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September 7, 2005

Ms. Marlene H. Dortch  
Secretary  
Federal Communications Commission  
The Portals  
445 12<sup>th</sup> Street, SW, Room TWB204  
Washington, D.C. 20554

**Re: 325-STA-20050701  
Broadcast Company of the Americas, Inc. ("BCA")  
Request for Special Temporary Authority ("STA")  
Under Section 325(c) of the Communications Act  
For Delivery of Programming to Station XHBCE-FM,  
Class C1, Tecate, B.C., Mexico**

Dear Ms. Dortch:

Transmitted herewith on behalf of Lazer Broadcasting Corporation ("Lazer") and Emmis Communications Corporation ("Emmis") are two documents that respond to the declaration of Dr. Ali R. Mahnad submitted on August 5, 2005 by BCA in support of its referenced STA request. The first document, in the form of a declaration, is an engineering statement of Dan Dowdle, the antenna test range director for Electronics Research, Inc. ("ERI"). ERI is identified by Mr. Dowdle as the predominate producer of FM broadcast antennas in the U.S., having been manufacturing such antennas for over 50 years. The second document is a letter received from ERI's president, Thomas B. Silliman, P.E.

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In his declaration, Dr. Mahnad maintains that XHBCE-FM's Class C1 antenna design, contrary to the engineering statements submitted by Lazer and Emmis, will achieve the directional pattern filed with the FCC by Mexico for XHBCE-FM's C1 facility. Messrs. Dowdle and Silliman show that Dr. Mahnad's conclusions are not adequately supported and are otherwise unreliable. Indeed, both Mr. Dowdle and Mr. Silliman conclude after reviewing the record that the XHBCE-FM antenna described by Dr. Mahnad will not provide the required protection to Lazer's co-channel station KXRS, Hemet, California.

Mr. Silliman states further that ERI is willing to make its facilities available for testing XHBCE-FM's antenna design, and include BCA representatives, Dr. Mahnad and anyone else in that process. This would resolve the issue. Until XHBCE-FM and BCA agree to participate in such testing, BCA should stop complaining about Lazer's and Emmis's legitimate efforts to protect their interests.

Should any question arise concerning the matters presented, please communicate with the undersigned.

Very truly yours,



Harry C. Martin  
Marne K. Sarver  
Counsel for

LAZER BROADCASTING CORPORATION and  
EMMIS COMMUNICATIONS CORPORATION

cc (w/encls): John M. Pelkey, Esquire  
Henry A. Solomon, Esquire  
Linda Armstrong ([linda.armstrong@fcc.gov](mailto:linda.armstrong@fcc.gov))

**ENGINEERING STATEMENT**

**OF**

**DAN DOWDLE**

# **ERI<sup>®</sup> Electronics Research, Inc.**

Electronics Research, Inc. 7777 Gardner Rd. Chandler, In 47610 Phone (812) 925-6000 Fax (812) 925-4030 <http://www.eriinc.com/>

September 1, 2005

## **Engineering Statement of Dan Dowdle**

My name is Dan Dowdle. I have been the Test Range Director for Electronics Research, Inc. ("ERI") for the past 27 years. During that time, ERI has been the predominate producer of FM radio broadcast antenna systems in the United States. ERI has been manufacturing antenna systems for broadcast stations for over 50 years. As Test Range Director, I have run thousands of antenna patterns including a large number of patterns produced by antennas made by other manufacturers. I am thoroughly familiar with state-of-the-art antenna designs.

At the request of Lazer Broadcasting Corporation ("Lazer"), I have been asked to comment on the claims made by Dr. Ali R. Mahnad in his declaration of August 5, 2005. That declaration deals with the radiated pattern of the 8 bay half-wavelength spaced Class C1 XHBCE-FM panel antenna on Cerro Bola mountain in Mexico, and the claim that this antenna is capable of achieving the highly asymmetrical off-axis radiation null shown in Exhibit 3 of Lazer's Petition to Deny dated June 15, 2005.

Dr. Mahnad's declaration of August 5, 2005 is vague, and does not begin to provide the level of detailed information needed to support his claim that the XHBCE antenna delivers a specific highly asymmetrical radiation pattern. While Dr. Mahnad indicates that he was "instrumental in designing the antenna being used by XHBCE-FM for its Class C1 facilities," no detailed drawings, dimensions or working model of the antenna have been furnished. The most specific information given is on the page following his declaration of August 5, on a sheet entitled, "A summary explanation of achieving the pattern." Here, a single third-party photograph of the antenna is provided, and arrows have been added which, for the most part, point to seemingly random places on the antenna. Below I will address each of the items mentioned on that page:

Mahnad Item 1: "Horizontal and vertical reflectors in the grid provide isolation between the antenna and tower to minimize the damage to pattern due to slant members of the tower."

Reply: One of the purposes of a reflector screen is to isolate the antenna elements from the tower structure behind the antenna, not just the slant members of the tower. In fact, as I reported earlier in this proceeding, the XHBCE tower was mathematically removed from my 2 bay model of the XHBCE antenna system, and that removal caused only very small changes in the resultant pattern shapes. So, Dr. Mahnad and I agree that the reflector provides effective isolation between the antenna elements and the tower structure.

Mahnad Item 2: "Horizontal runs immediately next to the elements are beam shaping reflectors (most effective)." There is also an annotation with the photograph that reads, "Parasitic Horizontal reflectors incorporated in the grid (at break points)," and another annotation that reads, "Slots between the Feed and the panel are tuned slots."

Reply: The four arrows associated with the first annotation do not point to defined features; they seem to point to random places. Even if one were to resonate the gaps between the reflector screen and the element feeds as discussed in the second annotation, the effect would not be the same on the vertical and horizontal polarization components, so not even that approach appears to be a feasible way to proceed.

Mahnad Item 3: "Slots between the antenna feed boom and the back panel (tuned) along with the element arms are fed in a special Phase relation such that the combined pattern cancel (sic) out in the northward direction and add in the southward direction. The cancellation toward the north is adjusted by the phasing of the antenna arms and pointed in the direction of protection."

Reply: The "opposed V" antenna design is typically fed with equal length feed straps from the center of the elements. To vary this phase difference between Vs, one would have to either have different length V dipoles or different length straps, and this should be something that could be seen from the photographs. I have examined other (better) photos of the antenna and do not see any evidence of these features or other unusual features. The XHBCE antenna appears to be a normal 1/2 wave spaced antenna with a flat reflector panel, and this type of antenna is known to have a symmetrical radiation pattern. What is needed in XHBCE's case is a highly asymmetrical pattern, something that the present antenna design is highly unlikely to achieve.

Mahnad Added Paragraph: "None of these [incorporated features] are observable from the distance and could not possibly be incorporated in the simplistic model designed by Mr. Saxberg."

Reply: Mr. Saxberg did not model the XHBCE antenna; modeling the antenna was my responsibility. Dr. Mahnad has not given any dimensional drawings or other crucial information to allow outside parties to verify or refute his pattern claims.

Mahnad Parenthetical Statement: "Numerical models such as the one used by Mr. Saxberg are prone to numerous errors and consequently are not considered reliable by the FCC and cannot be used in proof or disproof of antenna performance in any performance certification."

Reply: Again Dr. Mahnad is in large part mistaken. Mr. Saxberg did not numerically model the XHBCE antenna. XHBCE antenna modeling was my responsibility. As stated in my letter of July 13, 2005, the XHBCE antenna was mathematically modeled and analyzed with NEC4. "The Numerical Electromagnetic Code (NEC) is an accurate antenna modeling program that is based on the method of moments to solve integral equations." In practice, of the antennas that I first model, then build, NEC modeling theory is proven correct time and time again. NEC is an accurate and widely accepted predictive tool, while physical measurements on scale or full size antennas are still required for formal performance certifications to make sure that there are no mistakes.

On June 29, 2005, Lazer's attorney requested that the Commission, "Scrutinize with extraordinary care any evidence presented by BCA or Quetzal purporting to show that the XHBCE-FM Cerro Bola antenna pattern has been "fixed." The extraordinary transgressions in this proceeding demand extraordinary proof that the antenna is producing a correct (and stable) radiation pattern in the field...." (Page 15, final paragraph of the Reply to BCA Opposition.)

In summary, Dr. Mahnad has failed to provide any technical data of decisional significance in this case, let alone extraordinary proof that his antenna is working as claimed. For example, ERI could have been provided with the 1/3 scale model of the XHBCE antenna that SWR claimed it range tested. That model could have been re-tested at ERI and witnessed by opposing parties. It is my professional opinion that it is highly unlikely that the XHBCE antenna is capable of delivering the pattern claimed. That conclusion is based on my examination of photographs of the XHBCE antenna, my consideration of Dr. Mahnad's comments, and my extensive experience as Test Range Director for Electronics Research, Inc.

Under penalty of perjury under the laws of the United States, I hereby declare and state that the foregoing is based on my personal knowledge or belief and is true and correct.

Signed and dated as of this 1st day of September, 2005.



Dan Dowdle

**LETTER FROM**

**THOMAS B. SILLIMAN, P.E.**

Harry C. Martin, Esquire  
Fletcher, Heald & Hildreth, PLC  
1300 North 17<sup>th</sup> Street, 11<sup>th</sup> Floor  
Arlington, Virginia 22209

Re: XHBCE-FM Antenna Design

Dear Harry:

I just wanted to send a note concerning Dan Dowdle's September 1 engineering report on the antenna to be used by XHBCE-FM's Class C-1 operation at Cerro Bola in Baja California, Mexico.

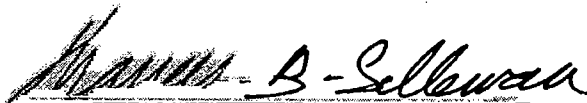
I have reviewed Joel Saxberg's and Larry Morton's photographs of the antenna with Dan. The photos indicate that the opposed V antenna elements are not fed with any special phasing arrangement. Likewise, I don't see any special phasing or resonating devices in the screens, but instead, the screens look like simple reflectors. This design will not produce the directional pattern needed to protect co-channel station KXRS in Hemet, California.

Both Dan and I feel that it would be very simple to model the design if we were given the opportunity to see the prints for the antenna or a working model of the antenna. We would be glad to computer model the performance of the antenna if prints are provided, or run the pattern on our range if a physical model is provided, and anyone would be welcome to witness the procedure.

Finally, I would like to say that Dan is one of the known experts in the United States on the use of NEC pattern analysis and in making antenna range measurements, and I have total confidence in his work. He has shown over and over that his NEC analyses of antennas and antenna range measurements of those same antennas have excellent agreement.

Please let me know how I may be of further assistance.

Sincerely,



Thomas B. Silliman, P.E.  
President