

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Amendment of Part 27 of the	)	
Commission’s Rules to Govern the	)	WT Docket No. 07-293
Operation of Wireless Communications	)	
Services in the 2.3 GHz Band	)	
	)	
Establishment of Rules and Policies for the	)	IB Docket No. 95-91
Digital Audio Radio Satellite Service in the	)	GEN Docket No. 90-357
2310-2360 MHz Frequency Band	)	RM No. 8610
	)	

**COMMENTS OF WiMAX FORUM**

**I. INTRODUCTION**

The WiMAX Forum respectfully submits these comments in response to the Federal Communications Commission’s (“FCC” or “Commission”) Second Further Notice of Proposed Rulemaking and Notice of Proposed Rulemaking in the above captioned matter and urges the Commission to revise its rules governing WCS and SDARS operations to improve co-existence between the two services and enable deployment of a viable mobile broadband service in the 2.3 GHz band.<sup>1</sup>

The WiMAX Forum™ has more than 522 members comprising the majority of operators and component and equipment companies in the communications ecosystem, and is the world’s

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<sup>1</sup> In the Matter of Amendment of Part 27 of the Commission’s Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band; Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band, *Second Further Notice of Proposed Rulemaking and Notice of Proposed Rulemaking*, WT Docket No. 07-293 IB Docket No. 95-91 GEN Docket No. 90-357 RM No. 8610 (rel. Dec. 18, 2007) (“WCS SDARS co-existence NPRM”).

leading organization promoting global standardization for, and adoption of, metro-scale wireless broadband networks using the IEEE 802.16 and ETSI HiperMAN wireless MAN specifications (“WiMAX”). The WiMAX Forum’s goal is to accelerate the introduction of these networks, devices and services into the marketplace. WiMAX Forum Certified™ products will be fully interoperable and support metropolitan broadband fixed, nomadic and mobile applications. Collaboratively, the WiMAX Forum is pursuing programs to assure certification and interoperability of mobile WiMAX™ products, global roaming, interworking to complement existing voice networks, development of applications and services optimized for WiMAX, and the promotion of WiMAX products worldwide. The 2.3 GHz band is an important frequency band for the deployment of WiMAX and commercial wireless broadband services globally and, as such, WiMAX Forum urges the Commission to work expeditiously to update its rules to facilitate the introduction of these services in this band.

**II. THE COMMISSION SHOULD ACT PROMPTLY TO UPDATE THE WCS AND SDARS RULES TO FACILITATE CO-EXISTENCE AND ENABLE DEPLOYMENT OF A VIABLE MOBILE BROADBAND SERVICE IN THE 2.3 GHZ BAND.**

The WiMAX Forum supports and commends the FCC’s decision to update the record in this proceeding and establish the respective rights of WCS and SDARS licensees so these services may co-exist.<sup>2</sup> Resolving the long-standing interference issues that prevent WCS licensees from deploying commercially viable services will enable the American public to benefit from increased competition in, and penetration of, broadband through deployment of WiMAX and/or other advanced wireless services in the 2.3 GHz band.

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<sup>2</sup> *Id.* ¶ 13.

For over ten years, WCS and SDARS licensees have been without final rules for SDARS terrestrial repeater operations, the lack of which has hampered the ability of both services to co-exist on adjacent channels.<sup>3</sup> Under the current rules, WCS licensees face unreasonably restrictive out-of-band emission (OOBE) limits that cripple their ability to obtain equipment and deploy commercially viable services in the band.<sup>4</sup> Meanwhile, SDARS operators, under special temporary authority (STA), have deployed hundreds of terrestrial repeaters at such high transmit power levels that the wireless broadband services planned for deployment in the WCS band are jeopardized.<sup>5</sup>

WCS licensees and equipment manufacturers both agree that they face regulatory uncertainty with regard to SDARS terrestrial repeater operation; the Commission joins these market players in stating that overly restrictive emission limit requirements have likewise inhibited deployment of wireless broadband services in the 2.3 GHz band. WCS licensees have expressed that without certainty as to the extent of their vulnerability to interference from SDARS terrestrial repeaters, they “cannot design and deploy networks...and equipment suppliers will be unable to complete development of products for use in the 2.3 GHz band within the United States.”<sup>6</sup> Wireless equipment manufacturers, including Intel, Motorola and Navini<sup>7</sup>, have indicated that their efforts to commercialize mobile broadband products for the U.S. 2.3 GHz

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<sup>3</sup> *Id.* ¶¶ 8, 11.

<sup>4</sup> *See* 47 C.F.R. § 27.53(a)(1)-(2) (2006) (imposing OOBE limits of 80 + 10 log(P)dB and 110 +10 log(P)dB on WCS fixed and mobile applications respectively). *See also* Consolidated Request of the WCS Coalition for Limited Waiver of Construction Deadline for 132 WCS Licenses, *Order*, 21 FCC Rcd 14134 ¶ 10 (WTB, 2006) (“WCS Extension Order”)(Citing Motorola Comments at 8; Intel Comments at 2; WCS Reply Comments at 11-12).

<sup>5</sup> *WCS SDARS co-existence NPRM* ¶¶ 9, 11, 21, 33-34.

<sup>6</sup> Consolidated Request for Limited Extension of Deadline for Establishing WCS Compliance With Section 27.14 Substantial Service Requirement, filed by the WCS Coalition, WT Docket No. 06-102 at 9 (Mar. 22, 2006) (“WCS Coalition Request”).

<sup>7</sup> On December 19, 2007, Cisco Systems completed its acquisition of Navini Networks.

market have been delayed by the regulatory situation.<sup>8</sup> Moreover, as recently as December 2006, the Wireless Telecommunications Bureau (WTB) acknowledged that regulatory uncertainty over SDARS repeater operation and stringent out-of-band emissions limits prevented deployment of services in the WCS band.<sup>9</sup> In extending the WCS construction deadline, the WTB sympathized with the position of WCS licensees and equipment manufacturers:

that the regulatory uncertainty regarding the rules and technical requirements for terrestrial SDARS repeaters has hindered WCS deployment and created equipment problems....[W]ithout certainty about the extent to which WCS will be vulnerable to harmful interference from SDARS terrestrial repeaters, “WCS licensees cannot design and deploy networks capable of providing the fast, reliable quality of service that consumers demand, and equipment suppliers will be unable to complete development of products for use in the 2.3 GHz band within the United States.”<sup>10</sup>

In addition to acknowledging the difficulties faced by licensees absent technical requirements for SDARS terrestrial repeaters, the WTB was “persuaded by the commenters that relatively restrictive OOBE limits may have impeded the development of WCS equipment [in] the band.”<sup>11</sup>

While limited fixed services have been deployed in the 2.3 GHz band, it has been recognized that “the technical uncertainty surrounding the band has stymied larger-scale

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<sup>8</sup> In the *WCS Coalition Request* proceeding, Intel commented that it has developed broadband equipment in the 2.3 GHz band for use in Asia, but has not yet finalized plans for 2.3 GHz products in the United States because of regulatory uncertainties surrounding the band. See *WCS Coalition Request* (Comments of Intel Corp. at 1-2 (filed June 09, 2006)). See also *id.* (Comments of Motorola Inc. at 5 (filed June 9, 2006)) (stating that “[t]he lack of technical rules governing adjacent band satellite DARS repeater stations results in uncertainty in how to design WCS equipment”). Finally, in that same proceeding, Navini Networks stated that “the continuing lack of permanent rules for terrestrial DARS repeaters impacts the WCS licensees’ ability to develop and implement mobile wireless broadband networks that provide the ubiquitous, fast, and reliable service that consumers demand.” *Id.* (Comments of Navini Networks at 1 (filed June 9, 2006)).

<sup>9</sup> See *WCS Extension Order* ¶¶ 9-13 (granting WCS licensees a three year extension of their construction deadlines because technical and equipment challenges “beyond their control [] have limited their options in providing service.”) *Id.* ¶ 9.

<sup>10</sup> See *WCS Extension Order* ¶ 7 and nn.33-35 (citing *WCS Coalition Request* at 9; Comments of Motorola, Inc. at 2, 5).

<sup>11</sup> See *WCS Extension Order* ¶¶ 9-10.

deployments.”<sup>12</sup> As discussed in greater detail below, mobile broadband equipment based on the WiMAX standard has been developed for the 2.3 GHz band and is already in use in other countries. Such equipment could be adapted to operate in the United States, but only if the regulatory uncertainty overshadowing the band is eliminated.<sup>13</sup>

As outlined above, finalized rules governing the reasonable co-existence of the adjacent WCS and SDARS services are critical to mobile broadband roll-out in the 2.3 GHz band. The WiMAX Forum urges the Commission to adopt rules that will extend affordable wireless broadband services to millions of Americans using advanced wireless technology and equipment that is available today.

**III. FINAL RULES GOVERNING THE USE OF 2.3 GHZ FOR MOBILE BROADBAND SERVICES SHOULD BE HARMONIZED INTERNATIONALLY IN ORDER TO MAXIMIZE THE ADVANTAGE TO THE AMERICAN PUBLIC.**

The WiMAX Forum agrees with comments filed by the WCS Coalition that the current OOB limits on WCS licensees are overly restrictive.<sup>14</sup> In fact, the OOB limits currently imposed on WCS licensees in the United States are significantly lower than those recognized by other countries.<sup>15</sup> The WiMAX Forum believes that relaxed OOB limits for the WCS band are necessary to harmonize equipment development and service offerings with the rest of the world to the ultimate benefit of the American public.

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<sup>12</sup> *Id.* (Comments of Motorola, Inc. at 2).

<sup>13</sup> WCS licensees recently noted that “[a]doption of final technical rules is the critical first step for developers of WCS equipment who must have certainty about the technical rules before...equipment can be developed and made available for trials.” *WCS Coalition Request* (Ex Parte Notice of NextWave Broadband Inc. at 2 (filed June 30, 2006)).

<sup>14</sup> *See WCS SDARS co-existence NPRM* ¶ 24.

<sup>15</sup> In Korea an attenuation requirement of  $33+10*\log(P)$  is required at 4.77 MHz offset for a 23 dB terminal. In Australia the allowed emission level is 0 dBm for offsets greater than 5 MHz from the licensee block (*See e.g.*, [http://web.acma.gov.au/pls/radcom/licence\\_image.extract\\_pdf](http://web.acma.gov.au/pls/radcom/licence_image.extract_pdf)).

The 2.3 GHz band is on the brink of becoming a major international allocation for mobile broadband services. Already, Korea's two major mobile service providers are offering mobile broadband services using WiMAX technology in the 2.3 GHz band. On the heels of Korea's success, other countries are either introducing or are in the process of making available 2.3 GHz spectrum for wireless broadband services. These countries include a growing segment of the Asia Pacific region that includes China, India, Australia, New Zealand, Malaysia, Singapore, Vietnam, and Hong Kong. To our North, Canada has opened the band for mobile broadband; while to the South, parts of South America are following suit. Several countries in Africa have also established regulations permitting deployment of advanced mobile broadband technologies, including WiMAX. And this is just the beginning. Last year, the International Telecommunication Union (ITU) World Radiocommunication Conference 2007 (WRC-07) identified the 2300-2400 MHz band for use by International Mobile Telecommunications (IMT) systems, a classification that now includes WiMAX technology in addition to other major advanced wireless systems.<sup>16</sup> The WiMAX Forum believes that this identification will ultimately lead to the broader deployment of mobile broadband services in the 2.3 GHz band globally.

If formulated correctly, rules that enable the reasonable co-existence of WCS and SDARS, while facilitating the introduction of mobile broadband services, will increase competition and invoke economies of scale that will together greatly benefit the American consumer. Global adoption of the 2.3 GHz band for mobile broadband services will mean enormous competition in the equipment supply market. With common regulatory requirements, scores of equipment manufacturers will be poised to produce equipment for use in the band. But,

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<sup>16</sup> See "International Telecommunications Union Approves WiMAX Technology as New IMT-2000 Standard", 19 Oct 2007, [http://www.wimaxforum.org/news/pr/view?item\\_key=993a9f3e2bf2b5b6822364fd90738185f17f2de0](http://www.wimaxforum.org/news/pr/view?item_key=993a9f3e2bf2b5b6822364fd90738185f17f2de0).

if the current OOB requirements remain in effect, this growing trend will not reach the United States. The WiMAX Forum believes that the best way for American consumers to reap the benefit of competition in the supply market is for the Commission to create rules governing WCS and SDARS that allow WCS licensees to take advantage of the economies of scale found in the global market.

Given the current and likely future availability of equipment for the 2.3 GHz band, WiMAX Forum urges the Commission to develop final rules that bring WCS OOB limits to within some reasonable tolerance of those already in existence internationally. The closer the tolerances, the more likely and more quickly that WiMAX equipment already available outside the United States can be adapted and made available for use by U.S. consumers. This will lead to more readily available equipment, timely establishment of a supply chain, and faster deployment of services in the 2.3 GHz band. The American consumer will thus sooner experience increased broadband competition through the wireless pipeline.

Likewise, the ready availability of equipment for the 2.3 GHz band allows WCS licensees to take advantage of economies of scale – a cost savings that can be passed on to the American consumer. Rules fostering reasonable co-existence between WCS and SDARS repeaters within a reasonable degree to those already in production in the global marketplace therefore provide a two-fold benefit – increased competition and lower costs – that will ultimately result in lower broadband access prices and greater service penetration.

#### IV. CONCLUSION

For the reasons discussed above, the WiMAX Forum urges the Commission to act promptly to modify its rules to allow WCS operators deploy a commercially viable wireless broadband service adjacent to SDARS terrestrial repeaters and take advantage of economies of scale that are emerging globally in the 2.3 GHz band. Technology advances have made wireless broadband services in the 2.3 GHz band feasible and equipment is being produced for the global marketplace. The only impediment to swift wireless broadband deployment is regulatory uncertainty. Through prompt resolution of this long-standing issue, the Commission will foster competition in the provision of broadband services and allow the valuable WCS spectrum to be put to its highest use.

Respectively submitted,

/s/ *Tim Hewitt*

Tim Hewitt  
Chair, WiMAX Forum Regulatory Working Group  
WiMAX Forum  
2495 Leghorn Street  
Mountain View, CA 94043