JOHN J. MULLANEY
JOHN H. MULLANEY, P.E. (1994)
ALAN E. GEARING, P.E.
TIMOTHY Z. SAWYER

301 921-0115 Voice
301 590-9757 Fax
mullengr@aol.com E-mail

MULLANEY ENGINEERING, INC.
9049 SHADY GROVE COURT
GAITHERSBURG, MD 20877

BY HAND

11 August 2010

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

Re: **WGDJ (AM) RENSSELAER, NEW YORK**
Facility Number: 40768
FCC Form 302-AM - ENGINEERING AMENDMENT
PENDING APPLICATION BMML-20091030AID

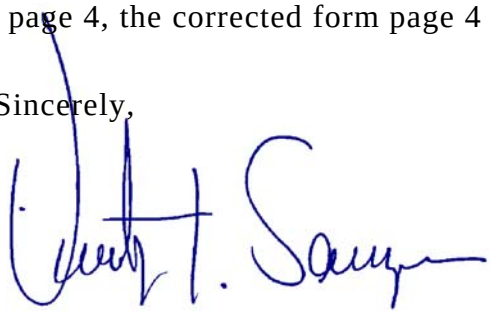
Dear Ms. Dortch:

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 in response to a Commission letter dated July 14, 2010.

This amendment provides corrections to Section IV of the engineering data (daytime antenna system calculations), as well as minor changes to the daytime operating parameters as listed on Form 302-AM page 4, the corrected form page 4 is included herein.

Sincerely,



Timothy Z. Sawyer

cc: Ann Gallagher, Audio Division, Mass Media Bureau FCC

August 11, 2010

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

Re: **WGDJ (AM) RENSSELAER, NEW YORK**
Facility Number: 40768
FCC Form 302-AM - ENGINEERING AMENDMENT
PENDING APPLICATION BMML-20091030AID

Ms. Dortch,

Please associate the enclosed materials prepared by Mullaney Engineering, Inc., with our pending application for Station license. This engineering amendment is in response to a Commission letter dated July 14, 2010.

Sincerely,

_____

Paul Vandenburgh, President
Capital Broadcasting, Inc.

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 BL-20091030AID (8/11/2010)

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
WGDJ	**BP-20080305ADS**	**1300**	**UNLIMITED**	**8.0**	**10.0**

2. Station location

State	City or Town
NEW YORK	**RENSSELAER**

3. Transmitter location

State	County	City or Town	Street address (or other identification)
NY	**RENSSELAER**	**RENSSELAER**	**NY ROUTE 9J**

4. Main studio location

State	County	City or Town	Street address (or other identification)
NY	**ALBANY**	**ALBANY**	**TU Center, 51 South Pearl St.**

5. Remote control point location (specify only if authorized directional antenna)

State	County	City or Town	Street address (or other identification)
NY	**ALBANY**	**ALBANY**	**TU Center, 51 South Pearl St.**

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 ☐ Not Applicable

SEE TECHNICAL/ENGINEERING STATEMENT

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	RF common point or antenna current (in amperes) without modulation for day system
13.0	**14.5**

Measured antenna or common point resistance (in ohms) at operating frequency		Measured antenna or common point reactance (in ohms) at operating frequency	
Night	Day	Night	Day
50.0	**50.0**	**0.0**	**0.0**

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
1	**147.20**	**0**	**0.583**	**1.000**	**---**	**---**
2	**0**	**-123.3**	**1.000**	**0.340**	**---**	**---**
3	**-137.0**	**---**	**0.493**	**---**	**---**	**---**
4	**107.5**	**---**	**0.481**	**---**	**---**	**---**
5	**-38.1**	**-84.8**	**0.737**	**0.540**	**---**	**---**
6	**-178.7**	**168.6**	**0.382**	**0.262**	**---**	**---**

Manufacturer and type of antenna monitor: **POTOMAC INSTRUMENTS MODEL AM1901 SERIAL #696.**

ENGINEERING STATEMENT
AMENDMENT TO PENDING APPLICATION
WGDJ(AM) BMML-200910630AID

Narrative Statement

This engineering statement and amendment to the pending license application is prepared on behalf of Capital Broadcasting, Inc., permittee of Standard Broadcast Station WGDJ, Rensselaer, New York.

I, Timothy Z. Sawyer, certify that all construction was fully completed prior to the expiration date of the construction permit and that the station is ready for licensing.

This amendment address the issues raised by the Commission in a staff letter[1] dated July 14, 2010, concerning the "method of moments analysis" of the daytime antenna system.

Attached herein is a revised/amended Section IV of the pending application, dated August 11, 2010 and a revised page 4 of FCC Form 302-AM.

The daytime antenna array consists of 4-driven towers and 2-non-driven "floating" towers. During the re-analysis of the daytime system it was found that a significantly "wrong" answer could be generated by the computer software if the unused, un-driven/floating towers were placed in the wrong processing order in the computer program.

During our original analysis, the wires in the model were set-up in the physical order in which their corresponding towers occur on the property, i.e., 1, 2, 3, 4, 5 and 6 with tower 3 and 4 being the un-driven/floating towers (during daytime hours). The placement of the unused towers in the center of the computer model wire processing order causes the computer modeling program to produce unrealistic answers.

The problem occurs within the software program in that when un-driven wires are preceded by a driven wire/tower the results of the un-driven wire are added to the previous driven wire. We have notified the software author of this problem. The software in question is "Expert MININEC Broadcast Professional" Version 12.7 thru 20.0. We are unable to verify if this problem occurs in versions earlier than 12.7 but suspect that it may be a problem in all previous versions.

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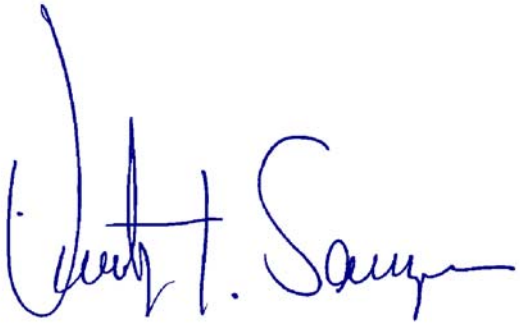
[1] July 14, 2010 letter to applicant's counsel from Ann Gallagher, Audio Division, Media Bureau, FCC

To resolve the “carryover” problem of un-driven towers in the model, we have reordered the wire processing order in the model to process the un-driven wires first, i.e., 3, 4, 1, 2, 5, and 6. This produces results that are in favorable agreement with the previously submitted operating parameters (less than 2% ratio and 1.8 degrees in phase deviations).

As a number of engineering professionals (including the Commission's staff) are using this particular software, care should be exercised as to where the un-driven wires are placed in the computer model. We believe that un-driven or detuned and/or floating towers/wires should be placed first in the wire list followed by the driven wires until the author can correct this bug/feature.

Further information concerning this particular software bug/feature may be directed to Alan Gearing, P.E. of Mullaney Engineering, Inc. 301-921-0115 ext 2.



Timothy Z. Sawyer

Mullaney Engineering, Inc.
9049 Shady Grove Court
Gaithersburg, Maryland 20877
Telephone 301-921-0115 ext 3
Email: tzsawyer@mullengr.com

SECTION IV
DAYTIME ANTENNA SYSTEM
OPERATING PARAMETERS DERIVED FROM MODELED CURRENTS

TOWER NUMBER SITE	CP	BASE CURRENT	BASE CURRENT PHASE	RATIO	PHASE
1	1	11.0961	4.4	1.000	0.0
2	2	3.77068	241.1	0.340	-123.3
5	3	5.99184	279.6	0.540	-84.8
6	4	2.90841	173.0	0.262	168.6

MEDIUM WAVE ARRAY SYNTHESIS FROM FIELD RATIOS

Frequency = 1300 KHz

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

VOLTAGES AND CURRENTS - rms

source node	voltage magnitude	phase (deg)	current magnitude	phase (deg)
31	1,164.76	70.9	11.0961	4.4
46	746.969	310.6	3.77068	241.1
61	462.334	316.1	5.99184	279.6
76	707.312	210.4	2.90841	173.

Sum of square of source currents = 363.404
Total power = 10,000. watts

Note: Towers 3 (NODE 1) and 4 (NODE 16) are unused during daytime operation and are disconnected (floated).

CURRENT MOMENTS(amp-degrees) rms

Frequency = 1300 KHz
Input power = 10,000. watts

Medium wave array vertical current moment (amps-degrees) rms
(Calculation assumes tower wires are grouped together.
The first wire of each group must contain the source.)

tower	magnitude	phase (deg)
1	753.564	360.
2	301.431	235.
5	376.796	272.5
6	226.054	155.

DAYTIME CALCULATED IMPEDANCES

WGDJ AUGUST FINAL - DETUNED/FLOATED WIRES/TOWERS FIRST IN MODEL

GEOMETRY
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

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

Number of wires = 6
current nodes = 90

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

ELECTRICAL DESCRIPTION
Frequencies (KHz)

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

Sources

source	node	sector	magnitude	phase	type	
1	31	1	1,647.21	70.9	voltage	(TOWER 1)
2	46	1	1,056.37	310.6	voltage	(TOWER 2)
3	61	1	653.839	316.1	voltage	(TOWER 5)
4	76	1	1,000.29	210.4	voltage	(TOWER 6)

Lumped loads

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

IMPEDANCE
normalization = 50.

freq (KHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 31, sector 1							
1,300.	41.729	96.209	104.87	66.6	6.3107	-2.7761	-3.2578
source = 2; node 46, sector 1							
1,300.	69.219	185.14	197.65	69.5	11.927	-1.46	-5.4439
source = 3; node 61, sector 1							
1,300.	62.024	45.864	77.139	36.5	2.2878	-8.1412	-.72332
source = 4; node 76, sector 1							
1,300.	192.27	148.27	242.8	37.6	6.2318	-2.8119	-3.2182

note:
NODE 31 = TOWER 1
NODE 46 = TOWER 2
NODE 61 = TOWER 5
NODE 76 = TOWER 6

DAYTIME CALCULATED DRIVE VOLTAGES AND CURRENTS

CURRENT rms
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)
TOWER 3 (FLOATED - NOT DRIVEN)							
GND	169.145	61.5636	0	.0443398	111.2	-.0160009	.041352
2	169.145	61.5636	6.76667	.353359	111.1	-.127403	.329592
3	169.145	61.5636	13.5333	.544824	111.1	-.196163	.508284
4	169.145	61.5636	20.3	.69128	111.1	-.24849	.645074
5	169.145	61.5636	27.0667	.801226	111.	-.287491	.747872
6	169.145	61.5636	33.8333	.877895	111.	-.314388	.819671
7	169.145	61.5636	40.6	.922812	110.9	-.329788	.861871
8	169.145	61.5636	47.3667	.936944	110.9	-.334109	.875349
9	169.145	61.5636	54.1333	.921121	110.8	-.327714	.860853
10	169.145	61.5636	60.9	.876199	110.8	-.310981	.819155
11	169.145	61.5636	67.6667	.803111	110.7	-.28431	.751103
12	169.145	61.5636	74.4333	.702791	110.7	-.24811	.657538
13	169.145	61.5636	81.2	.575978	110.6	-.20273	.539121
14	169.145	61.5636	87.9667	.422678	110.5	-.148276	.395817
15	169.145	61.5636	94.7333	.240525	110.5	-.0840566	.225359
END	169.145	61.5636	101.5	0	0	0	0
TOWER 4 (FLOATED - NOT DRIVEN)							
GND	49.6062	-143.254	0	.040397	159.7	-.0378963	.0139923
17	49.6062	-143.254	6.68	.319479	159.7	-.299723	.110603
18	49.6062	-143.254	13.36	.491672	159.8	-.461317	.170083
19	49.6062	-143.254	20.04	.622965	159.8	-.584578	.215299
20	49.6062	-143.254	26.72	.721134	159.8	-.676797	.248959
21	49.6062	-143.254	33.4	.789203	159.8	-.7408	.272134
22	49.6062	-143.254	40.08	.828658	159.9	-.777973	.285364
23	49.6062	-143.254	46.76	.840454	159.9	-.789195	.289023
24	49.6062	-143.254	53.44	.825442	159.9	-.775251	.283445
25	49.6062	-143.254	60.12	.784464	159.9	-.736911	.268971
26	49.6062	-143.254	66.8	.718424	160.	-.675007	.245964
27	49.6062	-143.254	73.48	.628207	160.	-.590352	.214774
28	49.6062	-143.254	80.16	.514516	160.	-.483594	.175681
29	49.6062	-143.254	86.84	.377381	160.1	-.35475	.128721
30	49.6062	-143.254	93.52	.214699	160.1	-.201844	.0731778
END	49.6062	-143.254	100.2	0	0	0	0

DAYTIME CALCULATED DRIVE VOLTAGES AND CURRENTS

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
TOWER 1 (DRIVEN NODE 31)							
GND	0	0	0	11.0961	4.4	11.063	.855642
32	0	0	6.63333	11.6167	2.8	11.6024	.576537
33	0	0	13.2667	11.8055	1.9	11.7989	.392471
34	0	0	19.9	11.7984	1.2	11.796	.238671
35	0	0	26.5333	11.6137	.5	11.6132	.107856
36	0	0	33.1667	11.2615	360.	11.2615	-2.45E-03
37	0	0	39.8	10.7492	359.5	10.7488	-.0930503
38	0	0	46.4333	10.0851	359.1	10.0838	-.164146
39	0	0	53.0667	9.27735	358.7	9.27484	-.2157
40	0	0	59.7	8.33517	358.3	8.33149	-.247618
41	0	0	66.3333	7.26791	358.	7.26326	-.259814
42	0	0	72.9667	6.08457	357.6	6.07934	-.252217
43	0	0	79.6	4.79215	357.3	4.78688	-.22469
44	0	0	86.2333	3.39172	357.	3.38711	-.17677
45	0	0	92.8667	1.86668	356.7	1.86362	-.106864
END	0	0	99.5	0	0	0	0
TOWER 2 (DRIVEN NODE 46)							
GND	84.5723	30.7818	0	3.77068	241.1	-1.82115	-3.30172
47	84.5723	30.7818	6.68667	4.18651	238.6	-2.17879	-3.57487
48	84.5723	30.7818	13.3733	4.40042	237.3	-2.37711	-3.70312
49	84.5723	30.7818	20.06	4.51333	236.3	-2.50318	-3.75556
50	84.5723	30.7818	26.7467	4.5376	235.5	-2.56776	-3.74118
51	84.5723	30.7818	33.4333	4.47895	234.9	-2.57558	-3.66433
52	84.5723	30.7818	40.12	4.3412	234.4	-2.52952	-3.52811
53	84.5723	30.7818	46.8067	4.12782	233.9	-2.43198	-3.33532
54	84.5723	30.7818	53.4933	3.84242	233.5	-2.28535	-3.08891
55	84.5723	30.7818	60.18	3.48886	233.2	-2.09213	-2.79198
56	84.5723	30.7818	66.8667	3.07123	232.8	-1.85497	-2.44776
57	84.5723	30.7818	73.5533	2.59348	232.6	-1.57643	-2.05937
58	84.5723	30.7818	80.24	2.05879	232.3	-1.2586	-1.62927
59	84.5723	30.7818	86.9267	1.46776	232.1	-.901971	-1.15791
60	84.5723	30.7818	93.6133	.813239	231.9	-.502188	-.63966
END	84.5723	30.7818	100.3	0	0	0	0
TOWER 5 (DRIVEN NODE 61)							
GND	134.058	-112.488	0	5.99184	279.6	1.00135	-5.90757
62	134.058	-112.488	6.68667	6.08521	277.2	.762176	-6.03729
63	134.058	-112.488	13.3733	6.07371	275.7	.601329	-6.04387
64	134.058	-112.488	20.06	5.98433	274.4	.463804	-5.96633
65	134.058	-112.488	26.7467	5.82097	273.4	.34344	-5.81083
66	134.058	-112.488	33.4333	5.58652	272.4	.238176	-5.58144
67	134.058	-112.488	40.12	5.284	271.6	.147369	-5.28195
68	134.058	-112.488	46.8067	4.91687	270.8	.0709101	-4.91636
69	134.058	-112.488	53.4933	4.48908	270.1	8.89E-03	-4.48907
70	134.058	-112.488	60.18	4.00499	269.4	-.0385525	-4.00481
71	134.058	-112.488	66.8667	3.4692	268.8	-.0712842	-3.46847
72	134.058	-112.488	73.5533	2.88613	268.2	-.0892058	-2.88476
73	134.058	-112.488	80.24	2.25933	267.7	-.0922173	-2.25745
74	134.058	-112.488	86.9267	1.58957	267.1	-.0800784	-1.58755
75	134.058	-112.488	93.6133	.869564	266.6	-.0519724	-.868009
END	134.058	-112.488	100.3	0	0	0	0

DAYTIME CALCULATED DRIVE VOLTAGES AND CURRENTS

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
TOWER 6 (DRIVEN NODE 76)							
GND	218.619	-81.7384	0	2.90841	173.	-2.8865	.35639
77	218.619	-81.7384	6.65333	3.16863	165.9	-3.07373	.769672
78	218.619	-81.7384	13.3067	3.31441	162.1	-3.15319	1.02113
79	218.619	-81.7384	19.96	3.39586	159.1	-3.17335	1.20901
80	218.619	-81.7384	26.6133	3.41657	156.8	-3.14072	1.34492
81	218.619	-81.7384	33.2667	3.37794	154.9	-3.05871	1.43344
82	218.619	-81.7384	39.92	3.28104	153.2	-2.92988	1.47681
83	218.619	-81.7384	46.5733	3.12725	151.8	-2.7567	1.47658
84	218.619	-81.7384	53.2267	2.91842	150.6	-2.54176	1.43409
85	218.619	-81.7384	59.88	2.65679	149.4	-2.2878	1.35073
86	218.619	-81.7384	66.5333	2.34492	148.4	-1.9977	1.22794
87	218.619	-81.7384	73.1867	1.98537	147.5	-1.67418	1.06716
88	218.619	-81.7384	79.84	1.58022	146.6	-1.3195	.869494
89	218.619	-81.7384	86.4933	1.12957	145.8	-.934244	.634915
90	218.619	-81.7384	93.1467	.627585	145.	-.514181	.359835
END	218.619	-81.7384	99.8	0	0	0	0