

BEFORE THE
Federal Communications Commission
Washington, DC 20554

In the Matter of)	
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Petition for Rulemaking to Allow the MA-3 All-)	MB RM-11836
Digital Mode of HD Radio for AM Stations)	
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Revitalization of the AM Radio Service)	
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To: The Commission

**COMMENTS OF
KINTRONIC LABORATORIES, INC.**

Kintronic Laboratories, Incorporated (“KTL”) and its predecessors, established by Louis A. King, MSEE, P.E., have been serving the domestic U.S. and international AM broadcast industry as technical consultants and equipment manufacturers for over 70 years. Over that span of time we have seen AM broadcasting technology transition from narrow-band analog to wide band stereo analog to now HD digital service. Since the introduction of the FM broadcast band, AM broadcasters have witnessed a gradual transition of listeners to the FM band due to the continually rising wideband noise floor and a continual decline in the performance specifications of automobile AM receivers, accompanied by lower gain automobile receive antennas.

With the advent of the AM HD MA3 mode (all-digital) service and with the fact that most new automobiles sold today include an HD radio (with 18% of total U.S. vehicles), the AM broadcasters now have an option to utilize this clearer, digital-quality service to compete with FM. Current HD radio receivers incorporate noise filtering that has been excluded in current analog AM receivers, which is another justification for transitioning from analog to digital. Despite the eagerness of many Commenters to rapidly begin MA3 operations on a purely voluntary basis, we firmly assert that the Commission must very deliberately and soberly consider the huge effect that a wide-scale deployment of MA3 signals would have on existing analog AM stations. ***We believe that until any potential co-channel and adjacent-channel interference has been fully characterized with the MA3 mode involving primary and secondary digital carriers or the MA3 core mode involving***

primary carriers only, any new AM all-digital service should be introduced only under a formal Experimental license, with detailed documentation of test results provided to the Commission (and publically available) on the performance of the MA3 signals in the current noisy, mixed-mode AM environment.

In 2015, NAB Labs published an excellent, highly detailed report of the performance of All-Digital (MA3) AM radio transmissions using multiple stations in various regions of the U.S.¹. We highly recommend that all parties interested in digital AM radio carefully read this informative document, including some significant technical caveats noted in the latter paragraphs. In that report, mobile reception tests conducted in the coverage areas of 9 different stations, ranging from Class A to Class C, confirmed in general the effective average daytime coverage of All-digital (MA3) signals to roughly the 1 mV/m contour, with nighttime coverage approximating the NIF contour for the stations under test. In that report, however, it was noted that MA3 operation would cause at least 10 dB (or even worse) co-channel interference to analog stations, due to the higher power-spectral density of the close-in primary OFDM carriers (at 0 - 5 kHz offsets). These stationary, constant-noise signals are significantly more annoying to analog listeners than are corresponding analog co-channel (or adjacent-channel overlapping) sidebands, and much the same as earlier HD (MA1) signals, but at higher levels. Unfortunately, very little other data has appeared to document the extent of this All-digital-to-analog interference issue, and clearly no realistic future AM allocation standards can possibly be set without such measurements. Besides additional lab studies, field data from the suggested Experimental MA3 operations will serve to validate realistic AM allocation Rules to serve the next generation of American radio listeners.

We also strongly disagree with the rather fatalistic assertion of Bryan Broadcasting in its PRM that the ambient noise problem for the AM band is beyond hope. As we have previously maintained in our previous 13-249 AM Revitalization filings, these issues ***can*** be successfully resolved over a period of a few years, though this will require resolute action by the Commission. ***Indeed, doing nothing to reduce the noise pollution by actually enforcing the Part 15/18 Rules will no doubt result in even further ambient noise-level increases, which will inevitably and inexorably render even MA3 operations ineffective. Overall, for the ultimate survival of AM radio, there is no alternative to dealing with the noise issue via concerted, aggressive Commission enforcement actions.***

Our major concern is that many of the Commenters to the instant PRM seem to be ready to plow ahead, with little regard for the considerable interference (both co- and adjacent-channel) that MA3 emissions will cause to existing analog operations. This could be a disastrous repeat of the ultimately costly, unsuccessful HD (MA1) rollout, except with even more co-channel degradation of analog stations, about the same adjacent-channel noise, and perhaps somewhat less for alternate channels. The analogy we see is that once the barn door is open and the horse gets out, there will be no getting him back in! It is fundamentally essential for the long-term survival of the AM radio

service that the Commission require Experimental (not routine) status for MA3 operations to give some time for honest, extended field evaluations of the actual All-digital-to-analog interference levels. It would be tragic if we rashly add MA3 signals to the horrible ambient noise levels already acutely degrading analog AM radio.

It is the position of KTL that due to the end-to-end software-driven nature of digital broadcasting from both the transmitter to the receiver and due to improving data compression techniques, we expect to see a continual improvement in the number of program channels and related services that can be broadcast via one AM frequency allocation, resulting in added value to the broadcaster. Coupling this with the fact that AM radio is still the most cost-efficient single-point broadcast medium to reach the most people, we believe that this introduction of AM all-digital service could well be a fast-track means whereby AM broadcasters can re-capture lost listeners and revitalize the AM service in the U.S.

Having launched the all-digital AM service at WWFD in Frederick, MD, Hubbard Broadcasting has provided to the FCC an opportunity to hear the difference between analog and digital AM services in the DC market firsthand. We hope that hearing is believing and that this will be sufficient motivation for the Commission to move toward approving this proposed rulemaking change by Bryan Broadcasting, though with the cautions against the overly precipitous actions we have noted.

Respectfully Submitted,

May 11, 2019



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¹David H. Layer, **NAB Labs All-digital AM Test Project**, *Proceedings of the 2015 NAB Broadcast Engineering Conference*.