

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)	
)	
Improving Public Safety Communications in the)	
800 MHz Band)	WT Docket No. 02-55
)	
Consolidating the 900 MHz Industrial/Land)	
Transportation and Business Pool Channels)	
)	

**COMMENTS OF THE
TELECOMMUNICATIONS INDUSTRY ASSOCIATION**

The Telecommunications Industry Association (TIA), pursuant to Sections 1.415 and 1.419 of the Commission's Rules,¹ hereby comments in response to the Notice of Proposed Rulemaking (*NPRM*) in the above-captioned proceeding.²

I. INTRODUCTION

TIA is the leading trade association representing the communications and information technology industry, with over 1,100 member companies that manufacture or

¹ See 47 C.F.R. §§ 1.415, 1.419.

² *In the Matter of Improving Public Safety Communications in the 800 MHz Band; Consolidating the 900 MHz Industrial/Land Transportation and Business Pool Channels*, WT Docket No. 02-55, Notice of Proposed Rulemaking, FCC 02-81 (released March 15, 2002) (hereafter "*NPRM*").

supply the products and services used in global communications. Among their numerous lines of business, TIA member companies design, produce and deploy wireless network and terminal equipment including much of the communications equipment used by the public safety community. TIA wholeheartedly supports and applauds the Commission's efforts in this proceeding to ensure that the public safety community has effective radio communications systems free of harmful interference, for they are essential tools in the effort to protect the safety of lives and property.

II. DISCUSSION

TIA supports taking action to reduce the current incidents of interference to public safety systems from cellular type deployments. In furtherance of this goal, TIA believes that the Commission should incorporate the following general principles into its consideration of the various options that will be placed before it. Moreover, these general principles should serve as the backdrop against which TIA's own proposals should be viewed.

First, in the case of any spectrum realignment (retuning, relocation, *etc.*), incumbent, co-primary licensees should not lose their co-primary status. Second, any plan should assure that, at a minimum, non-interfering licensees are provided sufficient funding for relocation and the rights of licensees are protected. Third, contiguous spectrum affords greater flexibility to both public safety and Business/Industrial Land Transportation (B/ILT) licensees. Fourth, the cross-border coordination environment

needs to be taken into account when the Commission considers any spectrum realignment. Finally, currently deployed commercial wireless networks may not meet the requisite reliability needs of public safety or B/ILT internal systems.

More specifically, regardless of any band reconfiguration, TIA believes that additional measures can ensure that interference to public safety and other licensees is eliminated or reduced to a level where system deployments have sufficient desired signal levels to protect themselves.

A spectral separation of “interference-limited” systems (commercial cellular type deployments that do not employ some form of overall regional frequency coordination with other services, *i.e.* high density of low sites) and “noise-limited” (such as public safety and private, *i.e.* low density of high sites) systems is necessary. Each employ different design requirements and serve different user needs.³ The separation is a means to afford the noise-limited systems protection from comparatively high signal levels from the large number of “interference-limited” sites employing multiple transmitters with low antenna heights that exist within the service area of a “noise-limited” system, producing high field strengths in close proximity to CMRS sites.

One measure that could be considered to mitigate interference for Public Safety systems created by a high undesired signal field strength relative to the desired signal is to allow higher desired field strengths to be utilized at the edge of the service area,

³ Motorola Interference Technical Appendix v1.41 to Best Practices Guide, 20,

provided other services are not exposed to increased interference. A recommendation of 50 dBμ (50,50)⁴ is initially considered to be a reasonable tradeoff as it provides additional signal levels to facilitate receivers with more resistance to intermodulation as well as providing improved signal levels to provide enhanced building penetration for handheld public safety units.

Interference can be viewed as an equivalent noise contributor as described in detail in TIA/EIA/TSB88A. The sources are internal thermal noise, intermodulation products and Out of Band Emissions (OOBE) noise. TIA methods of measurement rely on using a 3 dB reduction in sensitivity, viewed as requiring 3 dB more desired signal to regain reference sensitivity in the presence of interference. Intermodulation interference is quite sensitive to reduced signal levels, dropping at the rate of 3 dB per dB of interfering signal level reduction. The OOBE noise only changes dB per dB of reduction, as does the desired signal. Any OOBE has to be suppressed prior to arrival at the victim's receiver as it is already on the victim's desired frequency. Resolution of the current interference issues can be facilitated by ensuring contiguous spectrum for like classes of licensees (i.e. noise-limited vs. interference-limited deployments) combined with adequate spectrum separation to enable effective filtering of OOBE. Actual recommendations will be a function of a final plan. The OOBE noise experienced is dependent on several system level parameters based on actual deployments, including

http://www.apco911.org/afc/project_39/p39.htm

⁴ The term (50,50) refers to the notation used in FCC report R-6602.

transmitter specifications, antennas, antenna beam tilting, antenna heights above ground and actual frequency offsets in addition to the transmitter's OOB characteristics.

The resolution of specific cases of interference between services could be aided by a voluntarily negotiated application, on a case-by-case basis, of limits on the field strength of "interference-limited" systems within affected areas. The interference potential to licensees in Business, Industrial and Land Transportation would in those cases also be reduced.

Thus the aforementioned system deployment considerations used in conjunction with common interference mitigation means, such as increased desired signal levels, spectral separation, or other means could provide the requisite carrier-to-interference ratio at the victim receiver to provide a minimum performance criterion.⁵

III. CONCLUSION

TIA applauds the Commission for initiating this much-needed proceeding. TIA asks that the Commission consider its above recommendations as it moves ahead in adopting its final rule changes to improve public safety communications in the 800 MHz band.

Respectfully submitted,

**TELECOMMUNICATIONS INDUSTRY
ASSOCIATION**

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⁵ TIA/EIA/TSB88A provides details for setting various performance criteria.