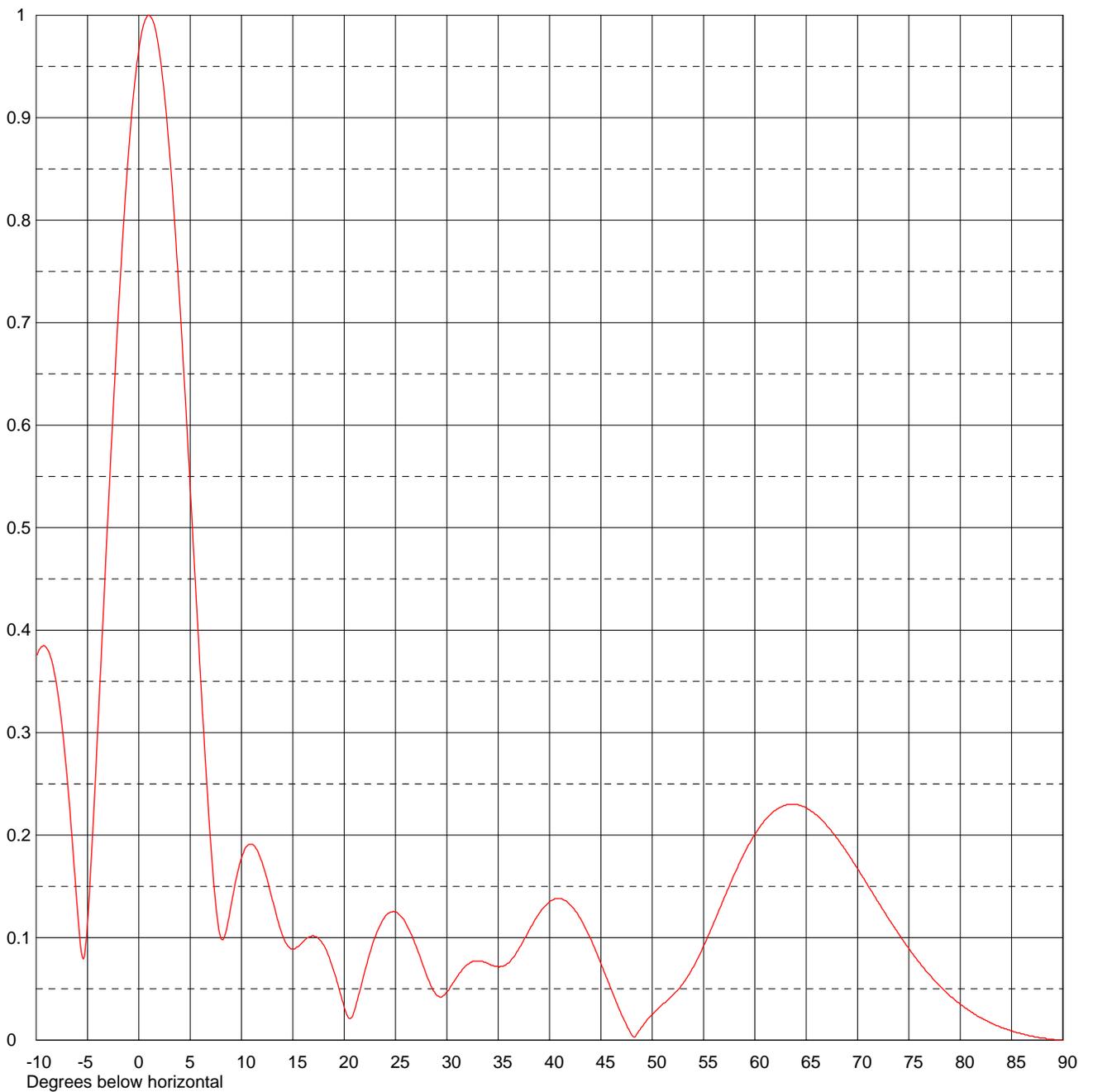
**Minima**

Angle	Field	ERP (kW)	ERP (dBk)
124	0.568	3.5	5.50
242	0.570	3.6	5.53

WNCF-DT  
Montgomery, Alabama  
5.9 kW ERP  
Proposed Modification

**ELEVATION PATTERN**

RMS Gain at Main Lobe	<b>8.0 (9.03 dB)</b>	Beam Tilt	<b>1.00 Degrees</b>
RMS Gain at Horizontal	<b>7.5 (8.75 dB)</b>	Frequency	<b>695.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>08L080100-90</b>



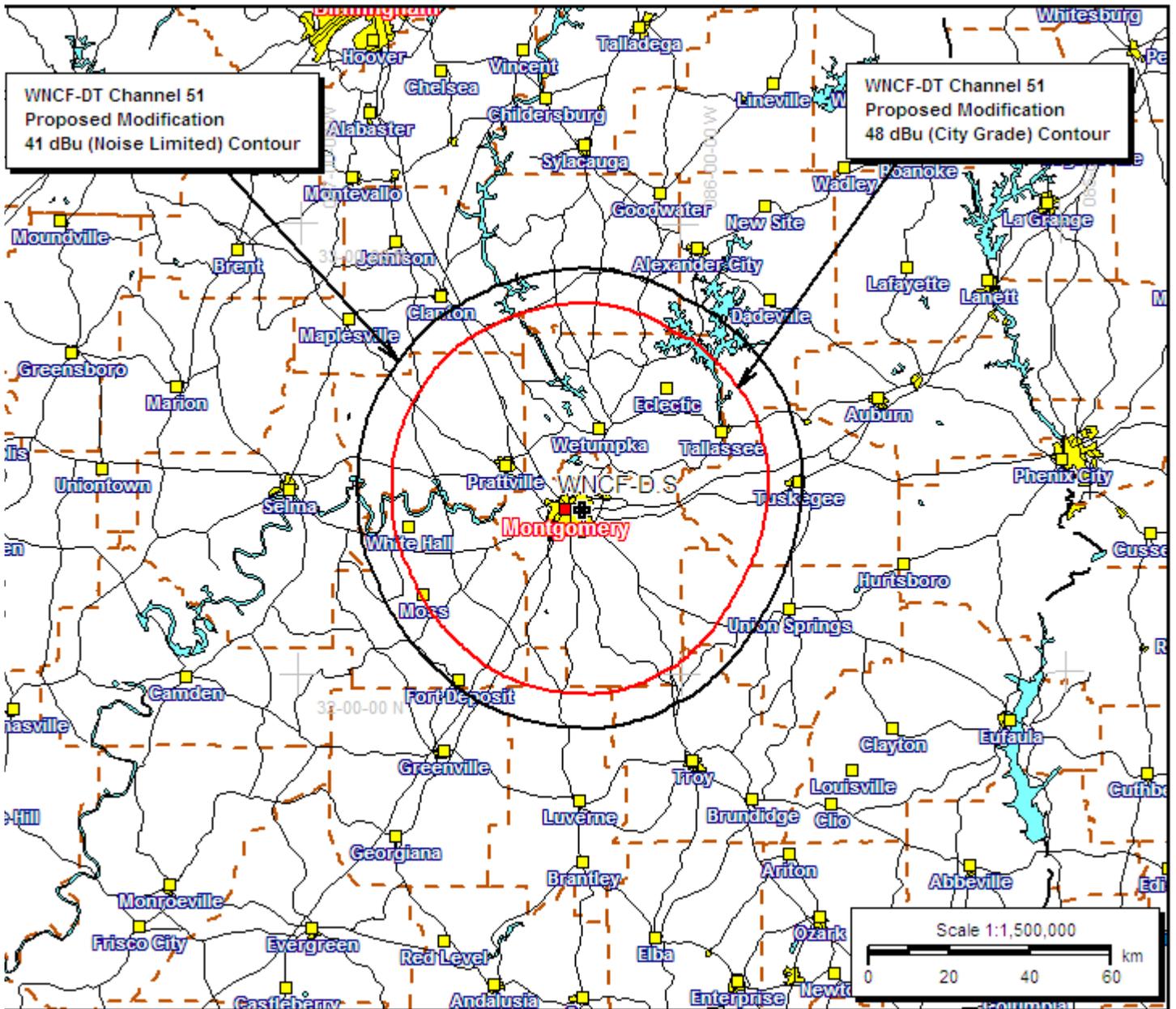
WNCF-DT  
Montgomery, Alabama  
5.9 kW ERP  
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**TABULATION OF ELEVATION PATTERN**

Elevation Pattern Drawing # **08L080100-90**

Angle	Field										
-10.0	0.374	2.4	0.931	10.6	0.190	30.5	0.054	51.0	0.035	71.5	0.143
-9.5	0.384	2.6	0.911	10.8	0.191	31.0	0.062	51.5	0.039	72.0	0.135
-9.0	0.383	2.8	0.889	11.0	0.191	31.5	0.069	52.0	0.044	72.5	0.127
-8.5	0.371	3.0	0.865	11.5	0.186	32.0	0.074	52.5	0.049	73.0	0.119
-8.0	0.346	3.2	0.839	12.0	0.174	32.5	0.077	53.0	0.055	73.5	0.111
-7.5	0.308	3.4	0.811	12.5	0.157	33.0	0.077	53.5	0.063	74.0	0.104
-7.0	0.258	3.6	0.781	13.0	0.137	33.5	0.077	54.0	0.071	74.5	0.096
-6.5	0.197	3.8	0.750	13.5	0.118	34.0	0.075	54.5	0.081	75.0	0.089
-6.0	0.130	4.0	0.717	14.0	0.102	34.5	0.073	55.0	0.092	75.5	0.082
-5.5	0.081	4.2	0.683	14.5	0.092	35.0	0.072	55.5	0.103	76.0	0.076
-5.0	0.114	4.4	0.648	15.0	0.089	35.5	0.072	56.0	0.115	76.5	0.070
-4.5	0.201	4.6	0.613	15.5	0.091	36.0	0.075	56.5	0.127	77.0	0.064
-4.0	0.303	4.8	0.576	16.0	0.096	36.5	0.081	57.0	0.139	77.5	0.058
-3.5	0.408	5.0	0.539	16.5	0.100	37.0	0.089	57.5	0.150	78.0	0.053
-3.0	0.513	5.2	0.502	17.0	0.102	37.5	0.098	58.0	0.162	78.5	0.048
-2.8	0.555	5.4	0.465	17.5	0.099	38.0	0.107	58.5	0.173	79.0	0.043
-2.6	0.595	5.6	0.428	18.0	0.093	38.5	0.116	59.0	0.183	79.5	0.039
-2.4	0.634	5.8	0.392	18.5	0.082	39.0	0.124	59.5	0.192	80.0	0.035
-2.2	0.672	6.0	0.355	19.0	0.067	39.5	0.130	60.0	0.201	80.5	0.031
-2.0	0.709	6.2	0.320	19.5	0.050	40.0	0.135	60.5	0.208	81.0	0.028
-1.8	0.744	6.4	0.286	20.0	0.032	40.5	0.138	61.0	0.215	81.5	0.025
-1.6	0.778	6.6	0.253	20.5	0.021	41.0	0.138	61.5	0.220	82.0	0.022
-1.4	0.809	6.8	0.221	21.0	0.029	41.5	0.136	62.0	0.224	82.5	0.019
-1.2	0.839	7.0	0.192	21.5	0.047	42.0	0.132	62.5	0.227	83.0	0.017
-1.0	0.866	7.2	0.165	22.0	0.067	42.5	0.126	63.0	0.229	83.5	0.014
-0.8	0.891	7.4	0.141	22.5	0.085	43.0	0.119	63.5	0.230	84.0	0.012
-0.6	0.914	7.6	0.122	23.0	0.100	43.5	0.109	64.0	0.230	84.5	0.011
-0.4	0.934	7.8	0.107	23.5	0.112	44.0	0.099	64.5	0.229	85.0	0.009
-0.2	0.952	8.0	0.099	24.0	0.121	44.5	0.087	65.0	0.227	85.5	0.007
0.0	0.967	8.2	0.098	24.5	0.125	45.0	0.075	65.5	0.223	86.0	0.006
0.2	0.979	8.4	0.103	25.0	0.125	45.5	0.062	66.0	0.220	86.5	0.005
0.4	0.988	8.6	0.111	25.5	0.121	46.0	0.050	66.5	0.215	87.0	0.004
0.6	0.995	8.8	0.121	26.0	0.114	46.5	0.037	67.0	0.209	87.5	0.003
0.8	0.999	9.0	0.132	26.5	0.104	47.0	0.025	67.5	0.203	88.0	0.002
1.0	1.000	9.2	0.143	27.0	0.092	47.5	0.015	68.0	0.197	88.5	0.001
1.2	0.998	9.4	0.154	27.5	0.078	48.0	0.005	68.5	0.190	89.0	0.001
1.4	0.994	9.6	0.163	28.0	0.064	48.5	0.006	69.0	0.183	89.5	0.000
1.6	0.987	9.8	0.171	28.5	0.052	49.0	0.013	69.5	0.175	90.0	0.000
1.8	0.977	10.0	0.178	29.0	0.044	49.5	0.020	70.0	0.167		
2.0	0.964	10.2	0.183	29.5	0.042	50.0	0.025	70.5	0.159		
2.2	0.949	10.4	0.188	30.0	0.047	50.5	0.030	71.0	0.151		

Figure 2



WNCF-DT  
Montgomery, Alabama

WNCF-DT Channel 51 Proposed Modification  
5.9 kW ERP  
Showing 48 dBu F(50,90) Predicted Contour  
Serving the City of Montgomery, AL