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February 22, 2000


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OFFICE OF THE SECRETARY


**VIA MESSENGER**

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
445 Twelfth Street, SW, Room TW-A425
Washington, DC 20554

***Written Ex Parte Presentation***

Re: IB Docket 98-172

Dear Ms. Salas:

We are filing this written *ex parte* statement on behalf of Hughes Network Systems ("*Hughes*") to clarify its position on several important issues in the above-referenced proceeding (the "*18 GHz Proceeding*"). Hughes understands that the Commission may be moving soon to adopt a Report and Order in this proceeding and while Hughes has not changed its views from those expressed in its Comments and Reply Comments in late-1998, there are several issues that bear clarification and re-emphasis.

Hughes is vitally interested in this proceeding as the licensee of the broadband SPACEWAY satellite system, which Hughes is in the process of constructing, and which Hughes plans to launch in 2002. Hughes has begun to offer Internet satellite services to consumers in the U.S. and abroad via DIRECPC, which now operates at Ku band. SPACEWAY will facilitate the expansion of the DIRECPC service and will support even larger numbers of end-users. Hughes's ability to deliver such new services is evidenced by its successful record of developing, launching and operating a wide variety of satellite systems (notably DIRECTV, the domestic U.S. Galaxy satellite system, and Galaxy Latin America).

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List A B C D E

### 1. Hughes's Requirement for 1000 MHz of Spectrum Has Never Wavered

At each stage in the development of the Ka band for commercial satellite systems, Hughes has consistently maintained the position that 1000 MHz of spectrum for small, ubiquitously-deployed earth terminals is essential to the success of commercial Ka band satellite systems. Thus, when Hughes filed the first application for a commercial Ka band satellite system, SPACEWAY, in 1993, Hughes requested 1000 MHz of Ka band spectrum to support ubiquitous, small earth station deployment. Throughout the 28 GHz proceeding in 1995 and 1996, Hughes maintained its position that 1000 MHz of Ka band spectrum was necessary for ubiquitous deployment. Indeed, the 28 GHz Report and Order acknowledged the need to designate 1000 MHz of spectrum for ubiquitous, small earth station deployment (but left the instant 500 MHz of downlink spectrum pending for a decision in a follow-on proceeding). Likewise, Hughes's Comments and Reply Comments in this proceeding have demonstrated the necessity of 1000 MHz for use by ubiquitously-deployed small terminals.

Hughes has thoroughly briefed the need for 1000 MHz in the record and has further explained this issue in the recent weeks in *ex parte* meetings with the Commissioners and their staffs. Hughes has also explained the significant and adverse impact that designation of less than 1000 MHz of downlink spectrum (*e.g.* 750 or 720 MHz) for ubiquitous deployment will have on Hughes's SPACEWAY system and on the number of consumers -- both in rural and urban areas -- to which SPACEWAY can provide broadband services. Thus, Hughes's focus in this filing is the method by which the Commission can accommodate the need for 1000 MHz of spectrum for ubiquitously deployed GSO FSS broadband services while accommodating the legitimate needs of the terrestrial fixed service industry.

Further, Hughes reemphasizes the fact that the Commission's plans to designate less than 1000 MHz of downlink spectrum for the GSO FSS would have a disproportionate impact on the GSO FSS satellite industry and are unsupported by the record. To the extent that the current proposal is based on the absence of adequate bandwidth for all interested services, the Commission has not, and cannot rationally explain why the GSO FSS should be the industry that will not have its needs fully accommodated, or why that industry should fully bear the burden of the spectrum "shortage." Indeed, it would be fundamentally inconsistent with the Commission's currently articulated policies to adopt the current proposal, which would hamstring the development of broadband satellite systems that otherwise would promise universal, high-speed access to the Internet to all of America, including schools, small businesses, tribal lands and rural areas, and therefore advance all Commission policies.

### 2. Terrestrial Fixed Service Users and Satellite Interests Have Equal Claim on the 18.3 - 18.8 GHz Band

At the outset it is important for the Commission to realize that the satellite and fixed service interests have long held an equal claim to the 17.7 - 18.8 GHz band (the "*18 GHz band*"). Indeed, many of the terrestrial fixed service interests have advanced the specious

argument that the satellite systems deploying at Ka band are "emerging new services"[1] and that the effect of the Commission's segmentation proposal in the NPRM would be to reallocate "los[t] . . . FS spectrum"[2] at 18 GHz to these satellite systems. It appears that the underlying purpose of this argument is to try to create the impression that (i) terrestrial users somehow have greater "equities" in the 18 GHz band than the currently licensed Ka band satellite systems, and (ii) the need for band segmentation between terrestrial and satellite systems is the result of a new "encroachment" by satellite systems on what the terrestrial interests erroneously assert is fixed service spectrum. Nothing could be further from the truth.

The arguments of the terrestrial interests conveniently ignore the fact, under Commission rules, that the 18 GHz band has been a shared satellite/terrestrial band for *more than twenty-five (25) years*. The co-primary FSS allocation at 18 GHz has existed since 1973,[3] when the Commission opened up this band as a much-needed expansion band for broadband satellite systems. The relevant portions of the Commission's terrestrial rules, under which the fixed point-to-point and CARS users are licensed, clearly provide that the 17.7 - 19.7 GHz band is shared with satellite systems.[4] Moreover, Sections 101.103 and 25.203 provide the general coordination mechanism between fixed users and satellite earth stations and Section 25.208(c) provides a downlink pfd limit to govern the permissible level of interference from satellite downlinks into terrestrial receivers.

Furthermore, those terrestrial users who were utilizing the band even six years ago were placed on clear notice of the impending satellite use of the 18 GHz band when Hughes filed its initial application for the SPACEWAY satellite system, and again in 1995 when the Commission placed the twelve other Ka band satellite systems on public notice. Moreover, three and one half years ago, the Commission's 28 GHz band plan reaffirmed the shared satellite/terrestrial nature of the 18 GHz band[5] and almost three years ago, fourteen satellite systems, including Hughes' SPACEWAY system, were licensed, without objection from the terrestrial interests, to use portions of the 18 GHz band for downlinks.

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1 Comments of the Fixed Point-to-Point Section, Wireless Communications Division of the Telecommunications Industry Association at 12, Docket 98-172 (filed November 19, 1998).

2 *Id.* at 4.

3 The 28 GHz band was one of the bands domestically allocated for FSS use in 1973 in order to address concerns that insufficient spectrum would be available at C band to accommodate domestic satellite operations. *See In Re Establishment of Domestic Communication-Satellite Facilities by Non-Governmental Entities*, 25 FCC 2d 718, (¶¶ 1-5) (1970); *In Re Amendment of Part 2 of the Commission's Rules to Conform with Space WARC 1971*, 39 FCC 2d 959 (1973).

4 47 C.F.R. § 101.101 (1998).

5 *In the Matter of Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5 - 29.5 GHz Frequency Band, to Reallocate the 29.5 - 30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services*, 11 FCC Rcd 19005, ¶¶ 78, 81 (1996) ("*28 GHz Report and Order*").

All of this is simply to say that both the terrestrial and the satellite interests have entered this proceeding and the 18 GHz band with full knowledge of the other's interests and rights in that band. Thus, contrary to the implications in the terrestrial interests' comments, neither satellite or terrestrial systems should be entitled to any disproportionate equities in the process of segmenting the 18 GHz band. The legitimate needs of each service should be met. But the current need for band segmentation is not a result of "emerging new services" displacing an incumbent, exclusive use.[6] Instead, segmentation of the 18 GHz band results from a different paradigm; namely, broader deployment in the 18 GHz band by *both* satellite and terrestrial systems than originally was expected by the Commission.

Given this history at 18 GHz, Hughes believes that *both* terrestrial and satellite interests will benefit from the segmentation of the 18 GHz band. Band segmentation results in faster and less expensive deployment for users of both services and permits each service to deploy its stations more densely than would be possible for the two services combined in a shared band. Thus, the Commission should take into account the mutual benefits that will flow from segmentation of the 18 GHz band.

### 3. Terrestrial Fixed Service Users in the 18.3 - 18.8 GHz Band Can Realistically Transition to Replacement Spectrum Over Time.

There are two types of terrestrial fixed service uses in the 18.3 - 18.8 GHz band, private cable/CARS operations and point-to-point microwave operations. Private cable/CARS licensees may currently operate in the 18.14 - 18.58 GHz band, which overlaps the 18.3 - 18.8 GHz band between 18.3 and 18.58 GHz. The point-to-point microwave licensees in this region operate one half of their go-return links between 18.58 - 18.82 GHz, with the other half (18.92 - 19.16 GHz) in the spectrum that the Commission has proposed for NGSO FSS downlink operations.

Hughes's proposal with respect to the transition of terrestrial fixed service users out of 18.3 - 18.8 GHz band is as follows:

- Any applications for new or modified terrestrial fixed service licenses in the 18.3 - 18.8 GHz band that are filed after the adoption of the Report and Order in this proceeding should be granted only on a secondary, non-interference basis with respect to GSO FSS use of the band;

- Existing terrestrial licensees in the 18.3 - 18.8 GHz band, and those licensees who filed applications for new or modified licenses prior to the freeze imposed by the NPRM (or after the lifting of the freeze with respect to CARS licensees) should be grandfathered with respect to the GSO FSS

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6 *See* Comments of the Fixed Wireless Communications Coalition at 2-3, Docket 98-172 (filed November 19, 1998).

through 2004.[7] In 2004, their licenses should become secondary with respect to GSO FSS use of the band; and

- Any individual GSO FSS licensee that seeks to use 18.3 - 18.8 GHz prior to 2004 should be able to relocate grandfathered terrestrial licensees on a depreciated cost basis.

It is relatively uncontroversial that the point-to-point microwave operations currently occupying the 18.58 - 18.82 GHz band can be accommodated in the future in the 17.8 - 18.14 GHz band, which spectrum currently accommodates other point-to-point microwave operations. Furthermore, the 18.58 - 18.82 GHz band will be of little use for point-to-point operations as NGSO FSS operations are deployed because that band is paired with the 18.92 - 19.16 GHz band, which will be designated for primary NGSO FSS uses.

With respect to the private cable/CARS use of 18.3 - 18.58 GHz, Hughes believes that the needs -- both current and future -- of all of the existing users of this spectrum can be accommodated through the use of an appropriate combination of three spectrum bands: 18.14 - 18.3 GHz, 12.7 - 13.2 GHz, and 21.2 - 23.6 GHz.

**A. 18.14 - 18.3 GHz**

The private cable/CARS licensees at 18.14 - 18.58 GHz currently use that 440 MHz spectrum-band to provide up to 72 channels of video programming distributed on a point-to-point or sometimes a point-to-multipoint (e.g. hub and spoke configuration) basis. The private cable/CARS licensees use an analog modulation scheme such that each "channel" of video programming occupies approximately 6 MHz of bandwidth. For the most part, the private cable operators provide their video programming services to apartment buildings, hotels and other multiple-dwelling units in largest urban areas in the U.S.

Hughes believes that competitive pressure will drive private cable operators -- of their own accord -- to transition from analog to digital operations within the next four to five years. Hughes is well acquainted with the multi-channel video programming market through its affiliate DIRECTV and the overwhelming trend in that industry is toward digital technology. Digital technology offers tremendous efficiency and signal quality gains over analog technology. Indeed, it is digital modulation and compression technology that has enabled DIRECTV and Echostar to provide local television channels to their customers. Both U.S. DBS providers, DIRECTV and EchoStar, currently use digital technology and the traditional franchised cable operators are making plant upgrades as rapidly as possible to permit digital operations and the resulting additional channel offerings. In order to compete with the expanded offerings of their

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7 Hughes has selected the 2004 time frame in part because many of the ITU filings relating to the U.S. GSO FSS Ka band systems licensed in the first round must be brought into use at a given orbital location by a date certain. These dates are individual to each Ka-band GSO FSS licensee and range from 2004-2006.

competitors -- including two-way capability -- the private cable operators will be forced by marketplace pressures to transition to digital technology in the near term.

As the private cable operators transition to digital technology, they will be able to provide their existing services plus expanded offerings using much less spectrum. For example, the spectrum between 18.14 - 18.3 GHz can accommodate twenty-six (26) 6 MHz channels utilizing current analog technology. Assuming an extremely conservative compression ratio of 4:1, by utilizing digital technology, the private cable operators could provide 104 channels in the spectrum between 18.14 - 18.3 GHz -- or 32 more channels that their current maximum offering. Assuming a compression ratio of 6:1, the private cable operators could provide 156 channels in that spectrum -- or more than double their current offering -- buy using digital technology. Furthermore, Hughes believes that even higher compression ratios are achievable with today's technology.

Thus, use of the 18.14 - 18.3 GHz band by the private cable/CARS operators as those users transition to digital technology and digital compression techniques can be a significant (albeit not total) part of the solution to clear the 18.3 - 18.58 GHz band of terrestrial fixed service uses.

### B. 12.7 - 13.2 GHz

The 12.7 - 13.2 GHz band (the "*12 GHz band*") is currently available to and used by franchised cable and MDS operators to provide point-to-point and point-to-multipoint communications links under the Cable Television Relay Service ("CARS"). However, in response to a petition by a private cable operator, OpTel, Inc., the Commission has initiated a rulemaking proceeding to investigate whether private cable operators should also be permitted to use the 12 GHz band for their operations.[8] Hughes believes that permitting private cable operators to use the 12 GHz band -- especially if used in tandem with the 18.14 - 18.3 GHz band -- provides another important part of the solution to clearing the 18.3 - 18.58 GHz band of terrestrial fixed service uses.

At the outset, OpTel has specifically indicated in its Petition for Rulemaking that spectrum at 12 GHz is preferable and more useful in its operations than 18 GHz spectrum.[9] This greater utility is largely due to greater propagation distances achievable at 12 GHz, but also relates to the larger amount of spectrum available in that band (500 MHz vs. 440 MHz). Thus, given the choice between 12 GHz and 18 GHz, private cable operators would likely deploy new and expanded operations at 12 GHz. Based upon the comments received by the Commission in

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8 *See Petition for Rulemaking to Amend Eligibility Requirements in Part 78 Regarding 12 GHz Cable Television Relay Service*, CS Docket No. 99-250, FCC 99-166 (rel. July 14, 1999) (*12 GHz NPRM*").

9 Petition for Rulemaking of OpTel, Inc., RM- 9257, at 4-5 (filed April 1, 1998) ("*OpTel Petition*").

its 12 GHz proceeding, Hughes believes that private cable operators can and should be permitted to utilize the 12 GHz band.

Hughes also firmly believes that, just as discussed with reference to the 18 GHz band above, both the current and future users of the 12 GHz band are transitioning or will transition in the near future to digital technology. As discussed above, franchised cable operators are already adding digital technology to expand their service offerings. Furthermore, as MDS and ITFS licensees move toward providing two-way services to their customers,[10] they will necessarily move toward digital technology both for their service links and the hub-to-hub links currently provided by CARS licenses. In addition, the Commission itself has noted[11] that many franchised cable operators are moving to fiber optic technology to replace traditional CARS RF links. Thus, especially when considering the opportunities presented by digital modulation and compression technology, the 12 GHz band presents ample spectrum for both its current users and as replacement or expansion spectrum for private cable operators.

Hughes supports the proposed rule change that would permit private cable operators (PCOs) to use the 12 GHz band, and recommends that the Commission adopt such a rule change as soon as possible. Indeed, given the proposed wide deployment of terrestrial systems by PCOs, even the PCOs acknowledge that their future systems might be difficult to coordinate with the FSS. Thus, providing PCOs access to the 12 GHz band would not only support the development of PCOs, but also solve a potential problem created by their desired future broad deployment.

### C. 21.2 - 23.6 GHz

The 2.4 GHz of spectrum between 21.2 and 23.6 GHz is currently available for use by private cable and other point-to-point microwave users. A number of parties have supported opening use of this band for terrestrial services. Indeed, OpTel has indicated that it currently uses spectrum in this band for its private cable operations.[12] Furthermore, the Telecommunications Industry Association - Fixed Point to Point Section recently described this spectrum in a Petition for Rulemaking as providing relief from spectrum shortages at 6 GHz, 11 GHz and 18 GHz.[13] And the Commission has recently issued an NPRM in response to the TIA Petition, which proposes several rule changes that are designed to encourage terrestrial fixed

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10 *See generally, Amendment of Parts 1, 21 and 74 to Enable Multipoint Distribution Service and Instructional Television Fixed Service Licensees to Engage in Fixed Two-Way Transmissions; Request For Declaratory Ruling on the Use of Digital Modulation by Multipoint Distribution Service and Instructional Television Fixed Service Stations*, FCC 99-178 (rel. July 29, 1999).

11 *See 12 GHz NPRM* at ¶ 18.

12 *OpTel Petition* at 2 n.1.

13 *See Petition for Rulemaking,* Fixed Point to Point Communications Section, Wireless Communications Division, Telecommunications Industry Association, RM-9418, at 2 (filed March 8, 1998).

service users to make greater use of the 23 GHz spectrum.[14] Hughes is aware of the slightly greater propagation difficulties associated with this band, but given the large amounts of spectrum available for terrestrial fixed service licensing here (2,400 MHz) and the need for shorter communication links in densely-populated urban areas, Hughes believes that the 21.2 - 23.6 GHz band can be an important part of the solution to clearing the 18.3 - 18.58 GHz band of terrestrial fixed service uses.

* * * *

In summary, Hughes has well documented why the GSO FSS industry needs 1000 MHz of usable downlink spectrum, to pair with its 1000 GHz of uplink spectrum, in order to effectively compete with terrestrial alternatives in the delivery of broadband and other Internet-related services. Indeed, the GSO FSS industry in uniquely positioned to advance the Commission's goals of universal service, competition to cable, competition to telephone companies, and meeting the needs of the underserved in schools, in rural areas, and on tribal lands. But the promise of those broadband systems can be achieved only if the Commission designates a suitable amount of downlink spectrum for use by ubiquitous user terminals at 18 GHz.

The Commission's proposals to designate less than 1000 MHz of downlink spectrum for the GSO FSS are unsupported by the record and would have a disproportionate impact on the GSO FSS satellite industry. It may be that the Commission is faced with a concern that there is not enough bandwidth at 18 GHz for all interested services. But the Commission has not, and cannot rationally explain why the GSO FSS should be the industry that will not have its needs fully accommodated. Nor is there any good reason why that industry should bear the burden of the spectrum "shortage." Indeed, it would be fundamentally inconsistent with the Commission's currently articulated policies to adopt the current proposal, which would hamstring the development of broadband satellite systems that otherwise would both (i) promise universal, high-speed access to the Internet to all of America, including schools, small businesses, and tribal lands, and (ii) advance all current Commission policies

There is at least one solution here. Hughes believes that the needs -- both current and future -- of the private cable and CARS users at 18.3 - 18.58 GHz can be accommodated through the use of an appropriate combination the three spectrum bands discussed above: 18.14 - 18.3 GHz, 12.7 - 13.2 GHz, and 21.2 - 23.6 GHz. Furthermore, with a sunset date of 2004 for terrestrial fixed service operations in 18.3 - 18.58 GHz, existing users of that band have more than sufficient time to transition their operations to these replacement bands as they make their inevitable transition to digital operations and equipment.

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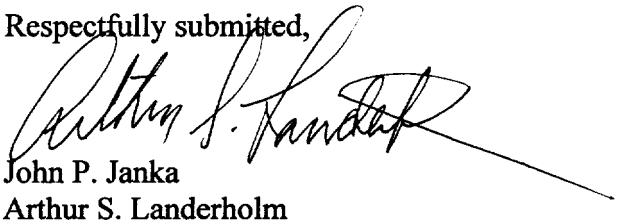
[14] *Amendment of Part 101 of the Commission's Rules to Streamline Processing of Microwave Applications in the Wireless Telecommunications Services*, FCC 00-33, at ¶ 58 (rel. February 14, 2000).

Respectfully submitted,



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