

July 3, 2012

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, S.W.  
Washington, DC 20554

Re: RM No. 11663; Amended Comments of Motorola Solutions, Inc.

Dear Ms. Dortch:

Attached please find an amended version of Motorola Solutions, Inc.'s ("MSI") Comments in response to the Petition for Rulemaking filed by Harris Corporation, which is the subject of the above-referenced proceeding. MSI's initial pleading, timely filed yesterday, July 2, 2012, mistakenly omitted the required Certificate of Service. The attached amended version of the Comments includes the Certificate. No other changes have been made to the filing. A copy of these Comments has been delivered to Harris Corporation, as indicated in the Certificate of Service. Acceptance of these amended Comments *non pro tunc* would serve the public interest by ensuring that the views of all interested parties are considered by the Commission. Additionally, there would be no prejudice to the Commission, Harris Corporation, or any other party.

Please let me know if you have any questions about this filing.

Respectfully submitted,

/s/ Catherine W. Seidel

Catherine W. Seidel  
Chief – Global Spectrum and Regulatory Policy  
Motorola Solutions, Inc.  
1455 Pennsylvania Ave, NW  
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Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, DC 20054

In the Matter of: )  
 )  
Preventing Interference in Public Safety )  
Frequencies By Requiring H Mask ) RM No. 11663  
And Mutual Aid for Digital Technologies )

**COMMENTS OF MOTOROLA SOLUTIONS, INC.**

Motorola Solutions, Inc. (“MSI”) hereby files these comments in response to the Petition for Rulemaking filed by Harris Corporation (“Harris”) addressing the technical standards applicable to land mobile radios operating on Part 90 frequencies allocated for public safety use.<sup>1</sup> MSI believes that the *Harris Petition* raises issues deserving of Commission consideration but questions whether a new rulemaking proceeding is necessary.

In large part, the issues raised in the *Harris Petition* developed out of the FCC’s proceeding addressing the use of TETRA radio equipment on Part 90 frequencies.<sup>2</sup> The *Harris Petition* takes issue with the manner in which some digital devices based on the TETRA standard have been certified for use on Part 90 public safety frequencies.<sup>3</sup> In order to minimize the risk of interference to public safety services, the *Harris Petition* asks the Commission to clarify the standards for equipment approvals for any digital

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<sup>1</sup> In the Matter of Preventing Interference in Public Safety Frequencies By Requiring H Mask and Mutual Aid for Digital Technologies, *Petition for Rulemaking*, RM No. 11663, submitted April 30, 2012, (“*Harris Petition*”).

<sup>2</sup> In the Matter of Amendment of Part 90 of the Commission’s Rules to Permit Terrestrial Trunked Radio (TETRA) Technology and Request by the TETRA Association for Waiver of Sections 90.209, 90.210 and 2.1043 of the Commission’s Rules, WT Docket No. 11-69, ET Docket No. 09-234, *Notice of Proposed Rule Making and Order*, 26 FCC Rcd 6503 (2011).

<sup>3</sup> *Harris Petition* at 4.

technology (including TETRA) that is designed to operate on Part 90 public safety frequencies. Specifically, the *Harris Petition* asks the Commission to initiate a rulemaking proceeding to implement the following three actions: 1) require, on a technology-neutral basis, digitally-modulated signals be certified under Section 90.210(h) (*i.e.*, the “H-Mask”) for use in public safety spectrum; 2) pending final resolution of this rulemaking, prohibit any digital technology not meeting the H-Mask emissions requirements from operating in public safety spectrum; and, 3) adopt equipment certification mandates for operation on the mutual aid channels designated in §90.203(i) and §90.203(j)(1).

MSI agrees that there is confusion about the technical standards applicable to the public safety frequencies in the 806-809/851-854 MHz band – the “NPSPAC” channels.<sup>4</sup> Section 90.210 of the Commission’s Rules specifies that devices operating on these channels must be compliant with the H-Mask if no audio low-pass filter is used. If an audio low-pass filter is used, the device may show compliance with the emissions limits specified at Section 90.210 (b) (*i.e.*, the “B-Mask”).

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<sup>4</sup> MSI recognizes that the *Harris Petition* does not specifically limit its scope to the public safety NPSPAC channels but instead asks for rule changes that apply to public safety spectrum in general. Compliance with the H-Mask has never been required for devices operating on public safety pool channels in the VHF, UHF or 700 MHz bands or even the non-NPSPAC 800 MHz public safety channels. Because, the *Harris Petition* does not provide analysis or rationale for now applying the H-Mask out-of-band emissions limits to these other frequency bands that employ different channelization plans than the NPSPAC band, MSI assumes that its intent is to simply clarify the continued applicability of that mask on NPSPAC channels. MSI reserves the right to comment further if this assumption proves to be inaccurate and Harris intends that the H-Mask be applicable in all public safety frequency bands.

The low-pass filter specification was originally intended to address interference concerns with analog voice devices. The rules, however, never limited the applicability of the B-Mask to analog devices because there was little need to do so as legacy data devices did not typically employ low-pass filters. Therefore, it became the *de facto* practice that the B-Mask applied to analog voice devices and the more stringent H-Mask applied to data devices that did not employ a low-pass filter. As the *Harris Petition* discusses, some modern day digital designs do use low-pass filter circuitry and have received equipment authorizations while showing compliance with the B-Mask.<sup>5</sup>

The NPSPAC channels require greater interference protection because the 25 kHz wide channels are spaced 12.5 kHz apart. Adjacent channel interference between the overlapping channels is minimized through geographic base stations separation, regional planning, and more stringent technical standards such as reduced carrier deviation and tighter out-of-band emission limits. Because the regional planning process takes these standards into account, allowing digital technologies into the NPSPAC band under different emissions masks could have an impact on both the interference potential and spectrum efficiency within the band. At a minimum, it could increase the effort by each regional planning committee to address interference risks for adjacent users.

MSI concurs that the Commission should assess the potential benefits and risks of requiring the H mask for digital emissions for future deployments in the band, regardless of whether audio filtering is done or not. In so doing, the Commission should recognize that in some cases, the digital technology that has been introduced in the NPSPAC bands has provided performance equal to or better than the initial analog requirements.

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<sup>5</sup> *Harris Petition* at 4, 5.

MSI does not support the request that the Commission impose a freeze on digital devices not meeting the H-Mask from operating on public safety frequencies during the pendency of this assessment. MSI is concerned about unintended consequences of a freeze – if imposed too broadly, a freeze could impact public safety deployment in other frequency bands, including 700 MHz. Rather than a freeze, the Commission should strive to resolve these issues expeditiously to provide certainty to the market.

To that end, MSI believes that it would be more efficient to resolve these issues in WT Docket No. 11-69 as opposed to issuing a new Notice of Proposed Rule Making (“NPRM”). In that existing proceeding, the FCC has sought comments on the appropriate out-of-band emissions limitations for TETRA technology and whether its use on Public Safety Pool frequencies would generally affect interoperability including whether “TETRA radios should be required to operate with conventional FM on the NPSPAC mutual aid channels.”<sup>6</sup> The outstanding NPRM would appear to encapsulate the issues raised in the *Harris Petition*. If there is concern that the existing NPRM is TETRA specific, the Commission could simply issue a public notice broadening the scope to include consideration of other digital technologies. Proceeding in this manner would eliminate the need to draft a new NPRM.

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<sup>6</sup> 47 C.F.R. § 90.203(i) of the Commission’s Rules. More specifically, the NPSPAC mutual aid channels are 1, 39, 77, 115, and 153. *See* 47 C.F.R. § 90.617 (a)(1).

Finally, MSI firmly believes that the FCC rules are already clear that devices designed to operate on the NPSPAC channels must be capable of operating in the FM analog mode on the 800 MHz mutual aid channels.<sup>7</sup> Section 90.203(i) states specifically that “[e]quipment certificated after February 16, 1988 and marketed for public safety operation in the 806–809/851–854 MHz bands must have the capability to be programmed for operation on the mutual aid channels as designated in §90.617(a)(1) of the rules.” Furthermore, Section 90.617(a)(1) specifies that “[t]he assignment of these [NPSPAC] channels will be done in accordance with the policies defined in the Report and Order of Gen. Docket No. 87–112.”<sup>8</sup> The Report and Order in Gen. Docket No. 87-112 establishes FM analog as the mode of operation on the NPSPAC mutual aid channels.<sup>9</sup>

These rules are clear – devices designed to operate on the NPSPAC channels must be capable of operating on the mutual aid channels in FM analog mode – and should be applied equally to all devices designed to operate on the NPSPAC channels.<sup>10</sup> For the

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<sup>7</sup> Similarly, the rules are clear that Project 25 Phase I is the permissible mode of operation on the 700 MHz interoperability channels. *See* 47 C.F.R. § 90.548(a). Any mobile or portable digital radio seeking to operate in the 700 MHz public safety band must be capable of operating in the interoperability channels in the prescribed modes, *i.e.* Project 25 Phase I. *See* 47 C.F.R. § 90.547.

<sup>8</sup> 47 C.F.R. § 90.617 (a)(1).

<sup>9</sup> Report and Order, Gen. Docket No. 87-112, 3 FCC Rcd. 905 (1987) at ¶ 28. The Report and Order does not explicitly mandate the use of FM analog on the NPSPAC mutual aid channels but it does prescribe that the channels be operated in the conventional mode with tone coded squelch at a standard frequency of 156.7 Hz. *Id.* Reference to sub-audible squelch tones infers analog modulation as they cannot be transmitted on digital emissions.

<sup>10</sup> In accordance with Section 90.203(j)(1), the same policy should apply to mutual aid channels in other VHF and UHF bands.

Commission to reach any other conclusions would be a profound step backward for public safety interoperability.

Respectfully submitted,

/s/ Catherine Seidel

Catherine Seidel

Chief,

Global Spectrum and Regulatory  
Policy

/s/ Chuck Powers

Chuck Powers

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July 2, 2012

## Certificate of Service

On July 3, 2012, copies of the foregoing “Comments of Motorola Solutions, Inc.” were sent to the following individuals via first class mail.

/s/ Catherine Seidel  
Catherine Seidel  
Motorola Solutions, Inc.

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