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August 5, 2005

Our File No. 21554-00100-65

**VIA HAND DELIVERY**

Ms. Marlene H. Dortch, Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W.  
Washington, D.C. 20554

Dear Ms. Dortch:

By letters of July 1, 2005, and July 29, 2005, Broadcast Company of the Americas, LLC ("BCA"), has asked the Commission to expeditiously grant special temporary authority to BCA to permit it to supply a single program, "El Cucuy de la Mañana," to the Class C1 facilities of XHBCE-FM. BCA has requested such special temporary authority because BCA's application filed under Section 325 of the Communications Act to supply programming to the XHBCE-FM Class C1 facilities has been delayed by a Petition to Deny filed by Lazer Broadcasting Company and Emmis Broadcasting Corporation in which those Joint Petitioners have attempted to demonstrate that the Class C1 facilities do not comport with the terms of the coordination between the United States and Mexican governments.

With the submission by the Joint Petitioners on July 29, 2005, of their Reply to BCA's Opposition to the Petition to Deny, the pleading cycle with respect to BCA's Section 325 application is now complete. The Joint Petitioners' Reply conclusively demonstrates that the issue raised by the Joint Petitioners with respect to the Class C1 facilities is totally without merit and, as a result, BCA's application to provide programming to the Class C1 facilities of XHBCE-FM should be expeditiously granted. At a minimum, the STA request filed by BCA should be granted forthwith.

In its Opposition to the Petition to Deny, BCA demonstrated that the Joint Petitioners' claims concerning the radiation emanating from the Class C1 facilities in the direction of Hemet were simply incorrect. The Joint Petition wrongly assumed that the antenna in use by the Class 1 facilities was pointed in a northerly direction whereas, in fact, it is pointed in a westerly direction. In addition, BCA pointed out that the ERI study provided by the Joint Petitioners was fundamentally flawed and, in any event, was conclusively repudiated by the actual, real-world range testing that SWR performed on the antenna in use by XHBCE-FM.



In their July 29, 2005 Reply, Joint Petitioners now acknowledge that the XHBCE-FM antenna is, in fact, pointed in a westerly direction. They nevertheless cling to their claim that the XHBCE-FM Class C1 facilities emanate excessive radiation in the direction of Hemet. To reach that conclusion, the Joint Petitioners simply took the ERI pattern and pivoted it to reflect the westerly orientation of the XHBCE-FM antenna. What the Joint Petitioners have failed to do, however, is to adjust that pattern to take into account the design features of the SWR antenna that cause it to achieve its directional pattern. The reason for that failure is made clear in the Reply. Simply stated, ERI did not take those design features into account because the Joint Petitioners' consulting engineer did not see any "apparent parasitic elements or other devices to cause the pattern to dip." (Engineering Statement of Joel T. Saxberg at 5). Because Mr. Saxberg, who is not a Registered Professional Engineer, did not see any parasitic elements, he assumed that they did not exist and he further assumed that, without such parasitic elements, the pattern specified in the coordination could not be achieved.

What Mr. Saxberg failed to recognize is that the antenna in use by XHBCE-FM was designed such that the parasitic elements were actually incorporated in the grid as embedded reflectors. In addition, the antenna has been designed with tuned slots between the antenna feed boom and the back panel that are phased, along with the element arms, in a phase relationship such that the combined pattern cancels out the radiation in the northward direction and adds in the southward direction. The cancellation toward the north is adjusted by the relative phasing of the antenna arms and pointed in the direction of protection.

Attached hereto is the Declaration of Dr. Ali R. Mahnad. Dr. Mahnad, an antenna specialist with established credentials in the field of antenna design, acts as a consultant to SWR and is the person who designed the antenna in use at XHBCE-FM. In an attachment to that Declaration, Dr. Mahnad takes one of Mr. Saxberg's photographs of the XHBCE-FM antenna used by ERI as one of the bases for its computer modeling and annotates that photograph to highlight the embedded elements and the tuned slots. That attachment to Dr. Mahnad's Declaration also provides an explanation as to the means by which the XHBCE-FM antenna achieves its directional pattern.

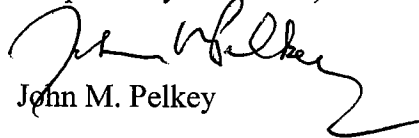
That this pattern is actually being achieved in the real world has been demonstrated by SWR in its range testing of the XHBCE-FM scaled antenna. By contrast, ERI has presented no range testing and the Joint Petitioners have failed to produce a single measurement that in any way contradicts the accuracy of the range-test results produced by SWR and have steadfastly refused to cooperate with BCA in establishing a means for ensuring that the XHBCE-FM facilities are operating in accordance with the station authorization and the coordination – thus calling into question the bona fides of the Joint Petitioners' protests.

At this point, BCA has provided the Commission with a surveyor's certificate showing that the antenna is pointed in the proper direction and a range test showing that the antenna is meeting pattern and the consultant responsible for the design of the antenna has provided a mark-up of Mr. Saxberg's picture of the antenna showing that the antenna as constructed includes the parasitic elements specified as part of the antenna designed by him. If XHBCE-FM were a US station, there is no doubt but that it



would now be operating pursuant to program test authority. The Commission should afford the same degree of consideration to this Mexican station and permit BCA to provide programming over XHBCE-FM's Class C1 facilities, even if only for the limited purpose of allowing BCA to supply "El Cucuy de la Mañana" while the full Section 325 authority requested by BCA is being considered.

Respectfully submitted,



John M. Pelkey

JMP:yg

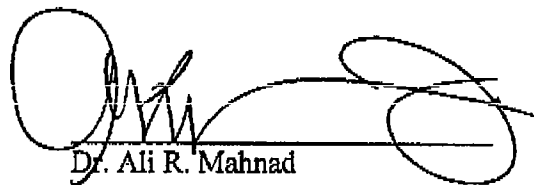
cc: Linda P. Armstrong ([linda.armstrong@fcc.gov](mailto:linda.armstrong@fcc.gov))  
Harry C. Martin, Esq.  
Marnie K. Sarver, Esq.  
Henry A. Solomon, Esq.

### Declaration of Dr. Ali R. Mahnad

I, Dr. Ali R. Mahnad, hereby declare that the following is true and correct:

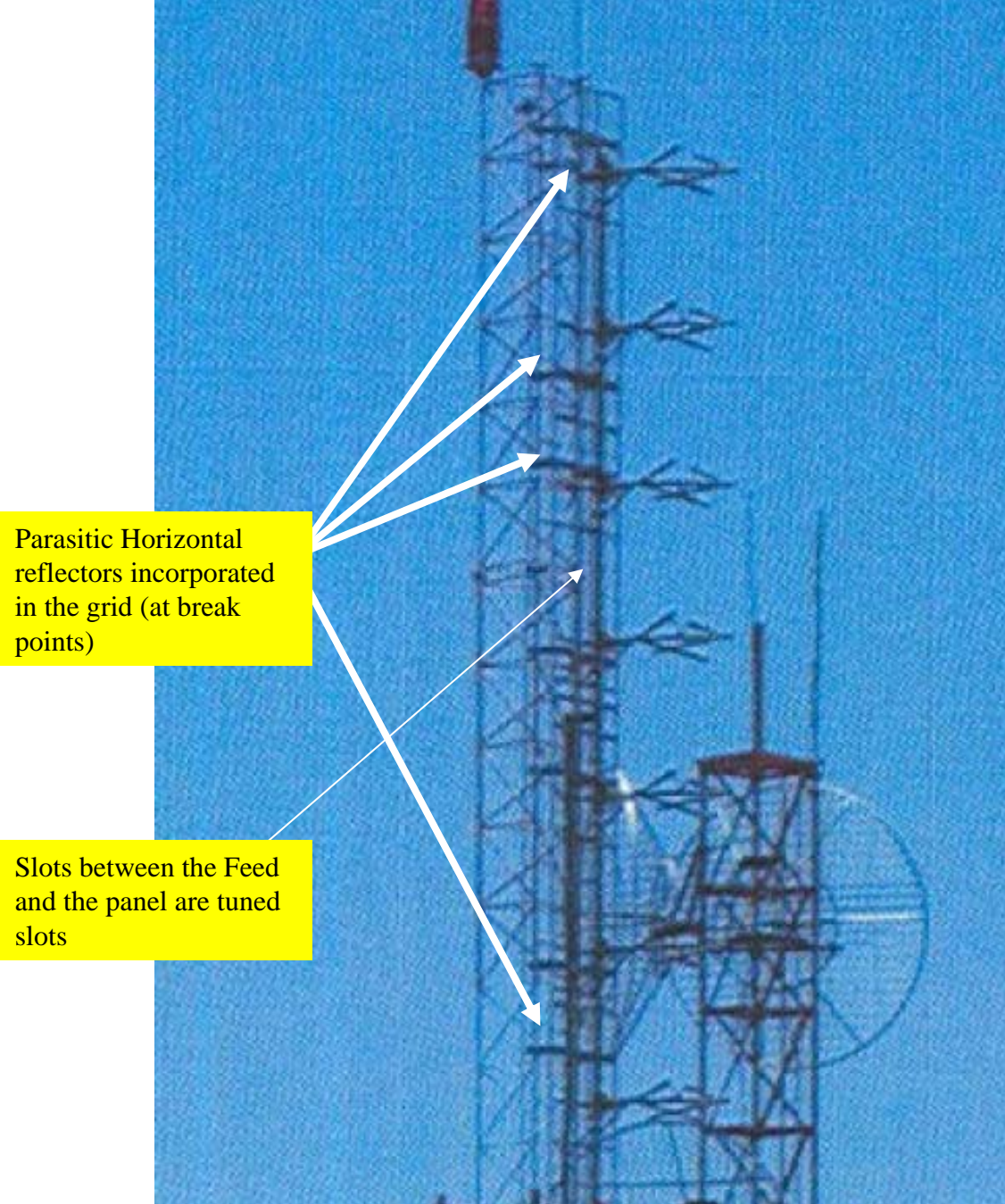
1. I graduated from the University of Colorado in 1973 with a Bachelor of Science Degree in Electrical Engineering. I obtained a Masters Degree in Electrical Engineering in 1983 and a Ph.D. in Electrical Engineering in 1988 from that same institution.
2. I have been a part-time faculty member with California State University at Sacramento. I have also served as the Director of Engineering, Advanced Antennas, for Jampro Antennas, Inc., and am a principal of Micro-Tek Engineering and Consulting, in which position I have designed, developed and analyzed broadcast antennas including, but not limited to, traveling wave slot antennas, as well as antenna arrays utilizing a variety of antenna elements. I have been employed as a Staff Engineer with the Antenna Division of Ball Aerospace. I have been the principal engineer and program manager for Paratek Microwave Inc. and, in that capacity, I have been involved in the development of technologies based on parascan tunable RF material. I also was the Principal Engineer and Program manager for Titan Aerospace Electronic Division, in which role I was involved in the development of antennas and artificial materials in the Frequency Agile Material programs.
3. I hold five US Patents for various types of antennas and a triaxial feed for feeding independent antennas.
4. I am the author of several publications including "Broadcast Antennas," which is a chapter in the Antenna Engineering Handbook edited by Richard C. Johnson and Henry Jasik. I have also made presentations to the National Association of Broadcasters Engineering Conferences entitled "Gain Figure of Side Mounted Omni-directional CP Antennas" and "A New Multi-Channel Community Antenna for FM Broadcast."
5. For more than ten years, I have acted as a consultant to Systems with Reliability, Inc., (known in the industry simply as "SWR"), a leading manufacturer of broadcast antennas. In that role, I was instrumental in designing the antenna being used by XHBCE-FM for its Class C1 facilities.
6. I have reviewed a document entitled "Petition to Deny" that is dated June 15, 2005, and a document entitled "Reply to BCA Opposition" that is dated July 29, 2005, as well as the attachments to both documents. In particular, I have reviewed an "Engineering Statement in Support of Reply to BCA Opposition" by Mr. Joel T. Saxberg. In that engineering statement, Mr. Saxberg expresses his confusion as to the method by which the XHBCE-FM antenna can achieve a directional pattern given the fact that he could not discern any parasitic elements as part of the antenna array. Because he was unable to discern the structure of the antenna system used by XHBCE-FM, Mr. Saxberg could not understand how the reduction in radiated power to the North specified by the FCC could be achieved.

7. To help the Commission understand the design underlying the XHBCE-FM antenna, I am attaching to this declaration a summary that explains the method by which the antenna achieves its pattern. In preparing the attachment, I have used one of the pictures, apparently taken by Mr. Saxberg, that formed the basis for ERI's modeling of the antenna. I have superimposed on that picture arrows pointing out both the parasitic reflectors that are incorporated in the grid and the tuned slots between the feed and the panel. These details are not readily discernible unless the viewer knows the detail design of the antenna. They are essential to the establishment of the pattern achieved by the antenna, however. The attachment should help provide a clearer understanding of the method by which the directional pattern was achieved. This pattern has been verified in the real world by SWR's range testing of the scaled version of the antenna. By contrast, the ERI study that was appended to the Petition to Deny (which apparently relies strictly on a methodology that is neither explained nor identified as a qualified methodology) not only included no real world testing, but, as a fundamental requirement in application of any methodology, failed to take into account the existence of the embedded reflectors and/or the phasing technology used to achieve the pattern. As a result, it treats the antenna as one that relies entirely on a visual impression and guessed dimensions to recreate the pattern of this complex antenna and it is no surprise that it fails to be successful. ERI's highly oversimplified model simply does not accurately portray the antenna performance, a fact that is borne out by SWR's range testing and by the fact that neither Mr. Saxberg nor ERI supplies any real world measurements to try to support their claims concerning the pattern of the antenna that I designed. It is precisely because the rather simplistic computer models, such as that used by ERI, that seek to depict directional characteristics cannot, at this point, reliably predict the performance of complex antennas that the Federal Communications Commission does not permit them to be used in lieu of range testing at the time that a covering license application for a directional facility is filed with the Commission.



Dr. Ali R. Mahnad

Dated: August 5, 2005



## A summary explanation of achieving the pattern (Proprietary- Not to be released without permission)

- 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.
- 2) Horizontal runs immediately next to the elements are beam shaping reflectors (most effective)
- 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 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.

None of these are observable from the distance and could not possibly be incorporated in the simplistic model designed by Mr. Saxberg

(Note :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.)