

ORIGINAL



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WASHINGTON, DC

November 3, 2014

**VIA HAND DELIVERY**

Ms. Marlene Dortch  
Office of the Secretary  
Federal Communications Commission  
445 12<sup>TH</sup> Street, S.W.  
Washington, DC 20554

**Accepted/Files**  
**NOV -3 2014**  
**Federal Communications Commission**  
**Office of the Secretary**

Re: **Experimental Permit – 20130723AEF**

Dear Ms. Dortch:

Transmitted herewith for filing with the Commission on behalf of Greater Media Charlotte, Inc., licensee of Station WBT(AM), Charlotte, North Carolina, Facility ID No. 30830, is one copy of a report regarding the research and experimentation conducted by the station with respect to operation of an AM station in an all-digital AM transmission mode.

Please date-stamped the enclosed "Return Copy" of this filing and return it to the courier delivering this package.

In the event there are any questions concerning this matter, please contact the undersigned counsel.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Sally A. Buckman', with a long horizontal flourish extending to the right.

Sally A. Buckman

SAB/gfe

Enclosure

cc (by email): J. Bradshaw, Audio Division, FCC  
S. Crawford, Audio Division, FCC  
P. Doyle, Audio Division, FCC  
D. Layer, NAB Technology Department  
Milford K. Smith, Jr.



## Greater Media, Inc.

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November 1, 2014

# ORIGINAL

Milford K. Smith, Jr.  
Vice President / Engineering

Marlene H. Dortch, Secretary  
Federal Communications Commission  
Office of the Secretary  
445 12th Street, SW  
Washington, DC 20554  
Attn: Media Bureau, Audio Division

**Accepted/Files**

**NOV - 3 2014**

**Federal Communications Commission  
Office of the Secretary**

Re: Experimental Permit – 20130723AEF

Dear Ms. Dortch:

Greater Media Charlotte, Inc. ("Greater Media"), licensee of AM station WBT (AM), Facility ID Number 30830, Charlotte, North Carolina, hereby submits this report regarding the research and experimentation that the station conducted, and the results that were obtained, pursuant to the above-referenced experimental authority.

The experimental testing, conducted by Greater Media in conjunction with the National Association of Broadcasters' NAB Labs organization, involved operation of the AM broadcast station in an all-digital AM transmission mode. Preliminary results found that the all-digital operation resulted in high quality reception, particularly mobile reception, that created an improved AM listening experience.

This experimental operation allowed for the collection of valuable information regarding broadcast by an AM station in all-digital mode. Some of the details of the research, experimentation and results of this testing include the following:

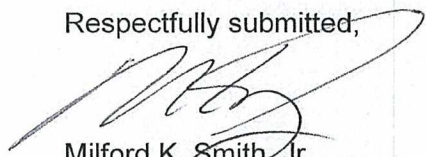
- For these tests, WBT(AM) was operated at 50 kW in MA3 mode during nighttime hours from 1-5AM on the following dates: 8/17/13, 8/18/13 (under original Experimental Authorization); and, 3/22/14, 3/23/14 (under extended Experimental Authorization granted on 3/10/14 by J. Bradshaw);
- A total of five (5) radial test routes were run during experimental operation, for nighttime all-digital transmissions. For each route, reception was observed in a vehicle equipped with an original equipment manufacturer (OEM) HD Radio-capable radio receiver, using late-model Ford vehicles that were rented from airport car rental locations;
- For the August 2013 tests, four (4) test vehicles were operated simultaneously so as to reduce the length of time needed to collect the test data, thereby reducing the time that the station was required to transmit the all-digital AM signal. Similarly, five (5) test vehicles were utilized during the March 2014 tests. Data was collected in each vehicle using an NAB Labs-developed data collection system incorporating software written by iBiquity Digital Corporation, developers of the all-digital AM system under test;



- A constant 25-Hz (audio) tone was combined with the digital audio signal used to modulate the all-digital AM subcarriers to provide a means for distinguishing between periods of silence in the audio and loss of digital reception. This is necessary because of the fact that the all-digital AM receiver mutes (or goes to "static") when the signal is lost and consequently, without the presence of the 25-Hz tone it would be difficult to distinguish between silence in the audio program and loss of reception;
- A special, experimental version of the AM exciter software, modified to accommodate the all-digital "MA3" mode of operation, was utilized at the transmit site. This was necessary because typically, digital radio exciter manufacturers do not enable all-digital transmission modes since these are not authorized by the FCC (except experimentally). Not enabling these modes helps to ensure that broadcasters who are transmitting hybrid digital signals do not accidentally select an unauthorized all-digital mode of operation;
- Subsequent to the collection of all-digital AM test data, audio recordings of the WBT(AM) analog AM signal were obtained at or near locations where all-digital signal reception was lost. These analog recordings demonstrate various levels of impairment to the analog signal and can be contrasted with the unimpaired digital audio receivable at or near these same locations;
- Mobile all-digital AM reception results obtained are still being evaluated and it is anticipated that these will be included in a technical paper to be presented at the 2015 NAB Broadcast Engineering Conference in Las Vegas, Nevada (being held from April 11-16, 2015).

Greater Media appreciates the FCC's cooperation in granting the Experimental Authorizations under which these tests were conducted, and under which Greater Media has been able to help increase the knowledge and understanding of the all-digital AM mode of operation. Should there be any questions regarding this matter, please contact the undersigned.

Respectfully submitted,



Milford K. Smith, Jr.  
Vice President Radio Engineering  
Greater Media, Inc.

cc (by email): J. Bradshaw, Audio Division, FCC  
S. Crawford, Audio Division, FCC  
P. Doyle, Audio Division, FCC  
D. Layer, NAB Technology department