

**KESSLER AND GEHMAN ASSOCIATES, INC.**

507 NW 60<sup>TH</sup> ST, Suite C, Gainesville, FL 32607 – 352.332.3157

Bluefield, WV

Exhibit 10.7 – WHIS(AM) Pattern Proof for the Installation of WVDM(FM) WHIS(AM) - WVDM(FM)

---

ENGINEERING STATEMENT PREPARED BY RYAN WILHOUR OF THE FIRM  
KESSLER AND GEHMAN ASSOCIATES, INC., TELECOMMUNICATIONS  
CONSULTING ENGINEERS IN SUPPORT OF AN ENGINEERING TECHNICAL  
STATEMENT TO ESTABLISH THAT THE INSTALLATION OF A CONSTRUCTION  
PERMITTED FM BROADCAST ANTENNA FOR WVDM(FM) ON AN  
OMNIDIRECTIONAL AM BASE INSTULATED TOWER FOR WHIS(AM) SHALL NOT  
SIGNIFICANTLY ALTER THE AM STATION ANTENNA PATTERN

**Preface**

The instant engineering statement and associated exhibits satisfy special operating condition number 7 listed in construction permit number BMPED-20110610ADG for FCC facility ID 173309 for WVDM(FM) herein after “*CP*”, which in part requires:

“...field strength measurements, taken at a minimum of 8 locations along each of 6 equally spaced radials, shall be made to establish that the AM radiation pattern is essentially omnidirectional. The results of the field strength measurements and the impedance measurements shall be submitted to the Commission in an application on FCC Form 302 notifying of the AM station's return to the direct method of power determination.”

## Measurement Methodology

### *Choosing Site Locations*

As special operating condition number 7 in the CP indicates, 6 equally spaced radials from the WHIS(AM) transmitter site were chosen to make measurements. Measurement locations along the radials were chosen pursuant to 47 CFR Section 73.154 where at least 8 equally spaced field strength measurements are to be made between 3 to 15 kilometers from the center of the am array for each radial. Exhibit 10.7.1 demonstrates relative to the WHIS(AM) transmitter site:

- Six blue radials spaced 60 degrees apart starting at 0 degrees true north,
- Two red 3 and 15 km range radius circles,
- Eight green equally spaced radius circles between the red 3 and 15 km circles

Where the green circles intersect the blue radials illustrate the ideal locations to conduct the field strength measurements. The black numbered locations demonstrate the actual locations where fields strength readings were made before and after the installation of the WVDM(FM) antenna and transmission line on the WHIS(AM) tower. As indicated some radials were fairly easy to access the desired locations within a reasonable tolerance for making the measurements. Other radials such as the 120 and 180 degrees were nearly impossible to obtain equally spaced readings due to a mountain ridge and “no trespassing” postings located on the few access trails leading to the desires sites. All reasonable attempts were made to gain access to the ideal locations.

*Measurements and Tabulation*

Measurements were made by a WVDM(FM) qualified staff engineer using a Potomac Instruments Inc. field strength meter model FIM-41 with serial number 263. The following dates and weather conditions were noted for the pre-installation WVDM(FM) baseline measurements:

- March 12, 2012 – 57 degrees Fahrenheit with 50% humidity and occational light rain.
- March 13, 2012 – 61 degrees Fahrenheit with 72% humidity and clear.
- March 15, 2012 – 64 degrees Fahrenheit with 54% humidity and clear.

The engineer noted that a significant solar flare storm was being reported in the news during these days. The following dates and weather conditions were noted for the WVDM(FM) post-installation measurements:

- March 27, 2012 – 62 degrees Fahrenheit with 60% humidity and clear.
- April 6, 2012 – 46 degrees Fahrenheit with 71% humidity and clear.

Exhibit 10.7.2 lists the discrete pre and post WVDM(FM) installation measurements made at the numbered site locations shown in Exhibit 10.7.1. The resulting before and after measurements were divided averaged.

**KESSLER AND GEHMAN ASSOCIATES, INC.**

507 NW 60<sup>TH</sup> ST, Suite C, Gainesville, FL 32607 – 352.332.3157

Bluefield, WV

Exhibit 10.7 – WHIS(AM) Pattern Proof for the Installation of WVDM(FM) WHIS(AM) - WVDM(FM)

---

**Conclusion**

The WVDM(FM) antenna was installed on the base insulated WHIS(AM) tower using an AM isocoupler. The 5 bay FM antenna and transmission line were mounted as close to the tower legs as possible and in theory should not augment the AM station pattern. As demonstrated by the data, the maximum deviation was 1.195 on the 240 degree radial which is negligible as expected. It is thus concluded the WVDM(FM) facility as installed pursuant to its CP will not significantly alter the WHIS(AM) essentially omnidirectional pattern.

**Certification**

The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge.

The logo for Kessler and Gehman Associates, Inc. (KGA) features the letters 'KGA' in a stylized, outlined serif font. The letters are centered over a thick, solid horizontal grey bar that extends to the left and right of the text.

Ryan Wilhour

A handwritten signature in blue ink that reads 'Ryan Wilhour'. The signature is written in a cursive, flowing style.

Consulting Engineer

April 18, 2012

# Field Strength Measurement Locations

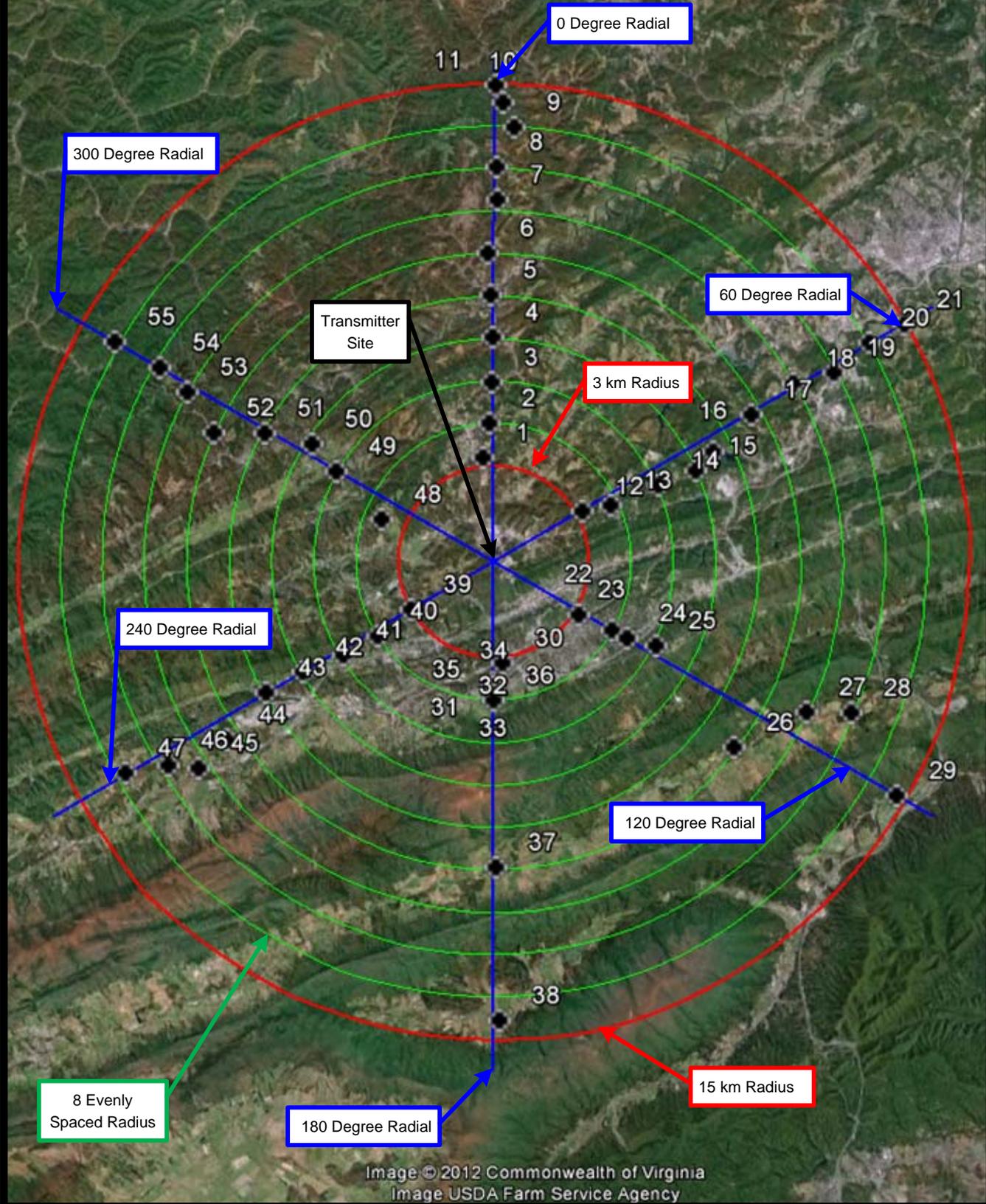


Image © 2012 Commonwealth of Virginia  
Image USDA Farm Service Agency

**KESSLER & GEHMAN**

TELECOMMUNICATIONS CONSULTING ENGINEERS  
507 N.W. 60th Street, Suite C  
Gainesville, Florida 32607

**WVDM(FM) - WHIS(AM)**

BLUEFIELD, WEST VIRGINIA

20120418

EXHIBIT 10.7.1

FIELD STRENGTH MEASUREMENTS FOR WHIS(AM) BEFORE AND AFTER WVDM(FM) INSTALLATION

GPS Waypoint Number	Reference Radial in Degrees	Azimuth from WHIS(AM) TX Site in Degrees	Distance from WHIS(AM) TX Site in KM	Measured WHIS(AM) Field Strength in (mV) Before WVDM(FM) Install	Measured WHIS(AM) Field Strength in (mV) After WVDM(FM) Install	Ratio of Before - vs - After	Average
1	0	354.3	3.3	70.0	70.0	1.0	0.948
2	0	358.3	4.4	35.0	30.0	0.9	
3	0	359.4	5.6	15.0	11.0	0.7	
4	0	359.8	7.1	6.0	5.0	0.8	
5	0	359.4	8.4	1.2	0.9	0.8	
6	0	358.9	9.7	4.5	4.5	1.0	
7	0	0.6	11.4	4.0	4.0	1.0	
8	0	0.5	12.4	4.5	4.5	1.0	
9	0	2.7	13.7	2.3	2.4	1.0	
10	0	1.2	14.4	2.0	2.2	1.1	
11	0	0.3	15.0	1.8	2.0	1.1	
12	60	60.6	3.2	45.0	47.0	1.0	1.019
13	60	64.4	4.1	23.0	23.0	1.0	
14	60	65.2	5.7	9.0	8.0	0.9	
15	60	65.8	7.0	7.0	7.0	1.0	
16	60	63.5	7.7	6.0	6.0	1.0	
17	60	60.3	9.3	2.2	2.4	1.1	
18	60	59.3	11.0	2.4	2.3	1.0	
19	60	61.0	12.2	2.2	2.3	1.0	
20	60	59.8	13.7	2.2	2.4	1.1	
21	60	60.0	14.9	1.5	1.6	1.1	
22	120	122.0	3.2	25.0	27.0	1.1	1.024
23	120	120.1	4.3	25.0	30.0	1.2	
24	120	119.9	4.8	21.0	19.0	0.9	
25	120	117.4	5.7	23.0	21.0	0.9	
26	120	127.7	9.6	0.9	0.9	1.0	
27	120	115.7	10.9	0.8	0.9	1.1	
28	120	112.9	12.2	1.0	0.8	0.8	
29	120	120.1	14.7	0.6	0.7	1.2	
30	180	174.9	3.2	21.0	20.0	1.0	0.919
31	180	180.3	3.8	9.0	7.0	0.8	
32	180	180.2	3.9	10.0	9.0	0.9	
33	180	180.0	4.0	11.0	10.0	0.9	
34	180	179.8	4.1	13.0	11.0	0.8	
35	180	179.9	4.2	13.0	11.0	0.8	
36	180	180.0	4.4	16.0	14.0	0.9	
37	180	179.6	9.6	0.9	0.9	1.0	
38	180	179.3	14.4	0.6	0.7	1.2	



FIELD STRENGTH MEASUREMENTS FOR WHIS(AM) BEFORE AND AFTER WVDM(FM) INSTALLATION

GPS Waypoint Number	Reference Radial in Degrees	Azimuth from WHIS(AM) TX Site in Degrees	Distance from WHIS(AM) TX Site in KM	Measured WHIS(AM) Field Strength in (mV) Before WVDM(FM) Install	Measured WHIS(AM) Field Strength in (mV) After WVDM(FM) Install	Ratio of Before - vs - After	Average
39	240	239.8	3.0	25.0	27.0	1.1	1.195
40	240	237.3	4.3	9.0	11.0	1.2	
41	240	238.1	5.6	4.6	4.5	1.0	
42	240	239.9	6.9	3.0	3.5	1.2	
43	240	240.0	8.2	2.5	3.5	1.4	
44	240	236.2	10.1	1.4	1.7	1.2	
45	240	235.0	11.3	1.8	2.4	1.3	
46	240	237.9	12.1	1.2	1.5	1.3	
47	240	240.1	13.3	0.9	1.0	1.1	
48	300	290.7	3.8	16.0	14.0	0.9	1.059
49	300	299.8	5.7	6.0	9.0	1.5	
50	300	302.9	6.8	3.5	4.5	1.3	
51	300	299.3	8.2	3.8	4.0	1.1	
52	300	294.7	9.7	7.0	1.2	0.2	
53	300	299.0	11.0	0.6	0.8	1.3	
54	300	300.2	12.1	1.9	2.0	1.1	
55	300	300.1	13.8	0.5	0.6	1.2	