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Federal Communications Commission
WASHINGTON, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
)
Allocation and Designation of Spectrum for)
Fixed-Satellite Services in the 37.5-38.5 GHz,)
40.5-41.5 GHz, and 48.2-50.2 GHz Frequency)
Bands; Allocation of Spectrum to Upgrade)
Fixed and Mobile Allocations in the)
40.5-42.5 GHz Frequency Band; Allocation of)
Spectrum in the 46.9-47.0 GHz Frequency Band)
For Wireless Services; and Allocation of)
Spectrum in the 37.0-38.0 GHz and)
40.0-40.5 GHz for Government Operations)

IB Docket No. 97-95

RM-8811

To: The Commission

PETITION FOR RECONSIDERATION/CLARIFICATION 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, which has participated in this proceeding since its inception, now urges the Commission to clarify that its regulatory approach would permit use of any portion of the global spectrum allocation for fixed-satellite service ("FSS") in the 37.5-37.6 GHz, 38.6-40 GHz and 41-42.5 GHz bands in the space-to-earth direction, so long as this use conforms to the power flux density limits that are contained in Article S21 of the International Radio

^{1/} See *Report and Order in IB Docket No. 97-95*, FCC 98-336, slip op. (released December 23, 1998) ("*Report & Order*").

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Regulations to protect any terrestrial fixed facilities in these bands and the FSS operators agree to accept interference from fixed service operators. Similar provisions should apply to the uplink band at 47.2-48.2 GHz. Fundamentally, TRW believes that it is incumbent upon the Commission not to foreclose shared use of spectrum between wireless and satellite service providers in circumstances where such sharing can be appropriately achieved.

In March 1997, the Commission initiated its broad inquiry in this docket concerning spectrum allocations between 36-51 GHz (the "EHF bands").^{2/} In the *NPRM*, the Commission tentatively proposed to allocate a total of 5.6 gigahertz of spectrum to terrestrial wireless services, while also suggesting bands at 37.5-38.5 GHz for fixed-satellite service ("FSS") downlink use by non-geostationary ("NGSO") systems and at 40.5-41.5 GHz for geostationary ("GSO") FSS downlinks. The band 48.2-49.2 GHz was proposed for NGSO FSS uplinks, and the frequencies 49.2-50.2 GHz for GSO FSS uplinks.

In response to the *NPRM*, more than a half-dozen satellite companies and organizations filed comments criticizing the Commission's approach on several grounds.^{3/} Among the problems these commenters raised was the Commission's decision to cede two-thirds of the existing global allocation for satellite services in the EHF bands to

^{2/} See *Notice of Proposed Rule Making in IB Docket No. 97-95*, 12 FCC Rcd 10130 (1997) ("*NPRM*").

^{3/} See, e.g., Comments of TRW Inc., IB Dkt. No. 97-95 (filed May 5, 1997).

terrestrial fixed uses without regard to prospects for actual co-frequency sharing, as well the suggestion that it might auction licenses to provide “underlay” wireless services in bands earmarked for satellite use.^{4/} Commenters further criticized as premature the Commission’s proposal to designate specific EHF satellite spectrum for GSO and NGSO use, and its failure to propose any frequency allocations overlapping the existing international mobile-satellite service (“MSS”) and broadcast-satellite service (“BSS”) allocations.

Satellite commenters also criticized the Commission for failing to solicit additional expressions of interest from potential providers of satellite services before proposing an omnibus spectrum allocation plan in the EHF bands.^{5/} When the Commission ultimately did establish a filing window for new satellite applications, more than a dozen technically distinct proposals were submitted to the Commission. These applicants proposed a variety of different services, including FSS, MSS and BSS, using GSO, NGSO and hybrid GSO/NGSO networks. As did others, TRW sought access in its Global EHF Satellite Network system application to the spectrum bands 37.5-40.5 GHz allocated internationally for FSS downlinks, and 47.2-50.2 GHz, similarly allocated for FSS uplinks.

^{4/} Notably, the Commission did not propose similar underlay FSS operations in bands proposed for terrestrial wireless services. *See* TRW Comments at 18-19; TRW Reply Comments at 4-5.

^{5/} The M-Star application filed by Motorola was already pending before the Commission at the time the *NPRM* was adopted.

In the *Report and Order*, the Commission has satisfactorily addressed some, but not all, of the issues raised in the initial comments concerning the *NPRM*. Specifically, it has modified its spectrum plan to make somewhat more of the 37.5-40.5 GHz international FSS downlink band available in the United States. In addition, it has wisely decided that it would be premature to specify NGSO or GSO designations for the FSS spectrum in the EHF bands. Finally, it has determined not to adopt its original wireless service “underlay” proposal.

TRW appreciates the work the Commission has done to refine its initial band proposal, and believes that it has struck a balance that is workable, provided that the Commission clarifies that it is not acting to preclude spectrum-efficient sharing between satellite and fixed service users in designated fixed wireless bands. Given the number and diversity of the satellite systems applied for in the EHF bands, TRW is concerned that the current spectrum plan could fall short of meeting the needs of the FSS unless the Commission leaves the door open to maximizing the use of each band.

TRW has firmly believed since the beginning of this proceeding that all sharing options must be explored before absolute service exclusions are embraced.^{6/} Rigid band segmentation, especially when done preemptively and on a less than complete technical record, is anathema in this era where emphasis is properly being placed on the maximization of the efficient use of the valuable and scarce orbital/spectrum resource.

^{6/} See TRW Reply Comments, IB Docket No. 97-95, at 4-5 (filed June 3, 1997).

Thus, while TRW can accept the Commission's decision to designate spectrum for assignment to either FSS or fixed service licensees, it also believes that the Commission has acted logically, by not eliminating domestic allocations for FSS in bands designated for the fixed service, to leave the door open for the development of future sharing scenarios.

Under such an approach, satellite operators would have the ability to use downlink spectrum within the fixed service band segments at 37.5-37.6 GHz, 38.6-40 GHz, and 41-42.5 GHz, provided that: (1) they meet international power flux density ("pfd") limits established to protect the fixed service, and (2) they accept interference to be caused by fixed service transmitters into FSS earth stations. The highest density fixed service areas would thus be avoided by FSS operators, but areas between fixed service "islands" of deployment could be established on a case-by-case basis, and areas outside of licensed areas could conceivably be utilized. In these bands, fixed service licensees could also enter into cooperative arrangements with FSS service providers to share spectrum within licensed areas.^{2/}

By this Petition, TRW requests that the Commission make clear that assignment of licenses to terrestrial fixed service providers does not preclude the use of spectrum in the same bands for provision of FSS service under the foregoing conditions. Indeed, in other related proceedings, the Commission itself has noted that designations of

^{2/} TRW believes that similar arrangements can be effected in the uplink band at 47.2-48.2 GHz.

spectrum for assignment to particular services “do not alter” the existing allocation for satellite services in these bands.^{8/} Through the requested clarification, the Commission can affirm this policy approach and ensure that satellite use of these bands is not unduly restricted, thereby promoting the most efficient use of spectrum.

Allowing FSS use of designated fixed service spectrum will increase the availability of advanced services to users away from urban areas, where fixed service use is likely to be concentrated simply due to the economics of constructing terrestrial wireless networks, thereby promoting the Commission’s statutory mandate “to make available, so far as possible, to all the people of the United States” the benefits of nationwide and worldwide communications services.^{9/} TRW notes, however, that it will not be possible to establish a similar arrangement for fixed service systems in FSS-designated band segments. The principal obstacle to FSS/fixed service sharing is the interference from terrestrial transmitters into FSS Earth stations. Thus, while FSS receivers can operate under circumstances where they can be protected from fixed service interference either by separation or other mitigation techniques, there is no way that a fixed service facility can offer protection as a way of making use of a band that is already allocated or in use for FSS. Any single geographic area can and will have FSS receivers from multiple systems, and it is likely that these terminals will be “blanket licensed.”

^{8/} See *Amendment of the Commission’s Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands*, 12 FCC Rcd 18600, 18609 (¶ 7) (1997).

^{9/} 47 U.S.C. § 151.

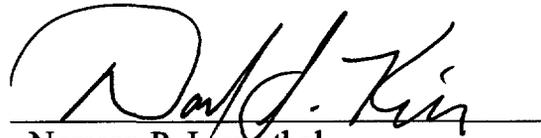
Thus, no fixed service operator will ever be able to be assured that it has entered into arrangements with all possible authorized users.

Accordingly, TRW respectfully requests that the Commission clarify, on reconsideration, that licenses issued for terrestrial service providers in the EHF bands, and particularly the bands at 37.5-37.6 GHz, 38.6-40.0 GHz, 41.0-42.5 GHz^{10/} and 47.2-48.2 GHz where fixed service designations overlap with international FSS allocations, do not confer a preemptive right to the spectrum, but merely a right to implement terrestrial services free from harmful interference from other operators, as such interference may be defined through appropriate pfd limitations.

Respectfully submitted,

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^{10/} The 41.0-42.5 GHz band is allocated internationally for FSS use and the Commission has indicated it will be subject of a future rulemaking with respect to domestic use.