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**WBAR-FM Request for PROGRAM TEST AUTHORITY**

**Submitted as Exhibit 10 -302 FM**

**Antenna data, engineer's and surveyor's submittal – as requested per section three, four and five of the**

**WBAR-FM Construction Permit**

(BMPH-20070116ACF)

94.7 MHz ch. 234A

Lake Luzerne, NY

Capital Media Corporation

20 April 2007

C.S. Fitch, P.E.

**Antenna Testing**

The WBAR directional antenna is essentially a single level of three panels. The creation of the required null toward the single protected station, WMAS-FM, is created by the simple expedient of offsetting the spacing of two of the panel antennas reducing signal levels in the azimuths in between.

The antenna was computer modeled and range checked for equivalence at the RYMSA test range near Madrid, Spain.

Pattern tests use a fixed single plane source (horizontal then vertical) viewed by the FM

transmit antenna under test as a receive antenna. Nearin power density tests were also performed. RF test equipment is primarily Rhode & Swartz and Agilent (HP).

Testing was performed full size at 94.7 MHz.

Although large, panel antennas are nearly impervious to the influence from the structure they are mounted on, for these tests a full sized section of tower of near identical dimension was used as the antenna support on the turntable.

The manufacturing and tests were conducted under the supervision of the RYMSA director of broadcast products, Enrique DeHoyos.

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RYMSA corporate profile from their web site :

**RYMSA** (Radiación y Microondas S.A.) is a hundred per cent Spanish owned private company with the greatest expertise in the design, project engineering and manufacturing of high quality antenna systems and accessories for the broadcast, telecommunication, space and defense markets.

Since its foundation in 1974 the company has grown in a very outstanding way, becoming a world leader in the professional antenna market.

With a staff of more than **300** people today, the premises of the factory in Arganda del Rey (Madrid) span for more than 270,000 square feet.

Range pictures are at :

[http://www.rymsa.com/medios\\_e.htm](http://www.rymsa.com/medios_e.htm)

**Installation :**

The mounting structure for this antenna is a triangular, guyed tower.

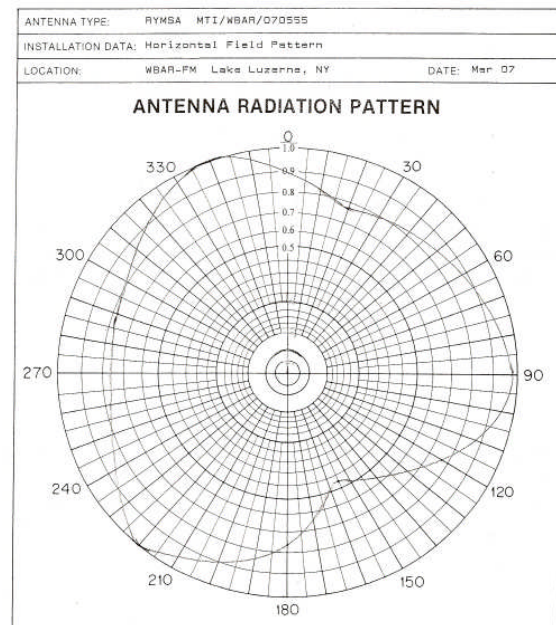
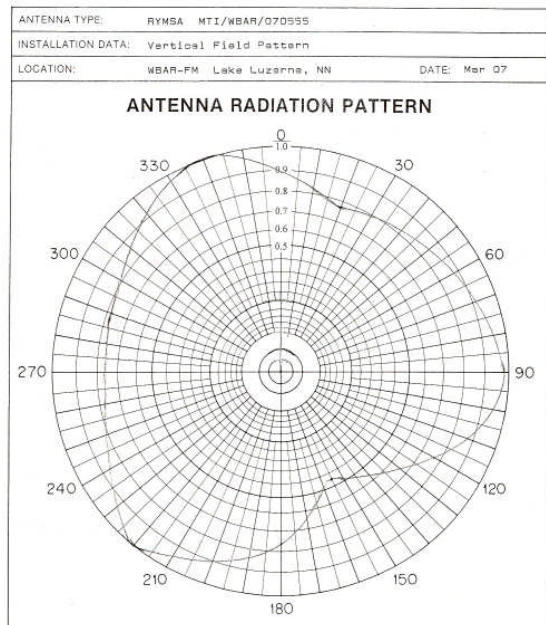
A professional surveying firm located near the Lake Luzerne area and familiar with the geography and magnetic circumstances of the area measured the azimuths of the tower's three guy lines. These magnetic bearings were then converted to true north angles.

From these bearings can also be derived the orientation of the tower faces.

This information was supplied to the antenna manufacturer, RYMSA, and they designed and fabricated the mounts and the detailed installation instructions to assure proper orientation and panel positioning creating the directional pattern requested in the construction permit.

These directions were followed precisely and a local inspection of the final installation by both the engineer and the surveying firm (see certification below) has established that the antenna has been properly assembled and oriented.

*Charles S. Fitch, P.E., is a Registered Professional Consultant Engineer in Connecticut and Pennsylvania, a full member of the Association of Federal Communications Consultant Engineers, a senior member of the Society of Broadcast Engineers, lifetime Certified Professional Broadcast Engineer with AM Directional endorsement, licensed electrical contractor in Connecticut and Massachusetts, former broadcast station owner, former Director of Engineering of WTIC-TV, Hartford, & WHSH-TV, Boston, former professional engineer with CBS and licensed commercial (general with radar endorsement) and amateur extra class (W2IPI) radio operator by the Federal Communications Commission since 1961.*



**Antenna field patterns** (in this instance outer most value of one represents the voltage field of the maximum lobe of 0.93 KW)



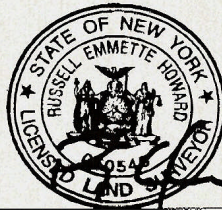
Bolster and Associates  
Professional Land Surveyors

342 Main Street, Hudson Falls, New York 12839  
Phone 518-747-8747 Fax 518-747-8239

**ANTENNA ORIENTATION CERTIFICATION**

By this document, I, Russell E. Howard, PLS, New York State License number 50540, hereby certify to the following:

1. My surveying company performed an existing site and tower survey in the field, on 02/10/07 and reported our results, including tower orientation based on true north, to our client and his representatives.
2. I have made an inspection of the assembly and installation engineering drawings provided to me by my client.
3. I have made a field inspection of the tower site and antenna assembly on 04/20/07, and have made measurements and observations of the installed antenna assembly.
4. Based on these field measurements and observations, the antenna assembly is properly oriented per said engineering plans.
5. I am a licensed, registered Land Surveyor in New York State, and am authorized to practice surveying at this location.



signed : \_\_\_\_\_

Russell E. Howard NYSPLS# 50540