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**MULLANEY ENGINEERING, INC.**

9049 SHADY GROVE COURT  
GAITHERSBURG, MD 20877

BY HAND

Marlene H. Dortch, Secretary, Secretary  
Federal Communications Commission  
445 12th Street, S.W. TW-A325  
Washington, D.C. 20554

FILED/ACCEPTED

NOV 17 2009

Federal Communications Commission  
Office of the Secretary

16 November 2009  
**COPY**

Re: **WGDJ (AM) RENSSELAER, NEW YORK**

Facility Number: 40768

FCC Form 302-AM - ENGINEERING AMENDMENT

PENDING APPLICATION BMML-20091030AID


Dear Ms. Dortch:

Transmitted herewith, on behalf of our client, Capital Broadcasting, Inc., is an original, and two copies of an engineering amendment to the pending application for Station License and Program Test Authorization, for Standard Broadcast Station WGDJ Rensselaer, New York.

As this amendment to the pending application **DOES NOT** requires a filing fee, it is being submitted directly to the Commission for processing.

This amendment provides a correction to the Section IV of the engineering data (daytime antenna system calculations), as well as a minor change (0.1 degree) to the daytime operating parameters as listed on Form 302-AM, the corrected form page is attached, as well as the non-form section of the application (Engineering Section IV) and are provided herein.

Sincerely,



Timothy Z. Sawyer

## SECTION III - - LICENSE APPLICATION ENGINEERING DATA

Name of Applicant

**CAPITAL BROADCASTING, INC.**

PURPOSE OF AUTHORIZATION APPLIED FOR: (check one)



Station License



Direct Measurement of Power

**AMENDED BMML-20091030AID**

## 1. Facilities authorized in construction permit

Call Sign	File No. of Construction Permit (if applicable)	Frequency (kHz)	Hours of Operation	Power in kilowatts	
				Night	Day
<b>WGDJ</b>	<b>BP-200808305ADS</b>	<b>1300</b>	<b>UNLIMITED</b>	<b>8.0</b>	<b>10.0</b>

## 2. Station location

State <b>NEW YORK</b>	City or Town <b>RENSSELAER</b>
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## 3. Transmitter location

State <b>NY</b>	County <b>RENSSELAER</b>	City or Town <b>RENSSELAER</b>	Street address (or other identification) <b>NY ROUTE 9J</b>
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## 4. Main studio location

State <b>NY</b>	County <b>ALBANY</b>	City or Town <b>ALBANY</b>	Street address (or other identification) <b>TU Center, 51 South Pearl St.</b>
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## 5. Remote control point location (specify only if authorized directional antenna)

State <b>NY</b>	County <b>ALBANY</b>	City or Town <b>ALBANY</b>	Street address (or other identification) <b>TU Center, 51 South Pearl St.</b>
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6. Has type-approved stereo generating equipment been installed?



Yes



No

7. Does the sampling system meet the requirements of 47 C.F.R. Section 73.68?



Yes



No

**SEE TECHNICAL/ENGINEERING  
STATEMENT**

Not Applicable

Attach as an Exhibit a detailed description of the sampling system as installed.

Exhibit No.

**ENG. STM.**

## 8. Operating constants:

RF common point or antenna current (in amperes) without modulation for night system <b>13.0</b>		RF common point or antenna current (in amperes) without modulation for day system <b>14.5</b>	
Measured antenna or common point resistance (in ohms) at operating frequency Night <b>50.0</b>	Day <b>50.0</b>	Measured antenna or common point reactance (in ohms) at operating frequency Night <b>0.0</b>	Day <b>0.0</b>

## Antenna indications for directional operation

Towers	Antenna monitor Phase reading(s) in degrees		Antenna monitor sample current ratio(s)		Antenna base currents	
	Night	Day	Night	Day	Night	Day
<b>1</b>	<b>147.20</b>	<b>0</b>	<b>0.583</b>	<b>1.000</b>	<b>---</b>	<b>---</b>
<b>2</b>	<b>0</b>	<b>-121.5</b>	<b>1.000</b>	<b>0.338</b>	<b>---</b>	<b>---</b>
<b>3</b>	<b>-137.0</b>	<b>---</b>	<b>0.493</b>	<b>---</b>	<b>---</b>	<b>---</b>
<b>4</b>	<b>107.5</b>	<b>---</b>	<b>0.481</b>	<b>---</b>	<b>---</b>	<b>---</b>
<b>5</b>	<b>-38.1</b>	<b>-84.1</b>	<b>0.737</b>	<b>0.540</b>	<b>---</b>	<b>---</b>
<b>6</b>	<b>-178.7</b>	<b>170.2</b>	<b>0.382</b>	<b>0.257</b>	<b>---</b>	<b>---</b>

Manufacturer and type of antenna monitor:

**POTOMAC INSTRUMENTS MODEL AM1901 SERIAL #696.**

## SECTION IV (amended 11/16/09)

### DAYTIME ANTENNA SYSTEM

#### OPERATING PARAMETERS DERIVED FROM MODELED CURRENTS

TOWER NUMBER SITE	CP	BASE CURRENT	BASE CURRENT PHASE	RATIO	PHASE
1	1	15.6465	4.1	1.000	0.0
2	2	5.2889	242.6	0.338	-121.5
5	3	8.44713	280.0	0.540	-84.1
6	4	4.01373	174.3	0.257	170.2

MEDIUM WAVE ARRAY SYNTHESIS FROM FIELD RATIOS

Frequency = 1300 KHz

tower	field ratio magnitude	phase (deg)
1	1.	0
2	.4	-125.
3	0	0
4	0	0
5	.5	-87.5
6	.3	155.

VOLTAGES AND CURRENTS - peak

source	voltage node	magnitude	phase (deg)	current magnitude	phase (deg)
1	1,602.78	71.8	15.6465	4.1	
16	1,079.95	307.5	5.2889	242.6	
31	12,088.	206.8	1.15511	296.8	
46	10,315.2	254.7	.98486	344.7	
61	666.847	313.9	8.44713	280.	
76	1,047.65	210.6	4.01373	174.3	

Sum of square of source currents = 362.555

Total power = 10,000. watts

Note: Towers 3 (NODE 31) and 4 (NODE 46) are unused during daytime operation and are disconnected (floated).

## DAYTIME CALCULATED IMPEDANCES

WGDJ DAYTIME

GEOMETRY

Wire coordinates in degrees; other dimensions in meters

Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.22	15
		0	0	99.5		
2	none	90.	340.	0	.22	15
		90.	340.	100.3		
3	none	180.	340.	0	.22	15
		180.	340.	101.5		
4	none	151.6	70.9	0	.22	15
		151.6	70.9	100.2		
5	none	175.	40.	0	.22	15
		175.	40.	100.3		
6	none	233.4	20.5	0	.22	15
		233.4	20.5	99.8		

Number of wires = 6  
current nodes = 90

	minimum	maximum
Individual wires	wire value	wire value
segment length	1 6.63333	3 6.76667
radius	1 .22	1 .22

## ELECTRICAL DESCRIPTION

Frequencies (KHz)

no.	frequency	step	no. of steps	segment length (wavelengths)
lowest				minimum maximum
1	1,300.	0	1	.0184259 .0187963

## Sources

source	node	sector	magnitude	phase	type
1	1	1	1,602.78	71.8	voltage
2	16	1	1,079.95	307.5	voltage
3	31	1	12,088.	206.8	voltage
4	46	1	10,315.2	254.7	voltage
5	61	1	666.847	313.9	voltage
6	76	1	1,047.65	210.6	voltage

## Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive
circuit						
1	1	0	21.1	0	0	0
2	16	0	20.	0	0	0
3	31	0	-10,000.	0	0	0
4	46	0	-10,000.	0	0	0
5	61	0	17.	0	0	0
6	76	0	22.4	0	0	0

# IMPEDANCE

normalization = 50.

freq (KHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1 1,300.	38.573	94.312	101.89	67.8	6.5264	-2.6829	-3.3644
source = 2; node 16, sector 1 1,300.	91.009	186.14	207.2	63.9	9.8828	-1.7638	-4.7654
source = 3; node 31, sector 1 1,300.	18.804	-10,456.	10,456.	270.1	1.2E+05	-1.5E-04	-44.643
source = 4; node 46, sector 1 1,300.	8.3481	-10,466.	10,466.	270.	2.6E+05	-6.6E-05	-48.165
source = 5; node 61, sector 1 1,300.	66.3	43.484	79.288	33.3	2.195	-8.5422	-.65445
source = 6; node 76, sector 1 1,300.	214.14	157.97	266.1	36.4	6.6975	-2.6133	-3.4473

# DAYTIME CALCULATED DRIVE VOLTAGES AND CURRENTS

Frequency = 1300 KHz  
 Input power = 10,000. watts  
 Efficiency = 100. %  
 coordinates in degrees  
 current

no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
TWR 1							
GND	0	0	0	15.7068	4.1	15.6669	1.11922
2	0	0	6.63333	16.3964	2.7	16.3787	.761681
3	0	0	13.2667	16.652	1.8	16.6438	.519406
4	0	0	19.9	16.6312	1.1	16.6282	.317493
5	0	0	26.5333	16.3618	.5	16.3612	.14572
6	0	0	33.1667	15.8576	0.0	15.8576	8.1E-04
7	0	0	39.8	15.1297	359.6	15.1293	-.118308
8	0	0	46.4333	14.1893	359.1	14.1877	-.211883
9	0	0	53.0667	13.0483	358.8	13.0453	-.279864
10	0	0	59.7	11.7193	358.4	11.7149	-.322117
11	0	0	66.3333	10.2157	358.1	10.2101	-.338524
12	0	0	72.9667	8.54995	357.8	8.54362	-.328982
13	0	0	79.6	6.73209	357.5	6.7257	-.293305
14	0	0	86.2333	4.76356	357.2	4.75796	-.230887
15	0	0	92.8667	2.62108	356.9	2.61736	-.139643
END	0	0	99.5	0	0	0	0

TWR 2							
GND	84.5723	30.7818	0	5.20453	243.6	-2.31628	-4.66068
17	84.5723	30.7818	6.68667	5.76803	240.4	-2.84918	-5.01521
18	84.5723	30.7818	13.3733	6.07221	238.6	-3.16013	-5.1851
19	84.5723	30.7818	20.06	6.23565	237.3	-3.36458	-5.25004
20	84.5723	30.7818	26.7467	6.27614	236.3	-3.47996	-5.22301
21	84.5723	30.7818	33.4333	6.20128	235.5	-3.51334	-5.11002
22	84.5723	30.7818	40.12	6.01613	234.8	-3.46892	-4.91532
23	84.5723	30.7818	46.8067	5.72528	234.2	-3.35008	-4.64282
24	84.5723	30.7818	53.4933	5.33359	233.7	-3.16015	-4.29658
25	84.5723	30.7818	60.18	4.84633	233.2	-2.90261	-3.88095
26	84.5723	30.7818	66.8667	4.26907	232.8	-2.58114	-3.4004
27	84.5723	30.7818	73.5533	3.60726	232.4	-2.19934	-2.85924
28	84.5723	30.7818	80.24	2.86525	232.1	-1.76011	-2.2609
29	84.5723	30.7818	86.9267	2.04384	231.8	-1.26414	-1.606
30	84.5723	30.7818	93.6133	1.13304	231.5	-.705272	-.886772
END	84.5723	30.7818	100.3	0	0	0	0

TWR 3 (FLOATED - DISCONNECTED)							
GND	169.145	61.5636	0	1.15444	296.7	.518627	-1.03139
32	169.145	61.5636	6.76667	.983496	295.8	.428744	-.885123
33	169.145	61.5636	13.5333	.714935	294.8	.300024	-.648936
34	169.145	61.5636	20.3	.503388	293.3	.199081	-.462349
35	169.145	61.5636	27.0667	.323183	290.6	.11383	-.302473
36	169.145	61.5636	33.8333	.17089	284.3	.0421351	-.165614
37	169.145	61.5636	40.6	.0532889	251.6	-.0168058	-.0505695
38	169.145	61.5636	47.3667	.0765429	145.8	-.0633311	.0429882
39	169.145	61.5636	54.1333	.150923	130.3	-.0976274	.115095
40	169.145	61.5636	60.9	.20452	125.9	-.119851	.165724
41	169.145	61.5636	67.6667	.234357	123.7	-.130179	.194876
42	169.145	61.5636	74.4333	.240081	122.4	-.128817	.202596
43	169.145	61.5636	81.2	.221643	121.5	-.11596	.188889
44	169.145	61.5636	87.9667	.17877	120.8	-.0916694	.153477
45	169.145	61.5636	94.7333	.110025	120.3	-.0554487	.095031
END	169.145	61.5636	101.5	0	0	0	0

## TWR 4 (FLOATED - DISCONNECTED)

GND	49.6062	-143.254	0	.98418	344.6	.948994	-.260808
47	49.6062	-143.254	6.68	.835334	344.2	.803951	-.226816
48	49.6062	-143.254	13.36	.604439	343.7	.58023	-.169349
49	49.6062	-143.254	20.04	.423213	342.9	.40451	-.124421
50	49.6062	-143.254	26.72	.269252	341.3	.255079	-.0862044
51	49.6062	-143.254	33.4	.139022	337.3	.128233	-.0536973
52	49.6062	-143.254	40.08	.0348491	310.5	.0226358	-.0264968
53	49.6062	-143.254	46.76	.062384	184.	-.0622285	-4.4E-03
54	49.6062	-143.254	53.44	.127229	174.3	-.126591	.0127244
55	49.6062	-143.254	60.12	.17244	171.7	-.170616	.0250088
56	49.6062	-143.254	66.8	.197197	170.5	-.194486	.032583
57	49.6062	-143.254	73.48	.201577	169.8	-.198412	.035581
58	49.6062	-143.254	80.16	.185722	169.4	-.182562	.0341169
59	49.6062	-143.254	86.84	.149528	169.1	-.146839	.028227
60	49.6062	-143.254	93.52	.0918927	168.9	-.0901692	.0177143
END	49.6062	-143.254	100.2	0	0	0	0

## TWR 5

GND	134.058	-112.488	0	8.3982	280.6	1.54363	-8.25511
62	134.058	-112.488	6.68667	8.51002	278.1	1.19307	-8.42597
63	134.058	-112.488	13.3733	8.48782	276.4	.95061	-8.43442
64	134.058	-112.488	20.06	8.35822	275.1	.74342	-8.32509
65	134.058	-112.488	26.7467	8.12659	274.	.561616	-8.10716
66	134.058	-112.488	33.4333	7.79669	273.	.402059	-7.78632
67	134.058	-112.488	40.12	7.37254	272.1	.263766	-7.36782
68	134.058	-112.488	46.8067	6.85885	271.2	.146556	-6.85729
69	134.058	-112.488	53.4933	6.26103	270.5	.0505463	-6.26083
70	134.058	-112.488	60.18	5.5851	269.8	-.0240685	-5.58505
71	134.058	-112.488	66.8667	4.83738	269.1	-.0771161	-4.83676
72	134.058	-112.488	73.5533	4.024	268.5	-.108473	-4.02253
73	134.058	-112.488	80.24	3.14984	267.9	-.118025	-3.14762
74	134.058	-112.488	86.9267	2.21595	267.3	-.105473	-2.21344
75	134.058	-112.488	93.6133	1.21216	266.7	-.0697302	-1.21015
END	134.058	-112.488	100.3	0	0	0	0

## TWR 6

GND	218.619	-81.7384	0	3.93132	174.2	-3.91117	.397566
77	218.619	-81.7384	6.65333	4.30497	166.6	-4.18833	.995301
78	218.619	-81.7384	13.3067	4.52962	162.4	-4.31696	1.37161
79	218.619	-81.7384	19.96	4.66295	159.2	-4.35976	1.65395
80	218.619	-81.7384	26.6133	4.71027	156.7	-4.32719	1.86067
81	218.619	-81.7384	33.2667	4.67318	154.7	-4.22427	1.99855
82	218.619	-81.7384	39.92	4.5529	152.9	-4.05467	2.07088
83	218.619	-81.7384	46.5733	4.35114	151.4	-3.82187	2.07984
84	218.619	-81.7384	53.2267	4.07029	150.1	-3.52949	2.0273
85	218.619	-81.7384	59.88	3.71339	149.	-3.18139	1.91521
86	218.619	-81.7384	66.5333	3.28391	147.9	-2.78154	1.74559
87	218.619	-81.7384	73.1867	2.7854	146.9	-2.33383	1.52044
88	218.619	-81.7384	79.84	2.22068	146.	-1.84138	1.24127
89	218.619	-81.7384	86.4933	1.58986	145.2	-1.30505	.908026
90	218.619	-81.7384	93.1467	.88464	144.4	-.718937	.515478
END	218.619	-81.7384	99.8	0	0	0	0