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OCT 23 1998
FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

October 23, 1998

Magalie R. Salas, Esquire
Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

Re: Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite-Service Use
IB Docket No. 98-172, RM-9005/RM-9118
Notice of Ex Parte Presentation

Dear Ms. Salas:

On October 22, 1998, the GSO Ka-band Blanket Licensing Industry Working Group met at the offices of Dow, Lohnes & Albertson. Diane Garfield of the FCC's International Bureau was present at the meeting. The issues discussed at the meeting are reflected in the enclosed meeting agenda.[1/] Other documents distributed at the meeting are also enclosed.

In accordance with the requirements of Section 1.1206 of the Commission's rules, an original and two copies of this transmittal letter and enclosures are being submitted to the Secretary's office for inclusion in the public record of the above-captioned proceedings.

If you have any questions regarding this matter, please do not hesitate to contact me.

Respectfully submitted,

Carlos M. Nalda

CMN/css
cc (w/encl.): Diane Garfield
Enclosure

1/ *See* Enclosure at 1.

GSO Ka-Band Blanket Licensing Industry Working Group

22nd October 1998
at Dow Lohnes & Albertson, 1200 New Hampshire Ave, N.W., Washington DC.

Participants:

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Continuation sheet

Page of .

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GSO Ka-Band Blanket Licensing Industry Working Groups (including ISL sub-group)

22nd October 1998
at Dow Lohnes & Albertson, 1200 New Hampshire Ave, N.W. ,Washington DC.

Proposed Agenda:

1. Introduction of Participants

2. BL1 (Satellite-to-satellite interference) issues:

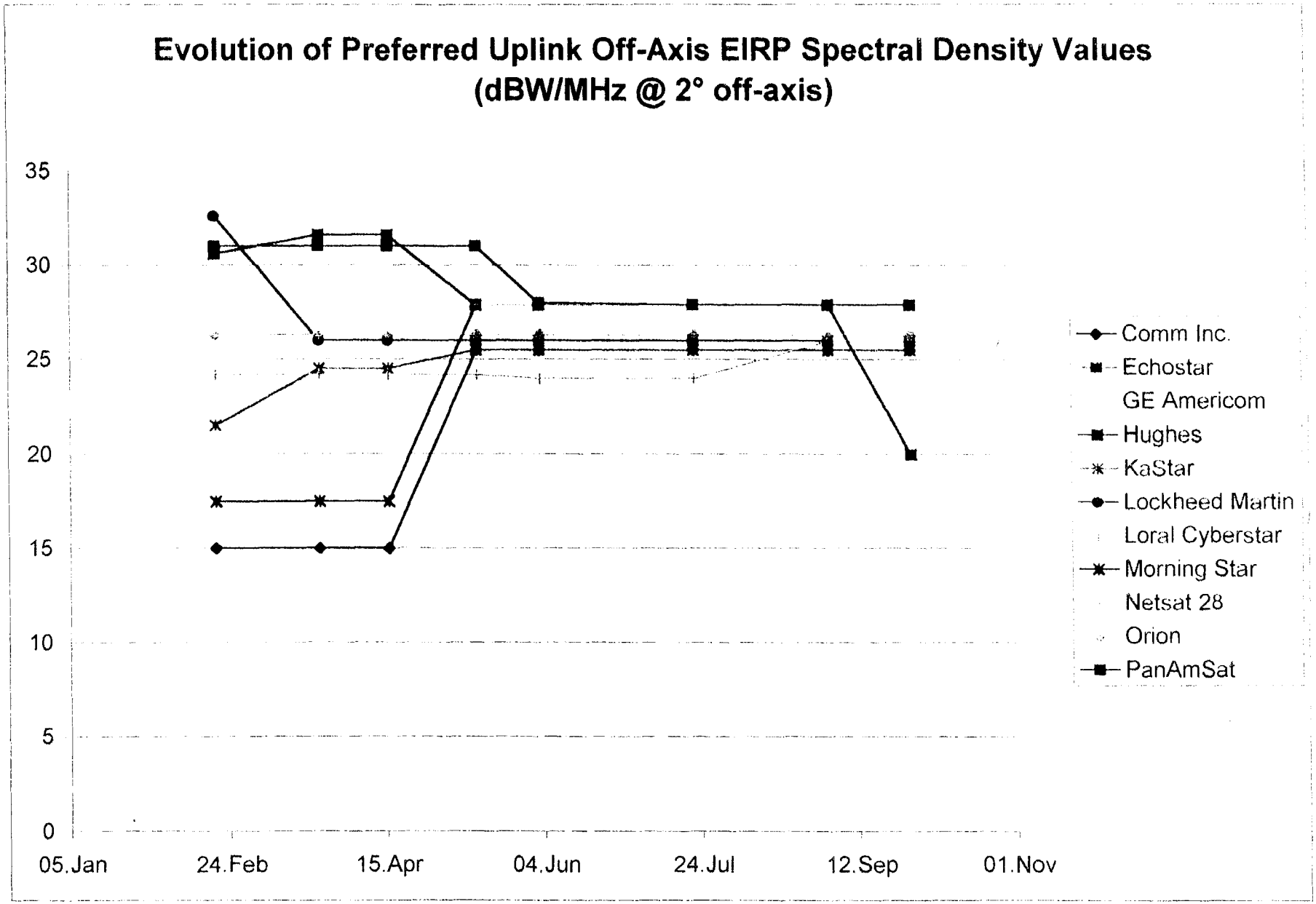
   - Review progress to date in reaching consensus on uplink levels.
   - Review outcome of recent WP4A meeting related to off-axis eirp spectral density levels (and associated ETSI proposals).
   - Review latest input from licensees (Hughes?).
   - Review 18 GHz NPRM related to Blanket Licensing technical conditions, and determine possible responses of the Blanket Licensing Working Group.
   - Discussions of ways to reach consensus on uplink power levels.
   - Decide schedule and set actions for reaching consensus and drafting of final report.

3. BL2 (FS related interference) issues:

   - Discussion of strategy for 18 GHz Working Group (later today at Steptoe & Johnson)

4. Any Other Business

5. Date and Place of Next Meeting


Evolution of Preferred Uplink Off-Axis EIRP Spectral Density Values
(dBW/MHz @ 2° off-axis)
35
30
25
20
15
10
5
0
05.Jan
24.Feb
15.Apr
04.Jun
24.Jul
12.Sep
01.Nov
Comm Inc.
Echostar
GE Americom
Hughes
KaStar
Lockheed Martin
Loral Cyberstar
Morning Star
Netsat 28
Orion
PanAmSat

Outline of Issues for Comment in FCC 18 GHz Proceeding
IB Docket No. 98-172, RM-9005, RM-9118

This outline includes a condensed version of the FCC's discussion on the issues for which the FCC seeks comment. References to the pertinent NPRM paragraphs are included.

I. FCC's Band Redesignation Proposals

A. General: Under the FCC's current band plan, the entire 2000 MHz of spectrum in the 17.7-19.7 GHz band is shared between terrestrial fixed service and satellite services. The FCC tentatively concludes that redesignating the 17.7-19.7 GHz band to separate terrestrial fixed service from ubiquitous satellite operations is the most practical solution to the issues raised by the petitioners. However, the FCC requests comment on the feasibility of alternative proposals that would involve continued sharing in part or all of the 17.7-19.7 GHz band. Any such comments may include whether a working group should be used as proposed by Panamsat and others. ¶ 23. The FCC also asks whether it has fully identified the requirements of the various services and identified plans that best meet the public interest. ¶ 24. Any comments in response to these broad issues would likely be subsumed by comments on the more specific issues set forth below.

B. FCC's Primary Proposal (see attached Primary Proposal chart): As shown on the attached Primary Proposal chart, the FCC's Primary Proposal is to redesignate the spectrum in the 17.7-19.7 GHz band as follows: 1) terrestrial fixed service would have 600 MHz of spectrum for primary use at 17.7-18.3 GHz and 650 MHz of spectrum for co-primary use at 18.55-18.88 GHz and 19.3-19.7 GHz; 2) GSO/FSS would have 250 MHz of spectrum at 18.3-18.55 for primary use and 250 MHz at 18.55-18.8 GHz for co-primary shared use (thus, GSO/FSS would get 500 MHz of spectrum in addition to the current 500 MHz for primary GSO/FSS use at 19.7-20.2); 3) NGSO/FSS would have 500 Mhz of spectrum at 18.8-19.3 for primary use; 4) mobile satellite service feeder link ("MSS/FL") would retain the 400 MHz of spectrum at 19.3-19.7 for co-primary shared use (i.e., no change to existing designation); 5) existing terrestrial fixed users would be grandfathered in the bands being redesignated for primary satellite use. ¶ 30.

The FCC asks whether its Primary Proposal adequately meets the spectrum needs of both terrestrial fixed service and GSO/FSS and NGSO/FSS satellite licensees. ¶ 34. In particular:

> Is it feasible to have GSO/FSS operations in the 18.55-18.8 GHz band given the strict Power Flux Density ("PFD") limit imposed by the FCC's rules on fixed satellite service operations in the 18.6-18.8 GHz band to protect Earth Exploration-Satellite (passive) and Space Research (passive) services in that portion of the band? ¶ 34.
>
> Is it feasible and desirable to allow secondary operations on a non-interference basis by both terrestrial fixed service and FSS in the 17.7-20.2 GHz band? ¶ 34. If so, the FCC proposes that, prior to initiating use of a frequency on a secondary basis, an applicant will have to demonstrate that such use will not cause interference to users

operating on a primary basis, and that it can accept interference from primary service operations. The FCC requests comment on the most efficient and effective way to demonstrate such use on a secondary basis. ¶ 33.

The FCC also requests comment on NASA's suggestion that it may be difficult for NGSO/FSS to operate on a secondary basis in the 18.6-18.8 GHz band without causing interference to EES (passive) and SR (passive) operations (currently, there is a secondary designation for NGSO/FSS throughout the 17.7-18.8 GHz band). ¶ 34.

The FCC asks what is the impact of a potential future BSS allocation in the 17.7-17.8 GHz band segment (see section VII below) on existing and future terrestrial fixed service operations and on the efficiency of continue sharing of the 19.3-19.7 GHz band by terrestrial fixed service and MSS/FL. ¶ 34.

C. Modification A (see attached Modification A chart): The FCC asks whether it should modify its Primary Proposal by designating an additional 100 MHz at 18.3-18.4 GHz to be shared on a co-primary basis by terrestrial fixed service and GSO/FSS. ¶ 35. This modification would give terrestrial fixed service a larger block of contiguous spectrum (700 MHz, 17.7-18.4 GHz). The FCC asks whether this modification would more fully meet terrestrial fixed service needs while not being overly restrictive of proposed GSO/FSS operations. Commenters may propose terrestrial fixed service channeling plans that would conform to this proposal. ¶ 35.

D. Modification B (see attached Modification B chart): The FCC asks whether it should modify its Primary Proposal by designating the entire 17.7-18.8 GHz band to be shared on a co-primary basis by terrestrial fixed service and GSO/FSS. The Primary Proposal assumes that GSO/FSS might use gateways or other large antenna earth stations at 18.55-18.8 GHz, thus making sharing feasible in that portion of the band, but that elsewhere in the 17.7-18.8 GHz band GSO/FSS would use ubiquitously deployed small antenna earth stations that would make sharing impractical. However, it may be possible for GSO/FSS to use gateway type terminals throughout the 17.7-18.8 GHz band, in which case the FCC says continued sharing might be possible. ¶ 36.

If the 17.7-18.8 GHz band continues to be shared by terrestrial fixed service and GSO/FSS, the FCC proposes two possible approaches to licensing in this band. The first approach is to maintain the status quo; i.e., not allow blanket licensing. Each earth station would have to be licensed and coordinated. The second approach would involve issuing a blanket license, but requiring terrestrial fixed and GSO/FSS licensees to coordinate prior to installation of a facility. Under the second approach, GSO/FSS licensees would have to maintain a database of earth station locations and operating parameters. The FCC asks whether either of these approaches is effective, which one is best, and whether there other ways to streamline the existing coordination process. The FCC also asks whether current inter-service sharing criteria need to be amended. Comments may propose modified terrestrial fixed channelization plans that conform to this proposal. ¶ 37.

E. Feasibility of Retaining Current Band/Other Options: The FCC asks whether it is feasible for the FCC to retain its current band plan and thus continue with sharing of the entire 17.7-19.7 GHz band. While the FCC believes band redesignation is the best solution, other solutions are possible. The FCC asks whether there are any streamlined licensing and coordination procedures that would allow satellite earth stations to be deployed in an efficient cost effective manner in a shared 17.7-19.7 GHz band. Also, what other band plans could accommodate the needs of both terrestrial fixed services and FSS licensees. ¶ 38.

F. Effect of FCC's Proposal on International Services and Manufacturing of Equipment. Some of the Ka-band satellite licensees are planning to offer their services both domestically and internationally. Although the band plan that the FCC adopts will apply only domestically, the FCC asks what effect its band plan would have internationally. The FCC further asks whether its proposed band plans allow equipment manufacturers to make earth stations that can be used domestically and internationally. Also, how would these plans affect the manufacturing of terrestrial fixed service transmitters and receivers? Is a detailed terrestrial fixed service channelization plan necessary to facilitate the cost-effective manufacturing of microwave transmitters and receivers for domestic and international markets? ¶ 39.

G. Grandfathering: There are no commercial satellite systems operating in the Ka-band, but there are existing terrestrial fixed service systems operating in the band. ¶ 40. The FCC proposes to grandfather existing terrestrial fixed operations that are either licensed or for which applications were pending as of the release date of the NPRM. New fixed terrestrial service applications could continue to be filed and granted after the release date; however, they would have only secondary status in those bands designated for FSS use on a primary basis, and any non-grandfathered terrestrial fixed service facility causing incurable interference to a satellite earth station would have to be discontinued. Under the proposed Primary Plan, for example, this would apply to the 18.3-18.55 GHz and 18.8-19.3 GHz bands. Satellite earth stations would not be allowed to interfere with grandfathered terrestrial fixed service operations, and satellite earth stations would have to accept any interference from a grandfathered terrestrial fixed service operation. Satellite earth stations would have to coordinate with grandfathered terrestrial fixed service operations, but the grandfathered operations would not be allowed to expand or change current operations in a way that might increase interference to satellite earth stations. The FCC requests comments on this proposal. ¶ 40.

If satellite operators are unable to design their systems to avoid interference from grandfathered terrestrial fixed service operations, then relocation of some or all terrestrial facilities (elsewhere within the 17.7-19.7 GHz band or another frequency band allocated for terrestrial fixed service) may be desirable. The FCC seeks comments on the conditions under which relocation might become necessary. Commenters should specifically address the advantages/disadvantages to wholesale relocation of all incumbent users in any band in which grandfathering applies, as opposed to relocating only those links that are likely to cause interference. In bands where terrestrial fixed service is primary or co-primary, no relocation

would be required. Should satellite operators be allowed to force the relocation of individual terrestrial fixed service stations as long as the satellite operator pays all relocation costs? If so, what process should be used, and would it impose undue burdens on licensees, the public, or the FCC.[1] What other mechanisms and improvements in procedures would facilitate general or specific relocation of existing terrestrial fixed service facilities? ¶ 41.

II. Blanket Licensing for GSO/FSS in Unshared Bands

A. General Requirements:

1. Licensing Structure: The FCC proposes a blanket licensing procedure for GSO/FSS earth stations operating in the unshared 18.3-18.55 GHz, 19.7-20.2 GHz, 28.35-28..6 GHz, and 29.5-30.0 GHz bands. Satellite licensees in these bands would be able to apply for a blanket authorization under which each applicant could construct and operate a specified number and type of qualified earth stations. The license term for the blanket authorization would coincide with the underlying earth station operating license. The FCC's current satellite earth station licensing rules specify a 10-year term. The FCC seeks comments on this blanket licensing proposal. ¶ 44.

2. Point of Contact Requirement: To ensure that secondary users in these bands have the information necessary to avoid causing harmful interference to GSO/FSS earth stations, the FCC proposes that applicants be required to designate a point of contact where records on location and frequency use of satellite earth stations will be maintained. The FCC recognizes that some operators plan to mass market earth stations to large segments of the public and that monitoring the location of these earth stations may prove difficult. The FCC seeks comments on this proposal and comments on alternative approaches. ¶45.

3. Annual Report Requirement: The FCC further proposes a requirement for licensee to report to the FCC annually on the number of earth stations brought into service. The FCC says the requirement would be consistent with the requirements initially placed on Very Small Aperture Terminal ("VSAT") blanket earth station licensees in the 12/14 GHz frequency range (Ku-band). The FCC seeks comments on this proposal, including whether the above information is sufficient and appropriate.

B. Technical Requirements for Intra Service Sharing

The FCC must develop appropriate uplink and downlink power densities and antenna performance standards that will apply under the blanket licensing policy. The purpose of the

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[1] See prior FCC orders cited in NPRM nts. 65 and 66 that addressed relocation of terrestrial facilities in the Emerging Technology proceeding and in the Mobile Satellite Service at 2 GHz allocation proceeding.

power density limits and antenna performance standards is to prevent satellite systems from emitting power at off-axis angles at levels high enough to cause unacceptable interference to adjacent satellites spaced at the standard 2-degree intervals for GSO/FSS satellites operating in the same frequency bands. ¶ 47.

1. Uplink Off-Axis EIRP Density

Motorola proposes a downlink threshold Power Flux Density ("PFD") limit of -122 dBW/m²/MHz, and uplink EIRP limits of 15 dBW/MHz and 10dBW/MHz at 2.2° and 4.4° from antenna boresight, respectively. Motorola's proposed earth station off-axis EIRP density limits (15 dBW/MHz and 10dBW/MHz) would require antenna performance significantly more stringent than currently required under FCC rules. Such antenna performance would greatly enhance sharing possibilities in the 2-degree orbital spacing environment, but the FCC questions whether current technology could provide a mass-producible, small diameter antenna that would meet these standards. ¶ 49. The FCC therefore proposes antenna performance requirements that are no more stringent than those now specified in 47 CFR 25.209. ¶ 50.

The FCC tentatively agrees with the approach of establishing a single off-axis EIRP density value, rather than separate standards for antenna sidelobe performance and maximum antenna input power densities. However, Motorola's proposed uplink criteria restrict radiation only toward the first two adjacent orbital positions (2.2° and 4.4°) and do not address orbital locations further along the geostationary arc or between orbital slots. The FCC believes Motorola's proposal is therefore incomplete and that there should be a composite curve defining an earth station antenna off-axis EIRP density value over the entire geostationary arc. ¶ 51. The FCC notes that the majority of GSO/FSS systems are likely to be clustered between 25 and 27 dBW/MHz. Accordingly, the FCC proposes a composite curve of maximum off-axis EIRP densities under clear sky conditions for all earth stations operating in the 28.35-28.6 GHz and 29.5-30 GHz bands. See ¶ 52. The FCC proposes a relaxed EIRP density envelope under clear sky conditions for all directions outside of the plane of the geostationary orbit. See ¶ 53.

In light of the above proposals, the FCC requests comment on:

Whether its proposed earth station antenna off-axis EIRP density values are appropriate and whether they supply sufficient protection to adjacent GSO/FSS satellites. ¶ 54.

Whether the specified earth station antenna off-axis EIRP density values are sufficient and achievable without placing undue burden upon the licensee. ¶ 54.

Possible methods to accommodate any systems wishing to transmit with higher or lower powers than the proposed EIRP density values. ¶ 54.

Whether the FCC should impose a composite curve meeting Motorola's proposed 15 dBW/MHz and 10dBW/MHz requirements (2.2° and 4.4°) or whether the FCC should impose some other EIRP density requirement, perhaps less stringent than the Motorola value, but more restrictive than the FCC's current proposal. ¶ 54.

Whether there are advantages to maintaining separate antenna performance requirements and maximum input power density values for the earth station antenna rather than the composite performance curve that the FCC is proposing. ¶ 54.

Under WRC-97, GSO satellite systems may be required to share frequency spectrum with NGSO systems whose space stations are not confined to locations along the geostationary arc. Although under the FCC's band plan, these NGSO systems would have to operate on a secondary basis relative to GSO/FSS systems in the 28.35-28.6 GHz and 29.5-30 GHz bands, the FCC believes it is in the public interest to provide for the most flexible and efficient use of spectrum. The FCC therefore seeks comment on whether imposing the more stringent uplink power density envelope described above in directions other than in the plane of the geostationary orbit could facilitate sharing with NGSO/FSS systems, or whether it might place an undue burden on the GSO operators. The FCC also seeks comment on other performance requirements that could improve GSO/NGSO FSS sharing. ¶ 55.

The FCC also notes that beamwidths in excess of 1° can be anticipated from small diameter earth station antennas operating at Ka-band frequencies. The FCC says it may be desirable to re-evaluate the minimum off-axis angle at which it imposes the performance envelope, similar to the example followed for small diameter Ku-band antennas in 47 CFR 25.209(g). The FCC seeks comment on whether 1° is an appropriate value to facilitate licensing of small antenna diameter earth stations, or whether another less stringent value might be imposed, and at what minimum antenna diameter it should be applied. ¶ 56.

2. Uplink Adaptive Power Control

GSO FSS systems can experience significant signal attenuation in unfavorable weather conditions and will need to transmit at higher powers during such weather to overcome rain fade. Section 25.204 of the FCC's rules require that all Ka-band FSS earth stations employ adaptive power uplink power control or other methods of fade compensation. The FCC proposes that all applications for earth station blanket licensing include a technical description of how they will comply with this requirement. The FCC seeks comment on whether this technical description would help avoid mutual-interference events among Ka-band GSO satellites by substantiating compliance with FCC requirements, or whether it would unnecessarily burden the applicant. ¶ 57.

The FCC's rules governing use of uplink adaptive power control at Ku-band require that in the presence of rain fade, uplink power levels be increased only to the extent that the PFD at the fixed-satellite space station does not exceed the PFD level resulting from use of the uplink power limits specified for use under clear sky conditions. However, rain fade in

the Ka-band can be much more significant than at Ku-band, and earth stations transmitting at correspondingly elevated power levels could cause significant interference to adjacent satellites, that path to which may not be subject to a comparable degree of rain attenuation. The FCC seeks comment on whether a requirement similar to the Ku-band rule is appropriate for Ka-band uplink adaptive power control, or whether other, more effective parameters might be specified. In particular, what values might be applied to Ka-band uplink adaptive power control, including: a minimum signal attenuation required before uplink transmit power may be increased; an upper limit on the permissible transmit power increase; an accuracy requirement over the range of path attenuations; and other possible parameters such as control-loop response time and overshoot limits. ¶ 58.

3. Power Flux Density

The FCC proposes that a maximum downlink PFD threshold of -120 dBW/m^2/MHz averaged over any contiguous 40 Mhz band segment, and -188 dBW/m^2/MHz in any 1 MHz band not be exceeded by GSO FSS space stations seeking to operate in the 18.3-18.55 GHz and 19.7-20.2 GHz bands. The FCC requests comment on whether these values provide sufficient power for Ka-band operators to implement a viable service, and whether they are adequate to protect co-channel adjacent satellite operations from harmful interference. The FCC recognizes that the proposed PFD threshold values are more restrictive than the current PFD limits that apply equally to U.S. government, U.S. non-government, and foreign satellite systems. The FCC requests comment on whether any future disparity in the operating PFD values between government and commercial systems could adversely affect the ability of the latter to provide service. Also, could a similar disparity in the operating PFD values of domestically licensed and foreign satellite systems adversely affect the ability of the domestic licensee to effect a workable coordination agreement. ¶ 59.

4. Non-Compliant Earth Stations

The uplink EIRP density and downlink PFD threshold values described above would be used to permit routine blanket licensing of earth stations. However, earth stations could still be licensed to operate at higher uplink power density or downlink PFD levels provided that these earth stations are successfully coordinated with other Ka-band satellite systems. Section 25.134(b) of the FCC's rules provides a procedure for licensing of non-conforming VSAT networks. The FCC proposes to extend this approach to non-compliant GSO/FSS earth station applications in the Ka-band. The FCC seeks comment on the licensing of non-compliant earth stations, and the effect such licensing would have on present and future licensees in the band. In particular, the FCC seeks comment on use of the Sharp, Adjacent Satellite Interference Analysis ("ASIA") program for licensing of non-conforming systems. The FCC also seeks comment on an alternative approach using fixed limits that serve as both the criteria for blanket licensing and the maximum permissible uplink and downlink power limits. ¶ 60.

5. Antenna Pointing Requirements

Errors of less than a degree could result in harmful interference to neighboring systems. If consumers make off-the-shelf purchases of Ka-band transceivers, accurate installation and maintenance of earth station point may be difficult to achieve. Possible methods to prevent harmful interference include: 1) requiring installation by approved technicians, 2) using automatic transmitter identification systems on all uplink signals, or 3) using a pilot tone from the satellite which, if not received by the earth station above some threshold level due to off-axis pointing, would preclude transmission by the earth station antenna. The FCC does not propose any pointing requirement at this time, but it requests comment on whether some type of point requirement for Ka-band GSO/FSS earth stations is necessary, including any of the three methods above or some other method. ¶¶ 61-62.

III. Blanket Licensing in Shared Bands

1. Uplink Band Shared with MSS Feeder Links

The 29.25-29.5 GHz segment is designated for MSS/FL and GSO/FSS co-primary use. Petitioners[2] support blanket licensing in this band by including GSO/FSS-to-MSS/FL sharing principles from the 28 GHz First Report and Order. Iridium opposes blanket licensing in this band. The FCC proposes not to implement blanket licensing in the 29.25-29.5 GHz band at this time, and seeks comment on this proposal. In particular, the FCC seeks comment on its current coordination procedures between MSS/FL and GSO/FSS earth station licensees. The FCC also seeks comment on any possible sharing criteria such as revised antenna performance standards, power limits, or geographic restrictions that might permit blanket licensing of GSO/FSS earth stations in this band. ¶ 63.

2. Downlink Band Shared with Terrestrial Fixed Service

In the FCC's proposed plan, the frequency segment 18.55-18.8 GHz is designated for co-primary use by terrestrial fixed service and GSO/FSS downlinks. Since coordination is necessary between satellite and terrestrial services in a shared band, the FCC proposes not to implement blanket licensing in the 18.55-18.8 GHz band. Instead, applicants would have to follow the coordination procedures set forth in section 25.203 of the FCC's rules, and these earth stations would be individually licensed. ¶ 64. The FCC seeks comment on this proposal. In particular:

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[2] "Petitioners" refers to the following parties who filed a joint petition for the FCC to initiate this proceeding: Lockheed Martin Corporation, AT&T Corp., Hughes Communications, Inc., Loral Space & Communications Ltd., and GE American Communications, Inc. The NPRM also covers a separate petition filed by DIRECTV Enterprises, Inc. regarding BSS allocation which is addressed in Section VII, below.

Comments on the FCC's current coordination procedures between terrestrial fixed service and GSO/FSS earth station licensees. ¶ 65.

Comments on any possible changes to sharing criteria, such as revised antenna performance standards, power limits, or geographic restrictions that might permit blanket licensing of GSO/FSS earth stations in this band. ¶ 65.

Comments on whether blanket licensing can be implemented with the condition that coordination between terrestrial and satellite users, without FCC involvement, take place prior to deployment of an individual facility. ¶ 65.

IV. NGSO/FSS

Currently, the 18.8-19.3 GHz band is designated for NGSO/FSS downlink use and the 28.6-29.1 GHz band for uplink use. Teledesic proposes that blanket licensing procedures be developed for FSS operations throughout the 17.7-20.2 GHz and 27.5-30.0 GHz bands, including those bands that are designated for NGSO/FSS use. ¶ 66. The Petitioners no not oppose inclusion of additional bands in the blanket licensing proceeding, but they point out that the sharing issues raised in the NGSO bands are different, and may take longer to resolve, than those in the GSO/FSS bands. The Petitioners request that Ka-band licensing be addressed on a sub-band by sub-band basis and in separate working groups.

The FCC tentatively agrees that the reasons for instituting blanket licensing are the same for both GSO/FSS and NGSO/FSS and that blanket licensing should be developed for NGSO/FSS. The FCC also recognizes that NGSO intra-service sharing issues differ from those for GSO/FSS. ¶ 67. The FCC does not have enough information to propose criteria for downlink PFD and uplink off-axis EIRP density that would apply to NGSO. The threshold values proposed for GSO systems might be extended to NGSO, but the FCC recognizes that the GSO values were developed based on 2-degree spacing, which does not apply in the case of NGSO-to-NGSO case. The FCC seeks comment on what the criteria should be. ¶ 68. In particular:

What downlink PFD and uplink off-axis EIRP density values are appropriate to effect blanket licensing of multiple NGSO systems in the 18.8-19.3 GHz and 28.6-29.1 GHz bands? ¶ 69.

Are the proposed GSO uplink transmit power parameters sufficient and achievable without undue burden on licensees, or should different values be adopted? ¶ 69.

What downlink PFD level would be appropriate? Are the current PFD limits for the 18.8-19.3 GHz band as specified in 47 C.F.R. § 25.208(c) sufficient, or is the proposed GSO threshold value, or some other value, most appropriate for blanket

licensing of NGSO/FSS earth stations in the 18.8-19.3 GHz and 28.6-29.1 GHz bands? ¶ 69.

The FCC seeks proposals for alternative criteria for blanket licensing of NGSO/FSS earth stations, recognizing that such criteria must permit multiple NGSO/FSS systems to share the band. ¶ 69.

The FCC also seeks comment on the same issues previously discussed for GSO/FSS earth stations regarding the following: record keeping requirements, reporting requirements, adaptive power control, and licensing of non-compliant systems. The FCC believes that its proposals for GSO also apply to NGSO, but it asks whether there are differences that must be taken into account. ¶ 69.

V. International Coordination

Canada and Mexico have allocated the 18.3-18.55 GHz, 18.8-19.3 GHz, 28.35-28.6 GHz, 28.6-29.1 GHz, and 29.25-29.5 GHz bands for co-primary use by both terrestrial fixed services and FSS. Although the FCC proposes to designate these band segments for primary use by GSO/FSS or NGSO/FSS only, coordination with Canadian and Mexican terrestrial fixed stations will be required by Ka-band FSS licensees operating earth stations in the border areas. Petitioners propose that Ka-band FSS earth stations located more than a certain distance, e.g., 16 kilometers, from the Canadian or Mexican border would not be subject to any additional criteria. Second, they propose that Ka-band FSS earth stations located closer to the border be required to limit their horizontally radiated emissions to adhere to a PFD threshold at the border. Third, they propose that earth station operators wishing to exceed this PFD threshold coordinate on a case-by-case basis with terrestrial fixed licensees in Canada or Mexico. ¶ 70. The FCC agrees with the approach of limiting radiated power near the borders, but it seeks comment on other approaches. In particular:

Should the FCC impose a border zone for the coordination of Ka-band satellite earth stations with Canada and Mexico and, if so, is 16 kilometers or some other distance appropriate? ¶ 71.

What is an appropriate value for a PFD threshold at the border that triggers international coordination? ¶ 71.

Are there other alternatives to the above approaches? ¶ 71.

VI. Timing Issues

Petitioners are concerned that inter-service sharing issues may delay implementation of blanket licensing in bands where no inter-service sharing issues exist (19.7-20.2 GHz, 28.35-28.6 GHz, and 29.5-30.0 GHz). These segments are all currently designated to GSO/FSS on a primary basis and will not be redesignated. The FCC asks whether it should

implement blanket licensing in these GSO/FSS bands before resolving the other more complex sharing, coordination, and band redesignation issues in this proceeding. ¶ 72.

VII. BSS Allocation

DIRECTV's petition requests that the FCC allocate spectrum in the 17.3-17.8 GHz band to BSS downlinks, and in the 24.75-25.25 GHz band to FSS for BSS feeder links. DIRECTV says these changes are necessary to implement the Final Acts of WARC-92 and to correct a shortage of spectrum available for BSS service in the U.S. ¶ 73. The ITU Region 2 allocation for BSS at 17.3-17.8 GHz does not come into effect until April 1, 2007, but DIRECTV requests that the FCC not wait until then and implement the allocation as soon as possible. DIRECTV also requests that the FCC adopt a 4.5 degree orbital spacing policy in the 17.3-17.8 GHz and 24.75-25.25 GHz bands, and apply Part 25 PFD limits to BSS transmissions at 17.7-17.8 GHz to protect terrestrial fixed services in this band. ¶¶ 73-74.

The FCC summarizes previous comments filed in response to DIRECTV's petition. Generally, GE Americom, Lockheed, and Loral support the need for additional BSS spectrum. ¶ 75. Digital Services Corporation, Microwave Services, Inc. and Teligent, L.L.C., oppose DIRECTV's petition. They state that they are licensees and applicants in the Digital Electronic Message Service, which the FCC recently relocated from the 18.82-18.92 GHz and 19.16-19.26 bands to the 24.25-24.45 GHz and 25.05-25.25 GHz bands. They argue that this reallocation precludes BSS uplinks in the 25.05-25.25 GHz bands. DIRECTV disagrees with these arguments. ¶ 78. Skybridge also opposes DIRECTV's petition because Skybridge has applied for authority to launch a global network of NGSO satellites in the Ku-band and its plans to operate earth stations in the 17 GHz band are incompatible with BSS downlinks. ¶¶ 75-77.

In light of the above, the FCC seeks comments on the following proposals:

1. The 17.3-17.8 GHz band will be allocated for BSS in conformance with the ITU Region 2 allocation, and the allocation will come into effect on April 1, 2007. ¶ 79.

2. The 24.75-25.25 GHz band will be designated for feeder links for BSS operating in the 17.3-17.8 GHz band. ¶ 80. This allocation could take effect on April 1, 2007 (the effective date of the corresponding downlink BSS allocation at 17.3-17.8 GHz), or could take effect earlier. This allocation would be co-primary with Radionavigation and FSS in the 24.75-25.05 GHz band and co-primary with Radionavigation, terrestrial fixed service, and FSS in the 25.05-25.25 GHz band. ¶ 80.

3. The FCC says it is premature to address DIRECTV's request to adopt a 4.5 degree orbital spacing policy for use of the 17.3-17.8 GHz and 24.75-25.25 bands.