Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 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 LOCKHEED MARTIN CORPORATION

Gerald C. Musarra
Vice President
Trade & Regulatory Affairs

Jennifer Warren
Senior Director
Trade & Regulatory Affairs

Lockheed Martin Corporation
1725 Jefferson Davis Highway
Crystal Square 2, Suite 403
Arlington, VA 22314
(703) 413-5791

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SUMMARY

Lockheed Martin is a licensee in the B/ILT services operating in the interleaved spectrum at 809.75-816 MHz and 854.75-861 MHz and will be directly affected by any restructuring of the 800 MHz band. Lockheed Martin utilizes its B/ILT system to provide radio frequency infrastructure in support of its Missiles and Space operations in Sunnyvale, Milpitas, and Santa Cruz, California. The systems also support Lockheed Martin facilities in Palo Alto and San Jose, California.

Lockheed Martin has been working with the Private Wireless Coalition, the National Association of Manufacturers and MRFAC, Inc. ("NAM/MRFAC") to develop a responsible and equitable solution to the problem of interference to public safety systems in the 800 MHz band. Based upon this work, Lockheed Martin agrees with the Coalition that the appropriate long-term solution to public safety interference concerns is to relocate public safety entities to the 700 MHz band.

In Lockheed Martin's view, relocating public safety to the 700 MHz band has several advantages, including resolving interference issues with public safety systems, and increasing public safety spectrum from the current 33.5 MHz allocation (9.5 MHz in the 800 MHz band and 24 MHz in the 700 MHz band) to 54 MHz (existing 24 MHz of 700 MHz spectrum plus an additional 30 MHz of reallocated commercial 700 MHz spectrum). Lockheed Martin therefore supports the rebanding proposal being submitted in this proceeding by the Private Wireless Coalition. As an alternative, Lockheed Martin supports the NAM/MRFAC proposal. Lockheed Martin believes that both the NAM/MRFAC and the proposal being submitted by the Private Wireless Coalition are in the public interest because they address the problem without burdening unaffected, incumbent licensees.

In addition to supporting the proposed relocation of public safety entities to the 700 MHz band, Lockheed Martin strongly opposes the Nextel channel realignment proposal as presented in the *Notice*. In Lockheed Martin's view, Nextel's proposal does not serve the public interest. The proposal is inequitable and unreasonable because it imposes significant burdens upon existing B/ILT licensees who are not contributing to the interference problem and will not realize any direct benefits from the Nextel proposal. Indeed, Nextel's proposal is merely an ill-disguised effort to grab spectrum at the expense of innocent B/ILT licensees, and as such should not be condoned.

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Lockheed Martin Corporation ("Lockheed Martin") hereby respectfully submits its comments in response to the above-referenced *Notice of Proposed Rulemaking*.[1]

I. BACKGROUND/INTRODUCTION

The *Notice* arises out of growing concern regarding harmful interference to public safety systems operating in the 806-947 MHz band. In the Commission's view, public safety systems have been subjected to increasing incidents of harmful interference from cellularized Commercial Mobile Radio Service ("CMRS") radio services.[2] Moreover, the Commission expects incidents of interference to become more significant as public safety agencies expand and upgrade their systems to respond to the increased demands resulting from the ongoing implementation of a Homeland Security program.[3] To that end, the Commission has concluded

[1] *See Improving Public Safety Communications in the 800 MHz Band and Consolidating the 900 MHz Industrial/Land Transportation and Business Pool Channels*, Notice of Proposed Rule Making, WT Docket No. 02-55 (rel. Mar. 15, 2002) ("*Notice*").

[2] *See, e.g.*, *Notice* at ¶ 14.

[3] *See id.* at ¶ 18.

that there is a serious interference problem to public safety systems in the 800 MHz band that deserves resolution.[4]

The Commission suggests that restructuring or reconfiguring the 800 MHz band may be necessary to address the interference problem.[5] To that end, the *Notice* seeks comment on three specific band restructuring proposals, one filed by the NAM/MRFAC, the other by Nextel, and one proposed by the Commission.[6] The *Notice* also encourages parties to submit additional restructuring proposals and to discuss how the various proposals address: (1) interference elimination; (2) minimum disruption to existing services; and (3) provision of sufficient spectrum for public safety.[7]

Further, the Commission asserts that extracting public safety systems from the interleaved spectrum at 809.75-816 MHz and 854.75-861 MHz, where they operate on channels immediately adjacent to digital SMR, conventional SMR and Business/Industrial Land Transportation ("B/ILT") stations, will be directly impacted by any band restructuring.[8] The *Notice* seeks comment on issues regarding the potential relocation of incumbent licensees, including whether the relocated incumbent is entitled to reimbursement of associated costs and what party should bear such costs.[9] The following comments address these issues.

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[4] *Id.* at ¶ 20.

[5] *Id.*

[6] *See id.* at ¶¶ 20-28.

[7] *Id.* at ¶ 26.

[8] *Id.*

[9] *Id.* at ¶ 38.

II. STATEMENT OF INTEREST

Lockheed Martin's radio frequency systems include 72-75 MHz radio controlled cranes, VHF, UHF, 800 and 900 MHz paging systems, and various microwave and satellite systems. Lockheed Martin is a licensee in the B/ILT services operating in the interleaved spectrum at 809.75-816 MHz and 854.75-861 MHz and will be directly affected by any restructuring of the 800 MHz band. Lockheed Martin utilizes its B/ILT system to provide radio frequency infrastructure in support of its Missiles and Space operations in Sunnyvale, Milpitas, and Santa Cruz, California. The systems also support Lockheed Martin facilities in Palo Alto and San Jose, California. Lockheed Martin's 800 MHz operations were deployed in 1985 and have been fully built-out and loaded for years.

Lockheed Martin has never received an interference complaint from any other licensee in the 800 MHz band, including public safety users. Moreover, Lockheed Martin has no record of receiving harmful interference into its 800 MHz systems. Thus, Lockheed Martin is an innocent third party vis-à-vis interference into public safety systems operating in the 800 MHz band.

Lockheed Martin has been working with the Private Wireless Coalition ("Coalition"), the National Association of Manufacturers and MRFAC, Inc. ("NAM/MRFAC") in an effort to develop a responsible and equitable solution to the problem of interference to public safety operations in the 800 MHz band. The Coalition has concluded that the appropriate long-term solution to this interference problem is to relocate public safety entities to the 700 MHz band. Lockheed Martin concurs with this conclusion and urges the Commission to undertake those actions outlined in the Coalition's comments necessary to complete this relocation subject to the

broad technical and policy guidelines discussed below.[10] In the interim, Lockheed Martin urges the Commission to make clear parties' obligations to utilize "Best Practices" solutions on a case-by-case basis.

III. RESTRUCTURING THE 800 MHZ BAND CAN ADDRESS INTERFERENCE TO PUBLIC SAFETY SYSTEMS

The *Notice* "solicits proposals on how best to remedy interference to 800 MHz public safety systems consistent with minimum disruption . . . to existing licensing structure and assurance of sufficient spectrum for critical public safety communications."[11] In that regard, the Commission has identified several potential causes of interference to public safety systems, including receiver overload, intermodulation and transmitter sideband noise.[12] Lockheed Martin believes that restructuring the 800 MHz band can resolve these root causes of interference. Restructuring would provide spectral separation between public safety and commercial operations. Restructuring would also facilitate public safety agencies investing in new

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[10] As an alternative, Lockheed Martin supports the rebanding proposal submitted by NAM/MRFAC.

[11] *Id.* at ¶ 2.

[12] *Id.* at ¶ 15 (*citing Avoiding Interference Between Public Safety Wireless Communications Systems and Commercial Wireless Communications Systems at 800 MHz – A Best Practices Guide*, Dec. 2000 ("*Best Practices Guide*")). The *Best Practices Guide* was developed in conjunction with the Commission and provides a range of options designed to mitigate and/or resolve interference in the 800 MHz band. Receiver overload occurs because the amplifier used by many receivers to enhance the desired signal can also amplify other (undesired) signals close to the same frequency, potentially overloading the receiver with the undesired signal(s). Intermodulation occurs when two or more different carrier frequencies become mixed, either internally in a transmitter or receiver or external to both devices, producing a strong undesired signal. Transmitter sideband noise becomes a problem when the energy produced by a transmitter above and/or below the assigned frequency are as strong or stronger that the desired signal used by public safety systems. *See Best Practices Guide* at 8-9.

equipment, including deploying upgraded receivers that are more discriminatory in the signals they pick up and therefore better able to prevent interference.

In general, each of the 800 MHz band restructuring options proposed in the *Notice* would appear to address public safety interference to the extent that they would provide spectral separation between public safety and commercial operations. Lockheed Martin, however, believes that the rebanding proposal being submitted in this proceeding by the Coalition more equitably and efficiently resolves interference to public safety operations. Specifically, the Coalition is proposing to relocate public safety to the 700 MHz band and auction vacated 800 MHz spectrum to help pay for the relocation. The Coalition's proposal has several advantages over the proposals discussed in the *Notice*, including resolving interference to public safety systems, and increasing the amount of spectrum allocated for public safety -- from the current 33.5 MHz allocation (9.5 MHz in the 800 MHz band and 24 MHz in the 700 MHz band) to 54 MHz (existing 24 MHz of 700 MHz spectrum plus an additional 30 MHz of reallocated, commercial spectrum at 700 MHz).

Lockheed Martin acknowledges that Congressional action is required to effectuate the Coalition's proposal and refinements may be necessary to implement it. Nevertheless, Lockheed Martin submits that the Coalition's proposal is the best solution for dealing with interference to public safety on a long-term basis thereby eliminating the need to continually revisit this issue.[13]

Furthermore, Lockheed Martin is compelled to oppose the Nextel channel realignment proposal as presented in the *Notice*. In Lockheed Martin's view, Nextel's proposal is inequitable

[13] Lockheed Martin understands that several other parties will file restructuring proposals. Lockheed Martin therefore reserves its right to comment on and support or oppose specific restructuring proposals on reply.

and unreasonable because it imposes significant burdens upon existing B/ILT licensees who are not contributing to the interference problems and will not realize any cognizable benefits from Nextel's proposed rebanding and relocation. Indeed, as explained more fully herein, Nextel's proposal is merely an ill-disguised effort to grab spectrum at the expense of innocent B/ILT licensees, and as such should not be condoned.

IV. RESTRUCTURING THE 800 MHZ BAND SHOULD NOT BURDEN INCUMBENT LICENSEES WHO DO NOT CONTRIBUTE TO THE PUBLIC SAFETY INTERFERENCE PROBLEM

The Commission states that the *Notice* is intended to assist in developing a solution to reduce interference to public safety systems "*without burdening existing licensees.*"[14] To that end, the Commission seeks comment on whether it is feasible or desirable to relocate incumbent licensees.[15] The Commission also seeks comment on (1) whether incumbent licensees should be required to bear the cost of relocating public safety systems (and, if so, the rationale underlying such a requirement,[16] and (2) whether incumbents should be permitted to remain on their current frequencies with primary status, or whether existing licensees can be relegated to secondary status.[17]

Lockheed Martin strongly supports the Commission's basic goal of developing a solution for the interference problem without burdening existing licensees, particularly incumbent B/ILT licensees which are not causing interference. As noted above, Lockheed Martin has not received

[14] *Notice* at ¶ 20 (emphasis added).

[15] *Id.* at ¶¶ 32-37.

[16] *Id.* at ¶ 38.

[17] *Id.* at ¶ 62.

any interference complaints from public safety or other 800 MHz licensees since it began operations in 1985. This fact is consistent with the Commission's tentative conclusion that it is "cellularized CMRS systems," *i.e.*, Nextel-like systems, that are causing interference to public safety communications.[18] B/ILT licensees are therefore innocent third parties to the question of how to resolve the problem of interference to public safety licensees. Simple equity, therefore, demands that such licensees not be financially or technically burdened by the Commission's efforts to correct the problem. Lockheed Martin submits that, as discussed below, incumbent B/ILT licensees should not: (1) be forced to relocate; (2) bear the cost of relocating other incumbents; or (3) suffer degradation of their rights as co-primary licensees.

A. B/ILT Licensees Should not Bear the Cost of Resolving Nextel Interference to Public Safety Systems

Where the Commission has implemented large scale frequency reallocations resulting in the displacement of incumbent services/licensees, the Commission historically requires incumbent licensees to relocate at their own expense.[19] More recently, however, the Commission has rejected this "band clearing" method in favor of a cost-sharing model because most spectrum is now heavily used and thus finding alternative spectrum is much more

[18] *See id.* at ¶ 14 (stating "Interference to 800 MHz public safety communications from cellularized CMRS systems in the same band is well documented.").

[19] *See Amendment of Parts 2, 21, 74 and 91 of the Commission's Rules and Regulations Relative to the Licensing of Microwave Radio Stations Used to Relay Television Signals to Communications Antenna Television Systems*, 1 FCC 2d 897 (1965); *Inquiry Relative to the Future Use of the Frequency Band 806-960 MHz; and Amendment of Parts 2, 18, 21, 73,74, 89, 91 and 93 of the Rules Relative to Operations in the Land Mobile Service Between 806 and 960 MHz*, 19 Rad. Reg. 2d (P&F) 1663 ¶ 13 (1970).

difficult.[20]

Courts have confirmed that the Commission has broad discretion to adopt a cost-sharing model for reimbursing incumbent licensees for relocation costs.[21] This discretion, however, is not unfettered. The Commission has consistently based its cost sharing models upon an analysis of who is causing the interference (or, where it is an issue of introducing new services to a band, the new licensees) and who is benefiting from the relocation.[22] In short, Commission precedent requires that there be a nexus between the parties paying for relocation and those either receiving the benefit of it or those causing it.

As discussed above, Lockheed Martin and other B/ILT licensees do not contribute to the public safety interference problem. Indeed, there is some evidence that B/ILT licensees suffer from the same kind of Nextel-generated cellularized interference as the public safety licensees.[23]

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[20] *Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies*, 7 FCC Rcd 6886 ¶ 5 (1992). *See also Amendment of the Commission's Rules to Relocate the Digital Electronic Message Service* From *the 18 GHz Band to the 24 GHz Band and to Allocate the 24 GHZ Band for Fixed Services*, 12 FCC Rcd 3471 (1997).

[21] *Cf. Teledesic LLC v. FCC*, 275 F.3d 75 (D.C. Cir. 2001).

[22] *See Amendment of Section 2.106 of the* Commission's *Rules to Allocate Spectrum at 2 GHz for Use by the Mobile Satellite Services*, 13 FCC Rcd 23949 ¶ 27 (1998) (MSS licensees required to relocate incumbents only where the MSS licensee seeks to commence operations that would cause harmful interference to the incumbent); *Amendment to the Commission's Rules Regarding a Plan for Sharing the Costs of Microwave Relocation*, 11 FCC Rcd 8825 ¶ 37 (1996) (stating "PCS licensees are not under an obligation to move an incumbent's entire system at once, unless all of the links in the incumbent's system would be subject to interference by the PCS licensee."); *Amendment to the Commission's Rules Regarding a Plan for Sharing the Costs of Microwave Relocation*, 11 FCC Rcd 8825 ¶ 71 (1995).

[23] Lockheed Martin notes that public safety equipment is almost identical to B/ILT equipment. Logic dictates therefore that B/ILT licensees could therefore experience the same kinds of interference experienced by public safety systems. Lockheed Martin, however, has experienced no such interference to date.

Further, as an incumbent B/ILT licensee, Lockheed Martin will not benefit from a relocation of public safety licensees. There is, therefore, no nexus between B/ILT licensees such as Lockheed Martin and the cause of the potential relocation or the benefits that will flow from it. B/ILT licensees therefore should not bear the costs of relocating public safety entities.

Nextel's suggestion that *other* 800 MHz licensees help fund the public safety relocation costs because they "will be relieved of the burdens of detailed, ongoing coordination requirements, operational limitations and channel use restrictions necessary to safeguard public safety" does not change Lockheed Martin's analysis.[24] First, these so-called benefits are illusory and inapplicable to B/ILT licensees. Nextel is simply trying to deflect attention from the fact that interference to public safety is, in most instances, caused by Nextel-like digital SMR systems, *not* by B/ILT or other public safety operations. Second, any benefit to B/ILT licensees from public safety relocation will be indirect at best, and the United States Supreme Court has struck down agency attempts to recover from regulated parties costs for benefits inuring to the public generally and not "directly to the benefit of regulated parties."[25]

B. B/ILT Licensees Should not be Stripped of Their Co-primary Status

The Commission seeks comment on Nextel's proposal to relegate B/ILT licensees to secondary status and whether it is feasible or desirable to change B/ILT licensees' co-primary status.[26] In that regard, the Commission notes that it has previously granted incumbent licensees

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[24] *Notice* at ¶ 38.

[25] *Skinner v. Mid American Pipeline*, 490 U.S. 212, 223 (1989); *see also Nat'l Cable Television Assn., Inc. v. U.S.*, 415 U.S. 336, 342-43 (1974).

[26] *Notice* at ¶ 62.

the option of relocating or accepting secondary status on their existing spectrum.[27] Lockheed Martin submits that it is neither feasible nor desirable to strip B/ILT' licensees' of their co-primary status.

Lockheed Martin relies on its 800 MHz network for highly specialized applications vital to control, maintenance and worker safety. Lockheed Martin utilizes the 800 MHz band for, among other things, emergency medical response and security teams which are required in most, if not all, of its facilities. Further, Lockheed Martin uses its 800 MHz network to support its missile and space facilities' operations which need to be available on a guaranteed basis twenty-four hours a day, seven days a week. Secondary status would require Lockheed Martin to accept any and all interference into its network, undermining its ability to secure such critical, uninterrupted radio frequency support. Lockheed Martin simply cannot accept secondary status for these critical uses.

Similarly, Lockheed Martin cannot accept any solution that would require it to share its network or utilize third party commercial networks. Lockheed Martin's internal wireless networks are specifically and uniquely designed as integral parts of its facilities and cannot be duplicated by a generic system obtained from a third-party, commercial provider. Indeed, Lockheed Martin has gone to extraordinary efforts to ensure that its self-provisioned radio system provides these critical functions on a twenty-four hour per day, seven days per week basis without fail. These functions cannot be out-sourced to commercial providers because such providers simply are unable, or unwilling, to provide the level of security, reliability and availability necessary to support critical B/ILT licensee requirements such as Lockheed Martin's.

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[27] *Id.*

In sum, Lockheed Martin submits that relegating B/ILT licensees to secondary status is neither feasible nor desirable.

V. THE NEXTEL PROPOSAL IS UNREASONABLE AND INEQUITABLE

Nextel is proposing to swap 16 MHz of partially encumbered spectrum it currently holds in the 700, 800 and 900 MHz bands for a wholly unencumbered, 6 MHz contiguous block of spectrum in the 800 MHz band, a 10 MHz block of contiguous spectrum in the 26 GHz mobile satellite band and $500 million. Nextel proposes that two separate but adjacent, contiguous channel blocks be created in the 800 MHz band. The upper 16 MHz block would be reserved for digital SMR at 816-824 MHz and 861-869 MHz.[28] The lower 20 MHz block at 806-816 MHz and 851-861 MHz would be reserved for public safety; however, the need for a guard band on the downlink between digital SMR and public safety will practically reduce the proposed block to 18 MHz or less.[29] Therefore, although Nextel suggests that public safety would realize a net spectrum gain of 10.5 MHz (in addition to the current 9.5 MHz allocated in the 800 MHz band), public safety will likely realize 8.5 MHz or less.

In order to effectuate this rebanding proposal, incumbent B/ILT and public safety licensees will likely need to relocate, both within and out of the band, or accept secondary status. Moreover, these licensees would be saddled with paying for the public safety relocation. Consequently, Nextel's proposal violates the Commission's fundamental goal of not burdening incumbent licensees in the process of resolving the interference to public safety systems.[30] More

[28] *Id.* at ¶ 23.

[29] *Id.* at ¶ 23 & n.51.

[30] *Id.* at ¶ 20.

importantly, the burden Nextel would impose on B/ILT licensees is inordinately large. Nextel generously offers to contribute $500 million to this effort but its contribution is contingent upon adoption of all elements of its band plan, including the reallocation to Nextel of nationwide licenses for a contiguous 10 MHz block of spectrum currently allocated and licensed to MSS at 2 GHz.[31] Although relocation cost estimates are still being developed, Lockheed Martin understands that the costs will likely extend into the billions. Thus, non-Nextel entities such as Lockheed Martin who are not contributing to the problem (and will not realize a cognizable benefit from the relocation, unlike Nextel which will directly benefit), will be forced to pay most of the relocation costs. As explained above, this is at best inequitable and contrary to the Commission's own precedent on cost-sharing. At worst, it is illegal.[32]

With respect to what Nextel is proposing to "give up" in exchange for 16 MHz of unencumbered spectrum, a review of Nextel's SMR licenses reflects that many of them are in fact for encumbered spectrum. Thus, while Nextel makes it appear as if it is offering to exchange items of equal value, Nextel is actually swapping non-contiguous, encumbered spectrum for clean, contiguous spectrum, at the expense of public safety, B/ILT and other incumbent licensees. This is an utter spectrum windfall for Nextel, is wholly inequitable and should not be allowed. To add insult to injury, Nextel's proposal will likely *not* resolve all of the interference problems and has *none* of the benefits of the NAM/MRFAC or Coalition proposal (being submitted with the Coalitions comments). For all of these reasons, Lockheed Martin strongly opposes Nextel's proposal.

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[31] *Id.* at ¶ 39 n.107.

[32] *Cf. Supra n. 25.*

CONCLUSION

Lockheed Martin supports the Commission's goal of resolving existing public safety interference issues without burdening existing licensees in the 800 MHz band. Lockheed Martin submits that relocating public safety operations to the 700 MHz band will satisfy this objective. In the alternative, Lockheed Martin supports the NAM/MRFAC proposal. Furthermore, Lockheed Martin submits that any restructuring proposal must be based upon certain fundamental principles. First, B/ILT licensees should not be subject to relocation. Second, these licensees should not be forced to bear costs for relocating other incumbent licensees. Third, B/ILT licensees should retain the rights associated with their existing co-primary status in the 800 MHz band. Lockheed Martin strongly opposes the Nextel proposal. Rather, Lockheed Martin supports the proposal developed by the Coalition and which is being submitted with the Coalition's comments. Until a final proposal is adopted, Lockheed Martin urges the Commission to make clear parties' obligations to utilize "Best Practices" solutions on a case-by-case basis.

Respectfully submitted,

LOCKHEED MARTIN CORPORATION

By: /s/ Gerald C. Musarra
Gerald C. Musarra
Vice President
Trade & Regulatory Affairs

Jennifer Warren
Senior Director
Trade & Regulatory Affairs

1725 Jefferson Davis Highway
Crystal Square 2, Suite 403
Arlington, VA 22314
(703) 413-5791

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