

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D. C.

In The Matter Of:

Notice of Proposed Rule Making 13-249  
Revitalization of AM broadcast Radio

December 7, 2013

Comments of Henry B. Ruhwiedel, individual, retired broadcaster, former SBE national Director, former FCC Licensee of WOVR FM, Versailles, IN.

ISSUE: Degradation of reception and coverage.

The public has been migrating to other modes, FM, satellite, recorded media in part because the AM spectrum has been degraded to where the high fidelity broadcasts of before 1960, have become impossible. There is no way of discerning which came first, but the contemporaneous reduction in AM receiver performance in preference to FM receiver performance, the increase in audio processing for the sake of loudness competition in part due to format competition, the promotion of FM's inherent noise advantage and higher fidelity (15 khz vs 9 Khz aural spectrum) drove much of the audience to FM from AM. A con-commitment of market forces that reduced variety in programming, consolidation of ownerships, removal of localism, simulcasting, and central source programming for thousands of co-owned stations in effort to survive the dwindling audience figures and thus financial stability have added to the reduction in appeal of AM radio. A notable few stations have fared well because of mostly localism, community involvement, that garner community loyalty. I saw few because most outlets simply compete for mass market share with demographic purity of age, ethnicity, or niche interests.

The FCC's effort to introduce AM Stereo with four competing systems failed to enhance AM as a viable music source, because no one system was chosen as was done in FM and TV stereo. Thus few receivers took advantage of AM stereo, and the public regarded AM stereo much as the RCA video disk, an advance but unworthy of general acceptance unlike the CD and DVD or even the Phillips audio cassette still in use today after more than 50 years.

The expansion of the AM band to add 1600-1700 Khz provided few new "voices" as that portion of the band still remains largely empty except for religious broadcasters, the lack of receiver coverage for the frequencies, and now the near absence of even technically relevant AM receivers.

The Addition of pre sunrise and post sunset micro power to daytime only station aided few to maintain an audience into the evening hours. Stations many of which have less than 10 watts, and well into low single digits in reality have nearly no local coverage from lack of field strength and interference from sky-wave propagation from the more primary channel user stations. It would have been more effective in many cases for these stations to erect part 15 transmitters around their city of license and simulcast to them instead of 3-5 watts from an out of the city rural location where the 1 millivolt per meter contour may not reach more than the nearest point of the city of license or the nearest cow barn.

The introduction of IBOC with significantly low power levels never allowed the HD Radio coverage to equate to the analog AM coverage, and the additional spectrum pollution just increases the base noise floor and the decreasing selectivity of AM receivers decreases the D/UD ratio of reception.

Manufacturers have decided it is not a value to have a good AM receiver in any radio device. It is very difficult to even find a radio that has sensitivity and selectivity in the AM band to be useful

beyond Class 1 and Class 2 stations in urban areas. Reception beyond the city grade contour is problematic to impossible. Anecdotal evidence of my personal purchases of radio devices found the AM tuners in even expensive portable and mobile units to be hardly better than a crystal diode and oatmeal box wire coil. One name brand unit in my home, to listen to 890 KHz WLS, receives the signal from 860 to 925 on the dial, and best audio is when it is tuned to 903 KHz. Even then, despite the stations 50 KW and about 23 miles distance, the signal is noisy. The computer in my clothes washer completely drowns out the audio. A 10 KW station less than 10 miles away is barely audible. I purchased two "emergency" radio units that commonly sell for \$39. The AM reception was as bad or worse, the FM I actually measured as needing over 100 microvolts to even detect carrier and the short wave section could only get 1 station at night. Considering the AM radio is the ONLY ubiquitous radio device in emergencies, with FM a distant second this is a sad state for emergency preparedness.

## **Recommendations:**

To reduce interference to AM reception is a multiple source issue.

BPL internet over power lines should be banned immediately. With satellite and cable delivery of internet and data services, there is no home in America that cannot get service and BPL only serves to be a source of interference to AM and other MW transmissions.

Unlicensed devices: All digital and computer devices should be regulated under part 15 rules to emit no more than 5 microvolts per meter at a distance of 1 meter on any frequency from DC to 500 Mhz and not more than 10 microvolts per meter at a distance of 1 meter at any other frequency.

Eliminate IBOC. The signal serves hardly any useful service and pollutes the band with wide sidebands that interfere with adjacent channels and on the poor AM radios being sold today, a single IBOC station can interfere with many channels.

AM Mandatory radio standards. Any radio device capable of FM broadcast reception should include AM reception. In addition, the AM and FM receivers should meet a minimum of good engineering practices including an effective noise reducing channel width filter [9 KHz, pass band with a minimum 30 dB rejection of 2<sup>nd</sup> adjacent channel) and sensitivity of a minimum 10 microvolts for 16 dB SINAD reception at all frequencies. In addition, the receivers should have a switchable or tunable filter to reduce/eliminate one sideband to reduce/remove beat notes from 9 KHz channel spaced stations.

AM Transmission should be limited to 99% negative modulation and 130% positive modulation for all modulation components summed.

AM stations should be allowed to use reduced carrier compatible AM, with either single sideband audio or vestigial sideband (1.5 KHz bandwidth) operating in monophonic service and up to 10 dB carrier suppression in stereophonic service at the option of the licensee. This to reduce on channel and adjacent channel interference, and reduce in channel carrier interference from 9 KHz spaced channel stations with signals reaching the US 10 KHz channel spaced stations.

Any radio device marketed as an "emergency" radio receiver must meet the minimum receiver standards above, and be tunable in 1 KHz steps or continuous tuning with a calibrated analog or digital frequency readout to permit "tuning in the blind" to a frequency that may be vacant due to intermittent operation of a broadcast station in emergencies. AFC circuits (automatic frequency control) must be employed to maintain stable reception under varying signal levels for all bands. AGC Automatic gain control circuits must have a minimum range of 20 dB to avoid unnecessary volume adjustments by users. Audio output to be sufficient to produce a 90 dB SPL A weighted sound level at a distance of 1 meter from the speaker, or 75 dB SPL A weighted for in-ear listening devices. A maximum audio output of 105 dB SPL from any device. This to prevent communications from persons and other

devices from not being heard for public safety. (ie not being able to hear an emergency vehicle siren or announcement because the local device is too loud).

### **Universality of service.**

With the vast majority of stations being centralcast and unattended, with merely a EAS unit for local service the public is at a serious disservice in time of most need. I propose all markets must have 1 station that is staffed locally 24/7. This station would be self designated and the AM station would receive favorable preference on fee waivers, applications (except license transfer) and mandated unrated market news service rates to insure information availability. In addition the designated AM station would be permitted to interrupt all other market stations that do not provide local news service to simulcast any level 1 or level 2 emergency information. (NWS warnings, Local regional or national governmental warnings, and declared emergency communications from first responders such as evacuation orders. Only stations that provide local live news service capable of responding to emergency conditions would be exempt provided they also provided the same public safety information. In markets without an AM station this may be performed by an FM station under the same criteria. This would specifically exclude amber alerts, watches, weekly or monthly tests. Stations would be responsible for establishing their own technology and service agreements to provide this universal life safety information. The designated station may promote and advertise its function as the designated emergency station for its community. Text format in RDBS may be provided as an option for service to the deaf.

In emergencies, any AM station may operate with its best power/pattern at any hour to provide emergency communications and public safety information. The station would announce such operation when it is not in compliance with its license parameters. Announced at 30 minute intervals: This is station WXXX AM operating under emergency condition authorization to provide critical life safety information.” Such operation would be noted in the station log and the FCC notified at first convenient time of such operation as has been previously allowed by the Commission rules. Content may include directed communications to specific individuals to facilitate location, rescue or reunification of the population. IE: Members of the XYZ church in ABC parish should make their way to BCD location for rescue and transport. Rescue, shelter and reunification centers are located at DFF GFF HFF proceed to these locations quickly and calmly.

### **Elimination of flea power AM.**

No authorization for AM operation with less than 100 watts TPO unless the lower power provides 100 microvolts service contour over the entire city of license. If less non daytime power can provide such coverage, power may be reduced to that sufficient to cover the city of license. Coverage to be established by field measurements at eight diverse locations representing receiver locations in residential, business and industrial areas and documented as verifiable field monitoring points equally determined as valid as directional pattern verifiable field monitoring points. Such operation to be with apparatus to minimize skywave radiation above 25 degrees above the horizon. Co-channel stations may not complain of distant station interference unless it is within their 1 millivolt per meter contour. Objectionable interference threshold shall be 20 dB SINAD D/UD to a receiver of good engineering standards.

### **Low Power AM**

The Commission to permit a new service to augment the loss of any AM night time or PSS PSR and provide additional diversity to ownership.

The new service would allow any AM only that is owned by a licensee of less than seven stations in the

nation, or persons not currently a license in the broadcast service, may propose non directional 24/7 service in the band 1600-1700 Khz, with 100 watts daytime and 25 watts night time. Such stations would be licensed by physical spacing and have no interference protection. Co channel stations at minimum separation distances of 100 miles. First adjacent separation minimum distance of 50 miles and second adjacent station at a distance of 25 miles. Preference given to the applicant with the least number of current licenses/application. Such stations may not be located within 30 miles of the main post office of the top 50 markets. All not daytime operation will reduce all skywave radiation to the minimum possible without extraordinary means.

### **Digital Only operation**

Until such time as digital radio is included in all receiver products sold or used in the USA for the AM band, digital only operation is prohibited.

### **Content**

Consistent with market forces no restriction is proposed upon licensee holders current capacity to provide content it chooses for the audience it choose to reach with the exception of the universal emergency transmission listed above. Such emergency information may not extend more than 5 minutes in total length except for immediate life safety, nor interrupt the non designated station more often than once per 30 minutes unless to provide 100% new information. Regulations for control of content responsibility are not waived but good faith effort to operate and provide only locally relevant life safety information is paramount. Locally relevant means areas within the stations city of license and immediate environs within the 1 millivolt per meter licensed contour.

### **Diversification:**

Any licensee with more than 50 stations national, and more than 20% of any market media (AM FM TV LPFM) must operate one station per market with local staff 24/7 provide public access to management, and meet minimum local news, weather to accumulate two hours per week of such programming represented in all day parts and on all days as regularly scheduled material. Failure to provide this minimum public service shall result in non renewal of all licenses held in the market. Those unwilling to operate in this manner may distress sale their assets in whole or in part.

Respectfully Submitted:

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