

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

In the Matter of)	
)	
Technological Advisory Council Spectrum)	ET Docket No. 17-340
Policy Recommendations)	

To: Chief, Office of Engineering and Technology

**COMMENTS
OF THE
ENTERPRISE WIRELESS ALLIANCE**

The Enterprise Wireless Alliance (“EWA” or “Alliance”) respectfully submits its Comments in response to the Office of Engineering and Technology (“OET”) Public Notice requesting comment on spectrum policy recommendations from the Federal Communications Commission (“FCC” or “Commission”) Technological Advisory Council (“TAC”).¹

I INTRODUCTION

EWA is a national trade association representing business enterprises, wireless sales and service providers, hardware and software system vendors, and technology manufacturers. It is an FCC-certified frequency advisory committee (“FAC”) with responsibility for recommending channel assignments in a variety of bands for applicants for private internal and commercial systems seeking to operate on Part 90 spectrum. The Alliance also is one of two FACs with a Memorandum of Agreement (“MOA”) with the FCC’s Enforcement Bureau. This MOA requires EWA to assist all Part 90 Business/Industrial Land Transportation (“B/ILT”) licensees, including non-members, in resolving interference problems. EWA performs these interference mitigation and resolution activities without compensation. The Alliance receives on average,

¹ Office of Engineering and Technology Seeks Comment on Technological Advisory Council Spectrum Policy Recommendations, *Public Notice*, ET Docket No. 17-340, 32 FCC Rcd 10160 (2017) (“Public Notice”).

approximately twenty-five (25) such compliance and interference complaints from B/ILT licensees annually. EWA resolves the majority of the interference complaints, and historically, only a small percentage of unresolved complaints are submitted to the FCC for further investigation and resolution. These responsibilities have given EWA extensive experience in the complexities of spectrum allocations and the sometimes erroneous expectations of parties about their spectrum rights.

Mark Crosby, President of EWA, also participates on the Commerce Spectrum Management Advisory Committee (“CSMAC”), which advises the Assistant Secretary for Communications and Information at National Telecommunications and Information Administration (“NTIA”) on a broad range of spectrum policy issues. Many of the matters addressed in the TAC’s recommendations also are being considered in CSMAC deliberations. Incorporating them more formally into the FCC’s processes would be consistent with ongoing efforts to explore spectrum sharing between Federal and non-Federal entities. For these reasons, EWA supports the TAC’s efforts to establish a clearer understanding of the realities of today’s intensively populated wireless environment, which is only becoming more congested; the inter-relationship of transmitters and receivers in the goal of avoiding harmful interference; and techniques for mitigating interference should it develop.

II TAC SPECTRUM POLICY RECOMMENDATIONS

The TAC has organized its nine policy recommendations into three categories:

The first category, Interference Realities, urges recognition that there is no such thing as an entirely interference-free radio environment. It recommends that all wireless services, and the systems deployed on their allocated spectrum, should be designed to provide for a reasonable degree of interference-resistance and should plan for instances of service degradation or interruption. It emphasizes that the FCC’s allocation decision and rules should not be based on

extraordinary events, but rather on the great majority of wireless environments likely to be experienced.

The second category, Responsibilities of Radio Services, focuses on the technical factors that influence the likelihood of interference. The TAC notes that just as transmitters are responsible for minimizing the amount of energy they transmit outside their authorized frequencies and geographic areas, receivers also should be designed to protect against receiving interference outside their assigned channels.

The third category, entitled Regulatory Requirements and Action, recommends principles intended to help the Commission make the best possible allocation decisions. Doing so requires services to disclose the relevant technical information to the FCC, information that is not always readily available from other sources. The TAC also suggests that the Commission may find it appropriate to define “Interference Limits” for various services, which quantify interference protection rights in those services. Further, it recommends that decisions regarding appropriate interference protection levels should be based on quantitative analyses of interactions between the services involved.

In addition to those nine principles, the Public Notice explains that the TAC has recommended the wider adoption by the FCC of risk-informed interference assessments and statistical service rules. Doing so is intended to enhance the FCC’s ability to balance the interests of incumbents, proponents of new services, and the public by complementing qualitative data with a more quantitative analysis that considers not only what the worst case scenario might be, but the likelihood of its occurrence and the harm it might cause.

Finally, the TAC has recommended implementation of a database of radio-related enforcement actions. It believes doing so will better inform the public about how such matters have been handled in the past, which presumably would guide their actions in the future.

III EWA SUPPORTS THE TAC'S BALANCED APPROACH TO SPECTRUM POLICY DECISIONS

Wireless communications – for business, governmental, and consumer uses – has become as essential as the power and water utilities that support the nation's economy and the day-to-day activities of all its citizens. In the face of ever-escalating demand, it is imperative that spectrum is allocated and operated to maximize its utility. The TAC emphasized this in 2015:

As frequency spectrum grows ever more crowded, the efficiency of frequency allocations for new services becomes dependent on increasing the effectiveness of spectrum utilization. Accordingly, new spectrum allocations featuring coexistence with current uses are likely to seek more value from the spectrum resource while simultaneously improving interference management.²

The FCC faces extremely challenging spectrum management responsibilities in this era of explosive wireless demand. The TAC policies are intended to facilitate that task by establishing a framework for informed decision-making, both by those who use or hope to use spectrum and by the Commission itself.

As a FAC that works daily with entities seeking spectrum to satisfy private internal or commercial communications requirements, EWA is fully familiar with the needs of both incumbents and new entrants. It has helped entities navigate the repurposing of spectrum, for example in the 800 MHz band, and the migration to more efficient technologies, such as the introduction of digital equipment and the FCC-mandated narrowbanding of VHF and UHF Part 90 spectrum. It has proposed the assignment of interstitial channels in the 800 MHz band³ and has recommended realignment of the 900 MHz band to create a private carrier broadband option for business enterprise users.⁴

² FCC Technological Advisory Committee White Paper: “Basic Principles for Assessing Compatibility of New Spectrum Allocations” at 3 (Rel. Dec. 11, 2015) (“Basic Spectrum Principles White Paper”); <https://transition.fcc.gov/bureaus/oet/tac/tacdocs/meeting121015/Principles-White-Paper-Release-1.1.pdf>.

³ See WP Docket No. 15-32.

⁴ See WT Docket No. 17-200.

EWA supported each of these undertakings because it believed, and continues to believe, they would lead to more efficient spectrum utilization, increased opportunities for those needing spectrum, and an improved quality of service for Private Land Mobile Radio (“PLMR”) entities. Each required or will require adoption of rules that impact both incumbents and those proposing to operate under the new regulatory scheme. In making these types of decisions, the FCC must consider the interests of current and future users as well as the public interest. The TAC principles, in EWA’s opinion, will help the Commission achieve an appropriate balance.

Incumbent systems, designed and deployed under existing rules, have the right to a reasonable expectation that their operations will not be compromised by the introduction of new services or new technologies. However, that right comes with a corollary responsibility to deploy systems with transmitters that do not impinge unreasonably on adjacent spectrum and receivers that are sufficiently interference-resistant to allow productive use of that adjacent spectrum. As stated by the TAC:

Good standard engineering practice dictates that deployed radios can operate in the environment for which the operating and neighboring spectrum is allocated. The term ‘operating’ includes both the receiver being subjected to reasonable Blocking levels from authorized services, as well as the transmitter not interfering with neighboring services...Assuming good engineering practice, a receiver would be deployed with proper filtering and dynamic range to accommodate future expansion of the spectrum, as it was intended for.⁵

Moreover, it is neither reasonable nor realistic in today’s wireless environment to assume that any service or system is entitled to absolutely interference-free operation. The TAC is correct that prudent spectrum management demands that services anticipate non-harmful interference and plan for “occasional service degradation or interruption. The Commission should not base its rules on exceptional events.”⁶ The noise floor will continue to rise, so users

⁵ *Id.* at 16-17.

⁶ Public Notice at 2.

must plan accordingly by purchasing well-designed equipment and deploying and operating it efficiently.

Because the FCC historically has not regulated receiver specifications, only transmitters, there may be a need for a transition in certain services as receivers are improved. Also, systems in the Part 90 services often have used high sites and the ability to hear relatively weak signals to achieve maximum coverage at lower cost. Adjustments may be required so that their inability to reject interference does not unduly limit the opportunity for the deployment of additional systems. Depending on the service, these adjustments may involve some of the mitigation techniques suggested by the TAC, including power control, retransmission protocols, channel coding and adaptive modulation.⁷

Additionally, as acknowledged by the TAC, not all wireless messages are created equal. Some involve more critical communications, and the Commission's spectrum policies should reflect those differences. However, in EWA's opinion, the urgency of the nation's spectrum requirements dictates that the Commission begin to incorporate the policies recommended by the TAC as soon as possible, recognizing that accommodations will be needed in some instances.

The TAC also has made the following important point:

Going forward, the presence of unoccupied guard bands is not compatible with societal need of more efficient use of the limited spectrum. As guard bands are decreased or even eliminated, other characteristics of all wireless communications systems must be optimized to avoid harmful interference.⁸

The proof of concept for that policy was recently demonstrated in the use by PLMR entities of vacant UHF spectrum between the Part 90 and Part 74 Broadcast Auxiliary Service ("BAS") and Part 95 General Mobile Radio Service ("GMRS") allocations. While not officially designated as

⁷ *Id.* at 4.

⁸ Basic Spectrum Principles White Paper at 8.

“guard band,” frequencies at or near the band edges between those services were not designated for use by any of them because, when originally allocated, their use would have overlapped spectrum designated for another service. However, once Part 90 UHF licensees were required to narrowband their spectrum, digital equipment, some as narrow as 4 kHz bandwidth, was developed, and the Commission determined that the frequencies could be used by PLMR entities without spectrum overlap into other services. The FCC has granted waivers for Part 90 entities to use these frequencies and now has proposed to allocate them to the Part 90 service.⁹ In that case, technological advances have obviated the need to leave much-needed spectrum vacant as a guard band between different allocations. These opportunities will only increase as technology allows us to maximize the use of all available spectrum. Going forward, vacant guard bands should be the last resort for avoiding interference, not the first.

The TAC recommendation to make greater use of risk-informed interference assessment and statistical service rules is promising, but likely will require further work before it can be adopted as a general spectrum management policy. EWA agrees that quantitative assessment would be an important complement to the qualitative assessments on which allocation decisions often are grounded. Worst case interference scenarios still would be taken into consideration but would be analyzed in conjunction with data that quantifies the likelihood of such events and their consequences.

Finally, based on its experience as a FAC and its responsibilities under its MOA with the FCC, EWA is all too aware that many licensees have unfounded assumptions about their spectrum rights and responsibilities. Therefore, it strongly supports creation of an easily accessible public database of enforcement activities to which EWA and others could direct

⁹ See Amendment of Part 90 of the Commission’s Rules to Improve Access to Private Land Mobile Radio Spectrum, *Notice of Proposed Rulemaking*, WP Docket No. 16-261, 31 FCC Rcd 9431 at ¶¶ 4-10 (2016).

parties when interference situations arise or even in advance of them. This information could help prevent parties from taking actions that would violate the FCC rules or that would not entitle them to protection under those rules. This, in turn, might reduce the number of interference disputes that the FCC must resolve. This effort might be undertaken in collaboration with entities such as EWA that already provide interference-resolution services to significant numbers of licensees.

IV CONCLUSION

For the reasons discussed above, EWA urges the Commission to adopt spectrum policies consistent with the TAC recommendations and with the Alliance's comments contained herein.

Respectfully submitted,

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