Before the
Federal Communications Commission
Washington, D. C. 20554

In the Matter of)
Revitalization of the AM Radio Service) MB Docket 13-249

Comments of R. Morgan Burrow Jr., P.E.

R. Morgan Burrow Jr., P.E. hereby presents the following supplementary comments in the above-referenced docket. Generally, the changes adopted in the First Report & Order (of 21 Oct. 2015) are beneficial for the AM broadcast service.

I filed comments in Docket 87-267 opposing the "Ratchet Rule"; it's unfortunate it took almost 30 years for the Commission to recognize the "ratchet rule" is not in the public interest. The increased Docket 87-267 protections cost AM stations wanting to develop their service a lot of additional money to comply with the Docket 87-267 protection requirements. Many AM stations were not able to develop their facilities or could not afford the expense of allocation measurements or directional antenna work. Fortunately, the Commission finally made good to repeal the "ratchet rule" in particular. The Commission is also correct to return to the 0 db first adjacent channel daytime groundwave protection ratio. This will also standardize daytime co-channel and first adjacent channel protections with Canada and Mexico. The Commission is encouraged to initiate discussions through appropriate channels with Canada and Mexico to standardize AM allocation standards between the three countries. Field intensity measurements made for determination of measured ground conductivity to or from a US, Canadian, or Mexican station, made by any qualified engineer using acceptable, calibrated equipment and procedure, should be accepted by Canada, Mexico, and the United States. Allocation ratios of signals crossing international borders should also be retained (i.e. 20:1 co-channel, 0 db first adjacent, etc.)

The Class A stations have lost a lot of significance over the past 25 years. The 1996 telecom act permitted large consolidated interests to own hundreds of stations across the United States. Most of the Class A stations do not originate local studio produced programming 24/7 as was prior to passage of the 1996 telecom act. Many of the class A stations operate unattended, especially at night. There should be absolutely NO incentive for large consolidated group owners to enjoy special allocation priveleges when the class A stations run low cost network or satellite programming as "filler" in lieu of local origination of service to their communities of license.

The FCC M-3 conductivity map should be revised. The conductivities show in the 1954 map do not reflect measured conditions in most of the United States in 2016. There is a LOT of suitable allocation measurement data in the Commission files that can be gridded and used to update domestic United States ground conductivity data.

Specific comments concerning day and night allocations follow below.

1. Daytime Groundwave ("GW") Allocations
    a. The daytime protected contour ("PC") for Class A stations should remain at 0.1 mV/m.
    b. The daytime protected contour for Class B, C, & D stations should remain at 0.5 mV/m.
    c. The community coverage contour can safely be reduced from 5 mV/m to 2 mV/m. This allows a 12 db ratio to the protected contour, and AM stations forced to relocate transmitter site for various legitimate reasons (excluding real estate speculation) can service their communities of license without requesting Commission waiver.
    d. Daytime first adjacent channel protection ratio should be 0.5 mV/m 0 db; that is, the 0.5 mV/m interfering ("IX") contour may not overlap the 0.5 mV/m protected ("PC") contour.
    e. Canadian and Mexican allocation standards concerning second and third adjacent channel protections differ from US standards. Current FCC domestic second protection involves no overlap of the 5 mV/m PC and IX contours; current US domestic third adjacent protection involves no overlap of 25 mV/m contours.
    f. Canada and Mexico have no third adjacent channel protection but the second adjacent protection is the 15 mV/m IX contour may not overlap the 0.5 mV/m PC contour. (This ratio is considerably more restrictive than the domestic USA 5 mV/m 0 db second adjacent channel protection.) Why the Reagan administration accepted special allocation changes to Canada and Mexico so soon after signing the 1981 Region II Rio agreement is unknown to me.
    g. The Association of Federal Communications Consulting Engineers ("AFCCE") is correct that more receiver data is needed in support of less restrictive second/third adjacent channel contour PC/IX ratios.
    h. The domestic second adjacent contour PC/IX protection ratio should remain at 5 mV/m 0 db for now. Effort should be made to standardize this with Canada and Mexico because US stations in border areas are penalized by the protected wider area 0.5 mV/m contour of the Canadian or Mexican station. (The former Region 2 second adjacent channel protection was the 2 mV/m IX against the 25 mV/m PC.)

2. Nighttime Interference Limits:
   a. Return to Pre-Docket 87-267 50% RSS exclusion, co-channel only.
   b. Eliminate the Alaskan 1-N designation. Use one nighttime standard for all Class A stations; that is, the 0.025 mV/m 10% SW against the 0.5 mV/m GW Class A contour anywhere under United States jurisdiction.
   c. Assume continued use of the Docket 87-267 formulas to determine 10% and 50% skywave ("SW") interference levels.
   d. "Limit distance" was discussed in IFRB proceedings concerning these formulas; computed distances at low 10% SW levels (i.e. 0.005 mV/m 10% SW protection to a former 1-N) give extremely long distance to the contour compared to the former skywave tables. A limit distance of 4000 km for the formulas should be explored.
   e. Generated (i.e. power line noise, FCC part 15 devices, etc.) and natural noises have polluted the AM broadcast band. The proposed Class A nighttime (skywave) protection of a Class A 0.1 mV/m groundwave contour is an exercise in futility. Nighttime noise measurements made using a calibrated FIM41 field intensity meter (with the antenna nulled toward the Class A station) are higher than 0.1 mV/m anywhere on the AM band, at least as observed at my residence in rural Pennsylvania at 2 am EDT on 21 Mar 2016. The meter was in the peg on the 100 uV/m (0.1 mV/m full scale) all the way across the band. The indicator was on scale anywhere from 0.15 to 0.9 mV/m (depending on the channel) for most Class A channels using the 1 mV/m (full scale) range. The meter was calibrated every 50 kHz during these sweeps. The field intensity varied on each measured channel, as expected. Some indications in excess of 1 mV/m were observed. It is my opinion that skywave protection of the Class A 0.1 mV/m groundwave contour as proposed by the FCC is a waste of time.
   f. I propose the nighttime GW 0.5 mV/m contour of a Class A station should be skywave protected 26 db. The skywave formulas have seen almost 30 years of use and appear to provide reasonable results with the 0.025 mV/m 10% and 0.5 mV/m 50% SW contours.
   g. I propose the 0.5 mV/m nighttime Class A first adjacent channel GW contour protection should receive skywave 0 db. protection (0.5 mV/m 10% SW IX against 0.5 mV/m GW protected contour).
   h. Class B & C stations should receive only co-channel nighttime protection. The 25% RSS restriction should be eliminated.
   i. Specific Class B stations whose nighttime interference free limits ("NIF") were defined during international proceedings (i.e. WETC 540 kHz Wendell-Zebulon NC) should be retained, especially if the lower NIF helps satisfy community coverage requirements.

j. Critical hours protection to Class A stations should be terminated; retain day and night power modes; this will save Class B stations operating on clear channels money and maintenance, and better serve their audiences during revenue-producing "drive time".

3. Fill-in Translators:
   a. Fill-in translators should be authorized to use the 25 mile limit rather than the 2 mV/m where deep nulls of a AM directional pattern force the use of a FM directional antenna under the present rule. This will save AM stations building a translator money and improve FM service.
   b. Spectrum "warehousing" should be eliminated. Unresolved mutually exclusive applications from the 2003 FM translator docket should be summarily dismissed. This spectrum has been warehoused for 13 years; 13 years too long. Don't use it, lose it. Some of this warehoused spectrum is in markets where a university with a daytime AM precluded from low power night (PSSA or PRSA) operation (i.e. Raleigh NC) could use a translator, etc.

4. Partial Proof Rules:
   a. Retain requirement to measure 8 to 10 points specified in the "full" station proof on each bearing where a monitor point is specified.
   b. At least one bearing in the major lobe should be measured to guarantee null suppression is working, and not due to general degradation of a directional array that has "been let go" for years and the entire array is lossy.
   c. Measurements on two major lobe bearings should be made where the authorized pattern specifies multiple major lobes (i.e. "peanut" or "cloverleaf" directional patterns).

5. Moment Method Proofs:
   a. External verification of a AM station licensed using method of moment ("MoM) techniques is essential. The "test points" on null and major lobe bearings must be retained. The integrity of the sample system of a MoM-licensed directional array is critical! The two-year test of sample system components and antenna monitor IS appropriate!
   b. It should not be necessary for anyone (including a FCC agent) attempting to initially determine whether or not a station licensed using MoM techniques to make an appointment with the station's contract engineer to read the antenna monitor, common point current, or other instruments at the station. Test point field intensity measurements compared to original test point measurements satisfies initial criteria.

c. Various MoM software is available (and should be permissible for use with MoM licensing....the usual MININEC and its derivatives, the NEC-4 and associated software developed at Lawrence Livermore Labs, and GEMACS (developed at RADC) should all be acceptable.

6. Surrender of License by Dual Band Licensees:
   a. Holders of dual band licenses (one in 545-1605 kHz band, other in expanded band) were aware upfront one license would eventually be surrendered to the Commission.
   b. In lieu of surrendering the unwanted license to the Commission, one of the stations could be transferred or sold to a small business entity.

SUMMARY: The Commission has to look out for the individual and small group owned stations first, and craft AM allocation rules for LOCAL service.

This means crafting the allocation rules to make community AM accessible to licensees where nighttime AM operation is poor or especially precluded. If further breakdown of the Class A station allocations is required, it's time for change.

The Commission's decision to close field offices is unwise. The resident engineers strategically located in significant United States cities are needed to help minimize the presence of unauthorized stations, licensed stations operating with unauthorized power levels or operation mode, and help locate interference to aircraft, public safety, medical telemetry, and other essential services. In the event the Commission's intent was to save downtown office rent, resident agents should be able to telecommute and operate from their residences instead of expensive relocation or long commute, or lose a good engineer through early retirement. The "tiger teams" are essentially delayed response to situations requiring immediate response. (Do you call a local ambulance, or call an ambulance from 300 to 400 miles away for a critical medical situation? This scenario describes "tiger teams" precisely!)

Respectfully submitted..

R. Morgan Burrow Jr., P.E.
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