

I. BACKGROUND

Almost two decades ago, the Commission embarked on a rulemaking proceeding, the primary purpose of which was to generate more intensive utilization from the Part 90 allocations between 150-512 MHz.³ The key mechanism for achieving that objective was the creation of full-power interstitial channels offset from the then-primary channels in those bands.⁴ The FCC's new band plan left the original center channels intact, but created full-power adjacent channels that were made available for incumbents and new entrants. In subsequent phases of the refarming proceeding, the Commission adopted a date certain after which new applicants for the originally authorized channels will be required to deploy narrower bandwidth equipment consistent with the new plan, and a later date by which incumbent licensees on those original channels will be required to convert to narrower, more efficient technologies.⁵

While not without a certain amount of controversy and confusion, the FCC's adoption of a band plan that demanded more intensive spectrum utilization has fostered technology advances that promise long-term benefits for the Private Land Mobile Radio ("PLMR") service users that operate under Part 90. Equipment vendors have responded to the challenge by developing a variety of technologies that meet the Commission's spectrum efficiency standards. PLMR users now may choose advanced analog or digital equipment utilizing FDMA or TDMA techniques that both meet the FCC's requirements and also provide the improved capabilities that enterprise users and commercial customers demand in an increasingly sophisticated telecommunications marketplace.

³ *Notice of Inquiry*, PR Docket No. 91-170, 6 FCC Rcd 4126 (1991) ("Refarming NOI").

⁴ At the time the refarming rules were first adopted, the primary channels in the 150-174 MHz band had an authorized bandwidth of 15 kHz, while the primary channels at 450-470 MHz and 470-512 MHz had authorized bandwidths of 25 kHz. Therefore, the new interstitial "offset" channels at 150-174 MHz were 7.5 kHz removed, while those at 450-470 and 470-512 MHz were offset by 12.5 kHz. The FCC also authorized channels offset by 6.25 kHz in the 450-470 MHz and the 470-512 MHz bands.

⁵ 47 C.F.R. § 90.209.

The Commission elected not to include the 800 MHz band when it initiated its proceeding to reform the lower PLMR bands. At the time, the 800 MHz band was relatively new and its regulatory structure had been designed at the outset to promote enhanced spectrum utilization by facilitating the deployment of more efficient trunked systems and by permitting the operation of third party commercial Specialized Mobile Radio (“SMR”) systems intended to serve the requirements of large numbers of smaller PLMR users. As the Commission explained:

...the rules governing the spectrum above 800 MHz already contain incentives designed to foster the research and development of advanced, spectrum efficient techniques. For example, the rules governing spectrum allocations above 800 MHz permit and encourage the use of spectrum efficient technology and equipment. ...Channel exclusivity provides incentives for users to operate in the most efficient mode available. Users also have the flexibility to install highly efficient technologies, such as various analog or digital multiple access techniques, designed for either voice or data applications.⁶

The FCC’s analysis was correct. A regulatory structure that for the first time provided for exclusive PLMR channel assignments proved attractive to business enterprises, public safety entities and to commercial SMR operators. Many of these licensees invested in multi-channel trunked systems that produced meaningful increases in spectrum efficiency. The 800 MHz band also was the home for the highly efficient digital iDEN network deployed by Sprint Nextel and by several other business enterprise companies and telecommunication providers.

However, it has been almost two decades since the FCC elected not to propose assigning interstitial offset frequencies in the 800 MHz band, and more than three decades since the original 800 MHz rules were adopted.⁷ Like the reformed bands in 1991, it is now appropriate in 2009 to consider whether changes in the 800 MHz regulatory structure would serve the interests of PLMR users, and permit more intensive use of this spectrum while concurrently promoting

⁶ Refarming NOI at ¶ 4.

⁷ In the interim, the FCC also allocated 900 MHz spectrum to the PLMR services. That band, from the outset, was assigned in 12.5 kHz channel increments. See 47 C.F.R. § 90.617.

the implementation of advanced technologies. The Alliance believes that these necessary improvements may be achieved as a result of the instant proposal.

EWA makes this recommendation mindful of the fact that the 800 MHz band has undergone substantial stress in recent years. The rebanding initiative, which will separate public safety from cellularized commercial systems, has required large numbers of users to migrate within the band.⁸ This effort is monumental and still ongoing. However, substantial progress has been made, and EWA is encouraged that even NPSPAC licensees are on a path toward relocating their complex systems. When rebanding is complete, the 800 MHz band will be anchored by a public safety NPSPAC allocation at 851-854/806-809 MHz that is based on 12.5 kHz channels⁹ and an ESMR allocation at 862-869/817-824 MHz on which Sprint Nextel operates its digital iDEN network, technology that supports multiple communications paths within a 25 kHz bandwidth channel and that also is able to use contiguous 12.5 kHz bandwidth channel building blocks to create broader channel bandwidths as it does when operating at 900 MHz.

EWA believes that this is the opportune moment for the FCC to facilitate greater utilization of the remaining 800 MHz spectrum between 854-861/809-816 MHz by establishing interstitial full-power 12.5 kHz bandwidth channels in that band segment, subject to rules that will ensure continued interference protection for incumbent 25 kHz bandwidth licensees. The Alliance does not propose that the FCC adopt a date certain by which incumbents on the original 25 kHz channels must migrate to 12.5 kHz bandwidths. Unlike the refarming initiative for the lower PLMR bands, there is no need in this instance to artificially influence technology advances

⁸ See *Report and Order, Fifth Report and Order, Fourth Memorandum Opinion and Order, and Order*, WT Docket No. 02-55, 19 FCC Rcd 14969 at ¶¶ 159-169 (2004).

⁹ Unlike the NPSPAC allocation, EWA's proposal would require licensees on the new 12.5 kHz channels to utilize truly narrowband equipment with a bandwidth no greater than 11 kHz.

by establishing a deadline for conversion. The marketplace is already building on its efforts in the refarmed bands and developing more efficient technologies for the 800 MHz band that will be deployed to meet market conditions, rather than as a response to regulatory dictates. The rule changes proposed herein are not intended to and will not disrupt existing operations within this band segment. Rather, they are designed to permit additional use of this spectrum when, and only when, that can be accomplished without adversely impacting the 25 kHz systems that already provide highly valuable communications capabilities for a wide variety of PLMR licensees.

II. THE 800 MHz BAND PLAN CAN ACCOMMODATE INTERSTITIAL, FULL-POWER 12.5 kHz BANDWIDTH CHANNELS WITH LIMITED MODIFICATIONS

The 800 MHz band plan is well-designed to accommodate interstitial 12.5 kHz bandwidth channels, particularly by comparison with the lower PLMR bands. At the time the FCC undertook its refarming initiative, those bands were densely populated by entirely shared licenses, none of which was accorded *de jure* exclusivity from either co-channel or adjacent channel systems under the FCC rules. Moreover, the FCC already had authorized low-power, secondary, interstitial 12.5 kHz channels in the heavily used 450-470 MHz band. The spectrum landscape was cluttered and not obviously well suited to the introduction of narrowband channels that would need to be squeezed in between multiple co-channel licensees within a given geographic area.

In contrast, the 800 MHz spectrum at issue herein is highly organized from a regulatory standpoint. The existing framework produces consistent performance results for licensees. The original 800 MHz rules provided for, and virtually all incumbents have obtained, exclusive rights to channels within a protected service contour. Channels are reassigned at prescribed distances

in accordance with the protection standards set out in Rule Section 90.621.¹⁰ While it is possible to establish a co-channel facility at a lesser distance than those channel reuse rules permit, doing so requires either concurrence from the affected licensee(s) or a waiver based on satisfying the same contour protection criteria that are embodied in Section 90.621. This much more disciplined environment, and the smaller number of incumbents that populate the band, will make it less difficult for frequency advisory committees to identify where an interstitial 12.5 kHz bandwidth channel may or may not be certified for licensing.

EWA proposes that the FCC retain the existing 40 dBu f(50,50) standard as the definition of the protected service contour for 25 kHz bandwidth systems.¹¹ Under the current rules, a co-channel station may be assigned if the proposed facility's 22 dBu f(50,10) interference contour does not overlap the incumbent protected station's 40 dBu f(50,50) contour. That standard has worked very effectively to prevent interference between co-channel systems.¹² However, in recognition of the fact that facilities operating on the interstitial channels would be 12.5 kHz removed from the center channel of the existing operation, and thereby providing an approximately 12 dB increase in protection vis-à-vis co-channel operations, the Alliance recommends that adjacent 12.5 kHz interstitial channels may be assigned if their 34 dBu f(50,10) interference contour does not overlap the 40 dBu f(50,50) contour of an incumbent station. As in the PLMR bands below 512 MHz, the new interstitial channels would be available to all qualified Part 90 applicants, irrespective of the eligibility category of licensee on either adjacent 25 kHz bandwidth channel.

¹⁰ 47 C.F.R. § 90.621.

¹¹ The FCC historically has required 800 MHz licensees and applicants to use the R-6602 curves in calculating contours in this band. *See, e.g., Susan Jacobs Design, Inc., Order*, 9 FCC Rcd 2854 (1994). While EWA recognizes that there are alternative contour analyses that more accurately reflect real world conditions and is not opposed to the adoption of a different analytical standard, it may be preferable for purposes of consistency to require use of the R-6602 curves for these applications.

¹² The interference problems that were the basis for the FCC's 800 MHz rebanding effort were not caused by the too close assignment of co-channel systems. *See* n. 8, *supra*.

EWA recommends this as the appropriate value to protect 25 kHz analog operations, which are, by far, the most prevalent in the 854-861/809-816 MHz band, and which will be even more typical once Sprint Nextel vacates this spectrum entirely. However, the Alliance recommends that applicants for interstitial channels be evaluated based on a 26 dBu, not a 34 dBu, f(50,10) interference contour when protecting adjacent channel digital or data systems, because the passbands of 25 kHz digital and data receivers are significantly wider than those of 25 kHz analog receivers. This greater protection may be needed for systems that have taken advantage of the flexibility already afforded in Rule Section 90.645 and have either utilized more than a single emission within the authorized bandwidth or have combined multiple adjacent channels to support more than a single 25 kHz channel bandwidth.¹³

EWA recognizes that the FCC rules already provide for the use of interstitial 12.5 kHz “offset” frequencies in the Mexican border area. The Commission assigned “offset” channels in that region in lieu of the 800 MHz channels used in the rest of the country because of the need to identify spectrum that could be used on a primary basis in San Diego without causing interference to operations on the regularly assigned 800 MHz channels in Los Angeles or to 800 MHz operations in Mexico. The FCC has adopted a conservative interference standard in that situation, as set out in Rule Section 90.621(b)(7):

Offset frequencies in the 811-821/856-866 MHz band for use only within U.S./Mexico border area, as designated in Sec. 90.619(a), shall be considered co-channel with non-offset frequencies in this band as designated in Sec. 90.613. New applications for frequencies in this band for stations adjacent to the U.S./Mexico border area must comply with the co-channel separation provisions of this section.¹⁴

¹³ 47 C.F.R. § 90.645.

¹⁴ 47 C.F.R. 90.621(b)(7). The Commission will need to give careful consideration to the criteria for assigning these new 12.5 kHz bandwidth channels in areas proximate to the Mexican border area since they have already been assigned for 25 kHz bandwidth operations in that region.

That same level of protection is not needed for the channels proposed herein. The “offset” channels in the Mexican border area support 25 kHz bandwidth facilities, not the 12.5 kHz bandwidth systems contemplated in this proposal. In light of the spectrum overlap between two 25 kHz bandwidth stations operating on channels separated by only 12.5 kHz, the FCC properly determined that they should be treated as co-channel systems. The same is not true when, as in this proposal, operations on the interstitial offset channels will be limited to 12.5 kHz bandwidth.

The additional 12.5 kHz bandwidth channels proposed in this Petition also will provide incumbents and prospective users needed spectrum relief in the Canadian Border Regions where the United States has fewer 800 MHz channels available for assignment.¹⁵ The difficulties engendered by spectrum limitations in the more populated communities in those regions such as Detroit and Cleveland have been highlighted during the 800 MHz rebanding process. The availability of interstitial 12.5 kHz channels will ease the demand within those markets even if assigned at locations far enough from those areas to provide interference protection to urban incumbents,

III. CONCLUSION

The Commission’s original vision for the 800 MHz band has been fulfilled. It has been an incubator for technologies that have yielded improved spectrum efficiency such as trunking, iDEN and the 12.5 kHz-based NPSPAC allocation. But further technology advances in recent years present an opportunity to derive even greater spectrum utilization from this very important PLMR band. The creation of interstitial 12.5 kHz bandwidth channels in the band between 854-861/809-816 MHz and the adoption of technical rules that will ensure continued protection of adjacent 25 kHz bandwidth systems will permit PLMR users, both incumbents and new entrants,

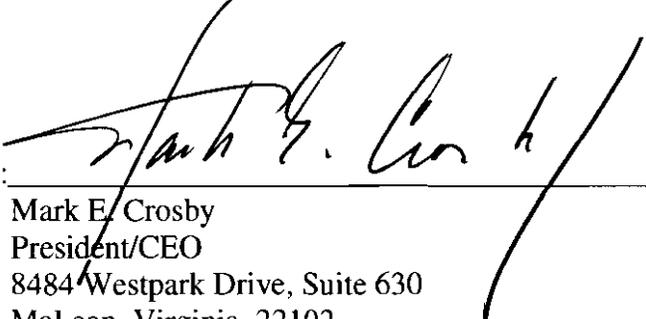
¹⁵ 47 C.F.R. § 90.619.

to take advantage of heretofore unavailable technology capabilities in a flexible regulatory environment, one in which users make their own choices about how best to satisfy their communications requirements.

For the reasons described herein, EWA requests that the FCC initiate a rulemaking proceeding proposing the adoption of rules that will allow the assignment of 12.5 kHz interstitial frequencies in the band between 854-861/809-816 MHz with rules consistent with those proposed in this Petition.

Respectfully submitted,

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April 29, 2009

CERTIFICATE OF SERVICE

I, Donna Brown, hereby certify that on this 29th day of April, 2009, copies of the foregoing Petition for Rulemaking were sent by e-mail, in pdf format, to the following:

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