

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

In the Matter of)
)
Amendment of Part 90 of the Commission’s Rules)
to Permit Terrestrial Trunked Radio (TETRA)) WT Docket No. 11-69
Technology)
)
)
Request by the TETRA Association for) ET Docket No. 09-234
Waiver of Sections 90.209, 90.210 and)
2.1043 of the Commission’s Rules)

To: The Commission

**COMMENTS
OF THE
ENTERPRISE WIRELESS ALLIANCE**

The Enterprise Wireless Alliance (“EWA” or “Alliance”), in accordance with Section 1.415 of the Federal Communications Commission (“FCC” or “Commission”) rules, respectfully submits its comments in the above-entitled proceeding.¹ The Alliance supports the Commission’s decision to seek comment on proposed technical rules that would allow Part 90 users to deploy Terrestrial Trunked Radio (TETRA) equipment. EWA has consistently encouraged the introduction of innovative, spectrally efficient technologies into the very limited spectrum that has been made available for Part 90 land mobile operations. The Alliance’s support, in all instances, has been conditioned on a determination that the technology can be deployed, in the FCC’s words, “without causing interference to existing systems.”² Assuming TETRA equipment can be implemented consistent with that standard, EWA would support rules permitting its deployment.

¹ *Notice of Proposed Rule Making and Order*, WT Docket No. 11-69, 25 FCC Rcd 6503 (2011) (“*NPRM*” or “*Notice*”).

² *NPRM* at ¶ 8.

I BACKGROUND

The *NPRM* is the second recent Commission action involving TETRA, which the *Notice* describes as a digital, trunked radio technology that operates with Time Division Multiple Access (TDMA) in four-slot channels within a 25 kHz bandwidth.³ In the same decision in which it issued the *NPRM*, the FCC adopted an Order (“Waiver Order”) granting the 2009 Request for Waiver (“Waiver Request”) submitted by the TETRA Association (“Association”). The Waiver Request asked that the Part 90 rules governing occupied bandwidth limits (FCC Rule Section 90.209) and emission masks (FCC Rule Section 90.210) be waived to permit TETRA technology to be implemented in the United States (“Waiver Request”).⁴ It also requested waiver relief to allow manufacturers that had received interim equipment authorizations at reduced power to increase their power levels and upgrade to the TETRA standard without securing a new grant of equipment certification (FCC Rule Section 2.1043(a)).

The Commission granted the Waiver Request, but limited its applicability to Industrial/Business Pool (I/B) frequencies in the 450-470 MHz band and to ESMR frequencies in the 800 MHz band.⁵ It granted this relief based on the FCC’s conclusion that “the slight increase in authorized bandwidth and the *de minimis* area of non-compliance with the emission masks would not likely cause increased interference to adjacent channel users.”⁶ The Commission noted that “...the analysis submitted by the Association suggests that TETRA has a lower adjacent channel interference potential than other land mobile technologies currently in use.”⁷ The FCC also determined that because TETRA equipment satisfies the narrowband efficiency

³ *Id.* at ¶ 3.

⁴ *See* Request for Waiver of Section 90.209, 90.210 and 2.1043 (filed Nov. 20, 2009).

⁵ The Alliance has requested that the FCC clarify or reconsider the statement in the Waiver Order exempting from frequency coordination applications converting existing systems to TETRA technology. The Association has agreed that it did not request any special relief from prior coordination requirements.

⁶ *NPRM* at ¶ 20.

⁷ *Id.*

standard, it was in the public interest to allow for this option in anticipation of the upcoming January 1, 2013 deadline by which many Part 90 licensees operating below 512 MHz will need to convert to narrowband equipment or its efficiency equivalent.⁸ Nonetheless, and in response to concerns expressed by a number of parties commenting on the Waiver Request, in particular entities representing public safety users,⁹ the Commission deferred for consideration in the *NPRM* the questions of whether TETRA technology should be authorized on a permanent basis, whether the rules proposed by the FCC would permit this technology to operate without causing interference to existing systems, and how its deployment might affect public safety interoperability.¹⁰

II ALL PART 90 TECHNOLOGIES MUST OPERATE WITHOUT CAUSING EITHER CO-CHANNEL OR ADJACENT CHANNEL INTERFERENCE.

As noted above, EWA has welcomed the introduction of a broad range of increasingly efficient equipment for deployment on Part 90 land mobile spectrum. In particular, in recent years it has supported a variety of digital technologies, including NEXEDGE, MOTOTRBO and IDAS, each of which has particular features and functionalities that have satisfied the requirements of certain users.¹¹ The Alliance strongly believes that this industry segment must have access to enhanced digital capabilities if it is to continue meeting the needs of land mobile users.

However, EWA also recognizes the complexities of introducing digital equipment into the existing Part 90 spectrum environment. The Commission's technical rules are intended to

⁸ *Id.* See 47 C.F.R. § 90.209(b)(5)-(6).

⁹ See, e.g., Comments of the National Public Safety Telecommunications Council (NPSTC), the Association of Public Safety Communications Officials-International, Inc. (APCO), the Land Mobile Communications Council (LMCC), and the Telecommunications Industry Association (TIA).

¹⁰ *NPRM* at ¶ 8.

¹¹ While EWA appreciates that the Association believes TETRA equipment “performs better than currently available technologies,” manufacturers of competing technologies likely would disagree. *NPRM* at ¶ 6, citing Waiver Request at 1, 7-8. Such determinations ultimately are made in the marketplace by users themselves.

protect systems from causing either co-channel or adjacent channel interference. As described in the *Notice*, these requirements include standards for acceptability of equipment, frequency tolerance, modulation emissions, power, and bandwidths.¹² However, in addition to technical specifications, the FCC's rules establish operating requirements that also have a direct impact on the ability of multiple users to co-exist on this spectrum.¹³ Adjacent channel issues are addressed primarily by the technical rules, while co-channel operations are governed largely by the operating requirements. The *NPRM* and the Waiver Request discuss the ability of TETRA equipment to avoid adjacent channel problems, but pay scant attention to co-channel matters. The Alliance urges the Commission to ensure that whatever rules it adopts address TETRA's compatibility with co-channel, as well as adjacent channel, operations.

The single reference to co-channel usage in the *NPRM* is the statement that "The Association asserts that TETRA technology provides equal or greater co-channel interference protection than currently available technologies,"¹⁴ which the Commission identifies as a citation to page 9 in the Waiver Request. EWA can find no such statement in the Waiver Request, which focuses entirely on TETRA's ability to protect adjacent channel operations.¹⁵ The single reference to co-channel operation is on p. 3 of Attachment A to that document, which states only that a technology may exceed an emission mask under certain measurement conditions, and yet put less power into a co-channel or adjacent channel system than a technology that conforms to the mask.¹⁶

¹² *NPRM* at ¶ 2.

¹³ See 47 C.F.R. § 90.401 *et seq.*

¹⁴ *NPRM* at ¶ 9.

¹⁵ The *NPRM* also cites to the Comments of Bay Electronics and Wireless Engineering Systems and Technology (WEST) in support of this claim, but EWA is unable to find any reference to co-channel matters in either of those filings.

¹⁶ Waiver Request, Attachment A at p. 3.

This issue is significant because channels in the Part 90 bands below 512 MHz historically have been assigned on a shared basis with multiple users operating on the same channel in the same geographic area. This “party line” type environment has provided an acceptable, if not always optimal, level of service because of the requirement in FCC Rule Section 90.403(e) that users monitor to avoid causing harmful interference.¹⁷ As licensees deploy equipment with a variety of digital TDMA and Frequency Division Multiple Access (FDMA) techniques, it is critical that the rules continue to protect the operation of entities operating co-channel systems. This must include the ability to monitor for transmissions within the digital user’s authorized bandwidth, particularly as Part 90 licensees below 512 MHz migrate from “wideband” to narrowband operations.

If TETRA equipment has this ability, if it is capable of monitoring and holding up for transmissions within its authorized bandwidth, then it should be able to co-exist with other users on shared channels. If it does not have that capability, as EWA understands, then the Commission should make clear in its decision that TETRA technology may only be deployed in the bands below 512 MHz¹⁸ by licensees that are authorized for trunked operations and that are exempt from monitoring requirements in accordance with FCC Rule Section 90.187.¹⁹ This rule currently provides an exemption for licensees who (1) have met the loading requirements and have exclusivity in their service area in the 470-512 MHz band; (2) are operating on bands between 150-512 MHz and have obtained written consent from all affected co-channel and adjacent channel licensees and pending applicants; or (3) are operating on bands between 150-470 MHz and have a protected service area based on contour analyses performed by an FCC-

¹⁷ 47 C.F.R. § 90.403(e).

¹⁸ Licensees of Part 90 channels in the 800/900 MHz bands are not required to monitor for co-channel operations if the channels are licensed on an exclusive basis as most are.

¹⁹ 47 C.F.R. § 90.187.

certified frequency advisory committee, which channels are identified on licenses with an FB8 station class.

It may be that the Association and prospective users of TETRA equipment are fully aware of the Part 90 monitoring requirement and recognize that they either must meet that rule or deploy this technology only on channels that are exempt from it. However, the absence of any reference to this issue in the Waiver Request or the *Notice*, in conjunction with the unsupported assertion regarding co-channel interference protection in the *NPRM*,²⁰ dictate that this matter be addressed explicitly in the Commission's decision in this proceeding.

If this technology is not designed with monitoring capability, then the opportunities for TETRA equipment may be more limited than the FCC's enthusiastic evaluation of it might suggest. Only a relatively small percentage of Part 90 licensees in the bands below 512 MHz are licensed for channels that are not required to monitor, particularly in more urbanized areas where spectrum demand historically has required more intensive channel sharing. Licensees with channels that are exempt typically operate public safety systems²¹ or systems in certain critical infrastructure industries where channel sharing is less prevalent than in the general I/B community. Since the *Notice* quotes the Association as stating that it does not intend to market equipment to public safety licensees,²² the Alliance assumes that the Association plans to focus its marketing activities on the utility industry and on the limited number of other licensees with channels that do not require monitoring capability.

This is not to suggest that the prospect of limited deployment argues against adopting rules to permit the use of TETRA equipment on qualified spectrum. As long as the FCC has

²⁰ See n. 14 *supra*.

²¹ The Alliance takes no position on whether TETRA technology should be permitted on Public Safety Pool frequencies or what impact its availability might have on the interoperability of public safety communications, a matter that must be determined by the public safety community itself.

²² *NPRM* at ¶ 22, citing TETRA Association Reply Comments at 5, n. 13.

concluded that it will not cause adjacent channel interference, which the *NPRM* states unequivocally is the case, licensees that are free from a monitoring obligation should be able to select TETRA or any other technology that best suits their operating requirements and their budgets. Expanded equipment choices can only work to the benefit of the Part 90 land mobile community as long as the equipment does not adversely impact the operation of other licensees.

III CONCLUSION

The Part 90 bands below 512 MHz present a uniquely challenging spectrum environment. Their history of shared channel operations makes them less than ideally suited for the introduction of technologies designed to operate on exclusive channels. The Alliance is committed to working with the FCC, with equipment manufacturers, and with the Part 90 user community in crafting rules that will enable this segment of the wireless industry to take advantage of the more advanced functionality and greater efficiency of digital technology while still protecting the operations of incumbent licensees.

ENTERPRISE WIRELESS ALLIANCE

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CERTIFICATE OF SERVICE

I, Linda J. Evans, with the law firm of Lukas, Nace Gutierrez and Sachs, LLP, hereby certify that I have, on this 27th day of June, 2011 caused to be mailed, first-class, postage prepaid, a copy of the foregoing Comments to the following:

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