

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

In the Matter of)	
)	
Review of the Spectrum Sharing Plan Among)	
Non-Geostationary Satellite Orbit Mobile)	IB Docket No. 02-364
Satellite Service Systems in the 1.6/2.4 GHz)	
Bands)	
)	
Amendment of Part 2 of the Commission's)	ET Docket No. 00-258
Rules to Allocate Spectrum Below 3 GHz for)	
Mobile and Fixed Services to Support the)	
Introduction of New Advanced Wireless)	
Services, including Third Generation Wireless)	
Systems)	

JOINT REPLY

The Wireless Communications Association International, Inc. (“WCA”), Sprint Corporation (“Sprint”) and Nextel Communications, Inc. (“Nextel,”) (collectively as the “BRS Parties”) hereby submit their reply to the Consolidated Opposition to Petitions for Reconsideration (“Opposition”) filed by Fusion UV Systems, Inc. (“Fusion”) in the captioned proceeding.¹

I. INTRODUCTION.

In their respective petitions for reconsideration of the Commission’s *Report and Order* in IB Docket No. 02-364 and *Fourth Report and Order* in ET Docket No. 00-258 (collectively, the

¹ See Fusion UV Systems, Inc. Consolidated Opposition to Petitions for Reconsideration, IB Docket No. 02-364 (filed Jan. 21, 2005). On February 3, 2005, the BRS Parties filed a “Joint Motion to Dismiss or, in the Alternative, Motion for Leave to File Replies” against Fusion’s Opposition. See Joint Motion to Dismiss or, in the Alternative, Motion for Leave to File Replies submitted by Wireless Communications Ass’n Int’l, Sprint Corporation and Nextel Communications, Inc., IB Docket No. 02-364 (filed Feb. 3, 2005) [“Joint Motion”]. On March 1, 2005, the Joint Motion was granted in part and the BRS Parties afforded leave to submit this reply.

“*Reallocation Order*”),² the BRS Parties requested, *inter alia*, that the Commission take reasonable measures to mitigate the interference Broadband Radio Service (“BRS”) channel 1 licensees involuntarily relocated from the 2150-2156 MHz band to the 2496-2502 MHz band will suffer from unlicensed industrial, scientific and medical (“ISM”) devices operating in the 2496-2500 MHz band.³ They emphasized that the source of the problem is Section 18.305(a) of the Commission’s Rules, which does not impose any limit on the power an unlicensed ISM device may emit in the 2496-2500 MHz band and thus obviously threatens licensed BRS operations in that band with a substantial risk of co-channel interference. Accordingly, they suggested that the Commission require all Part 18 ISM devices marketed in the United States after December 31, 2006 to restrict their emissions in the 2496-2500 MHz band to 500 microvolts/meter (uV/m), measured at 3 meters.⁴

To fairly accommodate the legitimate needs of unlicensed ISM interests, WCA and Sprint also proposed that the Commission grandfather any ISM devices marketed on or before December 31, 2006.⁵ Nextel recommended similar relief, stating that “new ISM emissions limitations into the 2495-2500 MHz band should allow sufficient time for ISM developers to

² *Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands and Amendment of Part 2 of the Commission’s Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Service to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems*, Report and Order and Fourth Report and Order, 19 FCC Rcd 13356 (2004).

³ See Petition for Partial Reconsideration of the Wireless Communications Ass’n Int’l. IB Docket No. 02-364 *et al.*, at 23-26 (filed Sept. 8, 2004) [“WCA Petition”]; Sprint Petition for Partial Reconsideration, IB Docket No. 02-364 *et al.*, at 6-7 (filed Sept. 8, 2004) [“Sprint Petition”]; Petition for Reconsideration of Nextel Communications, Inc., IB Docket No. 02-364 *et al.*, at 9-11 (filed Sept. 8, 2004) [“Nextel Petition”].

⁴ See WCA Petition at 25, Sprint Petition at 7. This is the emission limit applicable to unlicensed intentional radiators under Section 15.209(a) of the Commission’s Rules, and is the maximum emission level to which BRS licensees have been subjected in the 2150-2156 MHz band. See also Nextel Petition at 11 n.31 (“Limitations on ISM emissions could, for example, be made consistent with the Commission’s Part 15 emission limitations that BRS and EBS licensees must accept.”).

⁵ See WCA Petition at 25, Sprint Petition at 7.

transition product lines; two years should provide ample time for manufacturers to transition product lines, if necessary.”⁶

Fusion’s Opposition and the oppositions already filed in this matter by various vendors of microwave ovens and their trade association (collectively, the “Microwave Oven Vendors”) have much in common.⁷ Like the Microwave Oven Vendors, Fusion does not dispute that because Section 18.305(a) imposes no limit on in-band power of unlicensed ISM devices, BRS channel 1 licensees will be exposed to a heightened risk of interference once they are relocated to the 2496-2502 MHz band. Like the Microwave Oven Vendors, Fusion sidesteps the problem by launching a specious procedural attack on the BRS Parties’ petitions, misrepresenting the record in the process. Like the Microwave Oven Vendors, Fusion suggests without any technical data whatsoever that its own Part 18 devices will not interfere with BRS channel 1 operations at 2496-2502 MHz. Like the Microwave Oven Vendors, Fusion claims that the limited relief requested by the BRS Parties would wreak financial havoc not only on ISM vendors without a sliver of supporting evidence.

Unlike the ISM interests in this proceeding, neither the Commission nor BRS channel 1 licensees can afford to ignore the ISM interference threat posed by the lack of any in-band power limit in Section 18.305(a). And, contrary to what Fusion implies in its Opposition, this is not a problem of the BRS industry’s making -- it was imposed on the BRS industry when the Commission decided to relocate BRS channel 1 and 2 licensees out of the 2150-2162 MHz band

⁶ Nextel Petition at 11 n. 31.

⁷ See Surreply of Wireless Communications Ass’n Int’l, IB Docket No. 02-364 (filed Dec. 17, 2004); Reply of Whirlpool Corporation, IB Docket No. 02-364 (filed Nov. 8, 2004); Comments of LG Electronics Inc., IB Docket No. 02-364 (filed Nov. 5, 2004); Replies of Matsushita Electric Corporation of America, IB Docket No. 02-364 (filed Nov. 8, 2004); Replies of the Association of Home Appliance Manufacturers, IB Docket No. 02-364 (filed Nov. 8, 2004); Replies of GE Company, IB Docket No. 02-364 (filed Nov. 9, 2004).

to create auctionable Advanced Wireless Services (“AWS”) spectrum at 2110-2155 MHz. Simply stated, the BRS Parties’ proposal remains the only one before the Commission that addresses the BRS/ISM sharing problem in good faith. If adopted, the proposal will at least mitigate the risk of ISM interference to BRS operations at 2496-2502 MHz without forcing replacement of ISM devices already or soon to be placed in the field.

II. DISCUSSION.

A. *Fusion’s Procedural Attack on the BRS Parties’ Proposal is Meritless.*

Given that Fusion filed its Opposition more than three months late, it is ironic that Fusion has chosen to attack the BRS Parties’ proposal on procedural grounds.⁸ Specifically, Fusion contends that the BRS Parties’ proposal was raised improperly in their petitions for reconsideration, allegedly because it incorporates “material that [they] knew of, or should have known, pre-decision.”⁹ Fusion is wrong -- it was not until the adoption of the *Reallocation Order* and the companion *Report and Order and Further Notice of Proposed Rulemaking* in WT Docket No. 03-66 (“*MDS/ITFS Restructuring Order*”)¹⁰ that the BRS Parties were put on notice by the Commission that BRS channel 1 might be relocated to 2496-2502 MHz. Neither the *Notice of Proposed Rulemaking* in this proceeding (“*Reallocation NPRM*”)¹¹ or the *Notice of Proposed Rulemaking* in WT Docket No. 03-66 (“*MDS/ITFS Restructuring NPRM*”)¹² ever

⁸ See Joint Motion at 4.

⁹ See Opposition at 6.

¹⁰ *Amendment of Parts 1, 21, 73, 74 and 101 of the Commission’s Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands*, Report and Order and Further Notice of Proposed Rulemaking, 19 FCC Rcd 14165 (2004).

¹¹ *Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands*, Report and Order and Notice of Proposed Rulemaking, 18 FCC Rcd 1962 (2003).

¹² *Amendment of Parts 1, 21, 73, 74 and 101 of the Commission’s Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and* (continued on next page)

raised the possibility that BRS channel 1 licensees might be required to share the 2496-2500 MHz band with ISM devices. The *Reallocation NPRM* includes no discussion of BRS relocation to the MSS band whatsoever, while the *MDS/ITFS Restructuring NPRM* includes no discussion of the incorporation of spectrum below 2500 MHz into the BRS allocation. Indeed, the *Reallocation NPRM* focused solely on the possibility of reclaiming and reallocating the Big LEO MSS spectrum in the 2483.5-2492.5 MHz and 2498-2500 MHz bands.¹³ Again, nowhere in the *Reallocation NPRM* was the concept of reallocating 2496-2500 MHz for BRS and coupling it with spectrum at 2500-2502 MHz for the relocation of BRS channel 1 even mentioned.

Moreover, the record in this matter does not, as Fusion would have it, “reflect[] a decision on the part of [the BRS Parties] to support allocation of the 2496-2500 MHz band [to BRS],” nor does it reflect any tacit acceptance by the BRS Parties of any ISM interference arising therefrom.¹⁴ Fusion points to the initial comments filed by Verizon Wireless on the *Reallocation NPRM*, in which Verizon recommended that the Commission reallocate the 2490-2500 MHz band for BRS, albeit without acknowledging the ISM interference problem or even that unlicensed ISM devices use the spectrum.¹⁵ Yet as Fusion itself admits in its Opposition, WCA *opposed* Verizon’s proposal.¹⁶

2500-2690 MHz Bands, Notice of Proposed Rulemaking and Memorandum Opinion and Order, 18 FCC Rcd 6722 (2003).

¹³ *Reallocation NPRM*, 18 FCC Rcd at 2091.

¹⁴ See Opposition at 6.

¹⁵ See *id.* at 7; Comments of Verizon Wireless, IB Docket No. 02-364, at 8 (filed July 7, 2004).

¹⁶ See Opposition at 7. Fusion attempts to brush over this by claiming that WCA’s opposition to Verizon’s filing “did not claim that any interference would be caused by ISM.” *Id.* Again, Fusion is its own worst enemy – as highlighted in Fusion’s Opposition, WCA stated that incumbents in the 2490-2500 MHz band, *including unlicensed ISM devices*, would have to be moved to accommodate BRS channel 1 licensees. *Id.*; see also Reply Comments of Wireless Communications Ass’n Int’l, IB Docket No. 02-364, at 7 (filed July 25, 2003). Obviously, there would have been no need for WCA to recommend
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Likewise, Fusion distorts the record when it suggests that WCA embraced the allocation of 2494-2500 MHz for BRS in filings submitted shortly before the Commission's adoption of the *MDS/ITFS Restructuring Order*.¹⁷ To the contrary, those filings confirm that the BRS Parties viewed relocation of BRS to 2494-2500 MHz as the only viable alternative among the proposals under consideration by the Commission at that time which, if adopted, would have stripped BRS operators of substantial bandwidth.¹⁸ The record also plainly reflects that the BRS Parties, through WCA, supported relocation of BRS channel 1 to spectrum below 2500 MHz only as a last-gasp compromise to eliminate the longstanding uncertainty over where BRS channel 1 and 2 licensees would be relocated, and to help the Commission bring the underlying rewrite of the BRS/EBS rules to its long-awaited conclusion.¹⁹ Moreover, the BRS Parties never waived from the long-standing concern over interference from ISM below 2500 MHz.²⁰ In so doing, the BRS Parties never waived any right to interference protection or even suggested that BRS

removal of unlicensed ISM devices from 2490-2500 MHz band if they posed no interference threat to BRS operations. In any case, it is well settled that the comments of other interested parties do not constitute "notice" under Section 553 of the Administrative Procedure Act, and thus Verizon's comments cannot repair the lack of notice in the *Reallocation NPRM* on the BRS/ISM sharing issue. See, e.g., *National Black Media Coalition v. FCC*, 791 F.2d 1016, 1023 (2nd Cir. 1986).

¹⁷ See Opposition at 7-8.

¹⁸ Specifically, the Commission was considering whether to (1) strip BRS channel 1 and 2 licensees of all their spectrum at 2150-2162 MHz and reauctation those channels as part of the newly configured BRS/EBS spectrum in the 2.5 GHz band, or (2) relocate BRS channel 1 to 2562-2567 MHz and BRS channel 2 to 2585-2590 MHz. See *Ex Parte* Letter from Thomas Knippen, Vice President and General Manager, W.A.T.C.H. TV Company, to Chairman Michael K. Powell, WT Docket No. 03-66, at 1-4 (filed June 1, 2003); *Ex Parte* Letter from Paul J. Sinderbrand, Esq., Counsel for Wireless Communications Ass'n, WT Docket No. 03-66 (filed June 3, 2003) ["WCA Letter"].

¹⁹ See WCA Letter at 4 ("After three formal rounds of comments and significant ex parte input, there is no sound reason to continue the regulatory uncertainty surrounding the relocation of [BRS channels 1 and 2]. [BRS] licensees are making substantial concessions in agreeing to relocation to the 2.5 GHz band in the interest of expediting the relocation process. The Commission has before it all it needs to both find [BRS] licensees a new home *and* establish the rules and policies that will allow them to move in.") (emphasis in original).

²⁰ See supra note 15.

channel 1 licensees were willing to accept ISM interference once they were relocated to the 2496-2502 MHz band. Fusion's opposing account is fiction and should be dismissed as such.

B. Fusion's Undocumented Assertions As To The Absence of Potential Interference From Its Own ISM Devices Do Not Resolve the Fundamental Defect in Section 18.305(a).

Fusion makes much of the fact that "not all ISM devices are alike in their emission profiles," noting the obvious distinction between consumer ISM devices (*e.g.*, microwave ovens) and non-consumer ISM devices such as its own microwave-powered UV lamps.²¹ Regarding the latter, Fusion contends that its devices are most often used in locations that are inaccessible to the public and/or are otherwise housed or shielded in a manner which minimizes any possibility of harmful interference to surrounding licensed facilities.²²

The BRS Parties cannot respond to Fusion's assertions as to the supposedly limited interference potential of Fusion's specific product, since Fusion has not supplied any technical data or other factual material that supports its argument. Should Fusion ever provide that information, the BRS Parties would be happy to address it at that time. Yet even if Fusion's claim is correct, it does not speak to the interference risk posed by the ISM devices that Fusion does *not* sell, which, per Section 18.305, may operate with unlimited in-band power regardless of their interference impact on BRS operations.

Fusion's undocumented claims about its own product thus fail to address the fundamental flaw in Section 18.305(a), namely that it permits *any* unlicensed ISM device to operate with no in-band power limit in the same spectrum that BRS channel 1 licensees will occupy once they are moved from the 2150-2162 MHz band to the 2496-2502 MHz band. Certainly, the BRS Parties have never disputed that *some* ISM devices (consumer or non-

²¹ Opposition at 11.

consumer) may be operated or installed in a manner that protects BRS channel 1 licensees from interference. That, however, is beside the point -- Section 18.305(a) permits any and all unlicensed ISM devices to operate with as much in-band power as they want, without regard to any interference they might cause to BRS operations at 2496-2502 MHz. *Neither Fusion nor any other ISM party in this proceeding has disputed that Section 18.305(a) exposes BRS channel 1 licensees to a clear and present threat of harmful interference at 2496-2502 MHz.* That is the problem before the Commission here, one for which Fusion and other ISM interests apparently have no answer.²³

Fusion claims that adoption of the BRS Parties' proposed in-band limit "would mean a total re-design of its system" and would cost Fusion and other UV lamp manufacturers "many millions of dollars."²⁴ From there Fusion asserts that adoption of the BRS Parties' proposal would have an adverse effect on "manufacturers in key technology areas which depend upon UV curing" who supposedly "would be forced to seek out new ways of manufacturing their products if microwave UV lamp technology is no longer cost-effective"²⁵ Yet nowhere in its Opposition does Fusion provide any discussion of the specific costs that would be imposed upon them or their customers were they required to comply with the BRS Parties' proposed in-band power limit.²⁶ Indeed, Fusion's "analysis" appears to take no account of the fact that the BRS

²² *See id.* at 11-12.

²³ Certainly, the BRS Parties are prepared to consider alternative solutions that would protect BRS channel 1 operations while permitting benign ISM operations to continue unhampered. However, it is significant that neither the Microwave Oven Vendors nor Fusion have advanced any practical solution to the obvious problem.

²⁴ Opposition at 16

²⁵ *Id.* at 17.

²⁶ Similarly, Fusion makes an undocumented claim that adoption of the BRS Parties' proposal will undermine efforts to achieve globally harmonized standards for ISM spectrum generally. *See id.* at 15-16. Even if true (and, again, Fusion has offered no evidence that it is), the Commission has never abandoned
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Parties' proposal would permit continued operation of all unlicensed ISM devices already in the field (including the microwave-powered UV lamps sold by Fusion and others), *plus* any other unlicensed ISM devices marketed by December 31, 2006. While this clearly is not the optimal solution for the BRS industry (since it will leave BRS channel 1 licensees subject to interference until the installed base of unlicensed ISM devices is replaced), it will permit the Commission to gradually reduce the ISM interference risk over time, as older unlicensed ISM devices are replaced in the normal course by newer ones. Eventually (although not as soon as BRS channel 1 licensees would prefer), interference to BRS channel 1 from unlicensed ISM devices will be controlled.

III. CONCLUSION.

In spectrum allocation matters, the Commission "must clearly define the . . . basic spectrum rights parameters for all licensed and unlicensed spectrum users," including "[m]aximum RF output, both in-band and out-of-band."²⁷ That principle applies to *all* uses of spectrum, including the ISM uses promoted by Fusion. The BRS Parties have offered a good faith compromise proposal to address the indisputable flaw in Section 18.305(a) – it provides no limit whatsoever on ISM power in a band that is now shared with BRS. In stark contrast, Fusion would have the Commission ignore the interference threat of unlimited power in the 2496-2500 MHz band altogether, a "solution" that may advance Fusion's self-interest but is contrary to the public interest. While the BRS Parties would be open to any alternative solution that reduces the impact on ISM of protecting relocated BRS channel 1 operations, the BRS Parties are hamstrung

its core mission of protecting licensees from harmful interference for the sake of global harmonization, and Fusion has given the Commission no reason to reverse field now.

²⁷ Report of the Spectrum Policy Task Force, Federal Communications Commission, ET Docket No. 02-135, at 18 (November 2002).

by the total unwillingness of the ISM community to acknowledge the problem, much less engage in a meaningful discussion of possible solutions.

Respectfully submitted,

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CERTIFICATE OF SERVICE

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