BEFORE THE

Federal Communications Commission

WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands	)	ET Docket No. 95-183 RM-8553
	)	
	)	
Implementation of Section 309(j) of the Communications Act -- Competitive Bidding, 37.0-38.6 GHz and 38.6-40.0 GHz	)	PP Docket No. 93-253

To: The Commission

PETITION FOR RECONSIDERATION OF TRW INC.

TRW Inc. ("TRW"), by counsel and pursuant to Section 1.429 of the Commission's Rules (47 C.F.R. § 1.429), hereby seeks reconsideration of the Commission's Report and Order in the above-captioned proceeding.[1] Specifically, TRW urges the Commission to reconsider its overall channelization and assignment approach for this band, so as to ensure that some of the global spectrum allocation for fixed-satellite service ("FSS") at 38.6-40.0 GHz remains available for the implementation of next-generation satellite networks. The present configuration provides for 1.4 GHz of spectrum geared to terrestrial wireless operation, without any provision for either shared or dedicated use by satellite operators. In light of the large number of requests currently before the Commission to make

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[1] *Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands*, FCC 97-391, slip op. (released November 3, 1997) ("Report and Order").

use of these frequency bands for various types of global satellite services, the failure to consider and to accommodate meaningfully these spectrum needs is inconsistent with the Commission's mandate to allocate and license radiofrequency spectrum in the public interest.[2]

Specifically, TRW asks that the Commission limit its spectrum channelization plan for terrestrial wireless services in order to preserve a portion of the global spectrum allocation for FSS use, *e.g.*, by restricting terrestrial authorizations to those frequencies below 39.5 GHz that are already widely utilized for high density fixed services outside the United States. At a minimum, the Commission should clarify that fixed/mobile service authorizations in the 39 GHz band will not confer exclusive spectrum rights, and that such licensees will need to coordinate with satellite operators to facilitate spectrum sharing to the extent feasible

I. BACKGROUND

On December 15, 1995, the Commission issued a Notice of Proposed Rule Making contemplating the amendment of its rules to provide a channeling plan, as well as licensing and technical rules, for terrestrial microwave operations in the 37.0-38.6 GHz band

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[2] Last fall, more than a dozen companies, including TRW, filed applications with the FCC for authority to launch and operate next-generation satellite systems that would provide a variety of broadband fixed and/or mobile satellite services. TRW's application encompasses the 38.6-40.0 GHz band for its system's space-to-Earth links, and TRW firmly believes that all sharing options in this band should be explored before preemptive exclusions are embraced. *See* TRW Reply Comments, IB Docket No. 97-95, at 4-5 (filed June 3, 1997)

("37 GHz band"). At the same time, it proposed to amend existing rules pertaining to the 38.6-40.0 GHz band ("39 GHz band") to conform with its proposals for the 37 GHz band.[3]

In response to this NPRM, a variety of parties filed comments and reply comments concerning the Commission's proposals. Included among these comments were those of Motorola Satellite Communications, Inc. ("Motorola"), which cautioned that the Extremely High Frequency ("EHF") bands at issue in this docket were also the object of interest by the satellite industry for the next generation of global satellite networks.[4]

Prior to taking any action concerning the 37 GHz and 39 GHz bands, the Commission initiated a broader inquiry in IB Docket No. 97-95 concerning spectrum allocations between 36-51 GHz. In this Notice, the Commission tentatively proposed to allocate all of the spectrum between 38.5-40.5 GHz to terrestrial wireless services, while also suggesting bands at 37.5-38.5 GHz for fixed-satellite service ("FSS") by non-geostationary ("NGSO") systems and at 40.5-41.5 GHz for geostationary FSS systems.

Responding to this NPRM, more than a half-dozen satellite companies and organizations filed comments criticizing the Commission's approach.[5] Among the problems

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[3] *See Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands*, 11 FCC Rcd 4930 (1995).

[4] *See* Comments of Motorola Satellite Communications, Inc. (filed March 4, 1996).

[5] TRW filed comments in IB Docket No. 97-95, and also submitted these comments for inclusion in this docket, in light of the overlap of frequency bands being considered in these proceedings. *See* Comments of TRW Inc., IB Dkt. No. 97-95 (filed May 5, 1997); Letter from David Keir, Counsel to TRW, to William F. Caton, Secretary, FCC, IB Dkt. No. 95-183 (filed May 8, 1997).

raised were the Commission's decision to address these bands in multiple proceedings rather than consolidating all into its comprehensive examination of spectrum needs; the proposed band plan to cede two-thirds of the existing global EHF allocation for satellite services to terrestrial fixed uses without regard to prospects for actual co-frequency sharing; and the suggestion that the Commission might auction licenses to provide "underlay" wireless services even in bands earmarked for satellite use. Commenters also criticized as premature the Commission's proposal to designate specific EHF satellite spectrum for GSO and NGSO use, and effectively to abandon any allocations for mobile-satellite service ("MSS") and broadcast-satellite service ("BSS") use. Finally, the satellite commenters were distressed that the Commission had made these proposals without even placing on Public Notice the EHF satellite application then before it, Motorola's M-Star system, for the purpose of soliciting other technical proposals for satellite service in these bands.

During the period ultimately established for filing satellite applications for consideration concurrently with M-Star, more than a dozen technically distinct proposals were submitted to the Commission. Indeed, the applicants proposed a variety of different services, including FSS, MSS and BSS, using GSO, NGSO and hybrid GSO/NGSO networks. These proposals were all on file a month or more before the Commission adopted its Report and Order in the instant proceeding, yet were conspicuously left unaddressed.[6/]

[6/] On July 22, 1997, the Commission issued a Public Notice inviting additional applications to construct, launch and operate space stations in the bands sought by Motorola (37.5-40.5 GHz for space-to-Earth links, and 47.2-50.2 GHz for Earth-to-space links). (continued...)

Despite the general consensus expressed in satellite industry comments in the proceedings initiated by the Commission and the broad range of proposals for implementing global satellite systems utilizing spectrum at 39 GHz, the Commission, on October 24, 1997, adopted its Report and Order promulgating new 39 GHz service rules without any clear provision for satellite service in these bands. The channelization plan and assignment rules contained in this Report and Order are fundamentally geared toward terrestrial services and, despite Commission declarations concerning spectrum flexibility, will make it difficult for satellite operators to utilize these bands to offer innovative new services.

II. REQUEST FOR RELIEF

A. The Commission Should Restrict Its Terrestrial-Service-Oriented Channelization Plan To Frequency Bands Where Global Satellite Operations Are Less Likely.

TRW understands that it is necessary for the Commission to make difficult decisions concerning the designation of spectrum bands to balance the needs of varied types of service providers. However, there is no indication that the Commission has undertaken this necessary balancing in this proceeding, and there is strong indication that the Commission's decision as taken is inconsistent with its public interest mandate.

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[6](...continued)
Although the initial deadline for filing applications was August 21, 1997, the Commission twice extended the filing date, resulting in an eventual deadline of September 26, 1997. *See* Public Notice, Report No. SPB-89, DA 97-1551 (released July 22, 1997); Public Notice, Report No. SPB-95, DA 97-1723 (released August 13, 1997); Public Notice, Report No. SPB-99 (released September 4, 1997).

Although the Commission states near the outset of its Report and Order that it intends that its actions provide "flexibility" and allow "the market to decide which entrepreneurial efforts will succeed,"[7] it also makes clear through its band plan that it intends for the licenses it will make available to be used by terrestrial wireless service providers and not by satellite operators. Adoption of a channelization scheme based on 50 MHz assignments and localized service areas largely precludes satellite operators from securing access to this spectrum for ubiquitous-user services, which require broader spectrum bands and service areas that are national, regional or global in scope.

Currently, the spectrum band 37.5-40.5 GHz is allocated on a global basis to FSS. This use is co-primary across this entire band with the terrestrial fixed and mobile services, and at 39.5-40.5 GHz with MSS. Thus, the Commission decision to chop up the 39 GHz band for local, terrestrial-service-oriented licenses based on Basic Trading Areas cuts out the heart of this global satellite spectrum, including half of the MSS downlink band, and earmarks it for a different service use.[8]

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[7] Report and Order, FCC 97-391, slip op. at 4 (¶ 1).

[8] As TRW has previously noted, any domestic action that takes away spectrum allocated on a global basis for satellite service is fraught with the risk that a replacement allocation of global scope will be exceedingly difficult to secure through the ITU World Radiocommunication Conference process. *See* TRW Comments in IB Docket No. 95-97 at 5 (filed May 5, 1997). This admonition was borne out by the developments at WRC-97 with respect to proposals to establish global satellite allocations in EHF-band frequencies to offset spectrum presumed to be lost to high-density fixed service allocations of the type contemplated by the challenged order.

There is already significant spectrum utilization for high density fixed services outside the United States in the bands 37.0-39.5 GHz, and these uses are believed to be incompatible with ubiquitous-user satellite systems. Under these circumstances, it is particularly troubling that the Commission did not give serious consideration to limiting its designation (and channelization) of spectrum for terrestrial services to the frequencies below 39.5 GHz, which would have helped foster a harmonized global allocation. By perpetuating the domestic allocation for terrestrial wireless services at 39.5-40.0 GHz, and providing for issuance of additional licenses in these bands, the Commission has needlessly encumbered spectrum that could still be preserved for global satellite use by ubiquitous-user systems.

It would have been appropriate for the Commission to limit the amount of spectrum initially set aside for fixed and mobile use until significant demand develops. This significant alternative was not even explored, however. Under this approach, in the first stages of use, terrestrial services could be concentrated in designated bands and encouraged to maximize efficiency, rather than being ceded large swaths of spectrum in a way that discourages efficient operation and impedes satellite use of bands allocated internationally for this purpose. Such an approach was taken under related circumstances in the MSS Above 1 GHz rulemaking proceeding. There, the Commission, when faced with two incompatible satellite technologies, made limited allocations to each, but specified conditions under which

a licensee employing one technology might expand its use in the event that multiple systems using the other technology did not implement service.[9]

B. At A Minimum, The Commission Should Take Affirmative Steps To Facilitate Efficient Spectrum Sharing Among Satellite And Terrestrial Users At 39 GHz.

Even if the Commission does not modify its allocation and channelization plan as suggested above, it should, at a minimum, ensure that satellite use of these bands is not precluded by its segmentation and assignment scheme. The Commission itself noted in the Report and Order that the actions it was taking "do not alter" the existing allocation for satellite services in these bands.[10] Therefore, on reconsideration, the Commission should clarify that licenses issued for terrestrial service providers in these bands do not confer an exclusive right to the spectrum, and that fixed/mobile service licensees will be expected to coordinate their use with satellite systems and maximize spectrum efficiency in order to facilitate sharing.

In this connection, TRW notes that its comments in IB Docket No. 97-95, which were also filed in this proceeding, have been misconstrued in the Report and Order. The Commission cites TRW's Reply Comments, among others, for the proposition that "satellite entities have indirectly conceded that sharing between terrestrial and satellite is not

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9 *See Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile-Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Bands*, 9 FCC Rcd 5936, 5959-60 (¶¶ 54-55)(1994).

10 Report and Order, FCC 97-391, slip op. at 9 (¶ 7).

likely in bands above 36 GHz" and that these entities thus questioned the feasibility of the Commission's "underlay" proposal in that docket [11] In fact, the concern expressed by TRW was not that terrestrial/satellite sharing is *per se* unlikely at 39 GHz, but that the Commission's "underlay" proposal was not well-defined and could result in inefficient terrestrial operations across many frequency bands, thereby complicating prospects for spectrum sharing among fixed/mobile and satellite users [12] In addition, TRW was disturbed that this proposal was non-reciprocal in that underlay wireless services were proposed in bands earmarked for primarily satellite use, but that no similar provision for underlay satellite services in wireless bands was proposed [13]

Consistent with these concerns, TRW believes that it is incumbent upon the Commission not to arbitrarily foreclose shared use of spectrum between wireless and satellite

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[11] Report and Order, FCC 97-391, slip op at 9 (¶ 8)

[12] *See* TRW Comments, IB Docket No. 97-95, at 18-19; TRW Reply Comments, IB Docket No. 97-95, at 4-5. TRW affirmatively proposed that the Commission take steps to foster the prospect of spectrum sharing. TRW Comments at 15 ("All realistic sharing possibilities should be explored, and even where the details are currently unproved, care should be taken not to foreclose preemptively opportunities for co-frequency operation.")

[13] *See* TRW Comments, IB Docket No. 97-95, at 18. It is not unreasonable to surmise that the apparent disposition toward maximizing possibilities for wireless licensing is premised on the easy auctionability of these licenses — whereas satellite spectrum is ill-suited to such means of assignment because service areas necessarily extend across international borders, and no single national government is able to "sell" definitive spectrum rights covering such areas. By statute, the Commission is prohibited from considering expected auction-derived revenue as a factor in allocating spectrum for a particular purpose. *See* 47 U.S.C. § 309(j)(7)(A). Accordingly, the Commission's apparent tilt toward terrestrial allocations violates its statutory mandate to make its decisions based on the overall public interest, as opposed merely to the most expedient means of raising money for the Federal Treasury.

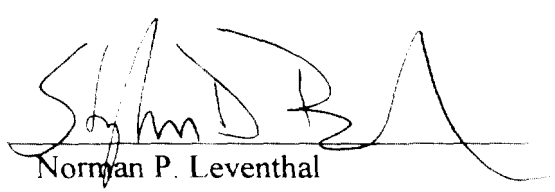
service providers. All realistic sharing scenarios should continue to be explored. To this end, the Commission should reconsider its service rules and impose technical regulations that would facilitate co-existence of satellite and terrestrial users. For example, because satellite networks operating at 39 GHz are likely to employ high elevation angles, a limitation on elevation angles of terrestrial transmitting equipment would assist spectrum sharing in these bands.

III. CONCLUSION

For the foregoing reasons, the Commission should promptly reconsider its initial decisions in this proceeding and restrict its fixed/mobile 50 MHz channelization plan to frequencies below 39.5 GHz. In any case, the Commission should at least modify its service rules approach to ensure that potential spectrum sharing scenarios among satellite and terrestrial users are not foreclosed.

Respectfully submitted,

TRW Inc.

By 

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February 20, 1998

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CERTIFICATE OF SERVICE

I, Lorene J. Miller, do hereby certify that a copy of the foregoing "Petition for Reconsideration of TRW Inc." was sent this 20th day of February, 1998, by hand delivery to the following individuals:

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