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Via Electronic Filing

Ms. Marlene Dorch, Secretary
Federal Communications
445 Twelfth Street, S.W. – Room TW-A325
Washington, DC 20554

RE: **Notice of *Ex Parte* Communications with Albert Shuldiner, James Bradshaw, Jerome Manarchuck, Son Nguyen, Thomas Nessinger, Peter Doyle and Susan Crawford**
MB Docket No. 13-249 (Revitalization of the AM Radio Service)

Dear Ms. Dorch:

The following meeting summary is submitted pursuant to 47 C.F.R. Section 1.1206(b)(1).

On February 6, 2018, the undersigned participated in a conference call with Albert Shuldiner (Chief of the Audio Division of the Media Bureau), James Bradshaw, Jerome Manarchuck, Son Nguyen, Thomas Nessinger, Peter Doyle and Susan Crawford. During the conference call, I discussed some scientific research done by Prof. Albin Gasiewski of the University of Colorado at Boulder, the results of which I said might be useful in improving the long term performance of AM Radio and other Medium Frequency (MF) radio systems.

The discussions centered on Prof. Gasiewski's research on techniques for controlling night-time, ionospheric "skip" interference and, in particular, dealt with three areas: (1) taking advantage of modern AM/MF band electronics that may permit more dynamic, "real time" beam/null steering and the possibility of incorporating passive structures in antenna patterns, (2) taking advantage of modern electronic computational tools to allow for the accurate and rapid calculation of needed phased array weights to provide more dynamic antenna pattern control thus allowing more fine grained adjustments to time-varying ionospheric and ground surface conditions, and (3) taking advantage of advances in digital and FPGA computing capabilities, GPS timing capabilities and the wide-spread availability of Internet access to facilitate the collection of near real-time, AM signal phase and amplitude information at a large number of locations thus enabling near real-time, more dynamic, closed loop interference control. In each of the three areas, I said that the techniques discussed held the potential for improving the overall performance of the AM Radio band in the long term.

After discussing the three areas noted above, I briefly noted that Prof. Gasiewski had also done scientific work relating to the use of various satellite-based systems (e.g., earth sensing satellites) that

collect current information on ionospheric conditions and surface wetness/ground conductivity making possible much better propagation predictions at MF frequencies including in the AM band. At the end of the conference call I very briefly expressed concern about manmade RF noise at MF frequencies and my support for investigations into the use of Zenneck Surface Waves as a technique for reducing long-distance, skywave interference.

Sincerely,

Dale N. Hatfield

cc: Albert Shuldiner (via e-mail)
James Bradshaw (via e-mail)
Jerome Manarchuck (via e-mail)
Son Nguyen (via e-mail)
Thomas Nessinger (via e-mail)
Peter Doyle (via e-mail)
Susan Crawford (via e-mail)