

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)
)
Amendment of Part 74, Subpart D of the) **RM- 11648**
Commission's Rules)

To: The Commission

COMMENTS OF
THE SOCIETY OF BROADCAST ENGINEERS, INCORPORATED

The Society of Broadcast Engineers, Incorporated (SBE), pursuant to Section 1.405 of the Commission's Rules (47 C.F.R. § 1.405) and the *Public Notice*, Report No. 2943, released December 21, 2011, hereby respectfully submits its comments in support of SBE's above-captioned *Petition for Rule Making*, filed November 7, 2011. SBE's Petition proposes to modify Sections 74.402 and 74.462 of the Commission's rules so as to facilitate the use by Broadcast Auxiliary Service (BAS) licensees of certain digital voice and data emissions in BAS allocations at VHF and above by Remote Pickup (RPU) Broadcast Stations (Subpart D, Part 74).¹ In order to facilitate the use of existing, narrowband, spectrum-efficient digital voice and data technology for RPU stations and to resolve an anomaly in the Part 74 Rules relative to licensing of stacked narrowband RPU channels, SBE states as follows.

1. It is useful to promote and continue the steady progress in conversion of the Broadcast and Broadcast Auxiliary Services from analog to digital communications systems. Recently, in converting TV Pickups in the 2 GHz BAS band from an old, less

¹ Also placed on public notice was a Petition for Rule Making, RM-11649, filed on or about October 4, 2011 by a group called Engineers for the Integrity of Broadcast Auxiliary Services Spectrum. RM-11649 seeks relief similar to that sought by SBE, though the proposed rule changes and methods proposed for channel utilization are substantially different.

efficient band plan at 1990-2110 MHz, to new, narrower channel bandwidths at 2025-2110 MHz band, digital technology became a necessity. In short order, broadcasters converted cooperatively to digital technology. There is no reason why other BAS systems cannot make similar conversions, except that the current rules for some BAS services, such as those rules regulating RPU systems, do not currently permit the use of narrowband digital voice technologies at VHF and above. Nor do the present RPU rules facilitate the use of the minimum necessary bandwidth emissions. Due to an anomaly in the rules dealing with stacking of channels in the RPU service to achieve the necessary bandwidth channels to facilitate BAS operation, a licensee is actually forced to license more spectrum than is necessary. SBE's Petition would remedy this anomaly, and it would simplify the use of stacked, narrowband channels for RPU operation by BAS licensees.

2. SBE's Petition will permit BAS licensees to utilize Time Division Multiple Access (TDMA) technology, Next Generation Digital Network (NXDN) technologies and other spectrum-efficient technologies in the RPU service. TDMA and NXDN are and have long been permitted for Part 90 PMRS licensees. This existing Part 90 equipment can be used for some, but not all Part 74 RPU station applications. Both of the listed technologies permit channel efficiency equivalent to one voice channel per 6.25 kHz of bandwidth. This is required under Part 90, and the spectrum efficiency provided thereby is equally useful in the BAS service, which utilizes shared spectrum. The NXDN technology uses only 4 kHz of necessary bandwidth. Twenty-one companies are members of the NXDN Forum, which ensures that NXDN products conform to the NXDN protocol and are interoperable, thus assuring a wide variety of competitive

product availability. TDMA, as exemplified by a popular Motorola product, is also exceptionally spectrum efficient and has widespread applications in the BAS service for RPU operation.

3. As SBE's Petition notes, the 2002 Part 74 Revision Order² held that Remote Pickup Service licensees should have the capability to choose from a wide variety of radios, and that the Commission's proposal to standardize Remote Pickup channels with those listed in Part 90, so RPU licensees should adhere to the technical standards of Part 90, thus to allow Part 74 licensees to choose from among the wide variety of radios available for PLMRS licensees. Thus, the Commission decided to apply Part 90 technical rules for the emission mask (47 C.F.R. § 90.210) and for frequency stability (47 C.F.R. § 90.210) to RPU licensees.³ In light of this, it is indeed an anomaly that the Commission has not yet permitted RPU stations to use digital emissions. The use of Part 90 digital narrowband equipment for RPU operations will encourage narrowband conversion by RPU licensees and therefore increased spectrum efficiency, utilizing off-the-shelf equipment where possible. RPU licensees will still need the option of channel stacking, however, as the rules presently provide. Wideband channels for delivery of program material remains necessary and should continue to be permitted.

4. The SBE Petition proposes that Section 74.462 of the Rules be amended to permit BAS licensees in the RPU service to use any emission that meets the applicable emission mask and bandwidth limitations. This will accommodate future digital technologies to which RPU licensees can adapt to their purposes. The change is entirely

² *Revisions to Broadcast Auxiliary Service Rules in Part 74 and Conforming Technical Rules for Broadcast Auxiliary Service, Cable Television Relay Service and Fixed Services in Parts 74, 78 and 101 of the Commission's Rules Report and Order*, 17 FCC Rcd. 22979 at ¶111 (2002).

³ Docket 01-75 did not include any new restrictions on the allowable types of modulation permitted on RPU channels. *Id.* at paragraph 112-113.

consistent with the Commission's policy, adopted in 2002, to permit RPU licensees to utilize a wide variety of digital modulation schemes.⁴

5. The 2002 Part 74 Revision Order allowed broadcasters with RPU systems to stack narrowband channels where necessary for the transmission of wider bandwidth program material. See Section 74.402. It adopted a channel plan similar to the Part 90 channel plan, to utilize 7.5 kHz (stackable) channels in the 150-160 MHz band and 6.25 kHz (stackable) channels in the 450 MHz band. Unfortunately, however, the channels were limited to the channel centers specified in Section 74.402(b)(4). The problem is that attempting to stack an even number of channels in this list requires that the applicant specify as a center frequency a channel that extends to six decimal places. This frequency cannot be programmed into many, if not most, analog radios now in use. The Commission regularly returns applications specifying an offset channel center for *even* numbers of stacked channels, so as to assemble a 12.5, 25 or 50 kHz channel. So, the applicant has no choice but to specify an *odd* number of channels in order to obtain a license specifying a channel center that can actually be used and which is specified in the license. This results in each case creating channels with more bandwidth than what that applicant needs. It is a wasteful process that defeats the Commission's narrowbanding goal in the 2002 Part 74 Rule revisions: for applicants to utilize the minimum amount of spectrum necessary for the transmission of program material.

⁴ Contemporaneously with the filing of SBE's Petition, SBE filed a Request for Temporary Waiver of Section 74.462 in order to permit RPU licensees to immediately begin utilizing a Motorola TDMA system that is in regular use in the private land mobile radio service and radios using the NXDN Common Air Interface technology, which is an FDMA (Frequency Division Multiple Access) technology with 4FSK modulation that uses 6.25 kHz channel bandwidths, certified in two different manufacturer configurations for Part 74 use.

6. The Appendix to the SBE Petition proposes a solution to this problem that is simple. It permits applicants to stack channels in 3.125 kHz segments in the frequency ranges specified in Section 74.402(b)(4). This method of permitting stacking is efficient; it permits the applicant to specify precisely the channel bandwidth to accommodate the necessary bandwidth of the emission that the applicant needs, and no more. This proposed channel stacking plan is far superior to listing channel centers of channels with varying bandwidths (as does Part 90) because such a table would, of necessity, cause channels to be left fallow in certain markets. This is because no channels listed in the table of a certain bandwidth are necessary. Alternatively, if those wider, fixed-bandwidth channels specified in the table are in fact applied for, they might well be used by licensees with equipment using far narrower necessary bandwidth than that specified for the channel in the table. That would be wasteful. It is far more spectrum-efficient to simply list the band, and the channel segments in narrative form in the rules, and to permit applicants to specify channels formed by stacking 3.125 kHz segments, thus specifying channel centers that are feasible in each case for the equipment to be used.

7. The advances in digital technology since 2002, when the Commission last updated the BAS rules have been substantial. Most commercially manufactured equipment for Part 90 PLMR use is also certified for Part 74 use. Spectrum efficient Part 90 equipment is ready for deployment in the Part 74 RPU bands but for the limits on emission designators found in Section 74.462. The cost and spectrum efficiencies should be made available to broadcasters posthaste. The existing emission mask regulations and bandwidth limitations are adequate to safeguard analog or digital adjacent channel users and it is therefore not necessary any longer to specify emission designators on a case-by-

case basis. There is substantial demand for TDMA and NXDN equipment among BAS licensees for RPU use.

8. As well, the Commission should resolve the anomaly in Section 74.402 of the rules, which requires many RPU applicants (and applicants for modification of existing BAS RPU licenses) to specify either a channel center frequency that cannot be programmed into their existing equipment, or alternatively, to stack more channels than the applicant needs for the transmission of program material. SBE's solution to this anomaly as set forth in its petition should be adopted.

Therefore, for the reasons discussed herein, SBE respectfully requests that the Commission issue a notice of proposed rulemaking at an early date proposing the revision of Sections 74.402 and 74. 462 as proposed in RM-11648.

Respectfully submitted,

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