Before the

FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	**)**	
	)	
Revitalization of the AM Radio Service	**)**	
	)	MB Docket No. 13-249
	)	

To: The Commission

COMMENTS TO NOTICE OF PROPOSED RULE MAKING

Communications Technologies, Inc. ("**CTI**"), pursuant to the FCC Rule Section 1.401, submits its comments to the above captioned Notice of Proposed Rule Making ("NPRM") wherein the FCC seeks to investigate possible changes to its rules which would allow AM broadcasters to better serve the public.

Introduction

CTI is a broadcast engineering consulting firm located in Marlton, New Jersey. The firm was established in 1985 and has clients who are both commercial and non-commercial licensees of AM, FM and TV stations throughout the United States. The Radio Frequency (RF) portions of Rule Making and applications filed by clients with the FCC are regularly completed by CTI. Throughout its history the firm has been active in AM Broadcast engineering including assisting clients in the filing of Comments and Reply Comments in MM Docket No. 87-267, the Commission's last comprehensive review of the regulatory areas which affect the AM Service.

Section A. The NPRM proposal to open a filing window for the sole and limited purpose of allowing AM stations to receive authorizations for a single, new, FM translator to enhance existing service to the public is supported and expected to be of value to a number of AM stations. The limit of one translator per AM station which meets existing fill-in requirements and

the specification that the translator will be licensed to rebroadcast only the associated AM station is believed reasonable. However, once that filing window has passed an ongoing opportunity for AM stations to file for additional FM translators, as long as they comply with the requirement that existing service not be duplicated is believed to be an opportunity worthy of consideration as in many cases a single translator will cover only a portion of the lesser of the station 2.0 mV/m contour or 25 mile radius.

The NPRM does not seek to limit translator filing opportunities. It is believed that a single FM translator would be of minimal value to Class A Clear Channel stations operating with 50 kilowatt day and night facilities. Given the minimal value, and the existing level of congestion in the FM band in more populated areas where Class A stations are typically located, limiting the filing opportunity to only Class B, C and D stations would seem worthy of some consideration.

Elimination of the Mattoon Waiver is not necessary in a filing window as this is an opportunity to file for new translator facilities which comply with established technical standards. However, after the filing window it is possible that changes in the local FM band allocation could occur which would allow moving an existing translator in from outside the market as that particular translator could be the sole opportunity for obtaining a translator for an interested AM station.

Section B. The FCC proposal to modify its daytime coverage standards for licensed AM stations that will remain in the same community of license to allow coverage of either 50% of the area or 50% of the population within the community boundary would be a welcome benefit. Many stations are currently operating under STA due to loss of site and an inability to meet the current requirement for the daytime 5 mV/m contour to cover 100% of the community boundary.

Section C. The suggestion to eliminate nighttime coverage requirements for existing licensed stations and to allow licensed stations changing community of license to cover 50% of the area or population with a 5.0 mV/m night contour or the NIF contour, whichever is higher, are both opportunities for added flexibility which are believed worthy of support.

Section D. The NPRM includes a proposal to remove the nighttime Ratchet Rule. This rule requires stations proposing a nighttime facility modification, and whose signal enters the 50% RSS night limit of another station, to reduce the proposed interfering signal by 10%. This rule was adopted in MM Docket No. 87-267 believing that it would reduce interference in the AM band. The actual impact, as described in many communications with FCC staff through the following twenty plus years, has been to significantly limit the ability of stations making facility changes to improve coverage to overcome locally generated interference to AM reception. As indicated in the NPRM, a petition to eliminate the rule was filed in 2009 by two well known and respected engineering firms in the United States. The minimal reduction in interference that this rule gives some stations is believed to be of no practical consequence given the high levels of interference that exist in the band today. In paragraphs 41-43 of the R&O in MM Docket No. 87-267, released October 25, 1991, the Commission discusses comments that the minimum usable field strength, Emin, were set too low. Now, twenty odd years later, the situation is dramatically worse and small changes such as those offered by the Ratchet Rule are believed not to be in the public interest.

Section E. The NPRM proposes to extend use of electrical power saving technology called "Modulation Dependent Carrier level Control." The practical problem with this technology for many AM stations is twofold. First, most transmitters in use predate the manufacturer making this technology available. Second, the return on investment ("ROI") associated with buying a new transmitter with this technology already installed and then saving 20% to 25% in utility costs does not make sense for many broadcasters. CTI's only concern would be the introduction of third party products which are installed and not fully tested for occupied bandwidth compliance at the time of installation due to interference concerns. It is believed important that the Commission take a position on third party MDCL use which clearly provides protection to broadcasters from potential interference.

Section F. The NPRM raises the possibility of modifying its AM Antenna Efficiency Standards. This is a pretty much wide open comment area with some significant benefits and dangers for broadcasters. The question is how short of an AM tower, and how abbreviated a ground system radius, should be allowed. With the difficulties that currently exist in locating suitable AM transmission sites, especially in more developed

areas, this is a topic of significant importance to stations that are faced with a loss of site and are having trouble locating a suitable site.

The nature of the problem is that as radiator height is decreased, the self impedance of the tower changes. The resistive component gets lower and the ground system losses then become a larger percentage of the antenna's radiation resistance which can cause instability. A second problem is that the reactive component of the antenna impedance generally increases with decreased height which reduces bandwidth. Reducing the ground system radius reduces antenna system efficiency. It is generally known that the Brown, Lewis and Epstein engineering studies from 1937, "Ground Systems as a Factor in Antenna Efficiency" proceedings of the IRE, June, 1937, were done at a frequency above the AM Broadcast band and overstate the extent of the ground system required. CTI supports any efforts to update the rules and provide reasonable flexibility in allowing reduction of ground system size.

Elevating the tower feed point some distance above ground can reduce ground system losses. Rooftop mounting of antennas and use of short helically wound antennas, such as the Valcom AS5085/SR 35 foot antenna, could be practical in some situations with further research and testing should use of reduced efficiency radiators be approved.

The greatest application for reduced efficiency antennas is believed to be for omnidirectional use. The mutual coupling inherent in directional antenna systems can reduce tower impedance resulting in instability and a need to regularly adjust and monitor antenna system operation.

Section G. The FCC invitation to submit comments that further advance the proposals already addressed and to offer other proposals to improve the long term-term future of AM service are addressed here and include the following:

1. Allow AM licensees to file for a digital FM facility in the CH 5 and 6 TV bands or another frequency block in the VHF/UHF spectrum. AM Radio is no longer a viable medium for most listeners because of its inherent limitations which are a matter of physics and cannot be changed. Two principal examples are nighttime skywave interference and a high level of interference from electrical and electronic devices. AM Radio is no longer a viable medium for most listeners because of its societal expectations. Today's listeners, for the most part, want a

reliable, quality, noise free and enjoyable listening experience when they want it, day or night. The inherent characteristics of radio transmission in the 540 – 1700 kHz band do not, and cannot, meet listener expectations and moving to VHF or lower UHF spectrum where radio propagation is relatively consistent, as in FM radio, is the only way to accomplish this.

2. An interim benefit for AM broadcasters would be implementation of uniform 500 watt operation at 6 AM until local sunrise.

3. Changing the definition of a minor change application to include a change to any frequency between 540 and 1600 kHz would aid some broadcasters in finding a frequency with better coverage and less interference.

4. Many stations are daytime only stations because they are protecting the 0.5 mV/m 50% nighttime skywave contour of a clear channel AM station. It is believed that this service is no longer of value to most listeners to these stations. It is suggested that the nighttime skywave service no longer be protected and that service to the 2.0 mV/m contour at night be the limit of protected service for both co and 1st adjacent channels.

5. Due to the proliferation of noise in the AM band, little practical or reliable service is believed to exist beyond the 2 mV/m contour in most portions of the country. It is suggested that the daytime 2 mV/m contour be the protected contour for daytime operation for all classes of station on the co and first adjacent channels.

6. Open the 1610 -1700 kHz band to existing licensees only on a 73.37 contour protection basis if it can be shown that an increase in interference free service is possible using only a non-directional antenna system for existing Class D stations.

Conclusion We thank the FCC for initiating a proceeding that could help AM broadcasters to more effectively serve the public. We do note that a short term improvement is to allow AM broadcasters to implement fulltime FM service through use of an FM translator. However, implementation of the proposal filed by the Broadcast Maximization Committee which provides for the ultimate migration of AM stations to Channels 5 and 6 on a voluntary basis, permitting transmission facilities which deliver a consistent 24 hour FM signal, is believed to be the best ultimate solution for AM broadcasters, and CTI urges the FCC to place a high value on that goal.

Respectfully submitted,

Communications Technologies, Inc.

By: /SS/

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January 20, 2014