

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

In the Matter of)	
)	
Amendment of Part 2 of the Commission's)	
Rules to Allocate Spectrum Below 3 GHz)	
For Mobile and Fixed Services to Support the)	ET Docket No. 00-258
Introduction of New Advanced Wireless)	
Services, including Third Generation)	
Wireless Systems)	
)	
Amendment of Section 2.106 of the Commission's)	ET Docket No. 95-18
Rules to Allocate Spectrum at 2 GHz for Use)	
By the Mobile-Satellite Service)	
)	
The Establishment of Policies and Service Rules)	IB Docket No. 99-81
for the Mobile-Satellite Service in the 2 GHz Band)	
)	
Petition for Rule Making of the Wireless)	
Information Networks Forum Concerning the)	RM-9498
Unlicensed Personal Communications Service)	
)	
Petition for Rule Making of UTStarcom, Inc.,)	
Concerning the Unlicensed Personal)	RM-10024
Communications Service)	

REPLY COMMENTS OF SPRINT CORPORATION

Sprint Corporation hereby respectfully submits its reply comments in the above-captioned proceeding.¹ Sprint appreciates comments submitted by many entities supporting MDS/ITFS operators and recognizing the importance of retaining the 2150-

¹ Amendment of Part 2 of the Commission's 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, ET No. 00-258, FCC 01-224, 66 FR 47618-01, *Further Notice of Proposed Rulemaking* (rel. Aug. 20, 2001).

2162 MHz band for MDS/ITFS service or providing truly comparable spectrum for reallocation in order to enable MDS/ITFS services to continue to operate.² As stated in Sprint's comments, Sprint urges the Commission to allow MDS 1 and 2/2A to continue to operate in the 2150-2162 band. While Sprint would be willing to relocate if the Commission deemed it necessary and if acceptable replacement spectrum were identified, to date, none of the proposed relocation options appears to be fully comparable to the 2150-2162 MHz band or free from unacceptable interference implications. Sprint urges the Commission to continue developing the record and evaluating spectral options until truly comparable spectrum is identified.

DISCUSSION

Sprint urges the Commission to allow MDS 1 and 2/2A to continue to operate in the 2150-2162 band. Should the Commission deem it necessary for MDS services to relocate in order to clear spectrum for additional advanced services, Sprint would be willing to do so, provided that the spectrum to which its MDS 1 and 2/2A operations are moved is truly comparable to the 2150-2162 MHz band and provided that any relocation costs sustained are reimbursed. In response to the Commission's Report and Order and Further Notice of Proposed Rulemaking ("FNPRM"), several commenters supported relocation of MDS services to various bands, or portions of bands, suggested by the Commission. Among these are the 1910-1930 MHz band, the 2390-2400 MHz band, and the 1990-2025 MHz band, and the 2165-2200 MHz band. Sprint notes that none of the

² Comments of Nortel Networks, Inc. at 5-6, stating: "Nortel Networks advocates the continued use of this [2150-2160 MHz] band for upstream communications channels to hub receiving facilities of the Multipoint Distribution Service (MDS)... If the band 2150-2160 MHz, or any portion thereof, is re-allocated in support of new advanced wireless services, the current MDS service users must be provided with appropriate replacement spectrum. MDS manufacturers, distributors, and users should also be afforded the same level of relocation funding as other displaced services. As recognized by the Commission, such relocation costs for the MDS/ITFS services would be very significant;" Comments of Motorola at 13, stating: "Motorola supports the allocation of comparable spectrum for these licensees, as well as full compensation for relocation costs to this new spectrum."

commenters has provided a complete analysis of the implications of reallocating MDS service to any of the bands and that such analysis must be completed prior to any relocation. In particular, it must be established that any new band is truly comparable to the 2150-2162 MHz band -- that in-band operations within the replacement band are comparable and that the operations of adjacent channel licensees (both above and below) do not impair such comparability. Keeping that in mind, Sprint offers the following comments on the particular reallocation proposals.

1910-1930 MHz

The 1910-1930 MHz band is currently allocated worldwide to the Fixed and Mobile Services. In the United States, the 1910-1920 MHz portion of the band is used for asynchronous data UPCS devices, and the 1920-1930 MHz portion is used for isochronous voice UPCS devices, operating under Part 15 of the Commission's rules.³ In the FNPRM, the Commission stated that there has been little development of unlicensed asynchronous devices in the 1910-1920 MHz and 2390-2400 MHz bands, and only limited wireless PBX use has begun in the 1920-1930 MHz segment.⁴

In comments, several entities, including NEC America, Inc ("NEC") and other UPCS commenters agree with the Commission that the 1910-1920 MHz band is underutilized.⁵ Nortel supports the FNPRM proposal to expand the use of the band, so long as the current power limits are retained.⁶

³ As the Commission noted in the FNPRM, WARC-92 and WRC-2000 identified the 1885-2025 MHz band for possible use for new advanced wireless service use. See FNPRM at ¶ 9, citing ITU RR S5.388 and WRC-2000 Resolution 223.

⁴ FNPRM at 6.

⁵ See e.g., Id. at 23, noting the "dearth" of asynchronous devices in the 1910-1920 MHz band; Comments of UTStarcom at 2, stating: "the UPCS band has not developed as anticipated;" Comments of TCA, Inc at 7, stating: "Clearly, the 1910-1920 MHz band is currently being underused;" Midstate Communications at 2; UTAM at 12-13; Penasco Valley at 2.

⁶ Comments of Nortel Networks at 4.

In contrast, NEC states that the 1920-1930 MHz portion of the band is heavily used for its UPCS devices and states that as of year-end 2000, there were nearly 220,000 users of mobile handsets provided by NEC and other manufacturers.⁷

Even assuming that the band is underutilized, and assuming that incumbent services could be relocated to comparable spectrum, interference by and to neighboring operations must be evaluated. In comments, both Verizon and Motorola assert that MDS and PCS/3G services will suffer interference on adjacent spectrum below 1910 MHz or above 1930 MHz.⁸ However, even some of the studies relied upon state that further study is required. For example, one ITU-R Working Party 8F contribution on which Motorola relies concludes: “Continued investigation is required to define an appropriate guard band size considering real world operation issues such as base station collocation.”⁹ Another ITU contribution states that operation without a guard band is possible under certain circumstances: “Using general ACLR and ACS requirements and assuming a 5 MHz guardband, the supported cell range is found and is considered to be sufficient. Operation without a guardband is possible with extra isolation.”¹⁰

Clearly, much more study is necessary to determine whether relocation of MDS to this band is workable and to ensure that sufficient guardbands and power parameters are established. Sprint urges the Commission not to make any decisions as to reallocation until after such study has been completed.

⁷ Comments of NEC America, Inc. at 4. *See also* Comments of Nortel Networks, Inc. at 4, stating that in some areas [within 1920-1930 MHz], the band has reached saturation of traffic.

⁸ Comments of Verizon at 9-10; Motorola Comments at 15-18.

⁹ *Interaction of TDD and FDD systems: Interference Related to Cell Collocation of Adjacent-band TDD and FDD Systems*, ITU-R WP 8F/410, Oct. 10, 2001.

¹⁰ *Coexistence between IMT-2000 TDD and FDD Radio Interface Technologies Operating in Adjacent Bands and in the Same Geographical Area*, ITU-R WP 8F/392-E, Sept. 28, 2001.

2390-2400 MHz

As the Commission noted in the FNPRM, the 2390-2400 MHz band is allocated in International Telecommunications Union (ITU) Region 2 on a co-primary basis to the Fixed, Mobile, and Radiolocation Services, and on a secondary basis to the Amateur Service. In the United States, it is allocated on a primary basis to the Amateur Service; it is also designated for use by asynchronous data UPCS devices for operation under Part 15 of the Commission's rules.

In Comments, several companies propose the 2385-2400 MHz portion of the band as potential replacement spectrum for MDS operations.¹¹ Other Commenters oppose reallocation of the band. Cingular, for example, urges the Commission to leave 2390-2400 MHz band to amateur radio services.¹² The National Association for Amateur Radio (ARRL) states that it "is not opposed to additional compatible users in the 2390-2400 MHz band," but urges the Commission not to add incompatible uses to the band.¹³ Nortel supports combining the 2390-2400 MHz band with the 2385-2390 MHz band for relocation of Government users.¹⁴

Were the Commission to reallocate 2385-2400 MHz to MDS, this would provide 15 MHz of spectrum. However, five MHz, 2385-2390, will not become available until January 1, 2005, and even then, it will be subject to auction. Furthermore, protected areas around 17 sites will remain allocated on a primary basis for Government Radiolocation Service until January 1, 2007.¹⁵ Thus, at best, the full 15 MHz will not be completely cleared for six years.

¹¹ Comments of Verizon at 10-11; Comments of Motorola at 13; and Comments of Ericson at 10-11.

¹² Comments of Cingular at 14; Comments of the Amateur Radio Relay League at 10-11.

¹³ Comments of ARRL, the National Association for Amateur Radio at 2-3.

¹⁴ Comments of Nortel Networks, Inc. at 6.

¹⁵ Motorola at 13.

Even assuming that the 2385-2390 MHz band were immediately cleared and made available for MDS, no showing has been made that it would offer in-band characteristics comparable to 2150-2162 MHz. On the contrary, as WCA notes in its reply comments, it appears that MDS path loss that would result from moving out of 2150-2162 MHz to 2385-2400 MHz would be about 3.5 miles. Compared with the current 3849 square mile service area (based on a 35 mile path link), the service area would be reduced by approximately 20%. Such a reduction in service area would significantly increase network infrastructure costs.

In addition, relocation of MDS services to this band poses significant interference problems. HAM radio operators in the 2400-2402 MHz and 2400-2417 MHz bands, surveillance usage in the 2360-2390 MHz band, and the large number of unlicensed wireless devices operating in the adjacent 2400-2486.5 ISM band all threaten interference problems and raise the noise floor. Interference is also possible for operations near U.S. Air Force bases because of Low Probability of Intercept airborne wireless spread-spectrum communications systems in the 2400-2500 MHz Frequency range. Thus, even if the 2385-2400 MHz band were to be completely cleared of incumbent users, considerable interference potential exists and much more interference study would be necessary prior to any relocation.

1990-2025 MHz

The NPRM requested comment on the 1990-2025 MHz band as a potential band for reallocation of displaced occupants of 2150-2162 MHz. In response, Cingular and Motorola both suggested that the 2010-2025 MHz band might serve as reallocation spectrum; however, neither addressed either the comparability of this band with the 2150-2162 MHz band in terms of in-band operations or the interference potential vis à vis

operations above and below the band.¹⁶ In its comments, the Society of Broadcast Engineers projected that reallocation of MDS to the 2020-2025 MHz band might result in brute force overload to the BAS operations above 2025 MHz.¹⁷

The Satellite Communications Division of the Telecommunications Industry Association (“TIA”) urges the Commission to maintain the existing allocation of 1990-2025 MHz and 2165-2200 MHz for MSS, stating that a reallocation would reverse Commission policy and render the phased relocation of MSS unworkable and prohibitively expensive.¹⁸ The Society of Broadcast Engineers, in contrast, states that “it is now clear that 2008-2025 MHz will be needed in the near future for either 3G or for an expanded MSS” and urges the Commission to abandon the phased relocation and “jump immediately to phase 2.”¹⁹ Nortel Networks supports retention of 40 MHz of spectrum for MSS in the 1990-2010 MHz and 2180-2200 MHz bands but advocates using the remaining spectrum [2011-1025 MHz and 2160-2179 MHz] for other services.²⁰ As previously noted none of these commenters address interference issues or operational impacts between licensees in adjacent spectrum above or below 2010-2025. In fact, the issue of how MSS spectrum will be used is the subject of another Commission²¹ proceeding. Until that proceeding is resolved and until the interference issues and operational impacts to and from neighboring bands are resolved, the 2010-2025 band can

¹⁶ Cingular Comments at 14, Motorola Comments at 14.

¹⁷ Id. At 3-4, “[T]he FNPRM talks about relocating Multichannel Distribution Service (“MDS”) incumbents from their present 2150-2025 MHz band. The [Sic] would create a new adjacent-channel threat to reformed ENG Channel A1, and also a worsened BFO interference threat, because downstream transmitters often share mountaintop sites with BAS.”

¹⁸ Comments of the Satellite Communications division of the Telecommunications Industry Association at 5.

¹⁹ Comments of the Society of Broadcast Engineers, Inc. at 1.

²⁰ Comments of Nortel Networks at 6.

²¹ *Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band and the 1.6/2.4 GHz Band; Amendment of Section 2.106 of the Commission’s Rules to Allocate Spectrum at 2 GHz for Use by the Mobile Satellite Service.* IB Docket No. 01-185 & ET Docket No. 95-18, *Notice of Proposed Rulemaking*, FCC 01-225 (rel. Aug 17, 2001), *summarized*, 66 Fed. Reg. 47621 (Sept. 13, 2001).

not be found to be comparable and can not be identified as replacement spectrum for MDS 1 and 2/2A.

2165-2200 MHz

The 2165-2200 MHz band is currently allocated for MSS downlink operations. One commenter, Arraycomm, proposed that the 2185-2200 MHz band be considered for reallocation of MDS licensees. Arraycomm does not, however, provide even the most cursory analysis of whether this band is comparable to the 2150-2162 MHz band with respect to in-band operations, or whether MDS operations within the band would suffer or cause interference with adjacent operations.²²

Again prior to entertaining any relocation proposal, the Commission must have a complete record with regard to in-band comparability, interference implications with respect to operations in adjacent bands, and relocation procedures and costs.

CONCLUSION

As Sprint stated in its comments, while the 2150-2162 MHz portion of this band is best suited to MDS operations, Sprint would be willing to relocate to another band if the Commission deems it necessary, provided that the replacement band is fully comparable and that all relocation costs are reimbursed.²³ The record evidences a broad range of proposals and concerns with regard to the Commission's various spectrum reallocation alternatives with nothing even close to consensus and, by and large, only the most rudimentary interference analysis. In fact, the single resounding theme is the need for further study. None of the options proposed to date appears promising as a new home

²² Comments of Arraycomm at 9-10.

for MDS 1 and 2/2A. Sprint urges the Commission to undertake in-depth evaluation of these and other band proposals prior to making any reallocation decision.

Respectfully submitted,
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²³ Comments of Sprint Corporation at 2.